

**Channel Tunnel Rail Link
London and Continental Railways
Oxford Wessex Archaeology Joint Venture**

**The Prehistoric Landscape at White Horse Stone,
Aylesford, Kent**

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CTRL Integrated Site Report Series

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ABSTRACT

As part of an extensive programme of archaeological investigations carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL), Oxford Archaeology (formerly Oxford Archaeological Unit) was commissioned to undertake archaeological excavations at the White Horse Stone, Pilgrim's Way, and West of Boarley Farm, on the boundary between Boxley and Aylesford parishes, in Kent. The investigations were carried out between October 1998 and March 1999, under the project management of Rail Link Engineering, on behalf of Union Railways (South) Limited (a subsidiary of London and Continental Railways).

The excavations revealed evidence for human activity stretching back to the early Neolithic, and provided environmental evidence extending back into the late Glacial period. A dry valley within the sites contained a sequence of late Glacial solifluction deposits within which a redeposited soil, probably formed in the Allerød interstadial, was found. No evidence of human activity was associated with this soil.

The remains of two early Neolithic, post-built, rectangular structures were found sealed below an Iron Age plough soil. Both were associated with very small assemblages of fragmented finds, including small Plain Bowl sherds, flint, animal bone, charred plant remains and charcoal. Radiocarbon dates suggest they date from 4110-3530 cal BC. Although some of the postholes associated with these structures cut tree-throw holes, there is little evidence for any preceding activity. Residual Decorated Bowl sherds suggest activity slightly later in the early Neolithic. Middle Neolithic activity is evidenced by finds of Mortlake-style Peterborough Ware from two small groups of shallow pits near to one of the early Neolithic structures. Two small, round, post- and stake-built structures probably date from the late Neolithic. They were associated with numerous groups of pits distributed widely across the sites. The pits contained varied assemblages consisting of Clacton-style Grooved Ware, worked flint, animal bones, charred plant remains, charcoal, fired clay, a polished ironstone ball and possibly cremated human remains. Activity in the late Neolithic-early Bronze Age is provided by residual Beaker sherds, and sherds of Collared Urn found in a tree-throw hole.

Several dispersed clusters of postholes and a ditch may date to the middle Bronze Age. However, the dating evidence is poor, and structures can be discerned in only two of the clusters. A number of small pits containing usually small deposits of cremated human remains have been dated to the late Bronze Age. A large assemblage of late Bronze Age pottery was also found in a large pit.

A settlement, characterised by numerous four-posters and pits, was occupied in the early-middle Iron Age. The pits around this settlement are characterised by differing kinds of finds, which include a cremation burial associated with a set of iron tools, iron working and production debris, human burials and disarticulated remains, as well as large quantities of pottery, animal bone and charred plant remains. In the late Iron Age-early Roman period a

series of trackways was laid out across the site. The Rochester to Hastings road may also have run through the site.

Activity in the Anglo-Saxon period was evidenced by a late Saxon burial lying close to the Pilgrim's Way, and by animal burials, as well as other pits and postholes, at West of Boarley Farm. A section cut across the Pilgrim's Way shows that the trackway at this location was probably Anglo-Saxon or medieval in origin. A corn-drier, dating from the 12th-15th centuries, a hollow-way marking the parish boundary, and other features, provides the latest significant evidence for activity on the sites.

RÉSUMÉ

L'Oxford Archaeology (anciennement l'Oxford Archaeological Unit) fut chargé d'entreprendre des fouilles archéologiques à White Horse Stone, à Pilgrim's Way et à West of Boarley, à la limite entre Boxley et Aylesford dans le Kent. Les fouilles furent menées dans le cadre d'un programme de recherches archéologiques préventives de grande envergure, exécuté en avance sur la construction de la ligne ferroviaire du Tunnel sous la Manche (CTRL). Les recherches furent menées entre octobre 1998 et mars 1999, sous la direction du maître d'œuvre, Rail Link Engineering, au nom d'Union Railways (South) Limited (une filiale de London and Continental Railways).

Les fouilles ont révélé des preuves d'activités humaines remontant au début du Néolithique et des restes paléo-environnementaux remontant à la fin de la période glaciaire. Une vallée sèche située sur les sites contenait une séquence de dépôts de solifluction de la fin de l'époque glaciaire, parmi lesquels fut trouvé un sol « re-déposé », qui fut probablement formé au cours de l'Allerod interstadial. Aucune trace d'activité humaine n'était associée à ce sol.

Les vestiges de deux structures en bois rectangulaires du début du néolithique furent retrouvés scellés sous un sol de labour de l'âge du Fer. Tous deux étaient associés avec des assemblages de mobiliers fragmentés de taille très limitée, y compris des tessons de bols simples, de silex, des ossements animaux, des graines carbonisées et du charbon. Les datations au radiocarbone suggèrent qu'ils datent de 4110-3530 AV. JC. Bien que certains des trous de poteaux associés à ces structures coupaient des cavités d'arbres déracinés, il y a peu de traces d'activités antérieures. Des tessons de bols décorés résiduels suggèrent une activité légèrement plus tard au cours du néolithique inférieur. L'activité du néolithique moyen est représentée par du mobilier céramique de type Peterborough Ware de tradition Mortlake provenant de deux petits groupes de fosses peu profondes situés près d'une des structures du début du néolithique. Deux petites structures sur poteaux et piquets dataient probablement du néolithique tardif. Elles étaient associées avec nombre de fosses distribuées partout à travers les sites. Ces fosses contenaient des assemblages variés consistant de céramique de type

Grooved Ware de tradition Clacton, des silex taillés, des ossements animaux, des graines carbonisées, du charbon, de la terre cuite, une boule de terre de fer polie et peut-être des restes humains incinérés. L'activité de la fin du néolithique et du début de l'âge du Fer est représentée par des tessons campaniformes résiduels et des tessons d'urnes à collerette, découverts dans une cavité d'arbre déraciné.

Plusieurs groupes dispersés de trous de poteaux et un fossé dataient peut-être du Bronze Moyen. Cependant les preuves de datation sont maigres et des structures sont discernables dans seulement deux des groupes. Un certain nombre de petites fosses contenant des dépôts de restes humains incinérés furent datées au Bronze Tardif. Un large assemblage de céramique du Bronze tardif fut également retrouvé dans une fosse de grande taille.

Un site d'habitation, caractérisé par nombre de structures sur quatre poteaux et de fosses, fut occupé au cours du début et du milieu de l'âge du fer. Les fosses de cet habitat se distinguent par des types différents de mobilier, qui comprenait une tombe à incinération associée avec un assortiment d'outils en fer, des traces de travail du métal et des débris de production, des tombes humaines et des restes désarticulés, ainsi que de larges quantités de céramique, d'ossements animaux et de graines carbonisées. Vers l'âge du fer tardif et le début de la période romaine, une série de chemins furent creusés en travers du site. La route entre Rochester et Hasting traversait peut-être également le site.

L'activité de la période anglo-saxonne était représentée par une tombe proche de Pilgrim's Way et par des tombes d'animaux ainsi que d'autres fosses et trous de poteaux, situés à West of Boarley Farm. Une coupe creusée en travers du Pilgrim's Way montre que le chemin à cet emplacement était vraisemblablement d'origine médiévale. Un foyer de grillage des céréales, datant du XIIème-XVème siècles, et peut-être associé avec un chemin et d'autres structures, fournit la preuve d'occupation substantielle la plus tardive d'activités sur les sites.

ZUSAMMENFASSUNG

Im Rahmen umfangreicher archäologischer Untersuchungen im Vorfeld des Baus der Bahnstrecke durch den Kanaltunnel (Channel Tunnel Rail Link) wurde der Oxford Archaeology (vormals Oxford Archaeological Unit) mit archäologischen Ausgrabungen am White Horse Stone am Pilgrim's Way und westlich von Boarley an der Gemeindegrenze zwischen Boxley und Aylesford in Kent beauftragt. Die Untersuchungen fanden zwischen Oktober 1998 und März 1999 unter der Projektleitung von Rail Link Engineering im Auftrag von Union Railways (South) Limited (einer Tochtergesellschaft von London and Continental Railways) statt.

Die Ausgrabungen lieferten Hinweise auf eine menschliche Präsenz schon im frühen Neolithikum und Umweltzeugnisse, die bis in die späte Eiszeit zurückreichen. Ein Trockental

innerhalb der Grabungsareale enthielt eine Abfolge spätglazialer Soliflukionsdecken, in denen ein umgelagerter Boden ausgemacht wurde, der wahrscheinlich im Alleröd-Interstadial entstand. Menschliche Spuren waren in diesem Boden nicht präsent.

Unter einem gepflügten Boden aus der Eisenzeit fanden sich Überreste zweier frühneolithischer rechteckiger Pfostenbauten. Zu beiden traten zahlenmäßig geringe Fragmentfunde in Erscheinung, zu denen kleine Scherben einer unverzierten Schale, Feuersteine, Tierknochen, verkohlte Pflanzenreste und Holzkohlen zählten. Mittels Radiokarbonuntersuchung wurden sie auf 4110-3530 cal BC datiert. Obwohl sich einige der den Gebäuden zugerechneten Pfostenlöcher mit Baumwürfen überschnitten, gab es so gut wie keine Hinweise auf frühere Aktivitäten. Restscherben verzierter Schalen deuten auf etwas spätere Aktivitäten im Frühneolithikum hin. Eine menschliche Präsenz im Mittelneolithikum ist durch »Peterborough ware« im Mortlake-Stil belegt, die aus zwei kleinen Gruppen flacher Gruben nicht weit von einem der frühneolithischen Gebäude stammen. Zwei kleine runde Pfosten- und Pfahlbauten gehen wahrscheinlich auf das Spätneolithikum zurück. Sie waren mit zahlreichen weit über die Grabungsareale verstreuten Gruppen von Gruben vergesellschaftet, die verschiedenartige Fundkomplexe enthielten, bestehend aus Rillenkeramik im Clacton-Stil, Feuersteinabschlägen, Tierknochen, verkohlten Pflanzenresten, Holzkohlen, Brandlehm, einer polierten Kugel aus Eisenstein und möglichen Leichenbrandresten. Hinweise auf eine Nutzung im späten Neolithikum/der frühen Bronzezeit lieferten Überreste von Glockenbecherscherben und Scherben einer Kragurne in einem Baumwurf.

Mehrere verstreute Gruppen von Pfostenlöchern und ein Graben gehen möglicherweise auf die mittlere Bronzezeit zurück. Allerdings liegen kaum Datierungsmerkmale vor, dazu waren bei nur zwei der Gruppen bestimmte Strukturen zu erkennen. Mehrere kleine Gruben, die zumeist geringe Leichenbrandmengen enthielten, wurden in die späte Bronzezeit datiert. Eine große Grube enthielt außerdem einen umfangreichen Fundkomplex mit spätbronzezeitlicher Tonware.

Eine in der frühen/mittleren Eisenzeit bewohnte Siedlung ist durch zahlreiche Vierpfostenbauten und Gruben belegt. Rund um die Siedlung lagen Gruben mit unterschiedlichen Fundarten, etwa ein mit Eisenwerkzeugen vergesellschaftetes Brandgrab, Abfälle aus der Eisengewinnung und -verarbeitung, Humanbestattungen und zergliederte Überreste sowie große Mengen an Keramik, Tierknochen und verkohlten Pflanzenresten. In der späten Eisenzeit/frühen Römerzeit wurden zahlreiche Wege quer durch die Grabungsareale angelegt. Auch die Straße von Rochester nach Hastings dürfte durch das Grabungsgebiet verlaufen sein.

Die angelsächsische Periode ist durch ein Grab nicht weit vom Pilgrim's Way und durch Tiergräber sowie zusätzliche Gruben und Pfostenlöcher westlich der Boarley Farm

dokumentiert. Ein über den Pilgrim's Way verlaufender Grabungsschnitt zeigt, dass der hier angelegte Weg wahrscheinlich aus dem Mittelalter stammt. Ein Ofen zur Getreidetrocknung aus dem 12. bis 15. Jahrhundert, der womöglich mit einem Hohlweg und anderen Merkmalen in Verbindung stand, liefert die letzten gesicherten Hinweise auf menschliche Aktivitäten in den untersuchten Gebieten.

RESUMEN

Como parte de un extenso programa de investigación arqueológica llevado a cabo previamente a la construcción del Channel Tunnel Rail Link (CTRL), Oxford Archaeology (antes Oxford Archaeological Unit) fue comisionado a realizar excavaciones arqueológicas en White Horse Stone, Pilgrim's Way y al Oeste de Boarley, en el límite entre Boxley y Aylesford en Kent. Las investigaciones se desarrollaron entre Octubre de 1998 y Marzo de 1999 bajo la dirección de Rail Link Engineering en nombre de Union Railways (South) Limited (parte de London and Continental Railways Limited).

Las excavaciones revelaron evidencia de actividad humana desde inicios del Neolítico y proporcionó evidencia del medioambiente desde tan pronto como el período tardi-glaciar. Un valle seco entre los yacimientos contenía una secuencia de depósitos de soliflucción tardi-glaciar entre la que se encontró un nivel redepositado, probablemente formado en el interestadio Allerød. No se encontró evidencia de actividad humana asociada con este depósito.

Se encontraron los restos de dos estructuras rectangulares de inicios del Neolítico selladas bajo un suelo labrado de la Edad del Hierro. Ambas estaban asociadas con pequeños conjuntos de hallazgos fragmentados entre los que se incluyen fragmentos de *Plain Bowl*, sílex, huesos de animal, restos carbonizados de plantas y carbón. Las fechas de radiocarbono sugieren que éstos datan del 4110-3530 cal BC. A pesar de que algunas huellas de poste asociadas con estas estructuras cortan agujeros de árbol, hay escasa evidencia de actividad anterior. Varios fragmentos de cuencos decorados sugieren actividad posterior de principios del Neolítico. La evidencia del Neolítico Medio se manifiesta en cerámica estilo Mortlake-Peterborough localizada en dos grupos pequeños de hoyos poco profundos cerca de una de las estructuras del Neolítico Inicial. Dos estructuras pequeñas redondeadas de postes datan de finales del Neolítico. Éstas estaban asociadas con numerosos grupos de hoyos distribuidos a lo largo de los yacimientos. Los hoyos contenían grupos variados de cerámica acanalada de estilo Clacton, sílex trabajado, huesos de animal, restos quemados de plantas, carbón, cerámica cocida, una bola de piedra pulida y posiblemente restos humanos cremados. La evidencia del Neolítico tardío- inicios de la Edad del Bronce se evidencia en fragmentos de cerámica campaniforme residuales y fragmentos de una urna encontrada en un agujero de árbol.

Varios grupos dispersos de agujeros de poste y una zanja podrían datar de mediados de la Edad del Bronce. Sin embargo, la evidencia para datación es pobre y en sólo dos grupos se distinguen estructuras. Se han fechado del Bronce Final varios hoyos pequeños conteniendo depósitos reducidos de restos humanos. Un conjunto de cerámica del Bronce Final se encontró en un amplio hoyo.

A comienzos y mediados de la Edad del Hierro se establece un asentamiento caracterizado por numerosos hoyos y estructuras de cuatro postes. Los hoyos se caracterizan por su variedad de hallazgos entre los que se incluye un enterramiento de cremación asociado con herramientas de hierro, debris de producción, enterramientos humanos y restos desarticulados así como grandes cantidades de cerámica, huesos de animal y restos quemados de plantas. A finales de la Edad del Hierro y comienzos del período romano se establece una serie de caminos atravesando el yacimiento. La carretera de Rochester a Hastings también podría haber cruzado el yacimiento.

La actividad durante el período Anglo-Sajón queda evidenciada por un enterramiento cerca de Pilgrim's Way y por enterramientos de animales así como otros hoyos y agujeros de poste al Oeste de Boarley Farm. Un corte a través de Pilgrim's way sugiere que el camino en este lugar fuera probablemente de origen medieval. Un secadero de maíz asociado con un camino y otras estructuras y fechado entre los siglos XII y XV d.C., proporciona la evidencia más tardía de actividad en los yacimientos.

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Richard Brown directed the excavations in the field and also worked on the post-excavation assessment with Chris Hayden and Alistair Barclay. Project Management of the fieldwork and post-excavation assessment was undertaken by Stuart Foreman. Other members of the field team and specialist contributors to the assessment report are credited in the main project acknowledgements in the digital archive (ADS 2006).

The following specialists have prepared reports for the digital archive, which have been drawn on extensively in the preparation of this report: Elizabeth Stafford (molluscs and geoarchaeology), Kate Cramp (flint), Emily Edwards (earlier prehistoric pottery and fired clay), Elaine Morris (later prehistoric pottery), Vanessa Fell (metal artefacts), Lynne Keys (iron slags) Ceri Boston and Annsophie Witkin (human bone), Fay Worley and Jennifer Kitch (animal bone), John Giorgi (charred plant remains), Dana Challinor and Diane Alldritt (charcoal), and Richard Macphail and John Crowther (micromorphology and soil chemistry). Mark Robinson provided much environmental advice and Martin Bates and Martin Bell provided geoarchaeological advice. The academic advisors, Paul Garwood and Tim Champion have also contributed in numerous ways. The submission and calibration of radiocarbon dates was carried out by Michael J Allen, in discussion with Alex Bayliss and other staff of the English Heritage Scientific Dating Service. For the huge amount of work which went into preparing the illustrations thanks are due to Anne Stewardson, Laura Kirby and Georgina Slater. The abstract was translated by Mercedes Planas (Spanish), Gerlinde Krug (German) and Valerie Diez (French).

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1 PROJECT BACKGROUND

The sites which form the subject of this report - White Horse Stone, Pilgrim's Way, West of Boarley Farm and East of Boarley Farm (Figs 1-2) - were discovered and excavated during an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL; Table 1). CTRL was built by London & Continental Railways Limited in association with Railtrack Group plc. The project was authorised by Parliament with the passage of the CTRL Act, 1996. The high-speed line runs for 109 km (68 miles) between St Pancras Station in London and the Channel Tunnel and was built in two sections. Section 1 lies entirely within Kent and runs from Fawkham Junction (Gravesham) to Folkestone. The work was project managed by Rail Link Engineering (RLE). Following an environmental assessment of the proposed CTRL route (URL 1994), Oxford Archaeological Unit (now Oxford Archaeology) was commissioned to undertake a series of investigations adjacent to the Upper White Horse Stone (Scheduled Ancient Monument KE17), at the point where the CTRL route crosses the Pilgrim's Way track.

A desk-based assessment identified the potential significance of the dry valley deposits running through the White Horse Stone and Pilgrim's Way sites (URL 1994a). Fieldwalking during the first stages of fieldwork prior to the construction of the CTRL identified a small but concentrated scatter of Neolithic worked flint and a few sherds of prehistoric and Roman pottery at White Horse Stone (URL 1994b). The subsequent evaluation at White Horse Stone (URL 1997a) identified a series of ditches, pits and tree-throw holes and confirmed the significance of the colluvial deposits and buried soils in the dry valley. Two areas of the site were thus selected for detailed excavation: Area A, a 300 m strip centred on the railway cutting, and Area B, to the north-west of the bridleway which ran through the site. Because of the significance of the results in these areas, all of the area which was potentially under threat from construction was stripped and excavated (Fig. 3). The excavation eventually covered an area around 130 m by 180 m (*c* 4.4 ha) centred on NGR TQ 7520 6240.

The evaluation at Pilgrim's Way also revealed the presence of ditches and pits, including one containing cremated human remains (URL 1998a). The subsequent detailed excavation at Pilgrim's Way was also initially confined to an area centred on the railway cutting, but was subsequently expanded to include the whole of the area which was to be affected by construction. The final excavation covered an area around 140 m by 60 m (*c* 1.4 ha), centred on NGR TQ 7530 6220 (Fig. 3).

The evaluation at West of Boarley Farm (URL 1997b) revealed two animal burials as well as isolated postholes, pits and ditches. As a result, the area centred on the railway cutting, 180 m by 60 m (*c* 1.0 ha; NGR TQ 7550 6195), was selected for strip, map and sample excavation (Fig. 81).

Evaluation at East of Boarley Farm revealed few features, but a small rectangular area, 20 m by 50 m (*c* 0.1 ha, NGR TQ 7621 5922), within the trace of a road diversion was selected for further excavation because of the presence of further dry valley deposits (URL 1999a; Fig. 1). Only a ditch and two postholes were found on the site, and the deposits could not be dated.

All construction work on the remaining areas was subject to a watching brief.

Table 1. Summary of fieldwork events

<i>Fieldwork Event Name</i>	<i>Type</i>	<i>Fieldwork Event Code</i>	<i>Contractor</i>	<i>Dates of Fieldwork</i>
White Horse Stone	Detailed excavation	ARC WHS98	OAU	10/8/98 - 5/3/99
Pilgrim's Way	Detailed excavation	ARC PIL98	OAU	8/10/98 - 26/2/99
West of Boarley Farm	Strip map and sample	ARC BFW98	OAU	25/11/98 - 18/12/98
East of Boarley Farm	Detailed excavation	ARC BFE99	OAU	3/1/99 - 22/1/99
ARC 410 57 +400 - 58+ 200 Pilgrims Way	Watching brief SDS	ARC410 57+ 400 - 58+ 200	OAU	14/1/99 - 24/2/99
ARC 420 58 +200 - 59+ 500 Boarley Farm	Watching brief SDS	ARC420 58 +200 - 59+ 500	OAU	24/9/99 - 23/2/00
White Horse Stone	Evaluation	ARC WHS97	OAU	14/4/97 - 1/5/97
Pilgrim's Way	Evaluation	ARC PIL98	OAU	27/6/98 - 1/8/98
Boarley Farm	Evaluation	ARC BFM97	MoLAS	21/4/97 - 14/5/97
Boarley Lane	Evaluation	ARC BOL98	OAU	13/12/98 - 17/12/98
Environmental assessment	Surface Survey	Collection URL 94	OAU	1/11/94 - 30/11/94

1.1 Geology and topography (Figs 1-2 and 4; Pls 1-2)

The main sites lie at the foot of the North Downs escarpment, on the eastern side of the Medway Gap, at between 92 m and 64 m aOD (the top of the escarpment at Warren Road lies at 170m aOD). The Boarley Farm watching brief site lies 750 m to the east at 50 m aOD. Below the escarpment, the ground descends gently to the west towards the Medway which, at its nearest, lies around 2 km away. Prior to excavation all of the sites had been under arable cultivation.

The dry valley that runs through the White Horse and Pilgrim's Way sites runs roughly north-south, between two chalk spurs, its sides becoming progressively gentler to the south. The second dry valley, which runs through the West of Boarley Farm site, was much smaller, and runs NE-SW.

The underlying geology consists of Cretaceous Middle Chalk, although extensive drift deposits, mostly clay with flints, cover the plateaux to the north and west (British Geological Survey 1976 and 1977). Late Pleistocene and Holocene deposits fill the dry valleys forming deep stratified sequences which are described in more detail below (Fig. 4). The sides of the dry valley were covered by increasingly thin deposits of topsoil as one moves up the slope.

The Pleistocene deposits in these sequences contained large numbers of naturally occurring sarsen stones, redeposited by periglacial and solifluction processes (Fig. 3). Such boulders are common on either side of the Medway gap (Jessup 1970). They are formed through the cementation of sands aided by deposition of silica in solution. Their formation is dependent on the presence of a valley or landscape depression (Ullyott *et al.* 1998). The sarsens at White Horse Stone may have originally formed as localised (seasonal pool) deposits or as duricrust sheets (both associated with groundwater or drainage-line activity) but exist now as 'silcrete fragments' displaced by periglacial and solifluction events. The date of origin for silcrete formations is the subject of debate. Until recently work on these formations had indicated a Oligocene or earlier date, but now it is generally accepted that silcrete formation can occur under a variety of climates, and could have occurred much later, possibly even in the Quaternary (Ullyott *et al.* 2000). At White Horse Stone sarsens were particularly common in the south-eastern side of the site, in the base of the dry valley, where around 70 such boulders were found. There is no reason to suspect that these sarsens were anything other than local in origin. It is likely that the sarsen stones found in later, post-glacial deposits on the site have been moved from their original locations to clear the land for agriculture. It is thus difficult to be certain of the extent to which they would have been evident in the later prehistoric landscape. It is, however, possible that some were visible, and that others lay just below the ground surface (eg late Neolithic pit 911).

1.2 Archaeological background (Fig. 2)

White Horse Stone and the associated sites lie in an area of considerable archaeological interest. The nearest sites investigated as part of the CTRL were Boxley (URS 2000c) to the south-east and Nashenden (URS 2000b) to the north-west. This discussion is concerned primarily with discoveries between these two sites.

Few Mesolithic finds are known from the area - a fact which is consistent with the few finds from this period which were found during the excavation. The nearest 'site' lies around 6 km to the north-east, on the other side of the Medway near Halling, although the finds seemed to be mixed and the date thus open to question (Jacobi 1982, 14; Cook 1914; Cook and Killick 1924). The only other finds are stray tranchet axes and other worked flint from Aylesford, Larkfield, Eccles and Boxley (Kent County Council Sites and Monuments Records (KCC SMR)).

White Horse Stone stands on the eastern edge of a cluster of probably earlier Neolithic sites of considerable interest. In the immediate vicinity, these sites consist of the eastern group of the Medway megaliths (Jessup 1930, 1970; Evans 1950; Holgate 1981; Ashbee 1993, 1999; Philp 1981) and a probable causewayed enclosure at Burham (Dyson *et al.* 2000, 472;

Oswald *et al.* 2001, 96-7 and fig 5.20A). Little Kits Coty lies just over 600 m west of the White Horse Stone site, and Kits Coty House 650 m to the NW. Other stones which might have derived from further megalithic tombs lie even closer: the Upper and Lower White Horse Stones near to the south-east and south-west corners of the site respectively, and the possible tomb at Warrens Farm (Smythe's megalith; Evans 1948), just over 100 m to the north-east. Only the Coffin Stone is more distant: just over 1 km to the west.

Whether the Upper and Lower White Horse Stones were related to megalithic structures is uncertain. The Lower White Horse Stone (or Kentish Standard Stone), which lay close to the junction of the Pilgrim's Way and Maidstone to Chatham road, was destroyed in 1823, and there seems to have been no indication that it was anything other than a large, natural sarsen stone (Evans 1950, 65-7; Jessup 1970, 102; Philp 1981, 87; Ashbee 1993, 86-7). There are numerous naturally occurring sarsen stones in and around the White Horse Stone site (Fig. 3; Evans 1950, 68-9; Jessup 1930, 64). The Upper White Horse Stone is in an area which contains many other sarsens, including nine which extend for *c* 10 m to the west of it. There is again, no clear indication that it ever formed part of a tomb (Jessup 1970, 101-2; Philp 1981, 87; Ashbee 1993, 87-9).

Also worthy of note is 'Halling Man' (*The Guardian* 9th April 1913): a curious burial, apparently a crouched inhumation, found below six feet of brick earth (Oakley *et al.* 1967). An assemblage of flint, including Mesolithic and Neolithic types was also found. Two radiocarbon dates have been obtained from the skeleton (BM-168: 4100 ±180 BP and BM-249: 4180±190 BP) which, despite the large errors, suggest that it dates from the Neolithic (3400-2000 cal BC and 3400-2200 cal BC).

Pits filled with flint which might date from the Neolithic (some, at least, covered by large sarsen stones) were recorded on Blue Bell Hill, to the north of the White Horse Stone site, in the 19th century and as a result of trenching during World War I (Jessup 1930, 84). There is, however, no evidence for their date.

Several ring ditches, probably dating from the late Neolithic-early Bronze Age, are known from around Halling, Holborough and Wouldham (KCC SMR), and two examples may exist near to the White Horse Stone site between Kits Coty House and Little Kits Coty House (KCC SMR). Beaker sherds were also found in the field surrounding Kits Coty (Cook 1936, 234; Holgate 1981, 232).

More clearly dated early Bronze Age finds are scarce. Two crouched inhumations associated with a bronze flat axe and two bronze Wessex daggers were, however, found in the Parish Field gravel pit at Aylesford (James 1899, 376; Gerloff 1975, 86 and 103), and a further early Bronze Age axe was found as a stray find to the north-east of Boarley Farm (KCC SMR).

It has been suggested that two tufa slab cists containing crouched inhumations, excavated by Evans (1890, 325-7) in a sand pit at Aylesford, might also date from the early Bronze Age (Champion 1982, 32). However, they lack any accompanying grave goods and their date is unknown (*ibid.*).

Finds from later in the Bronze Age are almost confined to stray finds of metalwork. The nearest traces of settlement consist of pits and gullies found near Holborough in an evaluation carried out by Wessex Archaeology (KCC SMR; Wessex Archaeology 1998).

Evidence from the Iron Age is even more scarce. There are no recorded finds from the earlier part of the Iron Age. The late Iron Age, however, is represented by the Aylesford cremation cemetery, which lies just over 2 km to the east of the White Horse Stone site. It was excavated by Evans at the end of the 19th century (Evans 1890) and is one of the type sites for the Aylesford-Swarling Culture (Cunliffe 1991, 132-41). Evaluation trenches cut to the west of Little Kits Coty found traces of a settlement of similar date (Hey 1989).

The Romano-British period is, in contrast, represented by numerous sites. A large villa and tile kiln lay near Eccles (Detsicas 1977; 1990). Further possible villas have been identified at Snodland and near Burham, and traces of a late Iron Age-early Roman farmstead at Tottington Farm (Clark Laboratory 1998). There is further evidence for Roman buildings on Blue Bell Hill (Lewis 1966, 124-41) and at Boxley Abbey (Tester 1973, 141), as well as rubbish pits near Sandling (KCC SMR). The remains of what was thought to be a Mithraic temple were excavated near Holborough in 1893 (Jessup 1956).

Numerous Roman burials, both inhumations and cremations are known around the White Horse Stone site, the nearest being just below Blue Bell Hill; most of the others lie closer to the Medway (eg Page 1932, 145, 148-9, 153). The burials include a cremation burial in a small barrow at Holborough (Jessup *et al.* 1954).

It has been suggested that the bridleway running through the centre of the White Horse Stone site was originally the Roman road from Rochester to Hastings (Margary 1973). No evidence to confirm this attribution was found during the excavation, which suggests that the bridleway was a later feature. However, a north-south aligned Roman trackway which lay to the east of the bridleway, and which ran through both the White Horse Stone and Pilgrim's Way sites, might have been the road, and is in fact aligned more closely with the Roman road to the south.

The Anglo-Saxon period is represented almost exclusively by cemeteries at Holborough, near the Roman villa at Eccles, at Aylesford, at Boxley and on top of the Downs at Sharsted Farm (Page 1908, 385; Meaney 1964, 108, 139; Evison 1956; Shaw 1994).

The North Downs trackways have often been assumed to form a major prehistoric dual route, consisting of the ridgeway following the top edge of the Downs' escarpment and the Pilgrim's Way running along its foot (Margary 1951). The Pilgrim's Way runs between the

White Horse Stone and Pilgrim's Way sites, marking, at this point, the parish boundary between Aylesford and Boxley. A section cut across the Pilgrim's Way provided no evidence to show that it was prehistoric, the earliest trackway probably being early Medieval.

1.3 Aims

The aim of this report is to present a synthesised, interpretative account of the site. It is supported by the fieldwork and research archive which is available as a web-based digital archive (ADS 2006). In support of the CTRL Project Monograph (Booth et al 2007) this report consists of a narrative describing the sequence of activity at the sites, and the evidence which has been used to support the interpretations presented (URS 2003, 15-16). Further details of the finds, radiocarbon dates and environmental analyses can be found in specialist reports, also available in the digital archive.

The analysis of the site has been carried out in the light of the established schemewide research aims for CTRL Section 1 (URS 2003, 18-97). The most relevant aims for the White Horse Stone group of sites concern the Neolithic, Bronze and Iron Ages and those that can be most directly addressed by the evidence are listed below:

Early agriculturalists: the Neolithic and early Bronze Age landscape

- The relationship between Mesolithic and early Neolithic activity;
- The early Neolithic environment, and in particular, clearance of woodland;
- The spatial patterning of Neolithic activity across the landscape;
- The nature of Neolithic activity associated with long, rectangular, post-built structures;
- Neolithic subsistence economies and the ritual and social use of subsistence resources;
- The chronological patterning of Neolithic activity.

Farming communities: the late Bronze Age and Iron Age landscape

- The nature of middle and late Bronze Age settlement and structured deposition;
- The nature of agricultural regimes;
- The appearance of field systems and their relationship with agricultural intensification;
- The chronology of colluviation and its relationship with agriculture and settlement;
- The evidence for population expansion and its relationship to the changing exploitation of the landscape;
- The evidence for increasing specialisation in production, and in particular of early evidence for Iron production;
- The spatial patterning and chronology of structures within settlements;

- The development of burial practices.

A series of 54 radiocarbon dates has been obtained from the White Horse Stone sites (Allen 2006), which, as well as addressing many other questions, provides significant information relevant to the ceramic chronology of all of these phases.

1.4 Methods

All fieldwork was carried out in accordance with the Written Scheme of Investigation (URS 1998b) prepared by the project manager, RLE.

At White Horse Stone, over much of the site, especially, towards the north, the modern topsoil/ploughsoil was removed by machine to reveal features cut into the natural chalk bedrock. Especially towards the south, where colluvial and other deposits had accumulated to a depth of up to 2.4 m in the dry valley, the deposits were excavated in three phases. Initially the deposits were machined to the top of the first archaeological horizon, represented by Roman linear features. It was then machined down to the top of the prehistoric (Iron Age) soil horizon, and finally to the bedrock which was overlain by Pleistocene periglacial solifluction deposits that also contained the redeposited Allerød soil. At the level of the Iron Age soil a strategy of grid sampling at 10 m intervals was employed in order to retrieve charred remains, small artefacts and molluscs. A standing section was retained across the dry valley, which was used to illustrate the sequence of soil accumulation within the valley and to take samples for OSL dating, micromorphological analysis, molluscs, charred plant remains, artefacts and geoarchaeological analysis. A slot through the section was hand excavated in order to retrieve finds directly relating to the samples taken.

At each stage any features revealed were excavated by hand. In general a minimum of 50 % (a half section) of all pits, 10 % of all linear features and 100 % of all structural features was excavated. All features were recorded using OA's standard single context recording system, were drawn in plan and section and were photographed. Samples for environmental analysis were taken from appropriate contexts. A daily record of all activity related to the excavation was maintained.

A complete section through the Pilgrim's Way trackway was excavated and recorded in order to define the origin of the trackway and to link the deposits in the White Horse Stone excavation to the Pilgrim's Way excavation. Similar methodologies were used at the other sites.

In the remaining areas a watching brief was maintained according to the specified methodology (URS 1999b). All archaeological features and deposits revealed during this programme of work were excavated and recorded.

The MAP2 assessment report (URS 2001) was produced by OA in accordance with the specification produced by RLE (URS 2000a). All method statements followed national guidelines and were agreed in consultation with English Heritage and Kent County Council on behalf of the Local Planning Authority.

The post-excavation analysis was carried out, and the report written by, Oxford Wessex Archaeology Joint Venture (OWAJV) following the methodology set out in the Updated Project Design for archaeological analysis and publication (URS 2003). All project documents are available in the digital archive (**ADS 2006**).

All radiocarbon dates cited in this report (Allen 2006) have been calibrated using OxCal v.2 (Bronk Ramsey 1995; 2001) and the calibration data provided by Stuiver *et al.* (1998). The calibrated ranges are all quoted at two standard deviations (95% confidence).

2 PHASE SUMMARY

Late Glacial (11500-10900 cal BC): a redeposited buried soil, which probably formed during the Allerød interstadial, was preserved within a sequence of solifluction deposits in the base of the dry valley. It was not associated with any evidence of human activity.

Mesolithic (c 9000 - 4100 cal BC): evidence for Mesolithic activity is notable for its absence. A single residual burin found in a later ditch is the only artefactual evidence for activity in this phase. Residual pine charcoal recovered from Neolithic features and radiocarbon dated to the 9th and 8th millennia cal BC could be the result of either natural or anthropogenic processes.

Before the early Neolithic (before c 3900 cal BC): a tree-throw hole and four other probably natural features were cut by postholes belonging to early Neolithic structure 4806. Numerous other tree-throw holes and natural features were found in the same area, but were not stratigraphically related to the structure. The finds from these features were similar to those associated with the structure. Whilst these features may reflect either deliberate clearance of the area before structure 4806 was erected or the contingent use of a natural clearing, the evidence is insufficient to show whether this was the case.

Earliest Neolithic- phase 1 (4000-3650 cal BC): a large, rectangular post-built structure (4806) on the White Horse Stone site, and the less complete remains of a possibly similar structure on the Pilgrim's Way site, provide the earliest clear evidence for human activity. The quantity of finds associated with these structures was small, but fragments of Carinated

Bowl pottery, flint, animal bone, charred plant remains and charcoal were recovered from many of the postholes by sieving.

Early Neolithic- phase 2 (*c* 3650-3350 cal BC): following the abandonment of these structures, the level of activity seems to have declined markedly. Activity probably later in the early Neolithic is represented by residual sherds of Decorated Bowl pottery in a tree-throw hole and two middle Bronze Age postholes in the south-west corner of Pilgrim's Way.

Middle Neolithic (*c* 3350 - 2800 cal BC): activity in the next phase, the Middle Neolithic, is represented by only slightly less exiguous evidence: two small groups of shallow pits at Pilgrim's Way. None of these pits contained many finds, but a few sherds of Peterborough Ware were found.

Late Neolithic (2900-2400 cal BC): late Neolithic activity, represented by two round post-and stake-built structures, isolated and grouped pits, and deposits in tree-throw holes, was distributed much more widely across the southern end of the White Horse Stone site and the Pilgrim's Way site. Many of the pits contained Grooved Ware, as well as varied assemblages of animal bone, charred plant remains, flint, fired clay, cremated human remains, and, in one case, a polished ironstone ball. There were clear contrasts in the contents of the pits in different parts of the sites.

Late Neolithic-early Bronze Age (*c* 2500 BC - 1500 cal BC): Following the late Neolithic there was, again, a dramatic decline in activity. The late Neolithic-early Bronze Age is represented by only a very small number of Beaker sherds, almost all residual and by a few sherds from a Collared Urn in a tree-throw hole at White Horse Stone.

Middle Bronze Age (1500 - 1150 cal BC): widespread activity seems to have been renewed in the middle Bronze Age. Activity in this phase was represented by up to four clusters of postholes on the Pilgrim's Way site and in the southern end of the White Horse Stone site. Within two or three of these clusters the remains of rectangular and circular structures can be made out. The evidence for their date is, however, often very slight. Deposits of charred barley were found within two of these clusters, and a sheep burial was found in a pit near one of them. However, few other finds were associated with them. Larger quantities of artefacts were found in a ditch at the northern end of the White Horse Stone site. Further residual middle Bronze Age finds were found in nearby early-middle Iron Age features.

Middle-late Bronze Age (*c* 1200-1000 cal BC): a small cluster of shallow pits, some containing middle-late Bronze Age pottery were found near to the middle Bronze Age ditch at the northern end of the White Horse Stone site.

Late Bronze Age (1150-700 cal BC): the late Bronze Age saw a further decline and change in activity, which was represented by two pits containing deposits of cremated human remains on the Pilgrim's Way site, and by a pit containing a large deposit of pottery in the south-east corner of White Horse Stone. A number of further, usually small, undated deposits of cremated remains may also belong to the late Bronze Age.

The early-middle Iron Age (*c* 700-100 cal BC): a settlement, covering all of the northern end of the White Horse Stone site, was established in the early Iron Age, and was occupied into the middle Iron Age. The settlement consisted of a central complex of intercut pits surrounded by numerous four-posters and other kinds of structures. Smaller groups of pits were distributed around the periphery of the settlement, each of which contained contrasting assemblages of finds. Most of the human remains - both inhumations and isolated, disarticulated bones - were found in pits on the western side of the settlement, and were associated with large quantities of pottery and animal bone. However, an unusual deposit of cremated human remains, associated with charred grain and a set of metal tools, was deposited in pots at the southern end of the site. The pits on the eastern side of the settlement contained large quantities of iron slag.

The late Iron Age-Roman period (*c* 50 cal BC-AD 400): although the early-middle Iron Age settlement had been abandoned before the late Iron Age, its location seems to have been remembered, since a series of Roman trackways and ditches follow the edges of the earlier settlement. A small number of pits provide almost the only other evidence for Romano-British activity. Some of these pits lay below the buried soil which covered the southern end of the White Horse Stone site. They provide a *terminus post quem* for the cultivation of the buried soil and a *terminus ante quem* for the colluvial layers which cover it. A further Roman trackway running from the White Horse Stone site across the Pilgrim's Way site cuts some of the colluvial layers overlying the buried soil, and provides similarly useful dating evidence for the buried soil and the colluvial layers immediately above it. This trackway may have formed part of the Rochester to Hastings road.

The Anglo-Saxon period (cal AD 670-1000): Anglo-Saxon activity was evidenced most clearly at the West of Boarley Farm site where four pits containing animal burials, as well as further pits and postholes were found. Four ditches, perhaps parts of a related field system,

were also identified. However, the evidence for their date is very poor and they may be earlier in date. Almost the only other evidence for Anglo-Saxon activity was an isolated inhumation burial found in the section cut across the Pilgrim's Way. Unfortunately the burial was not stratigraphically directly related to the earliest evidence for the Pilgrim's Way trackway, and provides no clear indication of its date.

The Pilgrim's Way trackway (after *c* cal AD 400): a section cut across the Pilgrim's Way trackway unfortunately provided little clear evidence for the date at which it was established. However, it overlies the buried soil and the colluvial layers cut by a Roman trackway and was probably established in the Saxon period or later in the medieval period.

The Medieval period (*c* cal AD 1100-1400): the limited evidence for activity in the medieval period, consisting of a crop drier, a hollow way coinciding with the Boxley-Aylesford parish boundary, ditches and a few pits and postholes on the Pilgrim's Way site, suggests a primarily agricultural use of the site. A group of six pits were found below a demolition layer during the watching brief, close to Boarley Lane, 750 m to the south-east of the excavations. They contained a large assemblage of 12-13th century ceramics.

3 SEDIMENTS AND SOILS (FIGS 4-7; PL. 3)

by Elizabeth Stafford

The sediment sequences at White Horse Stone are, on a broad level, typical of dry valley deposits found on the chalklands of south and south-east England (Stafford 2006a). Dry valleys or 'coombes' are a characteristic feature of the chalklands and occur in large numbers on the North Downs in Kent. The morphology of the valleys (Kerney *et al.* 1964) ranges from significant landscape features, in places breaching the Downs escarpment, to smaller funnel like features dissecting the face of the escarpment from the crest. The valleys exhibit a high degree of variability, implying a complex history of formation and subsequent infilling. Several workers have emphasised the role of fluvial action and spring sapping in their formation (Sparks and Lewis 1957; Small 1965), although periglacial processes - frost shattering and solifluction - have also been cited (Kerney *et al.* 1964). It is most likely that a combination of fluvio-glacial processes was responsible, the importance of each varying according to local environmental conditions (Ballyntayne and Harris 1994; Jones 1981). The deposits contained within the valleys are largely colluvial in origin. They often exhibit a division between material of Pleistocene periglacial origin which forms the lower part of the sequences, and later deposits, consisting predominantly of Holocene hillwash.

The periglacial deposits frequently comprise coarse flint and chalk rubble, or ‘coombe rock’, resulting from frost-shattering of bedrock under intensely cold climates (Ballyntayne and Harris 1994; Kerney 1963), overlain by finer chalk silts and muds deposited by solifluction processes. Intercalated buried soils have occasionally been recorded and are indicative of periods of increased slope stability and climatic amelioration that occurred during the late Glacial period. Two periods of warmer climatic conditions - the Bølling and the Allerød Interstadials - have been recognised in the south-east of England and mainland Europe. These are separated by periods of intense climatic deterioration where temperatures in the east of England and in mainland Europe may have returned to arctic conditions (the Older and Younger Dryas Stadials). Following this, there was a gradual amelioration of climate approaching the Holocene.

Much of the work on dry valleys in Kent has been concentrated on the sedimentology and biostratigraphy of the late Glacial deposits. Work was carried out in the 1960s, on the west side of the Medway gap at Holborough and Upper Halling (Kerney 1963; Preece 1994). Further south, sites include Brook, Dover Hill and Castle Hill (Kerney *et al.* 1964), and Holywell Coombe near Folkstone (Preece and Bridgland 1998). Outside Kent sequences are rarer, but have been recorded in Dorset (Hearne and Birbeck 1999), Buckinghamshire (Evans 1966; Evans and Valentine 1974) West Sussex (Allen *forthcoming*) and on the Isle of Wight (Preece *et al.* 1995).

As opposed to the natural environmental processes involved in the Glacial sequence, the overlying Holocene colluvial deposits are thought to have formed largely as a result of anthropogenic activities such as forest clearance and cultivation, which increase the susceptibility of soils to erosion through the breakdown of structure and loss of nutrients. Only a small number of Holocene hillwash sequences in Kent have been investigated in detail, and few of the published sites, with the exception of Holywell Coombe, appear to be associated with significant archaeological remains. This is in stark contrast to the substantial work that has been carried out on the chalklands of Wessex (Allen 1992; French *et al.* 2003), the Chilterns (Evans 1966, 1972; Evans and Valentine 1974) and the South Downs (Wilkinson 2003; Bell 1983; Ellis 1986).

All of the soil and sediment data collected during the excavation and evaluation at White Horse Stone has been considered during the analysis stage. Stratigraphical data, was collated and entered into geological modelling software (RockWorks2004) in order map the spatial extent of major stratigraphical units and create surface elevation models (Fig. 4; Stafford 2006a). During the excavations a number of principal sections were cut specifically to investigate and sample the soils and sediments in detail. The ‘late Glacial Section’ was located on the lower slopes at the foot of the eastern flank of the valley immediately north of the Pilgrim’s Way trackway (Figs 5-7). The ‘Dry Valley Section’ was aligned perpendicular

to the valley axis approximately 60 m to the north, and ran from the eastern edge of the White Horse Stone site almost to early Neolithic structure 4806 (Figs 5 and 7). A third section was cut broadly north-south directly through the Pilgrim's Way trackway (Figs 6-7; Pl. 3). Individual profiles located at various points along these sections and considered to be representative of the overall site sequences were selected for detailed analysis of micromorphology, chemical and magnetic properties (Macphail and Crowther 2006; Stafford 2006a).

3.1 The late Glacial sequence

It was not possible to map comprehensively the extent and thickness of the Pleistocene sediments within the excavation areas since invariably only the surface of these deposits was exposed. On the upper western slopes within the excavation area topsoil directly overlay chalk bedrock. On the middle and lower slopes around the valley axis the chalk was overlain by coarse flint and chalk gravel. These gravels appeared to thicken down the valley axis and were approximately 3 m thick in the vicinity of the Pilgrim's Way trackway. Overlying the gravels on the lower west facing slopes and in the base of the valley were extensive deposits of finer grained chalky silt deposits (Fig. 5, layers 4936 and 4933). Analysis of these deposits suggests deposition occurred under periglacial cold climate conditions, probably during the Older and Younger Dryas stages. Active slope erosion of chalk bedrock and other superficial deposits was rapid, perhaps seasonal, resulting in redeposition of sediment from upslope into the base of the valley. Common to all these deposits are the networks of subvertical voids, identified under thin-section analysis, filled with inwashed sediment and secondary carbonate. This suggests that vegetation grew concurrently with accumulation throughout. Kerney (1963) noted a similar phenomenon on other late Glacial sequences, and suggested that in the spring and summer the ground, frozen and frost-shattered during the preceding winter, thawed, and a slurry of chalk mud and fine rubble was washed down onto the lower slopes. Vegetation comprising grasses and small herbs probably grew on these surfaces, dying off towards the end of the year, and was subsequently buried during the next thaws by further thin sheets of chalk debris. These deposits were not produced by the mass movement of large bodies of semifrozen ground but grew by increments. In this sense they should be considered chalk meltwater muds as opposed to solifluxion deposits in the strictest sense (*ibid.* 1963, 205).

Intercalated within these silts at the base of the eastern flanks of the valley was a dark grey humic horizon (Fig. 5, layers 4935 and 4934) which was originally interpreted as a late Glacial 'Allerød soil'. Thin-section analysis of this horizon has concluded, however, that it does not technically represent an *in situ* soil, but occurs as reworked 'humic' soil clasts,

occasionally separated by fine silty soliflual sediments, probably deposited at the onset of the Younger Dryas. Mature rendzina soil formation on stable valley sides in the Allerød period is, however, implied. At other sites in Kent, such as Halling and Holborough, the soils are similarly described as chalky colluvia, where mass-movement has produced a 'soil' composed of coalesced eroded soil fragments (Kerney *et al.* 1980; Macphail and Scaife 1987). At Ventnor on the Isle of Wight a late Glacial palaeosol was described as 'transported, accretionary and welded', and not truly an *in situ* soil (Kemp *et al.* 1994; Preece *et al.* 1995). Unfortunately, as with other sites dating to this period, although some microcharcoal was identified at White Horse Stone, no direct evidence of human activity was found.

The late Glacial interstadial soil horizon or Allerød soil (*sensu* Kerney 1963) is widely recognised in south-eastern England. Within the Medway catchment area the site at Upper Halling has been designated as the regional stratotype for the late Glacial sequences (including both the late Glacial soil horizon and the solifluction deposits above and below the soil horizon). This is known as the Upper Halling Bed and forms part of the Brook Formation (Gibbard and Preece 1999). A radiocarbon date obtained from two small pieces of charred woody material (uniseriate dicotyledenous material) from the White Horse Stone 'soil' produced a date of 13,500-12,800 cal BP (NZA-22046: 11,130±48 BP), which is consistent with dates from the Upper Halling soil (Preece 1998). This soil, and the solifluction deposits above and below it, were also dated using Optically Stimulated Luminescence (OSL). One of the results (Rhodes 2001) for the 'soil' horizon was slightly older than the radiocarbon date, even given the large errors (X269: 16,800±1700 BP). The other falls within a range which is similar to that suggested by the radiocarbon dates (X270: 14,500±1400 BP). However, dates from the solifluction deposits above the soil (X267: 21,000±2200 BP) and from below the soil (X268: 13,500±1200 BP) suggest dates that are incompatible with the stratigraphic order.

3.2 The early to mid Holocene soils

No deposits, either buried soils or colluvial deposits, relating to the early-mid Holocene were identified within the principal dry valley pedo-sedimentary sequences. The earliest Holocene deposit was an extensive buried soil dated to the later prehistoric period which directly overlay late Glacial sediments, and sealed Neolithic and Bronze Age features. This implies a major unconformity within the sediment sequences spanning several thousand years. In general, early former Holocene soils in dry valley situations on the chalklands of the south and south-east are rarely preserved. Many investigated colluvial sequences appear to date to the Bronze Age or later, and the absence of former basal soil has often been interpreted as a result of extensive and severe truncation (Allen 1992). It is impossible to say with certainty when, and if, erosion episodes removed the early-mid Holocene soils at White Horse Stone.

Localised colluvial deposits were identified on the upper western slopes of the valley. They were cut by a middle Bronze Age ditch (4025; Figs 50 and 59). This could be seen as implying that an erosional event, not represented in the main dry valley sequences and not necessarily extensive, occurred prior to the major early-middle Iron Age settlement activity in this area. If erosion was confined to episodic, localised events it is possible the soils in the valley under relatively stable conditions were simply biologically worked over a long period up until the late Iron Age or Roman period when they were buried by colluvium.

The only evidence relating to the early-mid Holocene came from feature fills and subsoil hollows. Thin-section analysis of samples taken from early and late Neolithic posthole fills at the White Horse Stone site and the fill of a subsoil hollow (923; Fig. 7) possibly dating to the Bronze Age at the Pilgrim's Way site (923), indicates that humic rendzinas were locally present. This suggests that the local soils had not been eroded, or were little eroded, during these periods.

3.3 The later Holocene soils

The extensive later prehistoric buried ploughsoil within the base of the valley covered the southern part of the White Horse Stone site (Fig. 5, layers 4144 and 4960; Fig. 6, 9005 and 9004) and much of the Pilgrim's Way site (layer 857) where it sealed the fill of the subsoil hollow (923) described above. This soil may have been related to a negative lynchet (4134; Fig. 70) the course of which ran along the contours of the dry valley near to the southern edge of the early-middle Iron Age settlement, and may have formed as a result of cultivation associated with that settlement. Since this soil may have taken on its final form primarily as a result of agricultural activity associated with the early-middle Iron Age settlement, it is referred to as an 'Iron Age' ploughsoil. The latest features covered by this buried soil, however, contained Roman pottery, and the soil thus seems to have been worked into the Roman period.

Thin-section analysis has identified the soil as a colluvial ploughsoil showing evidence of plough mixing and structural disturbance, alongside biological working with inputs of anthropogenic material such as worked flint, pottery sherds and burnt dung. It is likely that if occupation horizons and artefact distributions were preserved from earlier periods they would certainly have been mixed within the plough zone and suffered lateral movement from slope processes once the area was under cultivation. Sediments from early-middle Iron Age features show evidence of mixed farming – arable (cereal processing) and stock raising (eg the use of stables/byres for over-wintering and animal trampled turf) – a hearth (or hearths) generating high temperatures, and domestic occupation. It seems likely that some manuring of the arable soils down slope took place, employing settlement waste, but not at high intensities (although

chemical measurements of phosphate may reflect the diluting effects of colluviation in the palaeosol). This probably helped maintain organic matter levels and biological activity, and the associated soil stability. Nevertheless, the palaeosol shows increasing evidence of slope soil instability, probably through rill and gully erosion. The consequent concentration of run-off caused soils to slake, and led to the removal of the rendzina topsoils. This also resulted in the erosion of gravel size chalk as the chalk substrate became exposed.

3.4 The colluvial sequences

The paucity of colluvial deposits dating to the earlier prehistoric periods at White Horse Stone is all the more salient when considering the clear evidence for erosion and deposition occurring in the later periods. Although the ploughsoil showed some signs of erosion, extensive colluviation appears to have been initiated sometime in the later Iron Age or Roman period. Although the catchment was cultivated during the occupation of the early-middle Iron Age settlement, there may have been a time lag before the inception of widespread colluviation (when the settlement was abandoned). Erosional episodes probably occurred due to increased clearance of vegetation and cultivation (resulting in a breakdown of soil structure and impoverishment) combined with episodes of high rainfall (when the bare soils may have been most susceptible). The practise of autumn sowing adopted in many areas during the later prehistoric and Roman periods may have been a significant factor.

Initially, sedimentation appears to have occurred quite rapidly, possibly within a few high intensity episodes which resulted in the wholesale burial, and therefore preservation, of the ploughsoil. Although the depositional processes associated with these deposits mean pottery dating may not be reliable, it does provide a *terminus post quem* for the date of deposition. A series of linear ditches interpreted as a trackway, possibly the line of the Rochester to Hastings Roman road, was found stratified within the upper levels of the colluvium within the Dry Valley Section (Fig. 5, 4001, 4004 and 4006). This implies that the large part of the colluvial sequence cut by these features was deposited between the late Iron Age and Roman period. A relatively thin layer of colluvium sealing these features contained medieval and post medieval pottery. The colluvium overlying the buried soils in the subsoil hollow in the base of the valley, although thinner, also contained medieval and post medieval pottery in the upper levels. However, no dating evidence was retrieved from the lower levels directly overlying the later prehistoric buried soils.

Colluvial deposits sealing the Iron Age ploughsoil were thickest on the lower slopes of the valley and around the valley axis, reaching depths of up to 2 m in the vicinity of the Pilgrim's Way trackway (Fig. 6). The deposits varied greatly in texture both spatially and with depth and are interpreted as the product of various erosional processes - soil creep, sheet

wash, rilling and gullyng - resulting from episodes of ploughing further upslope. Most notable within the colluvial deposits was the presence of distinctive flinty concentrations indicative of higher energy erosive events. Such lenses were identified on the surface of the later Holocene buried soil when it was exposed in plan. They appeared to be particularly concentrated at the foot of the western slope to the south of the Iron Age settlement. Boardman (1992), who has investigated processes operating in modern valley systems, suggested gravel lag deposits were often a product of gullyng upslope resulting in large volumes of soil being stripped and washed away, with the stones being dropped at breaks of slope while the finer material is transported further down the valley. Allen (1992) comments further on the considerable erosive force of such events.

4 VEGETATION AND THE ENVIRONMENT (FIG. 7)

by Elizabeth Stafford

4.1 Environmental overview

Evidence for the character of the vegetation and environment at White Horse Stone is provided primarily by samples of molluscan remains (Stafford 2006b). The calcareous soils at White Horse Stone are very conducive to molluscan preservation, and numerous samples were taken from both well-dated archaeological features and the pedo-sedimentary sequences. The evidence from archaeological features may reflect very local conditions associated with the features themselves, whilst the soil and sediment sequences may have received deposits from wider catchments. It was, however, considered important to provide some level of environmental data for the earlier periods of human activity which were not represented in the dry valley sequences. Samples for these periods could, therefore, only be obtained from archaeological features. There are taphonomic problems associated with samples from both kinds of context, related to the function of features, processes of infilling, micro-environments, erosion and reworking of older sediments and post-depositional disturbance. These issues are, however, inherent in molluscan analysis and have been considered in the interpretation of the assemblages.

The samples analysed cover most of the conventional divisions of British prehistory with the exception of the early Bronze Age. However, since features from different phases were not distributed uniformly across the site it is impossible to provide a comprehensive characterisation of the development of the whole area. The distribution of the samples follows that of the dated features (Fig. 7; Table 2). The late Glacial environment was analysed from one profile on the lower slopes of the valley. The Neolithic and Bronze Age samples, with exception of a middle Bronze Age ditch on the western plateau, all derive from the lower

slopes and valley bottom (the Pilgrim's Way and site and the southern half of the White Horse Stone site), The later samples are slightly better distributed and include early Iron Age and Roman features on the western plateau (the northern part of the White Horse Stone site) and the pedo-sedimentary sequences on the lower slopes and valley floor.

The composition of the molluscan fauna from Profile F (in the late Glacial section) was unmistakably late Glacial in character. The sequence is broadly consistent with other sites in the area, and all of the species identified have been recorded previously in late Glacial deposits. Assemblages from the Older Dryas deposits were sparse and impoverished suggesting cold climate conditions with little vegetation cover. All of the species identified, apart from perhaps *Vallonia pulchella*, have modern Holarctic ranges extending in Europe to well beyond the Arctic Circle, and are adapted to a wide variety of adverse environments (Kerney 1963, 206). The fauna associated with the 'Allerød soil' showed an increase in both numbers of individuals and species diversity suggesting increased surface stability. Thermophilous species occur indicating the development of warmer conditions. The environment prevalent at the time appears to have been a fairly simple one of dry open grassland, rather exposed on the slopes, where some areas of bare ground may have persisted. The presence of *Trochoidea geyeri* is of particular stratigraphic importance. It is a species now extinct in Britain, and its modern geographical range is central European. It is characteristic of dry open calcareous areas with short vegetation and rocks (Kerney 1999) and has been recorded from a number of late Glacial sequences in Kent (Kerney 1963).

There is no direct molluscan evidence available from White Horse Stone relating to the environment of the earlier-mid Holocene period. The earliest Holocene molluscan assemblages derive entirely from deposits contained within postholes from the early Neolithic structure 4806 and pit deposits of middle and later Neolithic date on the lower slopes and valley bottom. Overall the assemblages were dominated by shade-demanding species. The assemblages, which include *Discus rotundatus*, various zonitids and *Carychium tridentatum*, along with rupestral species that live on and under tree trunks (*Ena obscura*, Clausiliidae and *Acanthinula aculeata*) certainly suggest the presence of trees and abundant leaf litter. Both *Acicula fusca* and *Vertigo pusilla* were also present, indicating old or mature deciduous woodland, although the latter species does not live in dense woodland (Kerney 1999:91). Despite this, the percentages of shade-demanding species varied between 40% and 94%, possibly a reflection of various micro-environments around the sampled features, but also suggesting that the environment was by no means uniform. A smaller open-country element (where they do not consist of residual late Glacial shells) suggests an open aspect to the canopy, with some low-level disturbance (*Pomatias elegans*), possibly interspersed with small areas of long or lightly grazed grassland.

An increase in open-country xerophile species in the late Neolithic pits (associated with Grooved Ware) in the valley bottom suggests a trend to slightly more open conditions in this area, and possibly the creation of grassland areas. Samples from a nearby subsoil hollow (profile I; 923) containing late Neolithic struck flint in its lower levels support this conclusion by providing evidence for a sequence suggesting a development from woodland to woodland clearance and the development of more heavily grazed grassland probably during the Bronze Age. North of the Pilgrim's Way trackway, however a strong shade-demanding component is present in the assemblages into the Bronze Age. Here there is evidence for the presence of woodland/scrub in the vicinity of a middle Bronze Age ditch (4025) on the western plateau, and in a late Bronze Age pit (5421) on the lower slopes. Both suggest that suitable refugia persisted in these areas. However, the ditch in particular (since it probably defined a boundary) may not provide a reliable guide to the character of wider landscape.

The first indication of extensive areas of open ground north of the Pilgrim's Way trackway derives from early Iron Age features and the Iron Age buried soil coincident with extensive settlement and agrarian activity on the western plateau. Open-country species account for up to 80% in some assemblages, with shade-demanding species comprising a minor component in the many of the samples. This change is likely to reflect a large-scale opening up of the environment with much larger tracts of grassland and arable, in an environment almost totally free of shade. Certain species are recorded for the first time during this period. *Truncatellina cylindrica*, a rare xerophile suggestive of very dry open grassland conditions, is one. *Helicella itala*, *Vallonia excentrica* and *Vertigo pygmaea* become much more frequent, and, along with *Pupilla muscorum*, suggest an increase in the amount of bare ground.

It is worthy of note that although the Neolithic assemblages indicate the presence of woodland environments throughout this period, they do not exhibit the diversity usually associated with undisturbed primary climax forests of the mid Holocene. Some of the rarer species are conspicuously absent. Although there was no archaeological evidence for earlier activity, this might point to a more prolonged, low-level interference in the environment prior to the activity associated with the early Neolithic structure. It is often suggested that most of south-east England was wooded prior to c 4000 BC (Bell 1983; Ellis 1985; Evans 1972; Kerney *et al.* 1964; Thomas 1982). However, there is debate concerning the natural ecological state of the assumed climax woodland. Traditionally it has been believed that Britain and the rest of Europe was covered by a dense continuous canopy (Rackham 1986; Peterken 1996) in the early-mid Holocene. However, previous workers have emphasised the role of Mesolithic communities in the disturbance of that woodland (Evans 1975; Williams 1985; Simmons 1996). A reduction in arboreal cover in regional pollen sequences, and the increased occurrence of microscopic charcoal, has been interpreted as evidence of the use of

fire to create small woodland clearings (Mellars 1976; Simmons and Innes 1997; Simmons 1996). Whitehouse and Smith (2004) have recently reviewed the data, and in particular the coleopteran evidence. They suggest that although there was undoubtedly an anthropogenic factor, the role of autogenic disturbance (eg tree throw and forest fire), and the impact of wild herbivore grazing may have been previously underestimated (Buckland and Edwards 1984; Bradshaw and Hannon 1992; Bradshaw and Mitchell 1999; Robinson 2000c; Vera 2000). With reference to the chalklands, current research at Cranbourne Chase in Dorset (French *et al.* 2003) presents evidence supporting the view that in some areas woodland development in the earlier Holocene may have been patchier than the traditional model suggests. Some open areas may have persisted that could have been subject to exploitation during the Mesolithic and Neolithic periods (French *et al.* 2003).

The extent and duration of woodland clearance in Kent is unclear. In contrast to other areas such as Wessex, wide-scale clearance on the chalklands of south-east England appears to be predominantly a late Bronze Age phenomenon (Wilkinson 2003; Godwin 1962; Thornley 1981). Locally, however, there may be much variation with some areas subject to extensive clearance in the Neolithic and other areas where clearance was more localised. There is also evidence for cycles of local woodland/scrub regeneration at various sites (Thomas 1982; Preece and Bridgland 1998; Kerney *et al.* 1964; Wilkinson 2003).

4.2 Tree-throw holes and other natural features (Figs 8-10)

By Chris Hayden

Typical characteristics

Tree-throw holes were found distributed sporadically across both the White Horse Stone and Pilgrim's Way sites (Fig. 8). Since they provide information which has some bearing on the environmental reconstruction discussed above, their overall chronology and distribution is outlined here.

The natural features have been classified into the following categories (Figs 9-10):

Tree-throw holes: irregular features, especially those asymmetrical in section and roughly D-shaped in plan, with irregular patterns of fill; 0.60 - 4.00 m wide and from 0.08 - 0.84 m deep; width between 2 and 17 times their depth (mean = 6);

Wide, irregular hollows: irregular features which seemed too shallow, given their width, to have been tree-throw holes, and which lacked features distinctive of tree-throw holes; less than 0.30 m deep; width between 10 and 31 times their depth (mean = 18). The shallowest (5277) was just 0.05 m deep but 1.12 m wide, and the largest (5380=4813) 5.00 m wide but only 0.16 m deep;

Root disturbance and burrows: smaller, often very irregular features; 0.96 - 0.07 m wide and from 0.48 - 0.05 m deep; width between 1 and 7 times their depth (mean = 3);

Uncertain features: either natural features or irregular postholes.

Chronological and spatial distribution

The degree of confidence with which the tree-throw holes can be dated varies according to the quantity, condition and kinds of finds they contain. The finds from the tree-throw holes are discussed in more detail by phase below. In Table 3 those which contain the largest assemblages of artefacts which were probably deposited into open tree holes are marked with an asterisk; the borderline cases with a question mark. This should not be taken to imply that the smaller, unmarked deposited were, necessarily, redeposited.

The tree-throw holes date from all of the main periods of activity represented at White Horse Stone and Pilgrim's Way - from before the early Neolithic occupation to the post-medieval period (Table 3). However, a greater number date from the Neolithic and early Bronze Age (15) than from the middle Bronze Age and Iron Age (5) or the medieval and post-medieval periods (9).

The spatial distribution of the tree-throw holes changed over time (Fig. 8). Whereas the possibly early Neolithic examples are all in the southern end of the White Horse Stone site, the middle and late Neolithic and early Bronze Age examples occur also across the Pilgrim's Way site. With the exception of one possibly early-middle Iron Age example near the edge of the settlement of that date at White Horse Stone, all of the middle Bronze Age and later tree-throw holes are on the Pilgrim's Way site. Over time, then, the distribution of tree-throw holes moved southwards onto the Pilgrim's Way site. This distribution follows quite closely the distribution of other dated activity, and the spatial distribution of the tree-throw holes in different phases is probably partly a product of the distribution of finds through which the tree-throw holes can be dated. It is only partly consistent with the evidence provided by molluscs (see above). Whereas the distribution of Neolithic and early Bronze Age tree-throw holes is consistent with the continued presence of some tree cover in these phases, the presence of middle Bronze Age tree-throw holes on at Pilgrim's Way fits less well with the generally open landscape suggested by the molluscs from hollow 923 (albeit poorly dated). However, neither source of evidence provides a clear indication of the prevailing character of the surrounding landscape. The very small number of middle Bronze Age tree-throw holes on the Pilgrim's Way is quite consistent with a generally open landscape suggested by the molluscs from hollow 923.

Table 2: Summary of environmental evidence

NW European Chronozones		Cultural periods	Soils and sediments			Vegetation and landuse (as inferred from the molluscan successions)							
Age (cal BP)	Holocene	Sub-atlantic	Medieval	DV section	LG Section	Subsoil Hollow	Low intensity colluviation on lower slopes and valley floor	Western plateau	DV section	Middle and lower slopes	Subsoil Hollow	Valley floor	Age (cal BC)
			Saxon				Hiatus in the sediment sequence (stability?)	?		?		?	
		2	Romano-British	Episodic rill and gully erosion with rapid sedimentation on lower slopes and valley bottom.	Ditches 2463 and 2423	Grassland, Grazed grassland	Trackway 1305	Arable, Grazed grassland	Arable, Grazed grassland				
			Iron Age	Humic rendzina ploughsoil on lower slopes and valley floor, evidence of manuring, subject to some colluvial input. In the settlement area evidence of mixed farming.	Gully 19020 and lynchet 4134.	Grassland, Grazed grassland	L.G. Section	Arable, Grazed grassland	Arable, Grazed grassland				
		3	Sub-boreal	Bronze Age	Mature humic rendzinas in subsoil hollow in valley floor demonstrated initial disturbance with moderately strong anthropogenic signal followed by a lengthy period of stability. Elsewhere there is a hiatus in the pedo-sedimentary sequence (stability?)	Ditch 4025	Woodland, Grassland, ?	Pit 5421	Woodland, Grassland	Woodland, Grazed grassland			
					?	?	?	?					
		5	Neolithic	Mature humic rendzina soils in early and late Neolithic features on lower slopes (stability?)	?	?	Pits 5965 and 5256	Woodland, Grassland	Pits 904 and 958	Woodland, Grassland, Grazed grassland, ?			
				Inputs of trampled/beaten floor debris in postholes	?	?	Pits 711 and 714	Woodland, Grassland	?	?			
		6	Atlantic				Structure 4806	Woodland, Grassland	?	?			
		Hiatus in sedimentary and archaeological record											
12	Pleistocene	Upper Palaeolithic	Younger Dryas	DV section	LG Section	Subsoil Hollow	Cool climate, erosion and deposition of chalk gravel rich sediment	LG Section	Low diversity fauna, <i>Pupilla muscorum</i> dominates, much bare ground and instability.				
			Allerod				Cool climate, erosion of Allerod soils, seasonal soil formation			Inferred dry open grassland exposed on slopes with some areas of bare ground. Increased species diversity <i>Vallonia excentrica</i> , <i>Abida secale</i> , <i>Cochlicopa</i> spp., <i>Helicella itala</i> , <i>Trochoidaea geveri</i> .			
			Older Dryas				Hiatus in sediment sequence, inferred temperate humic and brown rendzinas			Sparse impoverished arctic fauna, little vegetation, <i>Pupilla muscorum</i> , <i>Vitrina pellucida</i> , <i>Vallonia costata</i> , latterly <i>Punctum pygmaea</i> and <i>Vallonia pulcella</i>			
			Bolling				Cool climate, erosion, seasonal soil formation (immature calcareous lithosol)						
			Interstadial not represented										
15	Middle Weichsalien												

 Woodland
  Arable
  ? Limited or no data
 Grazed grassland
  Scrub and lightly/ungrazed grassland

Table 3. Chronology of tree-throw holes

<i>Phase</i>	<i>Total no. tree-throw holes</i>	<i>Total no. possible tree-throw holes</i>	<i>Tree-throw holes - evidence for date</i>	<i>Possible tree-throw holes - evidence for date</i>
<i>Pre-early Neolithic</i>	1	-	5026=5123 - stratigraphy	-
<i>Early Neolithic</i>	3	-	5393 - pot (EN) 5283 - pot (EN)	-
<i>Middle Neolithic</i>	-	1	-	?716 - pot (PW)
<i>Late Neolithic</i>	5	-	*861 - pot (GW) 962 - location, flint, animal bone *5072 - pot *5125 - C14 *909 - flint, animal bone	-
<i>Early Bronze Age</i>	2	-	*5128 - pot (CU)	-
<i>Neolithic to early Bronze Age</i>	5	3	4517 - flint 5308 - flint 5389 - flint 7274 - flint	942 - flint 946 - flint 4964 - flint
<i>Middle Bronze Age</i>	2	1	?931 - pot ?5478 - loomweight	740 - pot
<i>Early-middle Iron Age</i>	1	1	4522 - pot & stratigraphy	8039 - pot
<i>Medieval</i>	3	1	503 - pot 868 - pot 367 - pot	342 - pot 501 - stratigraphy, location
<i>Post-medieval</i>	2	2	611 - stratigraphy 610 - stratigraphy	985 - stratigraphy 501 - horseshoe nail
<i>Undated</i>	10	2	-	-

(* = contains large deposits of artefacts, probably deliberately deposited; ? = possibly deliberately deposited artefacts; other features contain few artefacts) EN= early Neolithic, GW= Grooved Ware, PW= Peterborough Ware and CU= Collared Urn.

HUNTER-GATHERERS

5 MESOLITHIC

5.1 Evidence for Mesolithic human activity

Despite the large area excavated, the only evidence for Mesolithic activity was a single burin found in a segmented ditch (5022; subgroup 19438), associated with cattle bone. This ditch cannot be accurately dated, but the burin is clearly residual.

Although the molluscs associated with early Neolithic structure 4806 suggest that the early Neolithic woodland may have already been disturbed before the structure was put up, there is little evidence, other than the possible absence of certain mollusc species which are usually associated with primary climax forests, to suggest that the environment had been modified in the Mesolithic.

The early Neolithic occupation thus appears to have been established in an area which had not previously been a focus for human activity.

EARLY AGRICULTURALISTS

6 THE EARLY NEOLITHIC I (FIGS 12-25; PLS 4 AND 6)

6.1 Early Neolithic overview

The earliest evidence for significant human activity at White Horse Stone (Fig. 12) was the remains of a large rectangular post-built structure (subgroup 4806). More exiguous traces of a second, probably similar structure (subgroup 972) were found in the south-east corner of Pilgrim's Way. Whilst the date of the first structure can be quite firmly established by both radiocarbon determinations and pottery (*c* 4000-3600 cal BC), the evidence for the date of the second structure is much slighter. Only small quantities of finds - pot, flint, animal bone, charcoal and charred plant remains - were recovered from these structures. Almost all of these finds consist of very small, fragmentary pieces, often burnt, which were almost all retrieved by sieving.

6.2 The environment

by Elizabeth Stafford

Given the apparent absence of Neolithic deposits within the dry valley sedimentary sequences, the molluscs from 16 posthole fills associated with early Neolithic structure 4806 were analysed (Stafford 2006b). In many of the samples shell numbers were extremely low, and consisted of mixed assemblages of open-country and shade-demanding species. There was a clear residual component represented by species such as *Abida secale* and *Trochoidea geyeri* which probably derive from the late Glacial deposits into which the features were cut. It was not clear if other open-country species such as *Vallonia excentrica*, *Pupilla muscorum* and *Helicella itala*, were also residual or were representative of Holocene environments. Although interpretation of these assemblages is, therefore, problematic, some useful observations can perhaps be made.

Of the samples examined, six did not include any obvious late Glacial shells. Of those six, two (5067 and 5116) were too low in shell number to be useful. The four remaining assemblages, from contexts 5118, 4859, 5281 and 4835, contained a significant component (40-60%) of shade-demanding species. Context 4835, however, contained an assemblage of 260 individuals, of which shade-demanding taxa comprised 94%. The shade-demanding component included *Discus rotundatus*, various Zonitidae and *Carychium tridentatum*, suggesting an enclosed environment with much leaf litter. Smaller quantities of rupestral species - Clausiliidae and *Acanthinula aculeata* - that often live on tree trunks and under fallen logs were also present, along with *Acicula fusca* and *Vertigo pusilla* which indicate old

or mature woodland. These four assemblages suggest that the fills of the postholes contained soil formed in an environment with significant tree cover, or perhaps, given the high numbers of *Vallonia costata* in some of the samples, ground that had been recently cleared of woodland. Since this species is often present in woodland in low numbers it is often the first of the open-country species to colonize newly cleared ground. *Pomatias elegans* was present in low numbers in many of the samples, but was more abundant in context 5118. This species often inhabits leaf litter on woodland floors, although it tends to proliferate in disturbed or recently cleared ground where the loose soil provides ideal conditions into which it can burrow.

It is reasonable to assume that some clearance of woodland was necessary for the construction of structure 4806. On the basis of the molluscan evidence from the postholes, which probably represent a relatively short time period, it is not possible to say how extensive or permanent the clearance was. However, the evidence from later pit assemblages for woodland environments persisting into the late Neolithic in this area would suggest that the clearance was not widespread and that suitable refugia remained. Small quantities of charcoal recovered from some of the postholes in structure 4806, as well as in other features suggest that the local woodland included oak, ash, hazel/alder and *Maloideae* (Challinor and Alldritt 2006).

6.3 Natural features and early Neolithic structure 4806 (Fig.11)

The natural features around the early Neolithic structure (4806; Fig. 11) provide the only evidence for the immediate context in which the structure was built. The apparent concentration of natural features around the structure probably derives in part from the particular attention which was paid to the excavation of features in this area. It is, however, also possible that the natural features in this area were related to either deliberate clearance for the construction of the structure or to the contingent use of an already existing clearance.

Natural features predating structure 4806 (subgroup 19435)

Of these natural features, five were cut by postholes belonging to structure 4806. Only one of these (5026=5123) appears to have been a tree-throw hole (Fig. 9). Two others (5222 and 5275) were very irregular but relatively deep features (0.46 m and 0.48 m deep respectively) which seem to have been produced by root disturbance. The remaining two (5380=4813 and 5255=4877) were wide features (5.00 m and 3.05 m respectively) which seem too shallow (0.16 m and 0.13 m respectively) to have been tree-throw holes.

Of these five features only the wide hollows (5380=4813 and 5255=4877) contained any finds (Table 4). The apparent absence of finds from these features may reflect the fact

that they were not sieved rather than the fact that they predate any activity in this areas. It is consistently the case that very few or no finds were recovered from features in this area which were not sieved.

Since the features predating structure 4806, which did contain finds were so wide and shallow and were cut by several later features, the chance that they contained intrusive material is high. It is, therefore, impossible to be certain that the finds from these two features (5380=4813 and 5255=4877) predate the construction of structure 4806.

The finds from these two features consist of a few sherds of early Neolithic pottery, flint chips, flakes and irregular waste flakes (some burnt), a little unworked burnt flint and a small burnt fragment of unidentified bone (Table 4). The overall composition of these finds is very similar to that from the other tree-throw holes in the same area (Table 4) and to the finds from the postholes of structure 4806 (Table 5).

Other natural features in the area of structure 4806 (subgroup 19436)

Most of the other natural features in the area of structure 4806 cannot be chronologically related to the structure. They consist of 11 tree-throw holes, 3 wide hollows and a number of features created by root disturbance and animal burrowing, as well as uncertain features which might have been natural or man-made.

The chronological relationship of the finds in these features to the features themselves and to structure 4806 is uncertain and may well vary. It is, however, striking that the only pottery in these features was early Neolithic (Table 4) despite the fact that the quantities of pottery in the late Neolithic pits in the area of the structure (subgroup 19400) are very much greater than the total quantity of early Neolithic pot in this area. There is, therefore, some reason to think that many of the finds in these features relate to early Neolithic activity, perhaps associated with structure 4806.

Early Neolithic pottery, including some sherds which may have come from Carinated Bowls, was found in two tree-throw holes and one uncertain feature. Although the overall quantities of pottery are small (Table 4), the sherds are, on average, larger than those found in postholes associated with structure 4806.

The remaining finds consist of flint knapping debris some of which is burnt. There were also small quantities of burnt unworked flint, small fragments of unidentified bone and small amounts of charcoal, including oak, ash, and probably residual pine. The only definitely identified bone was a sheep/goat tooth, and the only identified charred plant remains, a fragment of unidentified cereal grain, two fragments of hazel nut shell and a poppy seed (*Papaver* sp. not more closely identified).

Overall the kinds and quantities of finds from these features are very similar to those from contexts belonging to structure 4806.

Discussion

This evidence is significant primarily because of the insights it provides into the context in which structure 4806 was built. Unfortunately the evidence does not allow many firm conclusions to be drawn.

The scarcity of evidence for Mesolithic activity suggests that the site was not a focus for activity in that period. The finds from the tree-throw holes around structure 4806 suggest that any activity preceding the structure also dates from the early Neolithic, and since the finds were so similar to those associated more directly with the structure, it is possible that any previous activity was confined to the construction of the building itself.

Only one tree-throw hole definitely predates the structure. Unfortunately no samples were taken from this tree-throw hole, and it is thus impossible to know whether it contained finds comparable to the other tree-throw holes in this area. The remaining features containing finds were not stratigraphically related to the structure, and they may equally well have formed before or after the structure was in use.

It is thus impossible to determine how the tree-throw holes and the finds they contain were related to the structure. Whilst the concentration of tree-throw holes around the structure may reflect either deliberate clearance of the area or the contingent use of a natural clearing, it cannot be demonstrated that this is what these features represent.

Table 4. Summary of finds from tree-throw holes and other natural features in the area of the longhouse

Feature	Pot (no. sherds/ weight g)	Pot fabric	Flint (unburnt/burnt)	No broken pieces of flint	Burnt flint frags/weight (g)	unworked (no frags/weight (g)	Charcoal /charred plant remains	Animal bone (no frags/weight g; unburnt unless otherwise indicated)	Feature type	stratigraphic relationship with house
Sieved contexts										
5068	-	-	1/0 blade-like flake	0	-	-	-	-	root disturbance	post-dates
5008	-	-	-	-	-	-	Maloideae charcoal + Charcoal +	Unident 2/2 burnt	uncertain natural/posthole	- post-dates
5353	-	-	2/0 flakes	2	-	-	Pine charcoal +	-	animal burrow	unrelated
5308	-	-	1/0 irregular waste flake 18/3 chips	9	-	-	Charcoal + Poppy seed Charcoal + Charcoal +	-	Tree-throw hole	unrelated
5349	-	-	-	-	-	-	Charcoal +	-	Tree-throw hole	unrelated
5382	-	-	21/3 chips	12	-	-	-	Unident 3/1 - burnt	Tree-throw hole	unrelated
	-	-	5/1 flakes	-	1/1	-	-	-	Tree-throw hole	unrelated
5393	4/17	EN - F3	2/0 chips 1/0 flake 0/1 retouched flake	2	-	-	-	Sheep/goat tooth 1/0 Unident 5/3	Tree-throw hole	unrelated
	-	-	6/0 chips	4	-	-	Hazelnut shell x2 Cereal frag x1 Charcoal +	Unident 1/0 burnt	Tree-throw hole	unrelated
5283	7/9 4/11	EN - F1 - Carinated Bowl? EN - F2	11/9 chips 2/2 flakes 3/0 irregular waste flakes 1/0 retouched flake	19	4/45	-	-	Unident 1/1 burnt	Tree-throw hole	unrelated
5389	-	-	1/0 irregular waste flake	0	-	-	-	-	Tree-throw hole	unrelated
4842	-	-	-	-	-	-	Ash charcoal + Charcoal +	-	uncertain natural/posthole	- unrelated
4905	2/13	EN - F2 - Carinated Bowl?	0/1 blade-like flake 0/2 flakes	3	8/34	-	Oak charcoal ++	Unident 2/3 burnt	uncertain natural/posthole	- unrelated
5001	-	-	0/1 chip	1	-	-	-	-	uncertain natural/posthole	- unrelated
5351	-	-	2/0 flakes 1/0 irregular waste flake 1/0 tested nodule/bashed lump	1	-	-	-	-	wide, irregular hollow	unrelated
5380	6/25	EN - F3	2/1 flakes 1/0 irregular waste flake	0	-	-	-	-	wide, irregular hollow	predates
5255= 4877	5/2	EN - F3	26/16 chips 1/0 irregular waste flakes	29	1/1	-	-	Unident 1/0 burnt	wide, irregular hollow	predates
Unsieved samples										
5355	-	-	-	-	2/6	-	-	-	Tree-throw hole	unrelated
4897	-	-	-	-	-	-	-	-	Tree-throw hole	unrelated
5255= 4877	-	-	-	-	-	-	-	Large mammal unident 1/1	wide, irregular hollow	predates

6.4 Structure 4806 (Figs 13-15; Pls 4 and 6)

The best preserved structure (4806) lay near the southern end of the White Horse Stone site. It measured *c* 17.5 m long and from 6.5 m - 7 m wide, and was constructed using at least six, perhaps seven, longitudinal rows of posts as well as bedding gullies.

The structure was aligned NNW-SSE, and ran across the contours on the western side of the dry valley. The northern end of the structure was around 1.5 m higher than the southern end. This difference in height may have affected the preservation of features, since the features at the southern, lower end seem to be slightly less well-preserved than those at the north, perhaps because they were originally cut less deeply into the substrate.

Most of the postholes of structure 4806 were filled with mid to dark brown sandy silts which analysis suggests derive from a humic rendzina soil (Macphail and Crowther 2006). In cases in which postpacking and postpipes could be distinguished, the postpacking was almost always lighter than the postpipe (probably because more chalk became incorporated when the postholes were packed than when sediment infiltrated the voids left by the posts as they rotted.) In cases where the postholes contained two horizontal layers of fill, it was the lower which contained the lightest deposit (albeit still usually grey brown). All of the postpipes were circular, and there is no indication that split timber was used for posts (although some of the walls may have been made of planks).

The layout of the structure (Fig. 14)

Almost all of the postholes in the area of structure 4806 fall into a quite regular pattern on the basis of which the structure has been defined. The remaining postholes (subgroup 19141) may well have been related to the structure, perhaps relating to internal 'fittings'.

In most cases the posts along the NNW-SSE aligned longitudinal rows were also aligned ENE-WSW, forming at least nine (perhaps ten) transverse rows across the building. The spacing of the posts along the NNW-SSE rows is only partly regular, the distance between the posts varying from 1.1 m to 3.75 m.

The bedding gullies

The bedding gullies (5155, 5031 and 4832) provide the clearest indication of where the walls of the structure lay. Whilst the gully along the eastern wall runs nearly perfectly straight from one end of the structure to the other, the gully along the western wall is much less perfectly straight, and, overall, the building is not strictly rectangular (varying from 6.5 m wide at the northern end, 7.1 m near the middle, and 6.9 m at the southern end).

The bedding gullies were shallow features (5155: 0.07 m deep, 0.13 m wide; 5031: 0.09 m deep, 0.15-0.20 m wide; 4832: 0.14 m deep, 0.22 m wide; Fig. 15-8) which survive along only three stretches of the side walls. Since they were so shallow it is possible that they have been removed by truncation or were only cut down to the surface of the chalk in other parts of the building.

It seems unlikely, however, that a bedding gully along the northern end of the building would have been removed whilst the two along the side walls at this end of the structure survived. The southern end of the building is much less clearly defined, but it nonetheless seems likely that the construction of the northern and southern end walls differed from that of the side walls.

The east and west side walls

Because the fills were so similar and because the bedding gullies were so shallow, no very clear stratigraphic relationships were observed between the bedding gullies and the postholes which lay along them. However, particularly at the northern end of the structure, the postholes were wider than the bedding gully. It therefore seems unlikely that the bedding trenches held a continuous sleeper beam since this would have been entirely cut through by the posts. It is possible that the foundation trench and the postholes belong to different phases of construction, one replacing the other, or, that rather than having contained continuous long sleeper beams, the foundation trenches contained shorter, horizontal timbers which ran from post to post. A method of construction of this kind of slightly later date was observed at the mortuary enclosure at Normanton Down (Vatcher 1961). The latter seems more likely since it would account for the absence of clear stratigraphic relationships between trench and postholes. Furthermore there is little indication elsewhere of rebuilding. It is also possible that the gully was simply used to secure the bottom of the wall.

In the northern end of the structure, most of the postholes forming the walls lay clearly within the bedding gully. A curious feature of this part of the building is that pairs of posts which lay just beside the bedding gully, inside the structure, occurred on both sides of the building, opposite each other (5006 and 5003 on the west, and 5017 and 5014 on the east). Their purpose is unclear, but presumably they were related to an internal feature. It is also worth noting that in the next transverse row to the north, the posts in the internal rows were doubled (5019 and 4866 on the west and 4886 and 5253 on the east).

In the southern part of the building, there were again postholes within the foundation trench but also a greater number of less regularly positioned posts which lay just beside the bedding gully or where it is assumed it would have run.

The distribution of posthole sizes (Figs 15-20)

The analysis of the postholes discussed below relies on the assumption that the diameter of the posthole is a better indicator of the size of the post it once held than the depth. Comparison of the widths of the postpipes which were recorded in 19 postholes with that of the corresponding postholes provides some support for this since although the relationship between postpipe width and posthole width was rather weak (the coefficient of determination, $r^2 = 0.46$; Fig. 19), it was much stronger than that between width and depth ($r^2 = 0.01$).

The use of different sizes of posts in different parts of the structure can be most clearly seen in the southern part of the structure (Figs 15-8 and 20). Here with only a few exceptions, the widest posts, generally over 0.31 m wide, were used for the interior rows of posts. Slightly smaller posts, between 0.16 m and 0.31 m wide, were used for the posts lying just beside the bedding gully on the east side, but of a size generally equal to the internal posts on the west. On both sides, the smallest posts, less than 0.16 m wide, lay in, or on the line of, the bedding gully. The size of the external postholes forming the possible porch was, in contrast, very varied throughout the building.

Overall, the pattern within the southern half of the building suggests that the large, internal posts carried most of the weight of the roof (cf Startin 1978, 152) which was also supported by the posts lying just beside the gully. The external porch posts may have supported just the edge of the roof (rather than carrying its weight) or perhaps supported a separately constructed, lighter porch roof. The walls, lying above the bedding gully, may not have been used to support the roof, and the smaller posts within them would have been used only to provide a framework for the wall itself. The gully may have been used to secure the bottom of the wall.

In the northern part of the building, no contrasts in the sizes of posts comparable to those in the south can be seen. Most clearly, perhaps, there were very few small posts less than 0.16 m wide. Instead, the posts which lay within the bedding gully were larger, generally 0.16 m - 0.31 m wide. The interior posts tended again to be the largest posts.

The overall structure in the north appears to have been similar to that in the south with the difference that the larger posts within the bedding gully provided support for the roof and the framework of the walls. It is possible that here the gully was used not just to fix the base of the walls but also to brace the posts as was suggested above by comparison with Normanton Down (Vatcher 1961).

The construction of the walls

The evidence for the way in which the walls were constructed is ambiguous. The small stakeholes running along the bedding gully in the southern part of the structure can, perhaps, be most easily interpreted as the remains of a wattle framework, suggesting that the walls

would have been daubed. However, no traces of daub were found in any of the samples taken for micromorphological analysis (Macphail and Crowther 2006). This, and the presence of the bedding gully, suggests that the walls may have been made of planks or hurdles. This technique, using vertical planks, is clearly evidenced in some comparable early Neolithic structures in Ireland (eg Ballynagilly (ApSimon 1969, 1976); Coolfore (Ó Drisceoil 2003)). The bedding gully is a feature which would have been ideally suited to plank construction. If the walls were made of planks, however, it is unclear why stakes or small posts would also have been necessary. They might have been used to peg the base of the planks into place, and thus have been a temporary means of construction rather than a permanent feature of the structure. Alternatively, if the planks were set horizontally the small posts might have provided supports for the planks.

A central post-row?

Whether or not structure 4806 had a central row of posts is open to question. Just four postholes (4890, 5136, 5280 and 4895) lie along the centre of the building. Two of these (5280 and 5136) are paired across the putative entrance, and are amongst the deepest postholes associated with the structure. A third, rather shallower posthole (4895), lay just to the north of this pair. An equivalent post to the south might have been obscured by the hearth (4830). The only evidence for further postholes along the centre of the building, however, is posthole 4890, which lies at the middle of the northern end wall. This could have simply been part of the end wall rather than the end of a central row of posts.

A doorway

The gap between the bedding gullies on the western wall, about midway along its length, is unlikely to be due to truncation (given that the gullies survive on both sides). This may have been the location of a doorway. One of the postholes (4834) on the southern side was amongst the deepest (0.40 m) associated with the structure, perhaps because it formed one side of a doorway (Fig. 20). Three other postholes around the doorway are also noticeably deep compared to others along the western wall (5161: 0.27 m; 5294: 0.39 m; and 5369 : 0.30 m).

Corners

The corners of the building seem to have been marked by multiple postholes: three at the north-western and south-western corners and two at the north-east corner. There were a larger number of postholes, mostly rather small, at the south-eastern corner, but it is unclear how many of these should really be regarded as corner posts rather than part of the framework supporting the wall.

The northern and southern end walls

The clusters of posts at the corners provide some of the strongest evidence for the location of the end walls of the structure. The northern end was quite clearly defined by a rather kinked line of posts running across the building. The southern end, however, was less clear. There was no clear line of posts across the building between the two clusters of corner posts and there are some postholes further to the south which could have been part of the rectangular structure. However, including these postholes within the structure leaves many gaps within the expected layout. Furthermore, there are no smaller postholes or gullies to indicate that the walls continued this far south. This area was disturbed by several natural features (eg 5389 and 5382), and we thus lack any clear evidence for the construction of this wall.

Hearths

Two possible hearths, 4830 and 4874, were found within structure 4806. Both were shallow, oval features with slightly irregular bases (4830: 0.62 x 0.48 m wide and 0.18 m deep; 4874: 0.93 m x 0.80 m wide and 0.17 m deep; Pl. 7). The base of feature 4830 was burnt, but the fills contained relatively little burnt material: a little oak and *Maloideae* charcoal and eight small fragments (2 g) of burnt bone. A distinct area of burning was observed in the primary fill of feature 4874. The same fill contained a concentration of burnt clay and charcoal.

Samples for radiocarbon dating were taken from both of these features: *Maloideae* charcoal from 4830 and unidentified grain from 4876. These samples were selected with the aim of determining whether these two features were contemporary with the nearby late Neolithic pits (subgroup 19400). An association of relatively deep pits with shallow features such as 4830 and 4876 seems to have been characteristic of the late Neolithic pit groups at White Horse Stone. There was very little evidence for the date of these shallow features, and feature 4830 and 4876 provided the only examples where material suitable for radiocarbon dating was available.

The samples were selected on the assumption that the charcoal and grain might derive from burning and charring in the hearth itself, but in the knowledge that the features might well contain residual early Neolithic material. An early Neolithic date might, therefore, be obtained either because this was the true date of the features or because they contained residual material, whilst a late Neolithic date would provide stronger evidence that the pits were contemporary with the late Neolithic pits.

The result for 4874 and 4830 (NZA-21506, 5039±25: 3950-3760 cal BC; KIA-25383, 5165±31: 4050-3810 cal BC) fall within the same range as the dates for structure 4806, and the dated material was early Neolithic.

This unfortunately leaves the date of both features in doubt. Feature 4874 contains quite a large group of Grooved Ware (49 sherds, 178 g) and this, as well as its location,

strongly suggests that it was a late Neolithic feature. The case of feature 4830 is less clear. It contained a single small sherd (2 g) of Grooved Ware which is more likely to be intrusive, and there is thus a greater possibility that this was an early Neolithic hearth.

Other postholes in and around structure 4806 (subgroups 19141 and 19139)

A number of postholes which do not seem to belong to the pattern defining structure 4806 were found in and around the structure (Fig. 13). These have been divided into two subgroups.

The first (subgroup 19141) consists of postholes which lie within structure 4806 and which may have formed part of the structure or have been related to internal features.

The second (subgroup 19139) consists of postholes lying around the structure which are much less likely to have formed part of the structure but which may have been related to external features. Almost all of these postholes lie to the south of the structure (between structure 4806 and the late Neolithic round structures discussed below). Only five postholes were found to the north of structure 4806, and just one to the west.

Neither the size nor the fills of these postholes provides any clear means of distinguishing them from the postholes thought to belong to structure 4806.

6.5 Finds (Figs. 21-5)

Structure 4806 was associated with a small finds assemblage, consisting of very small, fragmentary pieces (Tables 5-7). The small pottery sherds, fragments of bone, chips of flint and single grains of cereal or pieces of hazel nut shell all, however, imply that larger quantities of material were originally present. Whereas it might be presumed that larger items of waste were removed and discarded elsewhere, probably outside the structure (in a midden since no pits of this date were found), the small fragments that were recovered, probably evaded collection, and were scuffed around the floor before becoming incorporated into features. Many were burnt, perhaps as a result of having been incidentally caught in a hearth. Curiously, however, there is very little difference between the finds from contexts such as postpacking which might have been related to activity which took place before and during the construction of the structure and those from contexts such as postpipes which might have been related to activity which took place during and after the use of the structure.

Table 5. Summary of finds from structure 4806 (all contexts except 4904 sieved)

Feature	Context	Pot Ware No/weight g Fabric	Chips unburnt/burnt	Flakes unburnt/burnt	Irregular waste flakes unburnt/burnt	Blade (burnt)	Burnt unworked flint no/weight g	Bone number/weight g (unidentified unless otherwise specified)	Charred remains	plant	Charcoal (unidentified unless otherwise indicated)	Other finds	Context type
4888	4889		6/6										postpipe
4888	5122		14/3	1/0			1/8						packing
4890	5121		1/0				8/2				Pinus +		packing
5024	5025		6/3										single
5028	5030		2/0								Quercus+		packing
5113	5114										Pinus +		single
5117	5118		0/1				1/1						single
5150	5151		1/0										single
5327	5328		1/2	1/0									single
4866	4885	EN? 20/7 F1 (charred residue)	0/1				6/14						single
4886	4887		6/1	0/1			3/12	2/0 unburnt					postpipe
4886	5145		35/8				3/3						packing
5019	5020		5/6	0/1			2/6						postpipe
5019	5021		6/0		3/0		1/?				+		packing
5066	5067		17/2								+		single
5209	5210		0/1										single
5291	5292		2/7	1/0			14/5				++		postpipe
4861	4862	EN 1/2 Nat	1/3	2/1			9/2						primary
4861	4863		2/0	2/2			9/1						upper
5017	5221										+		postpipe
5244	5245		8/1		1/0								single
4895	5131		0/1								Pinus +		packing
5203	5204		12/0										single
5172	5173		2/1										primary
5264	5265		0/1										single
5136	5141		0/4				12/4				Fraxinus +		packing
5161	5159		7/3				2/2						postpipe
5280	5279		3/0					Micro-mammal rib 3/0 unburnt					packing
5280	5281		2/0	1/1			1/1		Triticum +				postpipe
5294	5295		31/24					11/2 unburnt					packing
5318	5320		46/6				1/5	1/1 burnt					upper
5315	5317										Quercus +		upper
4834	4835		1/1								Pinus +		single

<i>Feature</i>	<i>Context</i>	<i>Pot Ware No/weight g Fabric</i>	<i>Chips unburnt/burnt</i>	<i>Flakes unburnt/burnt</i>	<i>Irregular waste flakes unburnt/burnt</i>	<i>Blade (burnt)</i>	<i>Burnt unworked flint no/weight g</i>	<i>Bone number/weight g (unidentified unless otherwise specified)</i>	<i>Charred plant remains</i>	<i>Charcoal (unidentified unless otherwise indicated)</i>	<i>Other finds</i>	<i>Context type</i>
4848	4849	INDET 1/2 F2		2/0			1/1			+		single
4855	4856									+		single
4857	4858				0/1		1/1			+		single
4828	5134		11/0	1/0				2/1 burnt				packing
4811	5133		0/2	0/1								packing
4824	4825	EN 2/6 F1	2/2				2/5	1/0 burnt				postpipe
4815	4816		2/12	0/1	0/2		4/8					single
4817	4818		12/3				6/15	8/2 unburnt	Cerealia + Hazel nut shell +	Alnus/Corylus +	Burnt Sarsen Burnt Sarsen - 2	upper
4820	4821		8/2	0/1			9/7	1/2 burnt				single
5339	5340		5/2					1/0 burnt		Maloideae +		single
4899	4900	CB 1/0 F2										upper
4902	4904								cow molar			upper
4992	4993			1/0								single
5271	5272			19/3								single
5363	5364		0/2									single
Bedding gully												
5031	5135		6/2	2/0			2/11					single
Erroneously labeled samples												
5315	5316								Hordeum/Triticum + cf Vicia Faba +	+	20th C window glass - 1 Fe nail - 1	primary
4859	4860		11/3	0/1	0/1	1	2/7	3/1 burnt		+	undiagnostic slag 34 g	single

CB = Carinated Bowl; EN = early Neolithic; Indet = indeterminate

Recovery of finds

Almost all of the finds from structure 4806 were recovered by sieving (Table 5). Finds were recovered by hand from only one context which was not sieved. As a result, the apparent absence of finds from contexts which were not sieved cannot be taken to show that they did not contain material comparable to sieved contexts with finds. Of the 123 contexts associated with structure 4806, 69 (56 %) were sieved (from 61 of the 92 features).

In two cases it seems that samples which did not come from structure 4806, but probably from completely different parts of the site, have been mislabelled and mixed with samples from the structure. The most obviously anomalous samples, supposedly from posthole 5315, contained an iron nail, modern window glass, charred cereal grains and a charred bean; the second, supposedly from posthole 4859, contained undiagnostic slag (34 g) as well as flint and burnt bone. The finds from these two contexts have been excluded from the subsequent analysis.

Table 6. Summary of finds from subgroup 19141: postholes within the longhouse which were not part of the structure

<i>Feature</i>	<i>Chips unburnt/burnt</i>	<i>Flakes unburnt/burnt</i>	<i>Irregular waste flakes unburnt/burnt</i>	<i>Charcoal (unidentified unless otherwise indicated)</i>
5375	3/0			
5306	3/0			
5304	19/3	1/0	1/0	Pinus +
4846	5/0			+

Table 7. Summary of finds from subgroup 19139: postholes around longhouse 4806

<i>Feature</i>	<i>Pot</i>	<i>Ware No/weight g Fabric</i>	<i>Chips unburnt/burnt</i>	<i>Flakes unburnt/burnt</i>	<i>Irregular waste flakes unburnt/burnt</i>	<i>Other flint</i>	<i>Burnt unworked flint no/weight g</i>	<i>Charcoal (unidentified unless otherwise indicated)</i>
4988				1/0				
4915								+
4917			2/0	1/0		Backed knife 1/0	1/1	
4919	CB? 1/3 F2		2/0	2/1				
4948			23/6				1/1	
4955			1/0					
5165			3/0					
5168			13/1		1/0			
5182			1/1					
5184							8/69	
5285			4/4					+
5311			2/0					
5313			2/0		0/1			

CB = Carinated Bowl

Pottery (Fig. 21)

Just 26 small sherds, weight a total of 17 g (mean sherd weight 0.7 g) were recovered from structure 4806. A further single sherd (3 g) was recovered from a nearby posthole (4919, subgroup 19139), and natural features in the same area contained a further 28 slightly larger sherds of early Neolithic pottery weighing 77 g (mean sherd weight 2.75 g). Combined with 10 sherds (24 g) of residual possibly early Neolithic pottery from late Neolithic pit 4965, and single residual sherds from possibly late Neolithic postholes 5152 and 4907 to the south of the structure (2 g and 15 g respectively), the maximum possible total assemblage of early Neolithic pottery from the area around structure 4806 amounts to 66 sherds, weighing 138 g (mean sherd weight 2.1 g). All of these sherds were worn and abraded.

The pottery has been attributed to the early Neolithic Bowl tradition. A small number of the sherds have been identified as deriving from Carinated Bowls.

The only signs of use were charred residues on sherds from posthole 4866 in structure 4806. These residues suggest that pots were used for cooking within the structure.

Flint (Fig. 21)

The commonest category of finds was worked flint, of which a total of 687 pieces were found. Almost all of these, however, were small chips. The remainder, in structure 4806, were flakes, irregular waste and a single blade-like flake.

The composition of the assemblages from features within and around the structure is similarly dominated by chips with small numbers of flakes and waste flakes. The only exceptions were a backed knife from posthole 4917, to the south of the structure, retouched flakes found in tree-throw holes 5393 and 5283, and a partially worked nodule in hollow 5351. There was a slightly higher proportion of larger pieces (retouched flakes, flakes and irregular flakes rather than chips) in the natural features (116 chips, 34 larger pieces) than there was in the postholes (4806: 399 chips, 29 larger pieces; 19141: 33 chips, 2 larger piece; 19139: 65 chips, 9 larger pieces).

Overall, however, what is most marked is the very high proportion of chips in structure 4806 and the surrounding postholes. The presence of this microdebitage suggests that knapping took place in and around the structure. As well as being related to the production of tools, it is possible that chips from this knapping were used as temper in the production of pots. The early Neolithic fabrics all contain angular flint temper up to 5 mm across. Some of the flakes may have been used as tools, but the absence of any retouched pieces in structure 4806 (and their scarcity in other contexts) suggests that most of the products of that knapping were discarded elsewhere.

The flint scatter (subgroup 19142) to the north of structure 4806 and flint in buried soil 4144

A small group of flint was also collected by hand in a grid from the chalk surface (below buried soil 4144), to the north of structure 4806 (Cramp 2006). The group consisted of just 25 pieces which, like the flint from the features around structure 4806, consisted almost entirely of flakes and irregular waste flakes, although a scraper and a retouched flake were also found. The absence of chips may well be due to the fact that the material was collected by hand.

The date of this material is uncertain, but it is most likely to have been related to the early Neolithic activity associated with structure 4806 or the late Neolithic activity in the same area (or both).

It is perhaps also worth noting that a large quantity of flint was retrieved from the buried soil (4144) which overlay structure 4806 and extended well beyond it (Fig. 3). This included a large number of chips but also retouched artefacts. Again, they are quite likely to have derived from all of the earlier prehistoric phases of activity evidenced at White Horse Stone. Any of the larger early Neolithic material discarded away from structure 4806 could have ended up in this layer.

Animal bone

A very small number of fragments of animal bone were found in structure 4806 and the surrounding natural features (Kitch and Worley 2006). None was found in subgroups 19139 and 19141. Of these bones, only three were identified: a cattle molar from posthole 4902, a sheep/goat tooth in tree-throw hole 5393, and three small rodent ribs in posthole 5280. A further fragment from hollow 5255=4877 was identifiable only as coming from a large mammal (aurochs, cattle, large deer sized).

The rodent bones may well be intrusive and much later than structure 4806. They do, however, provide one indication of the sources of disturbance which may have mixed finds within features.

Charred plant remains

Very small quantities of charred plant remains were recovered from structure 4806: a grain of wheat (*Triticum*, not more closely identifiable) from posthole 5280 and unidentified cereal grains and a few fragments of hazel nut shell from posthole 4817 (Giorgi 2006). In addition a poppy seed (*Papaver* spp.) was found in tree-throw hole 5308, and two fragments of hazel nut shell and a single, unidentified cereal grain in tree-throw hole 5393.

Charcoal

Small quantities of usually highly comminuted charcoal were found in some of the postholes in structure 4806, as well as in other features in the same area (Challinor and Alldritt 2006). In many cases the charcoal was too fragmentary to be identified, but oak (2 contexts), ash, hazel/alder and *Maloideae* were identified.

Pine charcoal was also found in five postholes. However, radiocarbon dates (NZA-21381 8516±35 BP: 7600-7520 cal BC; NZA-21349 9182±40 BP: 8530-8280 cal BC) suggest that this was much earlier than structure 4806 and was residual in the postholes.

Other finds

The only other finds were pieces of burnt sarsen stone found in postholes 4815 and 4817 in structure 4806.

The context of the finds

With the exception of a few finds from bedding gully 5031, all of the finds from structure 4806 were from postholes. Within the postholes, the contexts from which the finds derive were of five types: postpacking and postpipes, primary and secondary fills (in postholes with two horizontal layers of fill) and single fills (Table 8).

The chronological relationships of these types of contexts to the structure probably varied. In principle, the post-packing and possibly also the primary fills should relate to the construction of the structure and could also include earlier, residual material (such as the clearly residual pine charcoal, all of which occurs in postpacking or single fills). The postpipes and perhaps also the upper fills should contain artefacts which were deposited during or after the use of the structure as the posts rotted below ground (Reynolds 1994). This material could, of course, also include earlier residual material. (It is also possible that most of these contexts might contain intrusive material since none, except the primary fills, were sealed from the buried soil above.)

Given the likely differences in their chronological relationships with the construction, use and abandonment of structure 4806, it might be thought that there should be differences in the assemblages from differing categories of contexts. In fact, however, the differences are very slight.

Proportions of contexts types (Fig. 25)

Table 8 shows the proportion of each type of context which contained finds (Fig. 25). It underlines very clearly the significance of sieving for the recovery of finds. The small numbers of certain kinds of contexts which were sieved (ie 3 primary fills and only 6 upper fills), and the low proportion of contexts in which some categories of finds occur overall (eg

animal bone and charred plant remains) produces apparent patterns to which little significance can be attached. Overall, however, the proportion of contexts of each type in which each category of finds occur is remarkably similar, and there is very little difference between contexts which should be related to different phases of the life of the structure.

Table 8. Percentage of each context type (sieved and unsieved) in structure 4806 and late Neolithic structure 5297 containing categories of finds

Context type	No. of contexts	Pot	Unburnt worked flint	Burnt worked flint	Burnt unworked flint and/or stone	Unburnt bone	Burnt bone	CPR	Charcoal	Finds absent
<i>Structure 4806</i>										
<i>Sieved contexts</i>										
Primary fill	3	33	67	67	33					0
Postpacking	17		53	53	35	18	6	6	29	35
Postpipe	10	10	60	40	50	10	10		20	20
Upper fill	6	17	50	50	50	17	17	17	33	17
Single fill	34	6	38	41	18		9		24	35
<i>Unsieved contexts</i>										
Postpacking	6									
Primary fill	6									
Postpipe	13									
Upper fill	3					33				
Single fill	26									
<i>Late Neolithic structure 5297 sieved contexts</i>										
	11	27	73	36	27				27	0

Although the total quantities of artefacts associated with the structure are small, they are quite consistently present throughout the structure in all types of contexts. The proportion of sieved contexts of each type which contained no finds was 35% or less.

Quantities of finds(Fig. 25)

There are similarly few differences in the quantities of artefacts which occur in these contexts (Table 9; Fig. 25).

Table 9. Mean quantities of artefacts per context type for sieved contexts in structure 4806, natural features around it and late Neolithic structure 5297(mean for artefact type A in context type X = total quantity of artefact type A for all contexts of type X/number of contexts of type X)

	Pot (no. sherds)	Pot (weight g)	Chips unburnt (no.)	Chips burnt (no.)	Flakes unburnt (no.)	Flakes burnt (no.)	Irreg waste unburnt (no.)	Irreg waste burnt (no.)	Burnt unworked flint (weight g)	Bone unburnt (no frags)	Bone burnt (no. frags)	No. of contexts
<i>Structure 4806</i>												
<i>Postpipes</i>	0.20	0.60	3.00	2.50	0.20	0.30	-	-	3.10	0.20	0.10	10
<i>Packing</i>	-	-	6.06	2.47	0.12	0.06	0.18	-	1.06	0.65	0.12	17
<i>Upper fill</i>	0.17	-	10.00	1.50	0.33	0.33	-	-	3.50	1.33	0.17	6
<i>Primary fill</i>	0.50	1.00	1.50	2.00	1.00	0.50	-	-	1.00	-	-	2
<i>Single fill</i>	0.62	0.26	2.38	1.00	0.09	0.06	0.03	0.03	0.94	-	0.12	34
<i>Natural features near 4806</i>	1.65	4.53	4.94	1.88	0.82	0.35	0.47	-	4.76	0.35	0.59	17
<i>Late Neolithic structure 5297</i>	0.27	4.18	4.55	0.55	0.36	0.09	0.09	-	0.55	-	-	11

Why the patterns in both the quantities and the proportion of contexts in which artefacts occurred should be so similar in all types of context is unclear. One possible interpretation is that activities predating the structure left remains very similar to those that accumulated during the life of the structure. Another is that most of the finds in fact derive from the same activity which predates the structure, implying that almost all of the artefacts were residual. A more plausible explanation, however, is that the finds did not become incorporated into their contexts strictly through the processes suggested, and that material from the use of the structure became incorporated into all of the contexts. The rodent bones in postholes 5280 suggest one means by which this might have occurred. They were found in postpacking, and a postpipe was still preserved. There are, in addition, a number of other forms of pedoturbation which might have contributed (Schiffer 1987, 206-17; Wood and Johnson 1978).

Spatial distributions (Figs 22-5)

The distributions of finds within structure 4806 and from other features in and around it (subgroups 19139 and 19141) are shown in Fig. 22-4. The quantities are in almost all cases so small and so similar in each context that little significance can be attached to differences between them. The only possible exceptions to this are the categories of flint. Even in the case of the flint, however, contexts with noticeably greater numbers of pieces occur in isolation, surrounded by features with few or no pieces of flint, and do not form parts of wider concentrations.

Overall, the finds distributions do not reveal any significant patterns, except perhaps in the case of burnt bone which is absent from the northern end of the structure. The other categories of finds seem to quite uniformly distributed throughout the structure.

The quantities of finds in different parts of the structure have been examined by dividing the structure into five segments along its length, and totalling the quantities of artefacts in each part (Fig. 25). These segments divide the structure into its northern end, the rows around the late Neolithic pits, the central area (possibly where a door was located), the southern end of the structure, and the area outside the building to the south. The area around the late Neolithic pits was distinguished so as to examine the possibility that the quantities of material in this area were affected by intrusive late Neolithic finds. No such effect is apparent: the quantities of finds in this area are similar to those elsewhere in the structure.

Overall, the finds distributions again appear generally even throughout the structure, as one might expect given that the finds mostly consist of small fragments of waste which were scuffed around the floor.

It is nonetheless perhaps worth noting that the greatest concentration of each category of finds falls into the following order: flint knapping at the northern end, unburnt bone near the middle, burnt bone at the southern end, and pottery beyond the southern end. There is, however, no marked pattern overall in the distribution of burnt material, which, assuming a localised hearth, suggests that the small fragments which make up the finds were scuffed throughout the building.

Phosphates and micromorphology (Fig. 24)

The analysis of phosphates in samples from the postholes and bedding gullies of structure 4806 provides some very slight indication of differences between the northern and southern ends of the structure (Macphail and Crowther 2006).

Samples from 22 postholes and the bedding gullies were analysed to determine the quantities of phosphates (as organic phosphate and inorganic phosphate), their magnetic properties, and their organic content.

Overall the samples had a low loss-on-ignition, suggesting that they had lost much of their organic content. Their magnetic susceptibility was more varied but did not form a clearly coherent pattern throughout the structure.

There was, however, some indication of a pattern in the total phosphate concentrations. Most of the samples with the highest concentrations (over 0.70 mg/g) fall near the southern end of the structure, although there were a few outliers at the northern end. Feature 4905 had an exceptionally high value of 5.54 mg/g perhaps because the sample contained a fragment of bone. The overall pattern might indicate stabling of animals at the southern end of the structure. However, no micromorphological evidence of dung or burnt dung was found, and it is noticeable that most of the very small number of bone fragments were found in the same area. It should also be stressed that most of these 'high' values fall close to, or below, what may be background concentrations (estimated to be <0.75 mg/g). Hence even the highest values would represent only slight enhancements.

Micromorphological analysis identified fine charcoal, flint flakes and small fragments of pottery and bone in the fills of two postholes (4886 and 4834), and, although in smaller quantities, in the eastern bedding gully (5155). These finds are consistent with the other finds from the house, and also suggest that the finds derive from small, fragmentary items which have been scuffed around the beaten earth floor of the structure.

6.6 Radiocarbon dates

A series of 11 radiocarbon dates were obtained from various materials in contexts associated with structure 4806 (Table 10; Fig. 116) (Allen 2006). Two of these were on pine charcoal from postholes 5113 and 4834. In both cases the calibrated dates fall early within the early Holocene (8530-8280 cal BC and 7600-7520 cal BC), much earlier than all of the other dates associated with the structure. These dates thus show that the pine charcoal was residual, and was not related to the structure. No other evidence of activity at this date was found on the site, and the charcoal may well be the product of entirely natural fires.

When calibrated, the remaining nine dates all fall within the period 4050-3530 cal BC, and leave little doubt that structure 4806 dates from this period within the early Neolithic.

The archaeological evidence suggests that structure 4806 represents a single, continuous phase of activity. On the basis of this archaeological judgement, and the assumption that the dates are likely to be relatively evenly distributed throughout the period of use (Fig. 26-7), it is possible, using a Bayesian approach, to narrow the date range and estimate the span of time over which the building was in use (Buck *et al.* 1992). Two models have been analysed for this purpose using Oxcal v. 3.10 (Bronk Ramsey 1995; 2001).

The first includes all of the determinations from features associated or possibly associated with structure 4806 (other than those for the pine charcoal). The results for this model narrow the distribution slightly and provide estimates of the start and end dates (corresponding to construction and abandonment) of 4110-3820 and 3780-3530 cal BC (95.4% confidence level; 68.2% confidence: 4050-3840 - 3750-3640 cal BC). They suggest that the dated material derives from a period of at least 70 years up to as much as 340 years (95.4% confidence; 68.2% confidence: 180-320 years).

Archaeological arguments can be used to exclude some dates from this model. It has already been suggested that the two dates from hearths 4830 and 4874 were probably on residual early Neolithic material in late Neolithic features. Although it is likely that this material derives from activity associated with structure 4806, its context does not provide a clear association between the two. Arguably, therefore, they cannot be used to date the structure. The second model therefore excludes these two dates. This produces a slightly narrower range, suggesting start and end dates of 4080-3830 and 3780-3510 cal BC (95.4% confidence; 68.2% confidence: 3980-3830 - 3750-3630 cal BC). They suggest that the material spanned a phase of between 50 and 300 years (95.4% confidence; 68.2%: 100-250). The difference to the date ranges is quite small, and is largely produced by excluding the date from hearth 4830. This is the earliest of the dates potentially associated with structure 4806. It might relate to the clearance of the area in which structure 4806 was subsequently constructed. Unfortunately, its context means that it is of little value. On archaeological grounds, such as the lack of evidence for rebuilding and the likely limitations on the life of a timber structure (see, however, Brück 1999, on the wide discrepancies in estimates of the life of timber buildings), a span near the shorter end of the ranges indicated is likely. Even the shorter range, however, suggests that the structure was more than a temporary shelter, and was in use for some time.

Table 10. Summary of radiocarbon dates for Structure 4806. All calibrated date ranges cited cal BC at 95% confidence

Feature/context	Result no	Material	δC^{13}	Uncal date	Calibrated dates	Modelled dates	
						All	Excluding hearths
4830/4831	KIA-25383	Maloideae charcoal	-25.22	5165±31	4050 - 3810	4040 - 3800	
4874/4876	NZA-21506	Charred grain (unidentified)	-26.54	5039±25	3950 - 3770	3950 - 3760	
4820/4821	NZA-21279	Maloideae charcoal	-25.13	5123±30	3980 - 3800	3980 - 3800	3980 - 3790
4818/4817	NZA-21770	burnt animal bone	-24.60	5067±30	3960 - 3790	3960 - 3790	3950 - 3780
4902/4904	NZA-21278	cattle molar	-23.38	5028±30	3950 - 3710	3950 - 3710	3940 - 3710
5280/5281	NZA-21504	Charred <i>Triticum</i>	-25.98	5007±75	3960 - 3660	3960 - 3690	3940 - 3670
4818/4817	NZA-11464	Charred hazel nut shell	-24.13	4974±60	3950 - 3640	3940 - 3660	3930 - 3650
4820/4821	NZA-21769	burnt animal bone (unidentified)	-17.4	4949±30	3790 - 3650	3800 - 3660	3800 - 3660
4818/4817	NZA-11463	Charred grain (unidentified)	-23.37	4911±60	3920 - 3530	3940 - 3630	3910 - 3630
Agreement						83.0%	93.2%
Estimated start and end distributions						95.4%: 4110-3820 - 3780-3530	95.4%: 4080-3800 - 3780-3800
Span						68.2%: 4050-3840 - 3750-3640	68.2%: 3980-3830 - 3750-3630
χ^2					df=8 T=39.4 (5% 15.5)	95.4%: 70-340 68.2%: 180-340	95.4%: 50-300 68.2%: 100-250
							df=6 T=23.3 (5% 12.6)

6.7 Structure 972 (Figs 26-31)

Traces of what seem to have been a second rectangular post-built structure were found near the south-eastern corner of the Pilgrim's Way site. It lay on the western side of the dry valley, and was aligned NW-SE (slightly nearer E-W than structure 4806), running along the contours of this side of the valley.

Only two rows of posts, from a wider cluster, seem to belong to the structure (Figs 28-9). They suggest that the structure was 10.5 m long. The two rows, not necessarily defining the full width of the structure, were 2.55 m - 3.30 m apart.

This structure was found towards the end of the time available for excavation. None of the contexts associated with the structure was sieved (and just two of the other postholes in this area). It is thus not surprising that very few finds were recovered. Since there is evidence for activity in the early, middle and probably also the late Neolithic around the structure, its date is uncertain.

The structure (Figs 29-31)

Within the wider cluster of features, two roughly parallel rows of posts define the structure (Fig. 29). In most cases the postholes occurred in matched pairs at equivalent positions along each row. The posts were placed at more or less regular intervals of 1.6 - 1.9 m or 2.2 - 2.3 m, especially along the eastern row (where these intervals alternate (from north to south: 2.25 m, 1.9 m, 2.2 m, 1.8 m, 2.25 m). Posthole 777, in the eastern row, was the only posthole which lacked a partner in the western row.

The western row of posts in particular was slightly bowed, so that the width of the structure increased from 2.55 m at the northern end to 3.30 m near the middle, and then decreased to 2.6 m at the southern end.

Three further postholes, which have not been assigned to the structure, lie along the eastern row (790, 721 and 729). One of these (729) was much smaller than the other postholes (0.12 m wide and just 0.03 m deep; Figs 30-1). The other two (721 and 790) might have belonged to the structure but lack partners in the other row, and do not conform to the more or less regular spacing of the other postholes.

A distinctive feature of the plan of the structure was the positioning of additional postholes (792 and 798) in each row at the northern end, each set just in front of and to the outside of the postholes forming the end of the row (794 and 796). The suggestion that this was a deliberate arrangement is supported by the fact that these four postholes were very similar in size and shape.

Other postholes (subgroup 19415)

Eight other postholes were found in and around the structure which do not fall within the pattern described above. They may still have been related to the structure. Along the western side in particular, postholes 810 and 812, and perhaps also 784, 806 and 804, could have formed part of a third row of posts.

Finds and dating (Fig. 30)

Probably because only two of the postholes (738 and 806) in this area were sampled, very few finds were recovered (Table 11 and 12). The absence of finds comparable to those in structure 4806 cannot, therefore, be regarded as significant.

Most significantly, no chronologically very diagnostic artefacts were found in postholes which definitely belong to the structure.

A probably early Neolithic rolled rim in fabric F2, similar to some of the early Neolithic pottery from the White Horse Stone site, was found with two further sherds in the same fabric in feature 804 (Fig. 30). The total weight of this pottery amounts to just 2 g. Feature 804 has not been assigned to structure 972. It is wider (0.52 m) than all of the postholes in this area, and, in terms of size, is as close to the nearby middle Neolithic pits as it is to the postholes. It could equally well be interpreted as a small pit or a large posthole.

A further small sherd (2 g) was found in posthole 808 which may have formed part of the structure. It lacks any distinctive features but, on the basis of its shell tempered fabric (S1), can be related to the Grooved Ware elsewhere on the site.

The other finds from structure 972 consist entirely of flint: a very small number of flint chips and flakes as well as a serrated flake and a retouched blade. The other postholes contained a similar assemblage consisting of a few chips and flakes, but also a partially worked nodule and a partially retouched flint fragment. Coal was found in one of the sampled features (806). It may be intrusive or reflect the fact that this feature was genuinely much later in date.

Table 11. Summary of finds in subgroup 972 (Pilgrim's Way structure)

Feature	Pot	Ware No/weight Fabric	Chips unburnt/burnt	Flakes unburnt/burnt	Other flint unburnt/burnt
808	INDET/LN? 1/2 S1				
743					Serrated flake 1/0 (worn)
786				2/0	Retouched blade 1/0
798			2/1		

Table 12. Summary of finds in subgroup 19415 (other postholes in the area of structure 972)

Feature	Pot Ware	No/weight Fabric g	Chips unburnt/burnt	Flakes unburnt/burnt	Irregular waste flakes unburnt/burnt	Other finds
804	EN 3/2	F1				
734				3/0		
738			4/0	1/0	1/0	Partially worked nodule 1/389 g Large, ovate thermal fragment with retouch around the perimeter on cortical side charcoal + (coal)
806						

Since these finds do not very clearly indicate the date of the structure, it has been assigned to the early Neolithic largely on the basis of comparisons with structure 4806.

Comparison with structure 4806

In some respects structure 972 is similar to structure 4806. Both were long, rectangular post-built structures, built on a similar orientation, of similar sized posts. It would therefore be possible to see structure 972 as a much less well-preserved example of a structure similar to 4806.

The two rows of posts in structure 972 might then be seen as corresponding to the internal rows of larger posts in structure 4806. The spacing between the two rows of posts in structure 972 is, within the limits of variation, essentially the same as the spacing between the internal post rows in structure 4806, and the spacing of the posts along these rows is also within a range comparable to that in structure 4806.

It is even possible to find a parallel for the offset posts (792 and 798) in structure 972, since the internal posts (4866, 5019, 4886 and 5253) in the first row inside the northern end wall of structure 4806 are also doubled in a comparable way.

The outer post rows of structure 972 might have been truncated away. The distance of the western postholes from the post rows of structure 972 makes them more comparable in location to the posts forming the porch of structure 4806 than to those forming the walls.

It is thus possible to argue that structure 972 could have been very similar in form (and date) to structure 4806.

6.8 Discussion

For many years houses were a conspicuous absence in the early Neolithic landscape. In support of the prevailing model of Neolithic life, which involved sedentism made necessary by agriculture, their scarcity could be partly explained by poor preservation (Megaw and Simpson 1979, 86; Holgate 1988; cf Pollard 1999, 78; Thomas 1991, 8-9). It was, however, suggested that such structures might be preserved in particular circumstances below colluvial and alluvial deposits. The structure at White Horse Stone can be seen as a fulfilment of that prediction (as can finds at sites such as Yarnton (Hey *et al.* 2003) and Fengate (Pryor 1974, 1993)).

The scarcity of potential houses has, however, formed part of the basis for a challenge to the idea that sedentary agricultural village life was characteristic of the Neolithic in Britain. Instead it was argued that Neolithic life in Britain was more mobile, and the structures associated with it likely to be more ephemeral than those found in earlier phases of the Neolithic in Europe (Thomas 1991, 1996; Pollard 1999). The few possible houses which were known were thus regarded as atypical, and seen as specialised structures, possibly of different kinds, but related to an extended community rather than a domestic group (Thomas 1996). Attention was drawn to unusual deposits associated with some of the structures (*ibid.*). The structures have thus come to be presented as public, ceremonial or ritual ‘halls’ rather than everyday homes (Cross 2003).

At the same time, discoveries made in the last two decades, and in particular the large quantities of charred grain associated with large timber structures in Scotland, have been used to argue that such structures were typically Neolithic houses related to sedentary occupation associated with agriculture (Rowley-Conwy 2002; Rowley-Conwy *et al.* 2004).

The debate concerning the interpretation of these structures and the character of early Neolithic settlement has formed part of the impetus for a more general debate on the chronological and social scale of Neolithic settlements, and the position of structures such as those at White Horse Stone and Pilgrim’s Way within patterns of early Neolithic life (eg Pollard 1999; Whittle 1997). These structures thus have a significant contribution to make to debates concerning the use and significance of such structures, and their position within wider settlement systems and cosmologies.

Preservation

A possible explanation for both the scarcity of similar structures, even in well researched areas such as Wessex, and for the preservation of the White Horse Stone structure can be found in the possibility of chalk being protected from erosion to differing degrees by the differing depths of overlying soil and sediment. Atkinson (1957) argued that the construction

of the bank at Stonehenge had impeded erosion of the underlying chalk to the extent that the chalk stood around 0.35 m higher below the bank than in other areas (despite the absence of ploughing in this area since the monument's construction). It thus seems likely that the relatively good preservation of structure 4806 is due in large part to the fact that it was covered by colluvial layers from the Romano-British period. It is also clear that erosion at the rates suggested by Atkinson would otherwise have removed almost all traces of the structure. Around 90% of the postholes were less than 0.35 m deep. The apparently rather poor preservation of structure 972 can thus be explained by the fact that it was not protected by similar deposits.

If natural erosion of chalk below soil is a significant factor in the preservation of such structures, then the apparent isolation of these structures, discussed further below, needs to be qualified. Although we can be reasonably certain that such structures did not exist in the areas of the White Horse Stone and Pilgrim's Way sites which were covered by later sediments, there may have been other structures in unprotected areas which have not survived.

A further implication of this is that suggestions that the absence of similar structures from areas of southern England, such as Wessex, must be real because the areas are so well researched (eg Bradley 2003, 218) needs to be qualified. Where early Neolithic ground surfaces have been preserved below barrows in southern England, structures have been found. In almost all cases, however, where it has been claimed that such structures were houses (eg Sale's Lot (O'Neil 1966); Hazleton (Saville 1990); Gwernvale (Britnell and Savory (1984)) the evidence is too equivocal to support the claim that they were houses rather than mortuary structures (Thomas 1996).

The structures

The structure at White Horse Stone seems to have been a large rectangular, gable roofed structure, constructed of four rows of posts, with additional external rows perhaps supporting a porch running the length of the building. How the walls were constructed is unclear, but there seem to have been differences in the methods used for the side walls, which are marked by shallow bedding gullies, and the end walls, which lack such gullies. There may also have been slight differences in the construction of the side walls of the northern and southern halves of the building. A doorway perhaps stood in the middle of the western side. Symmetrical doubling of internal postholes in the northern half of the structure may be related to internal partitions or other internal features.

The evidence from the Pilgrim's Way structure was much less complete than that at White Horse Stone, but the correspondence between the postholes there, and the inner rows at White Horse Stone, suggests that they may derive from a similar structure.

Formal comparisons

The White Horse Stone and Pilgrim's Way structures belong to an increasingly large group of early Neolithic rectangular structures in the British Isles. Comparison of these structures reveals a mixture of widely shared features and individual variations. For example, the use of vertical plank construction appears to have been widespread, burnt examples having been found at numerous sites in Ireland and Scotland (Ballyharry (Crothers 1996; Moore 2003, 2004); Coolfore (Ó Drisceoil 2003); Ballynagilly (ApSimon 1969); Balbridie (Fairweather and Ralston 1993); Claish (Barclay 2003)). Shallow gullies, comparable to those at White Horse Stone are also common, and may have been related to construction using planks. The evidence from White Horse Stone, especially at the southern end of the structure, is unusual in suggesting that such gullies may not have been related to vertical plank construction. The absence of daub also makes it unlikely that the walls at White Horse Stone were made of wattle and daub. One alternative possibility is that the stakes held horizontal planks in place. Evidence for construction using horizontal planks has been found at Coolfore (Ó Drisceoil 2003). In many sites such gullies also mark internal divisions, usually near the ends of the larger structures but in the middle of smaller buildings. No internal gullies were found at White Horse Stone, but the doubled internal postholes at the northern end of the structure may have been related to internal partitions. Evidence for differences in the construction of the side and end walls similar to that at White Horse Stone has also been found at other sites (eg Ballynagilly (ApSimon 1969, 1976); Tankardstown (Gowen 1988; Gowen and Tarbett 1988); Coolfore (Ó Drisceoil 2003), but this is by no means universal. The possible similarities in building techniques with sites of other kinds, and in particular mortuary structures (eg Normanton Down; Vatcher 1961) have already been noted. These features suggest widely shared techniques of construction. It is perhaps worth noting that since parts of houses, especially posts, beams and hearths (eg Carsten and Hugh-Jones 1995), are so frequently assigned quite specific symbolic interpretations, these widely shared features may have a significance which goes beyond building techniques.

There are also, however, indications of basic structural differences. Many of the structures were based upon a framework of posts, and where patterns in the distribution of posts can be seen, differences in construction are apparent. Many of the largest structures are based, like White Horse Stone and possibly also Pilgrim's Way, upon four longitudinal rows of posts: two internal rows and two rows along the walls (eg Llandygai (Lynch 1989); possibly Lismore Fields I (at least the eastern half; Garton 1987, 1991); Ballygalley (Simpson *et al.* 1990, 1994; Simpson 1996), Ballyglass (Ó Nualláin 1972), Corbally (Purcell 1999, 2002; Tobin 2003); Lough Gur (Ó Ríordáin 1954; Grogan and Eogan 1987)). Other large structures, however, have more complex patterns (eg Balbridie (Fairweather and Ralston 1993); Claish (Barclay 2003)). Equally characteristic, are smaller, more nearly square short

structures, many of which are marked by an internal lateral division, marked by a gully or row of postholes (eg Fengate (Pryor 1974, 1993); Lismore Fields II (Garton 1987, 1991); Gorhambury (Neal *et al.* 1990); Tankardstown 1 (Gowen 1988; Gowen and Tarbett 1988); Ballynagilly (ApSimon 1969, 1976); Newtown (Gowen and Halpin 1992); Corbally (Purcell 1999, 2002; Tobin 2003); Drummenny Lower (Dunne 2003); Enagh (McSparron 2003).

Darvill (1996) has attempted to use differing methods of construction as the basis for a classification of these structures. The most significant difference, however, seems to lie between the large, long rectangular structures and smaller, more nearly square short structures. It could be argued that the differences between these two types is a matter of modularity - the larger structures being composed of modules which might also be built separately. This is one possible interpretation of Lismore Fields structure I (Garton 1987, 1991) and could be argued for White Horse Stone (cf. also Tankardstown (Gowen 1988; Gowen and Tarbett 1988) and Corbally (Purcell 1999, 2002; Tobin 2003)). In other cases, however, the larger structures seem to have been conceived as wholes and cannot be easily resolved into distinct modules.

The significance of the contrasts between these two broad types is unclear. It is quite possible that there were differences in the use of structures within each category, and the distinction in form may not correspond to a simple distinction in use. It is, however, also possible that the difference in size reflects nothing more than the number of occupants. The two broad types sometimes occur together, for example at Corbally (Purcell 1999, 2002; Tobin 2003) and Lismore Fields (Garton 1987, 1991). At the latter site the two structures may be of different dates.

Location and continental relations

Within the wider group of comparable structures the location of the White Horse Stone and Pilgrim's Way structures is significant. Comparable sites are most numerous in Ireland (Armit *et al.* 2003; Cooney 2000; Grogan 1996), but there are notable examples in Scotland (Barclay 2003; 1996), Wales, and England (Darvill 1996). This wide distribution forms a challenge to the suggestion that they were atypical, and the gaps in their distribution are better seen as matters of regional variation, detection and preservation. The nearest examples possibly comparable to White Horse Stone are at Yarnton (Oxon; Hey *et al.* 2003), Gorhambury (Herts; Neal *et al.* 1990), and possibly Chigborough Farm (Essex; Davrill 1996). White Horse Stone extends the distribution of these structures to the south-east of England, and places them nearer to continental Europe.

The south-eastern location of the White Horse Stone structure might suggest that it could throw light on the continental background of the early Neolithic. The extent to which significant cross-channel relations can be established is limited by the small number of

structures of comparable date that are known in nearby regions across the Channel (Bradley 2003, 218; Vermeersch 1995; Vermeersch and Burnez-Lanotte 1998; and see, for example, papers in Anon 1997 and Anon 1991). Nonetheless, it is possible to relate the White Horse Stone structures and others in the British Isles to a tradition of rectangular, post-built structures, often constructed using bedding trenches and often characterised by internal lateral partitions, which developed over a long period in north-eastern France and the Low Countries. Although ‘family resemblances’ can be recognised between structures throughout these areas, there are also significant structural contrasts, the most obvious of which involves the number of longitudinal rows of posts within the structures.

The earliest Neolithic houses in this region belong to the *Linearbandkeramik* (LBK) and predate the White Horse Stone structures by at least half a millennium. It is, however, possible to trace the development and transformation of the tradition to which these structures belonged up to the 4th millennium cal BC. The long rectangular LBK houses were constructed using five longitudinal rows of posts (two along the walls, often set in bedding trenches at one end, and three internal rows; eg Le Chemin de la Pêcheurie, Berry-au-Bac, Aisne: Ilett and Plateaux 1999; Coudart 1998). The later, more or less trapezoidal structures which continued this tradition, were also constructed using five rows of posts and bedding trenches. Such structures were associated with the Rössen and Cerny Cultures (eg Marolles-sur Seine: Mordant and Mordant 1970; Hampel 1989). Structures which might be regarded as a continuation of this tradition have been found in a Michelsberg culture enclosure at Les Hautes Chanvières, Mairy, in the Ardenne (Marolle 1989), and date from a period (c 4300-3800 cal BC: Marolle 1998) close to that to which the White Horse Stone structures belong.

Like the White Horse Stone structures, the structures at Les Hautes Chanvières were long, rectangular buildings, constructed using posts set in, and sometimes beside, bedding trenches. Furthermore, they had internal partitions comparable to those in early Neolithic structures in the British Isles (for which, however, the evidence at White Horse Stone is unclear). Although there were, therefore, certain similarities in methods of construction, there were also very significant differences. The structures at Les Hautes Chanvières were constructed on a much larger scale than any of the British or Irish structures. The largest structure was 13 m wide and 60 m long, and had bedding trenches 1.5 m deep and 1.0 m wide. The remaining structures at Les Hautes Chanvières were smaller (20-45 m long) but even the smallest was larger than that at White Horse Stone. Furthermore, in contrast to both the five post-row construction which characterises the LBK and some Rössen/Cerny culture structures, and the four post-row construction which seems most characteristic of early Neolithic structures in the British Isles, the Hautes Chanvières structures were built using three longitudinal rows of posts.

By this date, however, a tradition of shorter structures (quite distinct from the LBK *kleinbauten* (Modderman 1970, 100-120)), more comparable in size to the those in the British Isles, but usually based on three rows of posts (two along the side walls and one along the centre) can also be recognised. The structures belonging to this tradition were often constructed using posts much smaller than those associated with LBK and related later structures. They also lack the side ditches which were often associated with LBK structures. This tradition of smaller, slighter structures is represented in north-eastern France by structures in Cerny and late Rössen culture enclosures at Osly-Courtil, Aisne (Dubouloz 2000) and Berry-au-Bac, Aisne (Dubouloz *et al.* 1980; Dubouloz 1991) as well as more widely in the Rössen culture at sites such as the Goldberg (Goldberg I; Bersu 1936) and contemporary and later settlements in the Alpine foreland (eg Lundström-Baudais *et al.* 1989). Both Osly-Courtil and Berry-au-Bac contained structures (*c* 20 m by 9 m) similar in size to those at White Horse Stone. At Berry-au-Bac the structures were constructed using three rows of posts, but share the use of bedding gullies and internal partitions with structures in the British Isles. They were perhaps most comparable to the smaller, internally divided short structures in Britain and Ireland (see above). The structure at Osly-Courtil lacks evidence for bedding gullies and lateral partitions, but was, like many of the British and Irish structures, constructed using four rows of posts.

Both Berry-au-Bac and Osly-Courtil predate the British and Irish sites, even if possibly by only a few centuries. Later structures, constructed using four rows of posts, comparable to those at Osly-Courtil, have, however, been found in a Michelsberg culture enclosure at 'Ferme de l'Hoste', Thieusies, Hainault, Belgium (Vermeersch and Walter 1980). These are likely to have been closer in date to the White Horse Stone structures (4450-3700 cal BC on the basis of radiocarbon dates from the site but not directly associated with the structures). However, they were small, just 5-5.5 m long and 3-4 m wide, and, as the excavators note, in the suggested reconstruction, the posts would have been so close together as to make the structure seem impractical as houses. It is, nonetheless, these structures, and those at Berry-au-Bac and Osly-Courtil which provide the closest parallels, in both space, time and form, for the White Horse Stone structures.

More distantly, in the centre-west of France evidence of a quite distinct tradition of round early Neolithic structures has been found (Laporte *et al.* 2004). Not only is the form quite different from the British structures, but they are also earlier in date. There were also few closely comparable structures further north. In north-eastern Germany and Denmark, the early Neolithic structures were oval or subrectangular and often constructed using three rows of posts (eg Mossby and Ornehus: Buus-Eriksen 1991) or were D-shaped (Hanstedgård: Eriksen and Madsen 1984). Of the later Neolithic structures to the north, Flögeln, Cuxhaven, Niedersachsen (Zimmerman 1979), constructed using four rows of posts, with bedding gullies

and lateral divisions, is most comparable to, but post-dates, those in the British Isles, as do other, less comparable sites (eg Wittenwater, Uelzen, Niedersachsen: Voss 1965; Runegård and Grøbygård: Kempfner-Jørgensen and Watt 1985).

In conclusion, a varied set of similarities between the rectangular, post-built structures, often characterised by bedding trenches and lateral partitions, of the British Isles and north-eastern France and Belgium can be recognised. The relatively common use of four post-rows in the British and Irish structures differentiates them from the five post-row construction of the earlier LBK-related long structures, and from the generally later, shorter, three post-row structures. The closest comparisons, however, are with the smaller, more slightly built three post-row structures, to which the rare four-post row examples in France and Belgium should be related. The significance of the number of rows of posts is open to debate. It was presumably related to differences in the superstructure (perhaps the presence or absence of roof trusses and the pitch of the roof (Startin 1978, 146-9)) which, it might be thought, were more a practical matter related to the available woodworking technology, the width of the building and the kind of timber and roofing material which was available, rather than a significant cultural difference. The five-row construction of the LBK structures was, however, transmitted extraordinarily faithfully across considerable spans of both space and time (Coudart 1998), and continued in use in the later trapezoidal structures. The smaller, three post-row structures were more varied (Lundström-Baudais *et al.* 1989), and the structures in the British Isles perhaps more varied still. However, the consistency within these groups suggests that the differences between them reflect significant interruptions in the transmission of the tradition. This highlights the fact that the structures in the British Isles were not simply copies of continental prototypes but constitute a significant transformation of the continental tradition from which they derived. This transformation, and the relative paucity of evidence on both sides of the Channel means that it is impossible to pinpoint anything like a precise continental source for the British and Irish structures. It is nonetheless striking that the closest parallels are in the roughly contemporary northern French and Belgian Michelsberg culture and the preceding Rössen and Cerny cultures. It is in these areas and cultures that other similarities (but again not direct copies) in pottery, flintwork (Crombé *et al.* 2005, 61) and bone tools have been recognised (eg Kinnes 1988, 2004).

Chronology

Even if the rectangular early Neolithic structures are interpreted as houses, their chronology means that they do not resolve the problem of the scarcity of domestic architecture for much of the Neolithic. Radiocarbon dates from many of these structures consistently fall within a similar, restricted period, between *c* 4000 cal BC and *c* 3500 cal BC, and arguably into an even more restricted range: *c* 3900-3600 cal BC at the beginning of the Neolithic (Whittle

2003, 41) (eg Balleygally; Newtown (Gowen and Halpin 1992); Tankardstown (Gowen 1988; Gowen and Tarbett 1988); Corbally (Purcell 1999, 2002; Tobin 2003); Crathes (Fraser and Murray 2005); Cloghers (Kiely 2003); Lismore Fields (Garton 1987, 1991); Thornhill (Logue 2003); Ballyharry (Crothers 1996; Moore 2003, 2004)). The dates from White Horse Stone are quite consistent with this wider pattern. Although there are sites with later dates (eg Fengate (Pryor 1974, 1993) and Gorhambury (Neal *et al.* 1990), in both cases there is some doubt about the interpretation of the structures. However, in the case of the Fengate structure the strong association with an assemblage of Carinated Bowl rather than the poor quality radiocarbon dates provides a likely (pre-3650 BC) early date (Alistair Barclay pers comm). Overall, however, such structures do not represent the domestic structures of the Neolithic, but are a particular phenomenon characteristic of a much shorter phase, near to the beginning of the Neolithic in Britain and Ireland.

Function

All of this leaves the question of the function and significance of these structures - and in particular whether they could be seen as houses - open to question. The pitfalls of interpreting early Neolithic structures using categories (such as 'domestic') drawn from our own experience, albeit modified by expectations about 'primitive' Neolithic contexts, have been repeatedly stressed (eg Thomas 1996; Pollard 1999; Cross 2003; Brück and Goodman 1999). Terms such as domestic can be given minimal, functional definitions. The 'domestic' could, for example, be defined as the place where people ordinarily cooked, ate and slept. On the basis of such a definition the term would no doubt be of almost universal application. However, such categories are useful as terms of interpretation because they carry much richer implications. They may be taken, for example, to imply that distinctions were drawn in a particular way between domestic and other activities, and can easily be taken to imply the presence of a certain set of social relationships. Social anthropology shows all of these things to be highly culturally varied (eg Carsten and Hugh-Jones 1995; Leach 1982, 178-211).

Furthermore, in the case of the small-scale, relatively undifferentiated society which may be assumed to have been characteristic of the early Neolithic in southern England, structures such as that at White Horse Stone are quite likely to have fulfilled several different roles. Even if such structures were domestic, they are likely to have also been ritual, perhaps in different ways, at different times (eg Hugh-Jones 1995; van Gennep 1960). The evidence for unusual, possibly ritual deposits is not, therefore, necessarily evidence that such structures were not houses in the minimal sense of that term.

Rather than simply reproducing our own categories, by comparing these structures, not just with similar, but also with different sites, we can begin to understand how distinctions were made between differing kinds of structures and sites.

Aside from their form, the best evidence for the functions and meanings of structures such as those at White Horse Stone is the artefacts associated with them. Overall, White Horse Stone has a relatively small assemblage of artefacts compared to many other similar sites. There are, however, a number of complications which help explain the dearth of finds.

The most obvious relate to processes of abandonment and the fact that some of the structures with the richest assemblages of artefacts, and in particular of cereals, burnt down (eg Balbridie (Fairweather and Ralston 1993) and Crathes (Fraser and Murray 2005)).

The second major complication is caused by the fact that the types of features related to a structure have a significant effect on the quantities of finds associated with it. Pits are not commonly associated with early Neolithic structures in the British Isles, but those that are tend to contain more finds than the postholes (eg Ballyglass (Ó Nualláin 1972); Ballygalley (Simpson *et al.* 1990, 1994; Simpson 1996); Ballynagilly (ApSimon 1969, 1976)).

A related, and more minor complication is raised by the presence of special deposits. The clearest example of this is the cremation deposit at Yarnton (Hey *et al.* 2003) which accounts for a large proportion of the material associated with the house there. In this case, the deposit may have been related to a single, exceptional event and the absence of comparable deposits from structures such as that at White Horse Stone is not necessarily as significant as it might at first appear. Nor, as has been suggested above, do such deposits necessarily mark out the associated structures as special or ritual structures: ritual is a normal part of the life of domestic structures in many parts of the world.

The White Horse Stone and Pilgrim's Way sites lack all of the features listed above: they were not burnt down, have no archaeologically visible special deposits and are not associated with pits. All of these negative features can be used to explain why they are associated with smaller quantities of finds than many other early Neolithic structures.

The finds from White Horse Stone seem to consist of stray fragments, some from a hearth, scuffed around the floor, and incidentally incorporated into postholes and gullies. The few fragments of animal bone, charred grain, hazel nut shell, pot and flint chips are the stray remains of the greater quantities of material which were made, used, processed, consumed and removed from the structure, and suggest the original presence of much greater quantities of material. It seems that the structure was kept clean, and the larger items implied by the presence of these fragments must have been deposited elsewhere. If they were deposited nearby, they have not been preserved (although note the worked flint from the buried soil above the structure). The presence of such fragmentary material, and the absence of larger items of waste could be seen as indicative of long term occupation. In her review of ethnographic evidence for the way in which material was discarded, Murray (1980; Holgate 1988, 105-6) found that on sites which were occupied for longer than a season, waste was not left *in situ*. At a number of sites, middens and other deposits marked out by the presence of

concentrations of finds have been found, situated away from houses (eg on cobbled surfaces at Balleygalley and Coolfore (Ó Drisceoil 2003), below the settlement at Clegyr Boia (Williams 1953), the large quantities of finds in trampled surfaces at Carn Brea (Mercer 1981, cf. also 'midden' deposits preserved below barrows as at Hazleton (Saville 1990))

The distribution of the finds in most of the postholes throughout the structure at White Horse Stone suggests a relatively intensive use of the structure which is consistent with everyday, domestic occupation. Such finds could also, however, have been produced by ritual gatherings. Food, for example, might equally well be prepared, cooked and consumed at a ceremonial gathering as in a domestic context, and the stray fragments that remain are not sufficient to demonstrate whether one (or both) were involved.

Few sites have so far been reported in sufficient detail to allow precise comparisons of assemblages of finds. Many (Lismore II (Garton 1987, 1991); Hembury (Liddell 1931); Newtown (Gowen and Halpin 1992); Coolfore (Ó Drisceoil 2003); Gorhambury (Neal *et al.* 1990) and Fengate (Pryor 1974, 1993) and others) seem to have been associated with assemblages similar to those at White Horse Stone.

There are, however, a few sites with very different sets of finds. Most striking is the structure at Yarnton (Hey *et al.* 2003) where, despite sampling of all of the associated features, almost no finds were recovered beyond the special cremation deposit and material perhaps derived from it. It is more difficult to be certain of the significance of sites with conspicuously larger assemblages of finds because of the complications noted above. Some similarities and differences are, however, worth noting.

Some of the most notable contrasts are in the size and composition of the lithic assemblages. Many sites seem to have been characterised, like White Horse Stone, by assemblages consisting of a high proportion of debitage and relatively few retouched pieces (eg Coolfore (Ó Drisceoil 2003); Cloghers (Kiely 2003); Fengate (Pryor 1974, 1993)). The implication of this is that although flint was worked in and around the structures, many of the tools produced were used and discarded elsewhere. The structures thus seem to have been related to just part of a wider 'taskscape' (Ingold 1993). Whether the immediate relationships of this taskscape extended primarily to other parts of the same site, or much further afield, is unclear. There are, however, contrasting sites with higher proportions of retouched pieces (eg Ballygalley (Simpson *et al.* 1990, 1994; Simpson 1996)). At Drummenny Lower (Dunne 2003) the small lithic assemblage contained no debitage, and it has been argued on this basis that the structure was not domestic.

The second set of comparisons relate to the presence of charred grain and hazelnuts. The exceptionally large groups of charred plant remains at burnt structures such as Balbridie (Fairweather and Ralston 1993), Crathes (Fraser and Murray 2005), and possibly Lismore Fields (Garton 1987, 1991) contain high proportions of cereals and, for Neolithic contexts,

relatively small proportions of hazel nut shells and other wild plant foods (Moffet *et al.* 1989; Robinson 2000b). At sites with smaller assemblages, cereals also occur with remarkable frequency (eg Balleygally; Cloghers (Kiely 2003); Ballygalley (Simpson *et al.* 1990, 1994; Simpson 1996); Drummenny Lower (Dunne 2003); Ballyharry (Crothers 1996; Moore 2003, 2004); Thornhill (Logue 2003)), often seemingly forming high proportions of the charred plant remains compared to hazel nut shell. The assemblage of charred plant remains from White Horse Stone is unfortunately too small to be regarded as significant (although there too there were more charred grains than hazel nut shells). The overall pattern lends support to the suggestion (Jones 2000) that agriculture formed a more significant element of the subsistence economy than is apparent at other kinds of sites (Moffett *et al.* 1989). The pattern may, however, be confined to the early Neolithic period to which these structures were related. In late Neolithic contexts at White Horse Stone, hazel nut shells outnumber cereals.

The final comparisons relate to animal bone. Finds of animal bone are very limited, and often consist of small, sometimes burnt fragments. In many cases this may be due to acidic soils (eg Lismore Fields (Garton 1987, 1991)), but overall the White Horse Stone assemblage seems to be typical. The presence of a cow molar is consistent with the apparent predominance of cattle at other sites (Cross 2003). However, with rare exceptions, the number of identified bones is too small for much significance to be attached to them.

Overall, the assemblage at White Horse Stone is small compared to most of the other comparable sites, but generally similar in composition: the lithic remains consist primarily of debitage associated with relatively few retouched pieces; there are few charred plant remains, but cereals outnumber hazel nuts; and animal bone is scarce. The finds thus represent the structure as a base for the production of flint tools many of which may have been used and discarded elsewhere, as having been related agro-pastoral production, involving perhaps the storage and/or consumption of processed grain and probably also the consumption of meat. Although they do not provide conclusive evidence, these finds are at least suggestive of a domestic function (in the minimal sense). This still, however, leaves open the question of the composition of the associated household and its relationships with other sites. The local context of the structure is relevant to these questions.

The local context

The most striking possible local relationships of the White Horse Stone and Pilgrim's Way structures are with the nearby Medway Megaliths. Their general form and the results of excavations of two of the western tombs (Alexander 1961; Bennett 1913) suggest that these tombs are likely to be broadly contemporary with the White Horse Stone and Pilgrim's Way structures. Their precise chronology is, however, unknown, although early radiocarbon dates have been obtained on human bone from the burials at Coldrum (Alasdair Whittle pers comm)

and probable Carinated Bowl was associated with the burial deposits at the Chestnuts (Herne 1988; Barclay and Edwards 2006). The sites nonetheless provide an area where long barrows and long houses of similar date were very close. It is thus no longer necessary to see long barrows as harking back to much earlier, and rather distant long houses: in the case of White Horse Stone and Pilgrim's Way they could also have made symbolic reference to nearby, contemporary structures (cf Childe 1949, Hodder 1984, Bradley 1998; cf the earlier diachronic relationship between LBK houses and later, Cerny culture long monuments, some associated with burials, at Balloy, Seine-et-Marne, and other sites in the same region; Mordant 1998).

Although the tombs lie close to the structures, because the structures lie within the dry valley, even if there was no tree cover (which the molluscs from structure 4806 suggests is unlikely), with the possible exception of Smythe's megalith, the tombs would not have been visible from the structures. A less direct relationship between the tombs and the structures may, however, have been marked by their orientation. Whereas the Medway tombs are all oriented roughly east-west, both the White Horse Stone and Pilgrim's Way structures lie roughly north-south. This is particularly striking in the case of the White Horse Stone structure since this lies perpendicular to the contours, maximising the difference in height of its northern and southern ends. The opposed orientation of these two classes of sites might be taken to imply opposed cosmological positions.

The proximity of the tombs and houses also raises the question of the kinds of social groups which were related to them, and how they were related. Since the tombs contain the remains of the dead they are most easily seen as having been related to a group based on filial relationships (descent). In contrast, the social groups related to houses usually involve affinal relationships (based upon marriage) whatever their wider composition. An opposition between filial and affinal might have been related to the opposed orientations of the tombs and houses.

An equally noticeable feature of the local context is the isolation of the two structures. There were no additional early Neolithic features beyond the immediate vicinity of the structures, and the structures themselves were separated by a distance of around 240 m. They thus do not constitute a village, and may well not have been contemporary. This is a feature they share with many of the other early Neolithic structures. Collections of more than a few structures are unusual (and most are in Ireland (eg Lough Gur (Ó Riordáin 1954; Grogan and Eogan 1987), Corbally (Purcell 1999, 2002; Tobin 2003), and in some cases where more than one structure was found, they seem to be of different dates (eg Lismore Fields (Garton 1987, 1991)).

The isolation of the White Horse Stone and Pilgrim's Way structures could reflect their special status if they were ceremonial structures, or it might reflect the relationship of its

occupants to other groups. The relationships between tombs, houses and social groups are, however, very varied (cf Fortune 1963 and Bloch 1971) and the White Horse Stone and Pilgrim's Way evidence seems insufficient to push this line of interpretation further.

Comparisons with other types of site

It is also worth comparing the assemblages of finds from White Horse Stone and Pilgrim's Way with those from other kinds of sites which have been interpreted as domestic. The first of these are groups of pits (Field *et al.* 1964, 367-77; Clarke 1982, 25-6; Pollard 1999, 86-87). The nearest group to White Horse Stone is at Grovehurst, Milton-next-Sittingbourne (Payne 1880; Field *et al.* 1964, 377). The assemblages of finds from such pits are very variable in both composition and quantity (cf Grovehurst with the pits described by Dunning 1966). At Grovehurst the large pits contained pottery, flint blades, arrowheads, scrapers, serrated blades, sickles, hammerstones, polished axes, cattle bone including skulls and horn cores, querns or rubbers and burnt vegetable matter (Payne 1880). Although the quantities of finds from these pits were not recorded, it seems likely that even a single pit would have contained a greater quantity of finds than the total of those associated with the White Horse Stone structure (cf. an apparently comparable early Neolithic pit at Beechbrook Wood (Brady 2006)). Such pits thus appear to be related to activities which differed from that associated with the White Horse Stone structure, and if they are interpreted as domestic they appear to be related to different forms of domesticity.

The pits contain much larger quantities of material than the structures, and that material may have been deposited over a relatively short period. They thus suggest relatively intense but brief activity. It is possible that they were related to aggregation sites (Pollard 1999, 86-87) which might then contrast with the more restricted social domestic group and the possibly longer-term occupation associated with the structures. This would reinforce the suggestion that the White Horse Stone structures were domestic. It is, however, possible that the differences in the assemblages of finds from the sites reflect little more than differences in depositional practices. Since the finds from White Horse Stone derive only from postholes and other material seems to have been deposited elsewhere, it may be only deposition in pits which marks the difference between the two.

The second class of sites which are often interpreted as the remnants of domestic sites are lithic scatters (Holgate 1988). Unfortunately White Horse Stone has relatively little to contribute to the interpretation of such scatters, at least in the simple sense (Millett 1985; Schofield 1987) of attempting to make sense of scatters by comparing them to assemblages from excavated sites. Much of the flint associated with the White Horse Stone structure consisted of chips which would probably have been missed by fieldwalking. Removing the chips leaves only a small group of flakes and a very few retouched pieces. It is likely,

however, that further elements of the flint associated with the White Horse Stone structure were found in the overlying buried soil. Unfortunately this soil covered all of the southern end of the White Horse Stone site (Fig. 3), and the assemblage may include many finds which were not related to structure 4806.

6.9 Conclusions

Structure 4806 and probably also structure 972 form part of a varied class of large timber structures often constructed using four rows of posts which were widely distributed throughout Britain and Ireland in a restricted period, *c* 3900-3600 cal BC (Whittle 2003, 41). The finds from structures 4806 and 972 consist of the fragmentary remains, scuffed across the floor and through hearths, of the greater quantities of food and tools which were prepared, used, and consumed in, and removed from, the structures. Because of the way the structure was abandoned and because of the absence of pits, the assemblage of finds is smaller than those associated with many other, similar structures, but is comparable in composition. Although the widespread distribution of these fragmentary finds suggests a relatively intense and/or long occupation of the structure, and are suggestive of a domestic structure, the finds themselves are insufficient to show whether it is appropriate to interpret the structure as domestic or as having had a more specialised role. Although the finds do not clearly show whether the structures were domestic, comparison with local sites - tombs and pits groups - begins to show how the structures may have fitted into a wider set of places.

The contrast between the small quantities of very fragmentary and widely dispersed finds associated with the structures and the larger quantities of finds, possibly deposited over a shorted period pits, suggests that the structures may have been related to a more restricted social group than the pits, and may have been occupied over a longer period (although groups of pits may have formed as the result of episodic activity over an equally long period). The obvious contrast between the structures (which lack any human remains) and the funerary role of the tombs may have been underlined by the opposed orientation of the structures.

7 THE EARLY NEOLITHIC II (FIGS 32 AND 56)

7.1 Residual early Neolithic pottery in subgroup 8088

A phase of early Neolithic activity, possibly slightly later than that associated with structures 4806 and 972 was evidenced by probably residual sherds of Decorated Bowl and other early Neolithic pottery found in a tree-throw hole (5478) and two postholes (5415 and 5418) - part of a wider cluster (subgroup 8088) - near the south-western corner of the White Horse Stone site (Fig. 56). In total 40 sherds (139 g; mean sherd weight 3.5 g) of early Neolithic pottery were recovered from these three features, including one large sherd (33 g) of a shouldered bowl decorated with rough rows of impressed dots and a decorated rim from a second vessel (Fig. 32). Both vessels have close affinities with the Mildenhall style of Decorated Bowl (Barclay and Edwards 2006).

Radiocarbon determinations on *Prunus* charcoal and hulled barley (part of a group of 16 cereal grains and weed seeds) from the postpipe (5417) in posthole 5415 (the same context as the Decorated Bowl) gave slightly different results, both of which were, nonetheless, much later than the pottery (*Prunus* charcoal: NZA-21281, 3415±30 BP: 1870-1620 cal BC; barley: NZA-21490, 3064±50 BP: 1440-1139 cal BC).

These dates suggest that the charcoal and barley date from the early and middle Bronze Age (2200-1150 cal BC). The discrepancy between the two dates probably reflects the fact that the charcoal, like the pottery, was residual. The rest of the features in this group are discussed later (see the middle Bronze Age below).

Tree-throw hole 5478 was a circular feature, 2.5 m wide with an irregular, stepped base, 0.80 m deep.

Posthole 5415 was one of the largest postholes in subgroup 8088 (0.43 m wide by 0.32 m deep); posthole 5418 amongst the smaller (0.26 m wide by 0.15 m deep). Apart from the pottery they contained, these two postholes were in no other way distinguished from the other postholes in this group.

These features also contained a small number of other finds: flint chips and flakes, a hammerstone, burnt unworked flint and, in the tree-throw hole, a few fragments of fired clay, including what may have been parts of a cylindrical loomweight (Table 23) of mid-late Bronze Age date, but the others finds could just as well be early Neolithic as middle Bronze Age.

The pottery provides nothing more than evidence for limited activity in this part of the site in the early Neolithic, perhaps, on the basis of dates for Decorated Bowls elsewhere (Herne 1988; Barclay 2006), slightly later than structures 4806 and 972.

8 THE MIDDLE NEOLITHIC (FIGS 33-4; PL. 5)

8.1 Middle Neolithic overview

Evidence for activity between the early Neolithic and the late Neolithic is slight. It consists of just two small groups of shallow pits in the south-eastern corner of the Pilgrim's Way site: one at the northern end of structure 972 (subgroup 19407) and another, 16 m to the east (subgroup 19409). These pit groups have been dated by the Peterborough Ware pottery which some, but not all of them contain. Two of the pits (711 and 714) in subgroup 19407 were distinguished by the presence of refitting sherds from a Mortlake style bowl, the decorated base having been deposited in one (711) and body sherds in the other.

A further group of pits (subgroup 19408) to the south-east of structure 972 is also described here. None of the pits in this group contained any chronologically diagnostic artefacts, and they might just as well have been contemporary with early Neolithic structure 972 as the middle Neolithic pit groups.

8.2 The environment

by Elizabeth Stafford

Assemblages of molluscs from middle Neolithic pits 711 and 714 were analysed (Stafford 2006b). The assemblages were broadly similar, and shell numbers from both were quite high (608 and 208 individuals respectively). The assemblages were dominated by shade-demanding taxa (67% and 69% respectively). The main species were *Carychium tridentatum*, *Discus rotundatus*, various Zonitidae and *Trichia hispida*. Rupestral species of Clausiliidae and *Acanthinula aculeata* were also noted. Open-country species were present in much smaller numbers, predominantly *Vallonia costata* (19% and 12% respectively), although others included the more xerophile *Pupilla muscorum*, *Helicella itala*, and *Vallonia excentrica* (7% and 9%). The assemblages are similar to those examined from the early Neolithic features further up the valley, suggesting that the pits were backfilled with soil that formed in a relatively shaded environment or perhaps an area recently cleared of woodland. The main difference was the very low numbers of *Pomatias elegans*. This, however, may be due to differential recovery of shell since the assemblages derive from bulk samples, and the residues were not available for examination. The presence of xerophile open-country species, albeit in low numbers, perhaps suggests that tree cover was not complete and that open areas of grassland may have existed in the vicinity.

8.3 The pits

The pits were all more or less circular, shallow features with curved sides and more or less rounded and irregular bases (Figs 33-4; Pl. 5). Pit 716, in particular, was a rather irregular feature which might have been a small tree-throw hole rather than a pit. All were filled with silty deposits similar to those in structure 972.

Finds (Fig. 34)

Subgroup 19407

Only two contexts from the pits in all of the subgroups discussed here were sampled for sieving (one context each from pits 711 and 714, both in subgroup 19407) and perhaps not surprisingly very few finds were recovered from them (Table 13). Even the sieved samples contained only a single hazel nut shell and four flint chips in pit 711 and just a single flint chip in pit 714.

Pit 711 also contained some larger pieces of worked flint: a petit tranchet derivative arrowhead (Fig. 34), a core rejuvenation flake face or edge and a blade-like flake. A couple of flint flakes were also found in both pits, as well as a blade in pit 714. All of the flint was unburnt with the exception of two chips from pit 711.

The most interesting finds were the pottery sherds (Fig. 34). The only sherd (29 g) from pit 711 was the flat base of a Mortlake style bowl, decorated with crude concentric circles which follow the joins of the coils from which it was made (Edwards 2006). Five sherds (185 g) belonging to the body of this bowl were found in pit 714, around 3 m to the north. They were decorated with an impressed herringbone pattern, made with twisted cord, running from within the rim to the shoulder, below which the bowl was decorated with rows of vertical impressed twisted cord lines. A further six sherds (40 g) of Peterborough Ware were found in pit 714. The large size of the sherds of the decorated bowl suggest that they were not residual, and their occurrence in two separate pits suggest that the pits were open at the same time. It is possible that the sherds were deliberately broken and placed in the two pits.

The concentric circle motif is unusual but does occur on other Peterborough Ware vessels although often in the form of semi-circular motifs placed on the rim or collar (eg Ford near Crookhaven; Kinnes and Longworth 1985, 135). The nested concentric circle motif is also a rare Grooved Ware motif (Wainwright and Longworth 1971, figs 29 and 91). It is found in megalithic art and also on a number of unusual objects such as the Folkton chalk drums (Longworth 1999, illus 9.1-3) and a carved stone ball from Towie, Aberdeenshire (Clarke *et al.* 1985, pl 3.16).

Table 13. Summary of finds in subgroups 19407 (Peterborough Ware pits at the north-west end of structure 972), 19409 (Peterborough Ware pits to the west of structure 972) and 19408 (undated pits to the south-east of structure 972)

Feature	Pot	Ware No/weight Fabric g	Chips unburnt/burnt	Flakes unburnt/burnt	Other flint Unburnt/burnt	Burnt unworked flint no/weight g	Charred plant remains
19407 711	PW/MW	1/29 F3	2/2	2/0	Blade-like flake 0/1 Rejuvenation flake core face/edge 1/0 Petit tranchet arrowhead 1/0		hazel nut shell - 1
714	PW/MW	5/185 F2 PW 4/3 F3 PW 1/32 FA2 PW 1/5 F2	1/0	2/0	Blade 1/0		
19409 716	PW?	5/6 F2				1/670	
19408 800				1/0			

Subgroup 19409

Further sherds, probably also of Peterborough Ware (but lacking features distinctive enough to be certain) were found in pit 716. Aside from a large piece of burnt flint, these were the only finds from these pits.

Subgroup 19408

The only find from these pits was a single unburnt flake from pit 800.

8.4 Discussion

The scant evidence from this phase seems to mark a decline in the level of activity on the site. Given that the pottery can suggest only a very broad date range (*c* 3350 cal BC - 2800 cal BC), the chronological relationships of these pits to other phases of activity are very uncertain. The pits might have been related to structure 972, and could mark the end of the phase of (primarily early Neolithic) activity evidenced by structure 4806 and 972. The location of pit group 19407, just beyond the northern end of structure 972 (and the presence

of further pits, albeit undated, at the southern end) hints that there was some relationship between the two. This need not imply that they were contemporary as it is highly likely that the Mortlake style bowl was deposited centuries after the house went out of use. The structure might have survived as a visible feature for some time after its collapse (cf Bradley 1998, 44-5). The pits could also have marked the beginnings of a second, much later phase of activity, evidenced more clearly by the Grooved Ware pits discussed below. Whatever the case, the pits mark a distinct change in the activity on the site. No pits could be certainly dated to the early Neolithic, and the presence of just these few, slight features, containing so few finds, suggests a much more temporary occupation of the site.

9 THE LATE NEOLITHIC (FIGS 35-48; PLS 6-13)

9.1 Late Neolithic overview

Evidence for late Neolithic activity is spread much more widely than that of the previous phase, extending across the southern end of the White Horse Stone site and the western side of the Pilgrim's Way site (Fig. 35). The features of this phase thus lie on the western side and in the base of the dry valley. The only real concentration of features occurred at White Horse Stone where evidence for two small round structures, one post-built, the other of stakes, were found near a group of three pits. Two further characteristic groups of pits consisting of deep pits associated with much shallower scoop-like pits were found at the White Horse Stone site, as well as further isolated pits and deposits in tree-throw holes and natural features. At Pilgrim's Way there was less variation in the size of the pits and no clear contrasts within pit groups between pits of differing depths.

The finds from the structures were almost all recovered by sieving and were very similar to those from the earlier Neolithic structures. The finds from the pits were much richer and, to a certain extent, contrasts can be observed in the assemblages from the two sites, as well as between pit groups within sites.

A series of radiocarbon dates place the late Neolithic activity in the period *c* 2900 - 2600 cal BC.

9.2 The environment

by Elizabeth Stafford

Twelve assemblages of molluscs from late Neolithic contexts were analysed (Stafford 2006b). One was from a tree-throw hole or subsoil hollow in the base of the valley (923); the others from pits in the base of the valley and on the lower slopes.

On the lower slopes of the valley, samples from the the main fills of pits 4965 and 5456 produced assemblages dominated by shade-demanding taxa (54% and 46% respectively). The composition of the shade-demanding fauna was similar to that noted in samples from preceding phases, indicating that the pits were backfilled with soil formed in a shadey environment with much leaf litter. *Ena obscura* and *Acicula fusca* were similarly present, as well as *Helicigona lapicida* and *Trichia striolata* which suggest rather mature broadleaf deciduous woodland. *Pomatias elegans* was present at relatively high levels, perhaps suggesting ground disturbance nearby. The open-country component amounted to only 16%, and was dominated by *Vallonia costata*. However, this combined with the relative abundance (30%) of *Carychium tridentatum*, which often proliferates at the base of long grass

due to its minute size, and catholic species such as *Trichia hispida*, may indicate a quite open canopy perhaps interspersed with grassy areas.

In the valley bottom samples from Grooved Ware pits 904 and 958 contained mixed assemblages suggesting both open and shaded environments. There appeared, however, to be a much stronger open-country, xerophile component than in other late Neolithic assemblages, including *Pupilla Muscorum* and *Vallonia excentrica*, but also *Helicella itala* and *Vertigo pygmaea*. This is perhaps indicative of more open conditions in the valley bottom, perhaps an area of established (possibly grazed) grassland, but with some disturbance and bare ground. Perhaps not surprisingly, a sample from a nearby tree-throw hole (909; profile I) in the base of the valley was the assemblage that most clearly suggested wooded conditions, producing a very large assemblage of 1014 individuals of which shade-demanding species comprised 77%. However, deposits overlying this fill provided a particularly clear sequence indicating woodland clearance and the development of diverse and then more heavily grazed grassland between the late Neolithic and the Bronze Age. There was a gradual increase in the proportion of open-country species, mainly *Vallonia costata*, but also to a lesser extent *Vallonia excentrica* and *Helicella itala* (although the latter two increase up-profile as the shade-demanding component declines). Immediately beneath the Iron Age ploughsoil, open-country species make up to 70% of the totals. The Valloniidae predominate, composing up to 63% of the assemblages. There is a significant rise in the proportion of xerophile species, particularly *Vallonia excentrica*, and shade-demanding species become insignificant, suggesting an environment totally free of shade.

9.3 Structures (Figs 36-38; Pl. 6)

Two round structures at White Horse Stone, one post-built, the other stake-built, have been dated to the late Neolithic. The evidence for their date is, however, very slight. Both lie within the more extensive scatter of postholes which extends from the southern end of early Neolithic structure 4806 (Fig. 36). The fills of the postholes in both structures were very similar in consistency and colour to the postholes of structure 4806 and the other postholes to the south of that structure (usually mid grey brown silts).

Structure 5297 (Figs 36-7)

The clearest structure (subgroup 5297) consisted of a roughly circular arrangement of ten postholes with a diameter of 3.1 m - 3.4 m. If they had formed the inner post-ring of a roofed structure, the diameter of the building would, of course, have been greater.

On the grounds of size (Fig. 36) and regularity of spacing it could be argued that the structure originally consisted of just seven of the larger postholes (4907, 4910, 4913, 4925,

4927, 4946 and 5171) spaced roughly 1.4 m apart, with the exception of two (4927 and 4925) which were half that distance apart and which could have been related to a doorway. The doorway would then have faced south-east.

The group of late Neolithic pits (subgroup 19399) which lies near to this structure might have been cut to respect the edge of this structure since they are aligned in a curve which partly follows that of the postholes. If the structure and the pits were contemporary, the structure either did not extend very far beyond the post-ring or the pits lay within the structure. It is equally possible that the pits were cut after the structure was abandoned but whilst it still survived in some form (as a low mound or ring of daub, *cf.* Bradley 1998, 44-5).

Structure 19140 (Fig. 36-7)

The second structure (subgroup 19140) seems to have been less well-preserved. Two arcs of stakeholes, however, can be seen as defining a roughly circular structure with a diameter of 3.6 m - 4.0 m. Only a few of these stakeholes were excavated, but they were plainly much smaller than the postholes in structure 5297, measuring only around 0.07 m - 0.09 m wide (Fig. 38). Since the stakeholes are such small features, the absence of features on the western and eastern sides could be explained as the result of truncation or by the fact that the stakes were simply shallower in those areas. It is, of course, also possible that the structure never consisted of a complete circle, but was of a quite different kind. The two arcs of stakeholes surround a group of late Neolithic pits (subgroup 19399), and the arcs could be seen as having formed screens or windbreaks around the pits.

There were also a number of other postholes in this area which, on spatial and stratigraphic grounds, can be seen as having been related to the late Neolithic activity here.

The clearest of these was a row of small stakeholes (subgroup 19402) which ran in a more or less straight line across the middle of structure 19140 (Fig. 37). These stakeholes were similar in size to those forming structure 19140 (Fig. 38).

It is unclear how such a row of stakeholes might have been related to the structure. However, the fact that it lay near the middle of the structure and entirely within it suggests that the two were related. It could have formed an internal partition.

9.4 Finds from the structures

Structure 5297

The significance of sieving in recovering finds associated with post-built structures was again underlined by structure 5297. All but one of the postholes were sampled and most of the finds were recovered from sieving (Table 14).

The finds consist of small, fragmentary material very similar to that found in other postholes in this part of the site (in structure 4806 and other subgroups of postholes). It again seems likely that the finds consist of small, stray scraps which have been scuffed around the floor into the posthole fills. Given the presence of early Neolithic activity in this area, the probability of residual material in the late Neolithic postholes is higher than it was in the case of the early Neolithic structure.

Of the three sherds of pottery associated with structure 5297, (13 g) may have come from an early Neolithic Carinated Bowls. However, a larger sherd (33 g) of Grooved Ware in the Clacton substyle was found in another posthole. A third sherd from a neighbouring posthole was too small (< 1 g) to be assigned to a style, but its shell tempered fabric suggests that it too was likely to be Grooved Ware. On the grounds that the small, early Neolithic sherd is more likely to be residual than the larger Grooved Ware sherd is to be intrusive, this pot has been used to date the structure.

The remaining finds consisted of flint chips, flakes and irregular waste flakes, some of which were burnt, as well as burnt unworked flint, burnt chalk and a little unidentified charcoal.

The proportions of contexts and the mean quantities of artefacts per context (Tables 8-9) were generally similar to those in structure 4806. There is a notable absence of bone, and a relatively small quantity of burnt material in comparison to structure 4806.

Table 14. Summary of finds in structures 5297 and subgroups 19402 and 19455

Feature	Context	Pot	Ware No/weight g Fabric	Chips unburnt/burnt	Flakes unburnt/burnt	Irregular waste flakes unburnt/burnt	Burnt unworked flint no/weight g	Charcoal (unidentified unless otherwise indicated)	Other finds
<i>5297</i>									
4907	4909			2/0	1/0		4/3		
4907	4908	CB? 1/13 F2							
4910	4911				1/0				
4913	4914			2/0	0/1				
4927	4928			20/2	1/0			+	3 fragments of burnt chalk
4946	4947	INDET 1/0 S2		25/3					
5171	5170					1/0	1/1		
5178	5179						1/2	+	
5273	5274			1/1				+	
5287	5289	GW/C 1/33 S1							
5287	5288				1/0				
<i>19402</i>									
5242	5243			8/1					
<i>19455</i>									
5152	5153	EN 1/2 F3			1/0			Quercus +	

Only three of the features in structure 19140 were excavated. Samples were taken from all of these excavated features for sieving, but none contained any finds.

Samples for sieving were taken from all six of the postholes in row 19402. The only finds were nine flint chips, one of which was burnt (Table 14).

Posthole subgroups 19455 and 19454

Two samples were taken for sieving from two of the postholes in subgroup 19455 (the larger postholes situated around the south-eastern corner of structure 19140). Only one contained any finds: a single small sherd (2 g) of flint tempered early Neolithic pot, an unburnt flint flake and some oak charcoal (Table 14).

No finds were recovered from subgroup 19454 (the postholes within structure 19140 which cut the late Neolithic pits) although two samples were sieved.

9.5 Late Neolithic pits and deposits in tree-throw holes and hollows (Figs 34 and 39-43)

Six groups of late Neolithic pits, consisting of between two and four pits, as well as isolated pits and deposits in tree-throw holes were found scattered across the White Horse Stone and Pilgrim's Way sites (Fig. 35). Most of these features and groups of features lie 10 m - 30 m from each other.

The pits (Figs 39-43)

There are quite clear contrasts in the sizes of the pits, both between the pits on the White Horse Stone site and Pilgrim's Way sites, and within the pit groups at White Horse Stone.

The most distinctive are the pit groups at White Horse Stone (Figs 40-1). The three groups of pits on this site each consist of three, closely spaced pits (0.6 m or less apart) arranged to form arcs. All three of these groups consist of two relatively deep pits (0.37 m - 0.60 m) with steep sides and a more or less flattish base, associated with a single, very shallow (0.10 - 0.17 m deep) scoop-like pit (Figs 39 and 43; Pls 8-9).

The shallow features in these groups are all associated with signs of burning, although not always *in situ*. The base of pit 4952 (subgroup 19399) was reddened by fire and it contained burnt earth. Pit 4874 (subgroup 19400) contained a concentration of burnt clay and charcoal, and a distinct area of burning was noted at the interface between the first and second layers of fill. Pit 4939 (subgroup 19413) contained a large number of burnt stones (amounting to 80% of the fill). There were, however, no signs that the stones had been burnt *in situ*.

Two further shallow features at White Horse Stone contained evidence for burning but lack clear dating evidence. Pit 4937, which lay just over 6 m to the north of late Neolithic pit group 19413, was filled with burnt stone similar to that in pit 4939 in pit group 19413 (Fig. 41). There was again no evidence that the stone had been burnt *in situ*.

The second shallow feature is pit 4830 which lies close to late Neolithic pit group 19400 in the area where the early Neolithic structure 4806 had stood (Fig. 40; Pl. 7). This was also a shallow scoop the base of which had been burnt. It contained a single sherd of Grooved Ware, but some *Maloideae* charcoal from it was dated to the early Neolithic (KIA-25383, 5165±31 BP: 4050-3810 cal BC). For reasons discussed above (the high probability of residual early Neolithic material in later features in this area in particular), the pottery is likely to provide a more reliable indicator of the date of this feature than the charcoal.

In contrast to the pit groups at White Horse Stone, at Pilgrim's Way (Fig. 42) almost all of the pits were relatively shallow and bowl-shaped (Figs 38 and 43; Pl. 11). The only exceptions to this were pit 958 which had more or less vertical sides and a flat base, and pit 911 which had a wide, flat base because it had bottomed onto a buried sarsen stone.

The spacing of the pits within the pit groups at Pilgrim's Way was also more varied than it was between the pits at White Horse Stone (Fig. 42). The three pits in pit group 19395 were cut in a row so that the later two pits cut the edge of the previously cut pit (pit 929 cutting pit 913 and in turn being cut by pit 911; Pl. 11). The two pits in pit group 19397 in contrast lay just over 2 m apart, and thus might not, in fact, form a related pair.

The isolated pits at White Horse Stone and Pilgrim's Way (Fig. 35) were most comparable in shape (bowl-like) and size to the Pilgrim's Way pits (Fig. 39).

Tree-throw holes and hollows

Deposits in five tree-throw holes have been assigned to the late Neolithic (Pl.12). All of these fell within typical size ranges for such features (0.90 m - 2.00 m wide, but mostly 1.50 m - 2.00 m, and 0.09 m - 0.70 m deep *c.cf* Fig. 10). One feature (5072), classified here as a wide hollow, is more exceptional. It consisted of a very irregularly shaped feature, up to 6 m across, with a very irregular base up to 0.38 m deep in the quarter that was excavated (Pl. 10).

Most of the tree-throw holes contained substantial assemblages of finds and it thus seems likely that the finds were deliberately deposited whilst the tree-throw holes were still open, rather than having been redeposited when the tree fell.

Pit 119=872

During the evaluation at the Pilgrim's Way site, part of a pit (119) was found in Trench 3100TT which contained a small deposit of cremated human remains (189 g), a burnt bone pin and charcoal. The remainder of this pit (872) was investigated during the subsequent excavation. The pit was larger than most of the late Neolithic pits at Pilgrim's Way (0.80 m wide and 0.42 m deep). It was originally dated to the late Iron Age or Romano-British period on the basis of a comparison between the bone pin and Roman examples (Crummy 1983, 24, fig. 22.420 and 423). However, bone pins in a great range of forms, including simple, more or

less mushroom-headed pins (Piggott 1954, 334, fig 55.8) such as the one from pit 119=872 also occur in the late Neolithic, sometimes associated with cremation burials (eg Atkinson *et al.* 1951). It is, therefore, quite possible that this was a late Neolithic burial. Indeed, since there is little other evidence for Romano-British activity nearby, but much for activity in the late Neolithic, it seems most likely that it belongs to the latter period. However, this remains uncertain but could be resolved in the future by scientific dating.

Filling of the pits

It seems likely that most of the pits were backfilled deliberately, quite soon after they were cut. There were very few indications, such as relatively sterile primary fills or erosion of the upper sides of the pits, that the pits had been left open and had filled naturally.

9.6 The late Neolithic finds (Fig. 44-5)

Loss of finds

During the excavation of the White Horse Stone site, the site portacabin was stolen. As a result of this theft some finds, in particular, late Neolithic finds from hollow 5072 were lost.

The overall distribution of finds

The late Neolithic pits and tree-throw holes contained assemblages which were quite varied in both overall size and in composition. Correspondence analysis (Bølviken *et al.* 1982) has been used to provide an overview of the variation in these assemblages using the data presented in Tables 15 and 16.

The results of this analysis for the first two axes, accounting for 59% of the variation within the assemblages, and for the first and third axes, accounting cumulatively for 77% of the variation, are presented in Figure 46. The first axis draws a contrast between assemblages relatively rich in pottery (at the right) and those relatively rich in animal bone (at the left) and arranges the other categories of finds and the assemblages between these two extremes. The second axis distinguishes assemblages rich in fired clay from the others. The third axis distinguishes between the assemblages containing either pottery or animal bone and those in which those categories are rare. In effect, this draws a contrast between large and small assemblages.

On the basis of these results the assemblages have been placed into six groups according to their positions on Figure 46. In large part this equates to their position along the first axis. Each group of assemblages can be roughly described in terms of the kinds of finds which predominate within it (Table 15-16).

Table 15. Summary of quantities of finds in late Neolithic pits and tree-throw holes at White Horse Stone categorised according to the results of the correspondence analysis

<i>Category Subgroup</i>	<i>Feature</i>	<i>Context</i>	<i>Fill rank</i>	<i>Animal bone (g)</i>	<i>Cremations (g)</i>	<i>Burnt Flint (g)</i>	<i>Charcoal (est. no.)</i>	<i>Worked Flint (no.)</i>	<i>Wild plants (est. no.)</i>	<i>Burnt stone (no.)</i>	<i>Grain (est. no.)</i>	<i>Pot (g)</i>	<i>Fired Clay (g)</i>	<i>Sieved</i>
Fired Clay														
19399	4952	4953	2					5					60	y
19400	4874	4875	1					28					37	y
19400	5256	5259	3				10	15	10		10		10	y
Pottery														
19400	4874	4876	2	8			10	18		1	10	178	11	y
19400	4965	4968	3					3				7		y
19400	4965	4967	2	172			10	122	50	24		1052		y
19399	4943	4945	2	13				4				53		y
19400	5256	5258	2				10	12	50			35		y
Charcoal, worked flint and pottery														
19400	5256	5257	4			19	10	130	10	15		63		y
4830	4830	4831	2				10	3				2		y
7024	7024	7026	2	27			50	53	10			19	20	y
Charcoal and worked flint														
19399	4929	4931	2				10	8	10		10			y
19399	4943	4944	1				10	115		3				y
19400	5256	5270	1				10	76						y
19399	4952	5226/5227	1				10	17						y
19400	4965	4966	1				10	9						y
4830	4830	5202	2				10	9						y
Charcoal, worked flint and animal bone														
5125	5125	5127		108		13	50	205	50	23		2		y
19413	5094	5097	3	7			10	3						y
7024	7024	7025	1	19			10	19						y
19400	4965	4969	4	105			10	43	10			20		y
Animal Bone														
19413	5094	5096	2	24			10	5		1				y
19413	4994	4996	3	249	98			59		5		6		y
7000	7000	7002		129				36	10					y
19413	4994	4997	2	280			10	42		3		14		y
7000	7000	7001		326	2			30				1		y
19413	4994	4998	1	3013				49				196		y
19413	5094	5095	1	586			10	40		5				y
19413	5072	5073	1	1365			10	66		1		12		y
Insufficiently varied finds														
19413	4939	4942	2					1						
19413	4994	4995	4			143								
19399	4929	4930	1					30						y
19399	5180	5181	1					7						y
7000	7000	7023	3											y

Table 16. Summary of quantities of finds in late Neolithic pits and tree-throw holes at Pilgrim's Way categorised according to the results of the correspondence analysis

<i>Category Subgroup</i>	<i>Feature</i>	<i>Context</i>	<i>Fill rank</i>	<i>Animal bone (g)</i>	<i>Cremations (g)</i>	<i>Burnt Flint (g)</i>	<i>Charcoal (est no)</i>	<i>Worked Flint (no.)</i>	<i>Wild plants (est no)</i>	<i>Burnt stone (no)</i>	<i>Grain (est no)</i>	<i>Pot (g)</i>	<i>Fired Clay (g)</i>	<i>Sieved</i>
Pottery														
19397	898	899		28				12				131		
968	968	969	1					2				3		
Charcoal, worked flint and pottery														
19396	964	965	1	44				7				32		
19397	904	906	3	44			10	7	10			30		y
Charcoal and worked flint														
19397	904	908	1				10	16						y
Charcoal, worked flint and animal bone														
19396	966	967	1	19				13				8		
19396	958	959	1	391			10	150			10	126		y
19397	904	907	2	17			10	5				3		y
19396	962	963	1	65				7						
Animal Bone														
19395	913	928	1	32				2				5		
19395	913	914	2	53	3			20						
19397	904	905	4	535		4	50	14	50					y
19395	911	912	2	297				38	10					y
909	909	910	1	1420		1	10	105				1	39	y
19395	911	924	1	161				15						
952	952	954		916				34						y
861	861	862	6	4244			50	54	50					y
952	952	953		2794			10	13						y
861	861	888	5	942				3						
952	952	955		48	1									y
Insufficiently varied finds														
19395	929	930	1									1		
861	861	890	2					2						

Tables 15 and 16 show that worked flint and charcoal were more or less ubiquitous, and thus do not, at this level of analysis, provide a useful means of distinguishing between assemblages. The assemblages in the group in which worked flint and charcoal predominate is thus distinguished more by the absence of other finds than by the presence of worked flint and charcoal. Not surprisingly many of these assemblages are quite small.

Of the other categories of finds it is animal bone, pottery and fired clay which provide the main distinctions.

*Table 17. Summary of classification of assemblages within Late Neolithic features and within groups of features according to the results of the correspondence analysis. Assemblages are represented by their context number, followed by their ranking within the pit (1 = primary fill etc). The smallest assemblages (first inter-quartile range) are shown in italics; largest assemblages (fourth inter-quartile range) in **bold**.*

<i>Feature Group</i>	<i>Feature</i>	<i>Fired clay</i>	<i>Pottery</i>	<i>Charcoal, flint and some pottery</i>	<i>Charcoal and worked flint</i>	<i>Charcoal, flint and animal bone</i>	<i>Animal bone</i>	<i>Insufficiently varied artefacts</i>	<i>Comments</i>
<i>White Horse Stone</i>									
Pit group 19399	4952	4953 (2)			5226 (1)				shallow
	4943		4945 (2)		4944 (1)				
	4929				4931 (2)			4930 (1)	
	5180							5181 (1)	
Pit group 19400	4874	4875 (1)	4876 (2)						
	5256	5259 (3)	5258 (2)	5257 (4)	5270 (1)				
	4965		4968 (3)		4966 (1)	4969 (4)			
	4830		4967 (2)	4831 (2)	5202 (1)				
Pit group 19413	5094					5097 (3)	5096 (2)		
	4994						5095 (1)	4995 (4)	
							4996 (3)		
							4997 (2)		
		5072						4998 (1)	
	4937						5073 (1)		
	4939							4938 (1)	
Pit 7000								4942 (2)	shallow
								4940 (1)	
							7001 (3)	7023 (1)	
							7002 (2)		
Tree-throw hole 5125						5127 (2)		5126 (1)	
Pit 7024				7026 (2)		7025 (1)			
<i>Pilgrim's Way</i>									
Pit group 19397	898		899 (1)						
	904			906 (3)	908 (1)	907 (2)	905 (4)		
Pit group 19396	964			965 (1)					
	966					967 (1)			
	958					959 (1)			
	962					963 (1)			
Pit group 19395	913						914 (2)	930 (1)	Finds mixed with 924
							928 (1)		
	911						912 (2)		
	929						924 (1)		
Tree-throw hole 909	909						910 (1)		
Pit 952	952							953 (3)	
								954 (2)	
								955 (1)	
Tree-throw hole 861	861						862 (5)	892 (4)	
							888 (4)	889 (3)	
								890 (2)	
								892 (4)	
Pit 968	968		969 (1)						

Overall, the patterns revealed by this analysis can be summarised as follows (Table 17):

- The major contrast is between assemblages in which animal bones predominate and those in which pottery or fired clay predominate. Almost all of the pits also contain worked flint and charcoal;
- The pits and pit groups containing assemblages in which animal bone predominates are relatively homogeneous. Such assemblages usually occur throughout the pits which contain them, beginning with the primary fill, and where they occur within a pit group, all of the pits in that group (excepting shallow features with very few finds) contain them.;
- Pits containing assemblages in which pottery or fired clay predominate occur in the same pit groups, and are more varied. Such assemblages usually occur in secondary fills, and the pits containing them usually also contain other types of assemblages (in particular those with high proportions of worked flint and charcoal, but never assemblages in which animal bone predominates);
- There are also a small number of pits which contain less characteristic 'intermediate' assemblages in which charcoal and worked flint occur in relatively high proportions, and in which neither pottery nor animal bone predominates.

Spatial distribution

The spatial distribution of pit groups and other features as they are classified by the correspondence analysis forms a striking pattern, especially at White Horse Stone.

At White Horse Stone, the two pit groups in which assemblages dominated by pottery and fired clay occur lie adjacent to and near the late Neolithic round structures. These pit groups also contain a high proportion of assemblages consisting primarily of charcoal and worked flint.

The two features, pit 7024 and tree-throw hole 5125, in which intermediate assemblages in which neither pottery nor animal bone predominates, occur to the north and south of the pits with pottery and fired clay.

Further still to the north and south lie a pit (7000, to the north) and a pit group (19413, to the south) in which assemblages dominated by animal bone occur. The animal bone in pit groups 19413 is particularly striking, containing bones equivalent to more than the skeleton of a single cattle burial (from at least four animals but excluding the heads) in one pit (4994; Pl. 9), and a complete cattle skull in a nearby wide hollow (5072; Pl. 8). Radiocarbon dates, however, suggest that the skull is earlier than the cattle bone in pit 4994.

The pattern at Pilgrim's Way is slightly less clear. More of the features on that site contained assemblages in which animal bone dominated and assemblages in which pottery predominated were very rare. Nonetheless, it is noticeable that the two largest groups of

animal bone occur in the most southerly features (tree-throw hole 861 (Pl. 12) and pit 952), and that large groups of animal bone occur particularly in the tree-throw holes (861 and 909) as well as in pit 952.

The more northerly features (pit groups 19396 and 19397 and pit 968) contain either assemblages in which pottery dominates or intermediate assemblages.

Pottery

The late Neolithic pits were defined as a group largely on the basis of the Grooved Ware pottery they contained (Fig. 44). Where an attribution was possible, this pottery all belonged to the Clacton substyle, and consisted mostly of tub-shaped vessels in shell-tempered fabrics decorated with horizontal cordoned bands, wavy cordons and impressed zones. Pit 989 contained the base from a possible bowl and pit 911 contained a miniature vessel. The pottery has strong affinities with Clacton style assemblages from East Anglia (Cleal 1993; Longworth *et al.* 1971).

Pit 4965 in subgroup 19400, near the round late Neolithic structures, contained by far the largest assemblage of pottery (267 sherds, 1079 g). It is, however, worth noting that a large group of pottery was associated with the exceptionally large group of animal bone in pit 4994 (subgroup 19413). Other large groups of pottery were found in pits 4874, 5256 and 4943 at White Horse Stone (all in subgroups 19400 and 19399 near the round structures) and in pits 898 and 958 at Pilgrim's Way (in subgroups 19397 and 19396, the more northerly of the pit groups at Pilgrim's Way).

Fired clay

Very little fired clay was found in late Neolithic contexts, and what was found consisted mostly of amorphous pieces, although some fragments from tree-throw hole 909 had smoothed surfaces.

Almost all of the fired clay was concentrated in pit groups 19400 and 19399 (pits 4952, 4874 and 5256) near to the late Neolithic round structures, and it is, therefore, tempting to link the fired clay with these structures.

Animal bone

Animal bone occurred in large quantities in some of the late Neolithic pits and tree-throw holes (Kitch and Worley 2006). The greater part of this bone derived from cattle. Pig bone was also common, but other species - aurochs, sheep/goat, red and roe deer, canid, small mammals and birds - were present only in much smaller quantities.

Pigs heads and cattle feet

A number of the pits are characterised by deposits of animal bones which consist of cattle foot and/or distal limb bones and pig teeth and/or mandibles and maxillae. Such assemblages occur in pit groups 19395, 19396 and 19400, in pits 7024 and 5256 (part of pit group 19413) and three-throw hole 5125.

The cattle distal limb-pig jaw pattern may be partly a product of taphonomy. The fact that teeth are usually the most durable of animal remains, might, for example, explain their frequency among the pig bone. This, however, does not account for the absence of cattle teeth. Furthermore, fragments of pig mandible and maxilla occur in several of the assemblages containing pigs teeth. It is also striking that these two groups of bone (cattle distal limb and pig jaw) tend to coincide, and that pits that contain additional or different pig bones also tend to contain additional or different cattle bones as well. The pattern is not, then, entirely a product of taphonomy, but reflects the differing ways in which different parts of these animals were treated. It is a pattern, moreover, which does not appear to reflect the simple discard of parts of animals which bore little meat. Whilst cattle feet and distal limbs carry little meat, pigs heads do bear considerable quantities of meat.

The pattern does not, however, appear to reflect the direct selection of particular bones for deposition since in detail the composition of the assemblages varies. Rather, it implies practices which led to a greater tendency for these parts of the animals to become incorporated into pit deposits. The pattern might, for example, reflect more the removal of other parts of these animals from the area than the deliberate deposition of these parts.

Skulls and skeletons: pit 4994 and hollow 5072, and tree-throw hole 861

In other pits additional bones were also deposited with these simple assemblages. Pit 4994 stands out as exceptional. It contained one of the largest deposits of cattle bone which included bones from almost all parts of the skeleton, deriving from at least four animals. A number of the cattle bones indicated animals aged below 18-24 months whilst others suggested animals up to 48 months.

Although it contained two fragments of horncores, skull and mandibles were very poorly represented in this pit. It is thus striking that it contained a chopped atlas vertebra, and that a complete cattle skull, lying on top of a cattle metapodial, was found in hollow 5072, 7 m to the east of pit 4994 (Pls 9-10). Radiocarbon dates suggest that this cattle skull was earlier in date than the bone in pit 4994. Nonetheless, the two assemblages in hollow 5072 and pit 4994 complement each other in demonstrating differing treatment of the skull and the post-cranial skeleton.

Tree-throw hole 861 also contained a cattle skull, as well as other cattle bones (including distal limb bones) from at least two beasts, mandible and radius possibly from an aurochs, pig mandible, teeth and humerus, and red and roe deer antler (Pl. 12).

Other species

Bones of other species were rare compared to cattle and pig, and although there is some tendency for them to occur in the features such as pits 4994 and 952 and tree-throw hole 861, which also contained rich assemblages of cattle and pig bones, there were no very clear patterns in their distribution.

Red and roe deer antler was found in pits 4994 (which also contained roe deer teeth) and 5094 (both in pit group 19413), as well as in tree-throw hole 861 and pit 958. A very large aurochs tibia and part of a femur were found in pit 952. An aurochs vertebra was also found in pit 958. Canid (dog or fox) was represented by a mandible in pit 4994 and a humerus in pit 911. Sheep teeth and long bones occurred in pits 7000, 7024, 4994 and 966.

The only bird bone from a late Neolithic context was found in pit 5256 in pit group 19400 which contained very little other animal bone. This bone could not be more closely identified.

Various small mammal bones were found in pit 4994. They may well be intrusive, although their concentration in this pit is striking.

Burning, gnawing and butchery

Most of the animal bone was in a quite poor condition, and it is perhaps not surprising that traces of butchery were scarce. Gnawing was noted in only two pits: on a cattle phalanx in pit 7024 and cattle phalanx, metapodial and humerus in pit 4994.

The most noticeable butchery was the chopped atlas vertebra in pit 4994, the only bone from the very large group in this pit with traces of butchery. All of the other evidence for butchery came from pits at Pilgrim's Way (in pits 952, 861, 909 and 904). These are among the richer assemblages at Pilgrim's Way, and the presence of butchery marks here, in contrast to their scarcity within pit 4994, fits with the more selective assemblages of animal bone, perhaps implying the removal of other parts of the skeleton at Pilgrim's Way when compared with the more complete representation of the skeleton in pit 4994.

Marine shell

Marine shell was found in two pits in pit group 19413: three fragments, possibly of mussel shell (*Mytilus* sp) from pit 4994, and a single shell, seemingly covered in barnacles, from context 5095, the primary fill of pit 5094.

Charred plant remains

Despite extensive sieving, charred plant remains were found in only a few of the late Neolithic features (Giorgi 2006). Hazel nut shells occurred most commonly, no doubt in part

because the discarded shells were more likely to have been charred than were other kinds of plant remains. Hazel nut shells occurred most frequently in the deep pits in pit groups 19400 and 19399. These were the two groups, near the round structures, which were distinguished by high proportions of pottery and fired clay. All of the very few grains of cereal - four in total, none of which could be identified more closely - were found in the same pits. It is possible that this grain was residual, as the radiocarbon dating suggests the single grain in hearth 4876 was.

Other kinds of charred plant remains were even scarcer: *Malus* pips were found in pit 4931 and three-throw hole 861, a pea or bean in tree-throw hole 861, and what might have been flax seeds in tree-throw hole 5125.

Charcoal

Charcoal occurred in many of the late Neolithic pits (Challinor and Alldritt 2006). Most could not be identified. Where identifications were possible, however, oak occurred most frequently, but hazel, *Pomoideae*, *Maloideae*, sloe and ash were also found. Given the 9-8th millennium cal BC radiocarbon dates for pine charcoal associated with structure 4806, it seems likely that the pine charcoal in late Neolithic features was also residual.

Flint

Worked flint was ubiquitous in the late Neolithic pits (Fig. 45). The flintwork was primarily flake-based, and contained very few blades (Cramp 2006).

Most of the flint consisted of chips and unretouched flakes. The quantity of chips recovered from a context is highly dependent upon whether or not the context was sampled for sieving. It is, nonetheless, worth noting that most of the largest assemblages of flint were recovered from pits in pit groups 19399 and 19400 near the late Neolithic structures at White Horse Stone. Others occurred in tree-throw hole 5125, just to the south, and in pit 958 on the Pilgrim's Way site.

Retouched flint

There appears to have been a relationship between retouched pieces and quantities of animal bone. Retouched flint from the late Neolithic pits was classified into a large number of categories: retouched flakes, retouched blades, backed knives, serrated flakes, end scrapers, side scrapers, piercers, notches, and chisel arrowheads (with which spurred pieces are included since, although they were not retouched, they may have been used in the same way as notches). Since each of the types occurs in each assemblage in only very small numbers (usually only as single pieces) there is little clear patterning in the distribution of the particular types.

Overall, however, retouched pieces appear to occur more often in pits with a high proportion of animal bone and in some of the intermediate assemblages (with a maximum of eight pieces per context) than they do in pits in which pottery and fired clay predominate (with a maximum of two pieces per context). The difference in frequency is in particular produced by larger numbers of retouched flakes and side scrapers. Retouched pieces were particularly common in pit groups 19413 and 19395, pit 7000 and tree-throw holes 909 and 861, all of which contain large quantities of animal bone, as well as in pit group 19396 and tree-throw hole 5125.

Cores

It was only in pit group 19413 that cores occurred in any frequency. Curiously, this group contained few chips.

Refits

Refits were found within three pits (4943, 4965 and 906) and, most strikingly, between two pits (911 and 913) in pit group 19395 at Pilgrim's Way (Pl. 13). In the latter case, two side trimming flakes struck from the same platform refitted, but whilst one flake (in pit 913) was in a very fresh condition, the other (in pit 911) was very worn. This fits with the stratigraphic sequence of the pits, pit 911 cutting pit 913. It also suggests that there must have been a gap in time between the cutting of the two pits sufficient for the second flake to have become worn (rather than pit 911 being cut directly after pit 913).

Burnt unworked flint and other burnt stone

Burnt flint and sarsen occurred widely in late Neolithic features. In addition to the very large deposits in the shallow pits in and near pit group 19413 (pits 4939 and 4937) which were not quantified, the largest quantities were found in other pits in pit group 19413, and in particular in pit 4994, which contained one of the largest assemblages of animal bone. It also occurred in quite large quantities in pit groups 19400 and 19399 near to the round late Neolithic structures.

One fragment of burnt sarsen from pit 4965, in pit group 19400, has a worked surface, and may be a fragment of a quern or rubber. The presence of a quern or rubber fragment in this location corresponds with the fact that almost all of the charred grain and many of the hazel nut shells occurred in this pit group, and the fact that it lies close to the round structures.

Ironstone balls

One of the more peculiar finds from the late Neolithic pits was a polished ironstone ball (Fell, Keys and Shaffrey 2006), found in context 924 in pit 911 (subgroup 19395). Spherical nodules of ironstone probably occur naturally near to the site. This nodule, however, has been polished to remove any irregularities from the surface, and would originally have had a shiny silver surface. A similar sphere, albeit less extensively polished was found in an early-middle Iron Age pit on the White Horse Stone site (pit 2260) where, however, it may have been residual. Small balls, usually of stone or chalk, have been found on a number of late Neolithic sites throughout the British isles (Piggott 1954, *passim*). What may have been a decorated clay example was found in a late Neolithic pit at Eyhorne Street (Fell and Edwards 2006). Although the balls at Pilgrim's Way and White Horse Stone thus fall within a much wider tradition, the use of ironstone appears to be unparalleled. Numerous uses for such balls have been proposed (Fell and Edwards 2006) to which, in the case of the ironstone examples, the possibility that they were used as strike-a-lights should be added (F. Roe pers. comm.).

Polished stone implements

A flake from a highly polished tool made from a white, fine-grained flint was found in pit 911.

Cremated human remains and bone pin

The largest deposit of cremated human remains which might date from the late Neolithic was found during the evaluation on the Pilgrim's Way site, in pit 119=872. It contained a deposit of 189 g of white, well-calcined cremated remains in which fragments of skull vault, tooth, ulna and long bone fragments could be identified, and which were sufficient to indicate that they were the remains of an adult. A burnt bone pin with a flat head provides the only evidence for the date of this deposit. It could be either late Neolithic or Roman in date. Since, however, there is little other evidence for Roman activity nearby, but much for late Neolithic activity, it seems most likely that it belongs to the latter period.

Two smaller deposits of cremated human remains in much more certainly dated, late Neolithic contexts were found nearby. The first was in pit 913 (context 914) which contained just 1 g of blue-white cremated bone, amongst which only 2 long bone fragments could be identified. The second deposit was in pit 952 (context 955) which contained an even smaller deposit, less than 1 g, of brown cremated bone, amongst which only a single fragment of long bone could be identified. These two deposits may well be residual.

9.7 Radiocarbon dates (Figs 47-8)

No material suitable for radiocarbon dating was associated with the late Neolithic structures. A series of 15 radiocarbon dates was, however, obtained from the late Neolithic pits and tree-throw holes (Table 18; Figs 47-8, 115-116). A further date on charcoal from posthole 5008 (NZA-21280), originally thought to be part of early Neolithic structure 4806, turned out to fall in the late Neolithic.

The calibration curve is, unfortunately, rather flat and wiggly in the period in which many of these dates fall. Material of different true calendar ages is thus likely to give similar calibrated ranges. It is for this reason that even dates with reasonably small errors produce calibrated ranges of over 300 years. Some useful distinctions can, nonetheless, be made.

When calibrated, these dates give a range of between 3010 cal BC and 2460 cal BC. They thus fall within the earlier part of the period in which Grooved Ware was in use (Garwood 1999). The range for the date on the cattle skull in pit 5072 (NZA-22750) is particularly early (4271±35: 3010-2990 (1.4%) 2930-2860 (81.6%) 2810-2750 (10.3%) 2720-2700 (2.1%) cal BC - note also the ranges for the dates from pit 5094 and 4965). The range for pit 904 (NZA-21324), in contrast, falls particularly late in the overall range (4046±35 BP: 2840-2810 (3.9%) 2670-2460 (91.5%) cal BC - note also the ranges for the dates from pit 4994 and pit 911). The majority of the dates, however, fall between about 2900 cal BC and 2600 cal BC.

Table 18. Late Neolithic radiocarbon dates

Subgroup	Feature	Context	Material	Lab. no.	$\delta^{13}C$	Radiocarbon age BP	Date cal BC	Modelled dates cal BC	Agreement	
5008 (within structure 4806)	EN post/root hole	5008	5009	Maloideae charcoal	NZA-21280	-24.75	4137±30	2880-2580	2880 - 2630	97.2%
19400	pit 5256	5258	5258	charred hazel nut	NZA-21491	-22.22	4196±60	2910-2580	2900 - 2660	99.4%
19400	pit 4965	4967	4967	charred hazel shell	NZA-22737	-22.70	4230±35	2920-2660	2900 - 2690	99.8%
19399	pit 4943	4945	4945	charred hazel nut	NZA-21493	-24.03	4155±30	2880-2620	2880 - 2660	99.6%
5125	tree-throw hole	5125	5127	cattle radius	NZA-21831	-18.50	4189±30	2890-2630	2890 - 2680	104.7%
19413	pit 4994	4998	4998	cattle scapula	NZA-21325	-20.42	4080±35	2860-2490	2870 - 2580	79.4%
19413	pit 5094	5095	5095	red deer antler	NZA-22813	-22.70	4238±35	2920-2690	2910 - 2690	93.2%
5072	tree-throw hole	5072	5073	cattle skull	NZA-22750	-24.00	4271±35	3010-2700	2920 - 2700	55.5%
5072	tree-throw hole	5072	5073	pig scapula	NZA-22749	-20.70	4161±30	2880-2610	2880 - 2660	100.9%
5072	tree-throw hole	5072	5073	cattle calcaneus	NZA-22751	-24.20	4195±35	2890-2620	2890 - 2670	105.9%
19397	pit 904	907	907	pig radius	NZA-21324	-20.90	4046±35	2840-2460	2870 - 2570	35.8%
19396	pit 958	959	959	cattle phalanx	NZA-21589	-23.46	4113±35	2870-2500	2880 - 2620	97.7%
19396	pit 958	959	959	aurochs vertebra	NZA-21327	-23.24	4120±35	2880-2570	2880 - 2620	97.1%
19395	pit 911	924	924	pig mandible	NZA-21282	-21.08	4097±30	2870-2490	2870 - 2590	91.4%
19395	pit 913	928	928	cattle phalanx	NZA-21508	-24.12	4153±40	2880-2590	2880 - 2660	101.5%
952	pit 952	953	953	aurochs tibia	NZA-21328	-19.15	4228±35	2910-2670	2900 - 2690	100.9%
861	tree-throw hole	861	862	cattle tibia	NZA-21959	-23.93	4193±25	2890-2670	2890 - 2690	102.7%
<i>Range</i>							3010-2460	2920-2570		
<i>Span</i>								30 - 310		
<i>Overall agreement</i>								64.1%		

On the basis of the assumption that the late Neolithic activity forms a single phase of activity and that the dates are likely to be relatively evenly distributed throughout that phase, it is possible using a Bayesian approach, to narrow the date range and estimate the time span of that activity (Buck *et al.* 1992). The dates have been analysed for this purpose using Oxcal v. 3.10 (Bronk Ramsey 1995; 2001). The results narrow the range slightly to 2920-2570 cal BC and suggest that the activity spanned a phase of at least 30 years and perhaps as much as 310 years (Fig. 47-8). Although overall the model used in this analysis has an acceptable level of agreement (a measure of the extent to which the modelled distributions correspond to the original distributions), the earliest and latest dates, on the cattle skull from hollow 5072 and from pit 904 have low levels of agreement. This indicates that modelled distributions for these determinations are significantly different from the original distributions. The case of the cattle skull is discussed in more detail below. It has already been noted above that pit 904 contained one of the most mixed assemblages of finds which did not correspond to those in the other pits. It was the only pit to contain an assemblage dominated by animal bone which also contained other types of assemblages. This, together with the relatively late radiocarbon date suggests that it might belong to a distinct phase of activity, slightly later than that represented in the other pits.

In three cases more than one date was taken from pits within the same pit group. In the case of pit group 19400, which lay within early Neolithic structure 4806, dates were obtained from pits 4965 and 5256. A further late Neolithic date was obtained on charcoal from post- or roothole 5008 nearby which derive from related activity. A chi-squared test on these three dates suggests that they are not statistically significantly different ($T=4.2$ (5% = 6.0) 2 degrees of freedom), indicating that the dates are consistent with all of the material have been used at the same time.

Samples were also taken from two pits in pit group 19395 at Pilgrim's Way. The pits in this group were cut in a row, pit 913 being cut by pit 911. Two refitting side trimming flakes struck from the same platform were found in these pits, the flake from pit 911 being worn whilst that from pit 913 was in a fresh condition. A chi-squared test again shows that the two dates are not statistically significantly different ($T=1.3$ (5%=3.8) 1 degree of freedom). This suggests that the dated material was quite close in date, as the refitting flakes also suggest.

Although these results both suggest that the pit groups were related to probably single, relatively short lived episodes of activity, the greater number of dates from pit group 19413 and the nearby hollow 5072 suggest that in some cases, at least, the pit groups were formed over longer periods. Five radiocarbon dates were obtained from this cluster of features: three on animal bone from hollow 5072, including the relatively early date on the

cattle skull (NZA-22750), and single dates on animal bone from pits 4994 and 5094. A chi-squared test on this group of dates suggests that they are statistically significantly different ($T=18.0$ ($5\%=9.5$) 4 degrees of freedom). More detailed analysis suggests that it is the date from pit 4994 which stands out. The dates on the animal bone in hollow 5072 are not significantly different ($T=5.8$ ($5\%=6.0$) 2 degrees of freedom), nor are these dates significantly different from that for pit 5094 ($T=6.5$ ($5\%=7.8$) 3 degrees of freedom). The results are thus consistent with the bone in these features all having come from animals which were slaughtered at the same time. It was, however, pit 4994 which contained a large assemblage of cattle bone, from at least four animals, which contained a chopped atlas vertebra and very little bone from the skull, which seemed to match the cattle skull in hollow 5072, to the extent that it seemed plausible to suggest that the skull belonged to the post-cranial bones in pit 4994. A chi-squared test on the determinations from the skull from hollow 5072 (NZA-22750) and a cattle scapula which was placed on the base of pit 4994 suggests that they are significantly different ($T=14.9$ ($5\%=3.8$) 1 degree of freedom). It is thus unlikely that the skull and the post-cranial bone derived from the same animal, or that the animals were slaughtered at the same time. They may, of course, still have been deposited at the same time. The mandible of the skull in hollow 5072 was missing, so it had certainly been butchered or defleshed before deposition. All of its teeth were, however, in place when it was found, and it does not appear to have been stray. The date on the cattle scapula from pit 4994 is also significantly different from the red deer antler in pit 5094 ($T=10.1$ ($5\%=3.8$) 1 degree of freedom). The suggestion that all of the the bone in these pits was deposited at the same time would thus imply that not only was the skull and other animal bone in hollow 5072 curated but also some of the bone in pit 5094. It is simpler to view that large deposit of animal bone in pit 4994 as belonging to a later phase of activity.

9.8 Discussion

The late Neolithic features include an unusual association between pit groups and possibly domestic structures. Whilst more or less extensive groups of pits are known from numerous sites (Wainwright and Longworth 1971, 268-305; Longworth and Cleal 1999, 177-206), comparable structures are much less well-known (Darvill 1996). The site thus provides important evidence, away from any large monuments, for what may have been the more mundane side of late Neolithic life. It is also significant, however, that the structures and pits form a coherent pattern. The contrasts within the evidence suggest that not all of the activity was simply domestic. The sites thus provide information concerning the structure of late Neolithic life, as well as for its subsistence economy, and for the social and chronological scale of occupation.

Patterns and deposits

Overall, a clear pattern can be seen in the distribution of late Neolithic features, the main features of which are summarised in Table 19. This spatial pattern could be seen as moving from domestic activity around the structures and nearby pit groups (19400 and 19399) - represented by hearths, fired clay, pottery, charred grain and hazel nut shells and flint chips and flakes - to possibly more communal, perhaps more ritualised or ceremonial activities in pit group 19413 and most of the features on the Pilgrim's Way site - represented by animal bone, burnt stone deposits, retouched flint and cores, and perhaps also including cremation.

Table 19. Summary of distinguishing characteristics of late Neolithic pits groups at White Horse Stone and Pilgrim's Way

	Near structures	Burnt features (hearths?)	Fired clay	Pottery	Quern/rubber?	Charred grain	Charred hazel nut shells	Flint chips and flakes	Broken worked flint	Burnt worked flint	Deep and shallow pits	All parts of cattle skeletons	Cattle skull	Burnt stone (not <i>in situ</i>)	Flint cores	Retouched flint	Pig jaw - cattle distal limb bones	Bowl-shaped pits	Cremated remains
Pit groups 19400 and 19399, near structures	X	X	X	X	X	X	X	X	X	X	X								
White Horse Stone Animal bone pits (pit group 19413 and hollow 5072)										X	X	X	X	X	X	X			
Pilgrim's Way animal bone pits (and cremation deposits?)																X	X	X	?

Within the latter group there was a further distinction marked above all by the contrast between the deposition of almost all parts of cattle skeletons (but perhaps including different treatment of cattle skulls and the post-cranial skeleton) in pit group 19413 at White Horse Stone and the selective removal of most parts of cattle and pig carcasses leaving only cattle distal limb and pig jaws at Pilgrim's Way. Food, and in particular high status food such as meat, is one of the items most frequently used in exchange in small-scale societies. The evidence for the selective removal of parts of the carcass provided by the pits at the Pilgrim's Way site is consistent with the deposits in these pits deriving from such exchanges. It is thus possible that meat was both removed from and brought (perhaps as live animals) to the site. This also implies the presence of a social group which went beyond the occupants of the site itself.

The deposits of animal bone in pit group 19413 at White Horse Stone seem to be almost the exact opposite of the deposits at Pilgrim's Way. In contrast to the removal of parts of the skeleton implied by the Pilgrim's Way pits, the deposits in pit 4994 at White Horse Stone contain almost all parts of cattle skeletons (from at least four animals), with the exception of the skull. The skull in hollow 5072 provides complementary evidence, albeit earlier in date. The deposits in the Pilgrim's Way pits thus seem to have been very different from those associated with the deposits in pit group 19413 at White Horse Stone, one perhaps related to the dispersal of meat away from the site through exchange, the other related to consumption on the site, or, given the absence of butchery marks, the burial of unconsumed meat.

The pit groups

These contrasts in the contents of the pits correspond to differences in the forms of the pits, and in the kinds of pits which are grouped together. The pit groups at White Horse Stone - both those near to the round structures and those associated with large deposits of animal bone - include quite deep pits (cf. Thomas 1991, fig 41), grouped with shallow pits (which were often associated with signs of burning, albeit not always *in situ*), whilst the Pilgrim's Way pits were all shallow, bowl-shaped features.

The differences in size between the White Horse Stone and Pilgrim's Way pits can be related to the quantity of finds they contain: the larger pits at White Horse Stone not surprisingly contain larger assemblages of finds than those at Pilgrim's Way. The pits at the two sites thus seem to have been cut with different purposes in mind. The small Pilgrim's Way pits could be seen as having been cut following particular events, to contain small deposits, whilst the White Horse Stone pits perhaps reflect a slightly longer term use of the pits to contain material generated over a longer period. There is, however, little evidence of natural silting within the White Horse Stone pits which would indicate that they were left open for appreciable periods between episodes of deposition.

The shallow features associated with the White Horse Stone pits, in contrast, contain very few finds, and do not seem to have been cut or used to deposit material. Given the evidence for burning associated with them, it is perhaps easiest to see them as having been used in some way for cooking or for other processes from which the material deposited in the nearby pits was derived. The precise nature of these processes is unclear and, given the differences in the evidence for burning from differing shallow features (differing degrees of *in situ* burning in some; burnt stone in others) seems to have varied. Whatever the case, the pits at White Horse Stone seem to have been related to these shallow features. Comparable features were not found on the Pilgrim's Way site.

Chronology

Partly because of the shape of the calibration curve in the relevant period, the radiocarbon dates do not provide a very accurate picture of the duration of this activity. Overall, the radiocarbon dates suggest that late Neolithic activity spanned a period of at least 30 years and perhaps as much as 310 years. The limited number of features, and the consistency in their fills, suggests that a span nearer the shorter end of this range is most plausible.

The differences in the dates from pit group 19413 (which includes one of the earliest and one of the latest dates) suggest that the pits do not derive from a single, short episode of activity. Nonetheless certain features of the pits in this group suggest that they were related to similar kinds of activity: they contain similar groups of finds, all of which, with the exception of the shallow features, were dominated by animal bone, and, despite the difference in date, there is a correspondence between the presence of a cattle skull in feature 5072 and the scarcity of skull in pit 4994. The refitting flint flakes, one fresh, one worn, from differing pits in a short intercutting row (subgroup 19395) also suggests that the location of earlier pits was remembered, although the difference in date here may have been rather slight.

There is, then, some evidence that the pit groups were formed by repeated but sporadic activity, even though they mostly seem to belong to the same broad phase of activity. Further evidence for the chronological scale of occupation is provided by the houses and the evidence for subsistence.

Structures

The two structures at White Horse Stone seem to have been related to deposits in nearby pits characterised by pottery, fired clay, charred cereals and hazel nut shell and a fragment possibly from a quern. This range of finds seems consistent with the interpretation of the structures as domestic. It certainly contrasts with the deposits in most of the other pits, and thus seems to belong to a different social context. The greater proportion of plant remains in the pits around the structure, in contrast to the animal bone-rich pits, also suggests that plant foods had a different, and probably lower, status than meat (cf. Robinson 2000b, 86-87). This pattern would be consistent with the domestic social sphere being of lower status than the wider public sphere perhaps represented in the other pit groups. The finds in the postholes of one of the structures - fragments of charcoal, flint chips and flakes, pot and burnt stone - are very similar to those associated with structure 4806.

Structures comparable to those at White Horse Stone are known from a small number of sites. At Trelystan (Britnell 1982) two subrectangular stake-built structures, around 4 m in diameter, associated with central hearths and pits were found below two round barrows. Radiocarbon dates from the pits, hearths and other features associated with these structures are similar to those obtained from the pits at White Horse Stone and Pilgrim's Way. Similar,

albeit slightly larger stake-built structures associated with hearths and pits were also found below a barrow at Walton (Gibson 1999). Radiocarbon dates again suggest a similar date. At Wyke Down, Cranborne Chase a further two structures comparable in size (diameter 4 m) to those at White Horse Stone but differing in construction were found (Green 2000, 73-5). Although these structures appear to have had walls supported by stakes, the rooves seem to have been supported by central square settings of four larger postholes. The decorated daub found in these postholes suggests that they may have been associated with central square 'chests' or cubicles made of wattle and daub (*ibid.*), comparable perhaps to those in late Neolithic stone structures in the Orkneys (eg Skara Brae; Childe 1931). The only potentially comparable feature at White Horse Stone is the post row (19402) which ran across the centre of structure 19410, but there is no indication that this formed part of a larger square setting. Three late Neolithic structures have been found outside the eastern entrance of Durrington Walls (Parker Pearson *et al.* 2006). Although again of comparable size to the White Horse Stone structure (4 m by 4 m) and with walls made of stakes, the structures were rectangular.

Like structure 19140, the buildings at Trelystan and Walton were built of flimsy stakes, and appear to have been ephemeral structures, suggesting only temporary occupation. It has been argued that the upland structures at Trelystan were related to seasonal pastoral activities (Britnell 1982, 185; Pollard, 1999, 80-1; Gibson 1996, 138-9), and those at Durrington Walls to seasonal ritual activity. The larger postholes of structure 5297 at White Horse Stone, however, suggest more permanent settlement, perhaps more comparable to that at Wyke Down. Furthermore, the fact that the two structures at White Horse Stone were built in roughly the same location, at different times, also implies a more long term attachment to the site. This would, nonetheless, still be consistent with occupation over a few decades, rather the centuries.

Like other late Neolithic structures mentioned above, the structures at White Horse Stone were quite small. The diameters of the postrings were between 3.1 m and 4.0 m. In the case of the stake-built structure 19140 this is likely to have been the diameter of the building itself (on the grounds that the stakes probably formed the walls). The posts forming structure 5297 might have been an inner postring, but even so the structure cannot have been very much larger.

On the assumption that the structures were houses, their small size implies that they were occupied by a small number of occupants, probably no more than a small family group. The small population implied by the structures appears to contrast within the evidence in the pits at Pilgrim's Way for the consumption or exchange of what would have been large quantities of meat, and hence again suggests that these deposits were related to a wider social group.

The subsistence economy

The evidence for the subsistence economy of the site is also relevant to the question of the social and chronological scale of occupation. At possibly comparable sites such as Yarnton (Hey *et al.* 2003, 87; cf. Wainwright and Longworth 1971, 264) it has been suggested that the late Neolithic was characterised by a mobile, pastoral economy, involving possibly seasonal movement, which formed one component of a broader subsistence economy. The general scarcity (but not absence) of charred plant remains, and cereals in particular, forms part of the basis for this interpretation. Overall, the subsistence evidence from White Horse Stone is very similar to that at Yarnton and many other contemporary sites (Moffet *et al.* 1989, Robinson 2000b), and suggests an economy based upon cattle and pig, hazel nut and crab apple, grain and beans or peas. There is also evidence at White Horse Stone for the possible cultivation of flax.

As always, the interpretation of these remains is problematical because of questions of preservation. It remains impossible to be certain of the relative importance of grain compared to hazel nuts and other wild foods because of uncertainties concerning whether the quantity preserved reflects the likelihood of them being charred or the quantities consumed. It also seems likely that the animal bone deposits do not reflect simply the subsistence economy but also the social and symbolic significance of cattle, pigs and their meat. A further complication is brought out by the contrast between the deposits in the pits near to the structures, which contain the highest proportion of charred plant remains and grain in particular, and the other pit groups in most of which animal bone predominates. Clearly, if found in isolation, these two groups of pits would have given very different impressions of the subsistence economy. The deposits in the pits around the structures could be seen as reflecting an aspect of the wider economy (involving agriculture and gathering wild plants) in which pastoralism formed a more significant element.

The environmental evidence at White Horse Stone and Pilgrim's Way suggests a mixed environment consisting of partially cleared land which retained some woodland cover. This is consistent with the typical mixture of woodland and open-country resources suggested by the deposits in the pits. These elements could have formed part of what might be termed a low maintenance economy. Although it is impossible to be certain of the relative importance of cereals and wild plant foods, the consistent presence of hazel nuts in late Neolithic deposits suggests that they were a frequent part of the diet. They would have provided a predictable seasonal resource over many years requiring little attention. The presence of hazel could have provided one reason for an interest in the area spanning a number of years.

Other elements of the subsistence economy may have required relatively little management. Pigs are territorial animals which would have exploited the surrounding woodland, and which would have required little attention (Grigson 1982). With regular

herding cattle will also become attached to a particular area. Cattle grazed in woodland may also have had potentially beneficial effects (in subsistence terms) on the environment. They impede forest regeneration thus helping to maintain clearings, and their grazing allows more light through to the forest floor, providing conditions conducive to the growth of hazel and other species (Armstrong *et al.* 2003, 18). They will, however, also graze on hazel and prevent its growth (*ibid.*).

Thus the cattle and pigs may have required relatively little management, and hazel would also have needed little attention. It is therefore only the cultivated plants - cereals, beans and flax - which might have required more labour, and, in particular, more fixed labour. The extent to which agriculture was important remains, however, open to question (Jones 2000; Robinson 2000b). The relationship of pottery with the cereals in the pit groups around the structures is also of interest, since ceramic vessels are not well-suited to a mobile existence and suggest at least semi-sedentary (seasonal) occupancy.

Overall, then, the subsistence and environmental evidence from White Horse Stone and Pilgrim's Way is consistent with small scale agropastoralism, in which the structures constituted a relatively fixed point, perhaps enduring for a few decades. The structures may have been related to small scale agricultural production, and the processing and perhaps storage of its products. They may have been located to take advantage of hazel trees, which would have provided a long term, seasonally predictable resource. Herds of cattle and pig could have been maintained with relatively little management in the surrounding woodland, and could have exploited a wider territory around the structures (cf. Robinson 2000a). The animals may have been consumed primarily in the context of ceremonies or rituals in which a wider community participated through the exchange and consumption of the animals. Differing groups of resources and features would thus have been related to differing social contexts and would have been related to activity at differing chronological scales. The structures and the pits surrounding them would have been related to a relatively low status, agricultural and socially restricted domestic sphere which was relatively fixed. Cattle and pigs were related to a more mobile woodland pattern, and were exploited in periodic ceremonies involving wider communities.

10 THE LATE NEOLITHIC-EARLY BRONZE AGE

Following the late Neolithic Grooved Ware associated activity there is very little evidence for activity at White Horse Stone and Pilgrim's Way until the middle Bronze Age. The sparse evidence there is, however, indicates that the site was not entirely abandoned.

The earliest of this evidence consists of a few, isolated Beaker sherds, found scattered across the site. With one possible exception, they were clearly residual in contexts which were much later in date than the sherds themselves (Table 20).

Table 20. Summary of Beaker pottery

Subgroup	Feature	Context	Nosh	Weight (g)	Fabric	Feature type	Date of feature
472	636	632	1	5	FG1	trackway	Medieval
472	636	632	1	3	AF1	trackway	Medieval
8088	5425	5431	1	0	A1	Posthole	Middle Bronze Age?
19419	-	4007	1	3	F1	colluvial layer	Post-Roman

The one Beaker sherd which might not have been residual was found in the postpipe of posthole 5425, a peripheral feature in a cluster of postholes (subgroup 8088) in the south-western corner of White Horse Stone (Fig. 56). This is the same cluster which contained the probably residual early Neolithic Decorated Bowl discussed above which was associated with charcoal and barley which gave early and middle Bronze Age dates (*Prunus* charcoal: NZA-21281, 3415±30 BP: 1870-1620 cal BC; barley: NZA-21450, 3064±50 BP: 1440-1139 cal BC). The earliest of these dates is consistent with activity here at the very end of the Beaker period, and could be contemporary with the Beaker sherd (Needham 2005, 210). The date on the charcoal is, however, significantly earlier than the date on the barley from the same context, and like the early Neolithic pottery, the charcoal is likely to be residual.

Evidence for activity in the early Bronze Age (2100-1600 BC) (Figs 6 and 49) was as limited as that for the Beaker period (2500-1700 BC), consisting of a small assemblage of finds, including 33 sherds (57 g) of Collared Urn, found in a small, shallow tree-throw hole (5128; 1.54 m wide and 0.09 m deep) to the south-west of structure 4806 (Fig. 8).

The base of the tree-throw hole was filled with a thin layer of burnt, orange red sediment (5129), suggesting that the tree-throw hole had been burnt out. The dark grey brown upper fill (5130) which contained all of the finds was very similar to that of the adjacent tree-throw hole (5125) the contents of which were radiocarbon dated to the late Neolithic (NZA-21831, 4189±30: 2890-2630 cal BC).

Table 21. Summary of finds in tree-throw hole 5128

Feature	Context	Pot (no. sherds/weight (g), fabric)	Flint (no. pieces; unburnt/burnt)	Animal Bone (no. fragments/weight (g); all burnt)	Charred plant remains & charcoal	Fired clay (no. pieces/weight (g))	Burnt, unworked flint (no. pieces/weight (g))
5128	5130	FV/CU 33/57 G1	1/0 oblique arrowhead 1/0 backed knife 0/1 end scraper 1/1 retouched flakes 1/2 irregular waste flakes 9/7 flakes 0/21 chips 0/1 unclassifiable fragment	Large mammal 1/16 Unident. 4/2	Hazel nut shells + Charcoal +	90/141	41/107

+ = 1-10 fragments

Other than the pottery, the finds from this tree-throw hole (Fig. 49) were generally comparable to those from the late Neolithic features, and, in particular, those near to the structures (Table 21). It contained a large number of pieces of amorphous fired clay, a few hazel nut shells, a little charcoal, and only a small quantity of unidentified animal bone. The worked flint largely consisted of flakes and chips, many of which were burnt, and no cores were found. Unlike the nearby late Neolithic pits, however, it contained a relatively high number of retouched artefacts: 2 retouched flakes, an end scraper, a backed knife and an oblique arrowhead most comparable to Green's Type d (1980, 102, fig. 38; Cramp 2006).

It is uncertain whether this group of finds was redeposited when the tree fell and possibly mixed or was all deposited at one time into the tree-throw hole after the tree fell.

The presence of these finds, again shows that although the level of activity at White Horse Stone and Pilgrim's Way had declined, the sites were still at least sporadically visited.

FARMING COMMUNITIES

11 THE MIDDLE BRONZE AGE (FIGS 50-62; PLS 14-16)

11.1 Middle Bronze Age overview

Middle Bronze Age activity may be represented by clusters of postholes (19403, 19404, 8088, 8087 and 820) dispersed in three or four widely separated locations across the White Horse Stone and Pilgrim's Way sites (Fig. 50). In two or three of the clusters more or less clear evidence for structures - both rectangular (674 and 19138) and oval (764) - can be made out. All of these postholes were associated with very few finds, although two were associated with deposits of charred barley. The evidence for their date is very poor, and in only one case can be regarded as anything like certain. A pit containing a sheep skeleton was found near one of these clusters.

Larger quantities of middle Bronze Age finds, including a deposit of animal bone and charred grain, were associated with a ditch (4025) which lay distant from the posthole clusters near to the NE corner of the White Horse Stone site. Residual middle Bronze Age pottery and flint found in early-middle Iron Age features nearby also suggests that larger quantities of finds were deposited around the ditch than around the posthole clusters.

A small group of shallow pits (42518, 42517 and 42520), some of which contain slightly later middle-late Bronze Age pottery were found near to the ditch. Middle Bronze Age finds were also recovered from four widely dispersed tree-throw holes.

Radiocarbon dates on the deposits of barley, the sheep skeleton and the deposit of animal bone in the end of ditch 4025 date the middle Bronze Age activity to 1520-1130 cal BC.

11.2 The environment

by Elizabeth Stafford

The most direct evidence for the environment in the middle Bronze Age was provided by a sequence of molluscs from ditch 4025 on the upper western plateau (Stafford 2006b). The ditch was cut through 0.65 m of sterile mid orangey brown fine silt (4013) which overlay weathered chalk bedrock. A sequence of samples was also taken from this deposit. In the upper part there were very few molluscs (1-35 individuals per sample), and those that were recovered, were of mixed character suggestive of both open and shaded environments. The low concentrations of shells mean that the sequence is unable to contribute much to the reconstruction of the environment. Of the open-country component, all of the species, apart from *Vertigo pygmaea*, were also recorded in late Glacial deposits in the valley bottom. The

presence of *Abida secale* in the primary fill of the ditch would seem to support a late Glacial date for a component of the assemblage. The presence, however, of *Discus rotundatus*, a thermophilous species and later addition to the British fauna (Preece and Bridgland 1998:207) suggests that at least the upper part of the sequence may have been reworked, incorporating additional shells representative of a more shaded environment, perhaps as a result of root action. It is, however, impossible to discount the possibility that some of the open-country shells were of Holocene date.

In the middle Bronze Age ditch itself, it is likely that the assemblages in the basal fills reflect both the pre-ditch environment (deriving from erosion of the ditch edges and perhaps topsoil turves falling into the ditch) and the initial colonizing fauna (reflecting local conditions of loose rubbly surfaces within the feature). The primary fill (4049), a fine chalk rubble within a mid brown silt, contained a moderate amount of shell, with 156 individuals identified. There was some indication of an open aspect to the environment, although this may have been very local to the feature, possibly associated with its construction. Open country species accounted for 43% of the assemblage, albeit consisting predominantly of *Vallonia costata*, with shade-demanding species at 13%. The most abundant species were *Trichia hispida* (20%) and *Vallonia costata* (33%), both common in the earliest stages of ditch colonization, along with the Punctum group. *Pomatias elegans* was also significant (13%), reflecting much broken ground. Open-country xerophiles *Vallonia excentrica*, *Helicella itala* and *Pupilla muscorum* were a minor component. There was a small shade-demanding component dominated by the zonitids, particularly *Oxychilus cellarius* and to a lesser extent *Vitrea* spp, occasional *Discus rotundatus*, *Carychium tridentatum* and Clausiliidae. All except for the Clausiliidae were recorded in layer 4013, and may relate to a previously wooded or recently cleared environment in the vicinity of the feature.

The upper primary fills (4047-45) produced similar assemblages, although the total number of individuals gradually increased, the chief gains being made by the catholic species. Up profile, there was a distinctive change in the assemblage, with a significant increase in abundance and species diversity. Shell numbers peaked at 436 individuals at the top of layer 4043. Shade-demanding taxa increased significantly, particularly *Discus rotundatus*, but also other species such as *Ena obscura*, *Helicigona lapicida* and Clausiliidae suggesting the growth of vegetation. The proportion of *Pomatias elegans* also decreased suggesting increased stabilization of surfaces within the feature. It is impossible to be certain how representative the assemblage from this level is of the environment of the area as a whole. It should be born in mind that the ditch probably defined a boundary, and the boundary itself may have had a very different character from that land which lay on either side of it. Nonetheless, the apparent rapid spread and colonization by shade-demanding species suggests substantial refuges remained close at hand. The composition of the assemblage is more

indicative of the presence of trees or scrub rather than simply long grass growing in the feature. represent a hedgerow, although given the low numbers of open-country xerophiles this is unlikely to have been wholly isolated in an otherwise extensively open environment.

In fill 4042 there was a marked increase in the relative proportion of *Pomatias elegans* (16%) suggesting renewed disturbance around the feature. *Trichia hispida* (23%) also increased slightly along with a small peak in *Vallonia excentrica* (13%). Values for *Discus rotundatus* and the zonitids decreased and some of the other shade-demanding species disappeared. This may reflect disturbance in the vicinity, perhaps some attempt to clear vegetation from in and around the ditch resulting in erosion of sediment. This may have been related to activity associated with the nearby early-middle Iron Age settlement. In the sample above the 'clearance zone', early-middle Iron Age pottery was identified.

In fill 4041 there was an increasing trend towards open-country conditions within the vicinity of the ditch with associated fauna rising to approximately 50% of the assemblage. It is possible the ditch faunas became more representative of the surrounding environment as the profile of the ditch became shallower. Although *Vallonia costata* continued to dominate, the xerophiles *Vallonia excentrica*, *Pupilla muscorum*, *Helicella itala* and *Vertigo pygmaea* were also present in greater numbers. Some shade-demanding elements continue (approximately 18%), notably *Carychium tridentatum*. *Discus rotundatus* continued but never achieved the numbers seen in the lower deposits. *Carychium tridentatum*, although classed as shade-demanding species, has more catholic habitat preferences than species such as *Discus rotundatus*, and will thrive in well-vegetated places including (ungrazed) damp grassland (Kerney 1999:45). Its presence may represent the growth of herbaceous vegetation within the feature in an otherwise open environment.

11.3 Structure 647 and nearby postholes and pits (subgroups 19403, 19404 and 19405; Figs 50-5; Pl. 14)

A distinct cluster of 81 postholes and two pits was found near the centre of the Pilgrim's Way site (Fig. 51; Pl. 14). The cluster as a whole runs across the contours of the dry valley, but since the slope here was very gentle the difference in height between the northern and southern ends was only around 0.5 m.

The only evidence for the date of these features is a small quantity of Deverel-Rimbury pottery and a single radiocarbon date (NZA-21840, 3079±30 BP: 1430-1260 cal BC). Both suggest that the cluster dates from the middle Bronze Age.

Analysis of the postholes

no very clear patterns suggesting structures were at first visible amongst this cluster of postholes. However, analysis of the size of the postholes and of the distribution of flint packing revealed the plan of a possible rectangular structure (647; Figs. 51-3).

The fills of the postholes did not vary greatly, but 27 of the postholes were distinguished by pieces of flint, usually making up 25%-50% of the fill, which were originally used as postpacking.

Structure 647 (Fig. 52)

The flint packed postholes were clustered in two areas. One subgroup (647) suggested the existence of a roughly rectangular structure at the southern end of the cluster.

The structure was aligned just off N-S (closer to NNE-SSW), and was actually trapezoidal rather than rectangular, the northern edge (measuring 4.6 m) being rather shorter than the southern edge (5.2 m). The difference in the length of the east and west sides was smaller (3.1 m compared to 3.3 m).

Other postholes with flint packing (subgroup 19403)

The other subgroup of postholes containing flint packing (19403) lay at the northern end of the cluster (Fig. 51). The postholes in this subgroup did not form any very clear pattern.

Postholes without flint packing (subgroup 19404)

The remaining postholes in the cluster which lacked flint packing were generally smaller (Fig. 53-5). Although alignments and arcs of three or four of these postholes could be recognised, none seemed to be sufficient to suggest the plans of structures (Fig. 51). Most noticeable, perhaps, is the almost straight boundary they form on their eastern side.

Pits (subgroup 19405)

Two pits (329 and 331: subgroup 19405) were found within the broad cluster of postholes (Fig. 51). Although much wider than the postholes (1.28 m and 1.58 m respectively), they were no deeper (0.24 m and 0.28 m; Fig. 61).

Stratigraphic relationships

Since their fills were very similar to those of the postholes and because they were very shallow at their edges, it was difficult to be certain of the stratigraphic relationship between pit 351 and posthole 554, but the posthole seemed to cut the pit (Fig. 53), implying that structure 647 was later than at least this pit.

11.4 Finds from the postholes

Charred grain

Few finds were associated with any of the postholes or the pits (Table 22). The most striking find was a dump of charred grain in posthole 571. This consisted primarily of fully processed six-row hulled barley but also contained oats, other unidentified grain and a little charcoal. It was from this barley that the radiocarbon date (NZA-21840, 3079±30: 1430-1260 cal BC) was obtained. A small amount of barley was also found in posthole 574. However, this posthole was cut by posthole 571 and it is possible that the grain derives from the later posthole.

Pottery

The postholes contained pottery, usually consisting of single Deverel-Rimbury sherds (in only one case more; Morris 2006). Different fabrics were found in the two groups of postholes containing flint packing: F5 and F6 in structure 647, and F3 and F4 in subgroup 19403. Charred residue and sooting were noticed on sherds from postsholes 399 and 354.

Flint

The postholes also contained a small quantity of worked flint (Cramp 2006). With the exception of a single blade, this consisted entirely of flakes, irregular waste flakes and (where a context had been sampled) chips.

11.5 Finds from the pits

The finds from the two pits were similar to those from the postholes: a single flint flake and a small number of sherds in fabrics similar to those in the postholes (F3 in pit 331 and F5 in pit 329).

Two sherds (21 g) in a flint and grog tempered fabric (FG1) were also found in pit 331. This fabric has been dated to the early-middle Iron Age and the sherds may be intrusive.

Table 22. Summary of finds in structure 647, posthole clusters 19403 and 19404 and in pits 329 and 331

<i>Cut</i>	<i>Pot (no. sherds/weight (g))</i>	<i>Mean sherd weight (g)</i>	<i>Flint (no. pieces, unburnt/burnt)</i>	<i>Charred plant remains and charcoal (estimated no. frags)</i>	<i>Sampled</i>
<i>Structure 647</i>					
571	1/7 F5 Globular urn base	7.0	9/0 flakes	Hordeum vulgare 71 cf. Hordeum vulgare	y

				95 Hordeum/Triticum 2 Avena + Cerealia +++ Charcoal +	
527	1/3 F6	3.0	2/0 flakes 1/0 irregular waste flakes 6/5 chips		y
523	8/1 pos ceramic frags	0.1	1/0 flake		
322			2/0 flakes		
473			5/0 irregular waste flakes		
533			2/0 flakes		y
			5/0 irregular waste flakes		
574			13/0 chips 2/0 flakes	Hordeum vulgare +	y
<i>Posthole cluster 19403</i>					
399	4/10 F4	7.4			
	1/27 F3				
354	1/4 F3	4.0			
327	1/1 FI2 (E-MIA?)	1.0			
334			2/0 chips		y
399			1/0 blade		
337					y
<i>Pits</i>					
331	2/13 F3 (MBA)	6.5	1/0 flake		
	2/21 FG1 (E-MIA)	10.5			
	5/4 F99 (Prehist)	0.8			
329	1/6 F5 (MBA)	6.0			

+ = 1-10 fragments; +++ = 50+ fragments

11.6 Posthole cluster 8088 and the date of posthole 5415 (Figs 56-8)

Two further clusters of postholes (8088 and 8087) were found near to each other in the south-west corner of the White Horse Stone site (Fig. 47). Cluster 8088 has already been discussed (see above 'Early Neolithic 2' and 'Late Neolithic-early Bronze Age').

The evidence for the date of this cluster is problematical. One of the postholes (5425) contained a Beaker sherd whilst two others (5415 and 5418) contained early Neolithic pottery, including a large Decorated Bowl sherd in posthole 5415 (Table 23). This same posthole, however, contained a deposit of charred plant remains, including hulled barley and weed seeds, the barley from which was radiocarbon dated to the middle Bronze Age (NZA-21490, 3064±50: 1440-1130 cal BC). Some *Prunus* charcoal from the same context gave a significantly earlier date, falling within the early Bronze Age or early in the middle Bronze Age (NZA-21281, 3415±39: 1870-1620 cal BC). A nearby tree-throw hole (5478) contained

further early Neolithic pottery but also fragments of a cylindrical loomweight. The loomweight suggests that the early Neolithic pottery was residual and that the tree-throw hole was open or formed in the middle Bronze Age or later. The tree-throw hole was a circular feature, 2.5 m wide with an irregular, stepped base, 0.80 m deep.

Given the presence of evidence for activity in at least three distinct phases it is quite likely that the features in this group belong to more than one phase of activity. Nonetheless, since the barley provides the latest date, and because of the parallels between the deposit of barley here and that in structure 647, it is suggested that posthole 5415 and probably some, at least, of the postholes in this area, date from the middle Bronze Age.

The remaining finds from the postholes in cluster 8088 (Table 23), excluding the early Neolithic and Beaker pottery, consist of a few flint chips (some burnt), a few flint flakes (all unburnt), a little burnt, unworked flint, and some unidentified charcoal.

Table 23. Summary of finds in subgroups 8088 and 5478

Feature	Pot	Ware No/weight g/Fabric	Chips unburnt/burnt	Flakes unburnt/burnt	Other flint	Burnt unworked flint no/weight g	Charred plant remains	Charcoal (unidentified unless otherwise indicated)	Other finds
5478	EN 8/10 AF1 EN 1/9 F1 EN 6/11 F2			5/0					Fired clay 8 fragments/25 g (cylindrical loomweight)
5415	DB 1/33 F4 EN 21/72 F3				Hammerstone made on re-used multiplatform flake core/385 g	10/29	Hordeum vulgare 2 Hordeum 2 cf. Hordeum 1 Hordeum/Triticum 11 Chenopodium + Euphrasia/Odontites + Galium 1 Avena sp. 2	Prunus +	
5418	EN 3/4 F3								
5425	BKR 1/0 A1								
5099			2/2	1/0					
5432						2/0.5			
5440								+	

EN - early Neolithic; DB = Decorated Bowl; BKR = Beaker; + = 1-10 fragments

11.7 Posthole cluster 8087 and possible structure 19138 (Figs 56 and 58)

The second cluster of postholes (subgroups 8087 and 19138) lay around 7 m to the north of cluster 8088. No finds at all were recovered from the postholes in this group and their date is, therefore, unknown.

Whereas no patterns indicating the outline of structures were recognised in cluster 8088, it was possible to distinguish traces of what might have been two parallel rows of posts

(subgroup 19138) within cluster 8087 (Fig. 56). Even this, however, is far from convincing evidence for a structure.

Pit 5454 (Figs 50 and 58; Pl. 16)

Pit 5454 lay just over 20 m to the north-west of subgroup 8088 and around 18 m to the west of subgroup 8087. It was a shallow, circular pit, 0.14 m deep, with near vertical sides and a flat base (0.56 m wide). The skeleton of a sheep/goat, around 2 years old, was found in the base of the pit, and although now fragmentary, it appears to have been still articulated when it was deposited in the base of the pit. The pit contained no other finds, but a radiocarbon date on the sheep/goat's tibia suggests that it dates from the same period as the barley in posthole 5415 (NZA-22035: 3140±40: 1520-1310 cal BC).

11.8 Structure 764, subgroup 820 and other postholes in the same area (Figs 57-8; Pl. 15)

The final possibly middle Bronze Age cluster of postholes (subgroup 820) was found near the eastern edge of the Pilgrim's Way site. Within this cluster the remains of a possible circular structure (764) were recognised (Fig. 57; Pl.15). No artefacts at all were recovered from the postholes in this area, and their date is thus unknown. There are, however, two reasons for suggesting that they might have dated from the middle Bronze Age. The first is that a tree-throw hole (740) containing a small quantity of probably residual middle Bronze Age pottery was found nearby, and provides the nearest dated artefacts which might have derived from activity associated with the postholes. The second reason is that many of the postholes contained flint packing comparable to that in structure 647, although in this case much of it was burnt.

The oval structure (764) was defined by five postholes, placed at intervals of 1.6 m - 2.2 m around the circumference. The oval had a diameter of 3.2 m E-W and 3.0 m N-S.

Plainly the date of these features is very uncertain, and the possible structure contrasts markedly with structure 647. Nonetheless, it provides another hint, like clusters 8088 and 8087, that middle Bronze Age activity might have been more widespread than the better dated evidence suggests.

11.9 Tree-throw holes

Five tree-throw holes containing middle Bronze Age finds were recorded scattered widely across the Pilgrim's Way and White Horse Stone sites: 5478, 931, 740, 868 and 611 (Figs 50 and 9). Of these, 5478 has already been discussed (see above 'posthole cluster 8088').

Tree-throw holes 931 and 740 both contained small quantities of middle Bronze Age pottery. The only other finds in these two tree-throw holes were four flint chips (one of which was burnt) in three-throw hole 931.

The finds in tree-throw hole 868 were more clearly residual since they were associated with two sherds (7 g) of medieval (12-13th-century) pot (Table 24). The other finds in this feature, however, are more likely to be middle Bronze Age in date. They consist of middle Bronze Age pottery with a relatively high mean sherd weight, very fragmented animal bone, a little spelt, a few hazel nut shells and some charcoal. Similarly, the crumbs of middle Bronze Age pottery in tree-throw hole 611 must have been residual, since the tree-throw hole cut a medieval hollow way

There is no indication that finds were deliberately deposited in tree-throw holes in the middle Bronze Age. The finds from these features are, however, significant in showing that middle Bronze Age material, including pottery and charred grain, was quite widely dispersed across the site in areas in which no clear evidence of middle Bronze Age features was found. This could be indicative simply of manuring or could reflect the presence of shallow features or deposits such as middens which have left no subsurface trace.

Table 24. Summary of middle Bronze Age finds in tree-throw holes

Feature	Pot Ware No/weight g Fabric	Mean sherd weight (g)	Chips unburnt/burnt	Flakes unburnt/burnt	Animal bone (no. frags/weight g)	Charred plant remains and charcoal	Other finds
5478	EN 8/10 AF1 EN 1/9 F1 EN 6/11 F2	-		5/0			Fired clay 8 fragments/25 g (cylindrical loomweight)
931	MBA 9/64 F6 MBA 20/58 GF1	4.2	3/1				
740	MBA 1/4 F1 MBA 5/5 F4	1.5					
868	MBA 1/1 F5 MBA 7/122 F3 Early Med 2/2	MBA 10.25			Unident 276/32	<i>Triticum spelta</i> + <i>Corylus avellan</i> shell + Prunus charcoal + Quercus charcoal +	
611	MBA 31/39 F3	EM 2/2 1.3					

11.10 Ditch 4025 (Figs 59-60)

Evidence for middle Bronze Age activity quite different from the posthole clusters was found near the north-eastern corner of the White Horse Stone site (Fig. 59). There, over 150 m from the nearest other features dating to the middle Bronze Age, ditch 4025 extended nearly 43 m from the edge of the site. The ditch was more or less V-shaped in section, up to 2.62 m wide

and 1.06 m deep, and was filled with a more or less complex sequences of up to eight fills which seem to derive from both deliberate and natural filling (Fig. 60).

Four sections were cut across the ditch, and although this represents just a small proportion of the ditch fills, the sections contained a much larger quantity of finds than any of the groups of middle Bronze Age postholes (Table 25).

The most striking group of finds was recovered from a dark, organic deposit (4015, part of 4016) at the end of the ditch (cut 4014) which lay above the primary fill. This deposit contained the largest group of animal bones and almost the only charred grain from the ditch.

The animal bone in this deposit consisted of a horse humerus and small cattle and sheep/goat bones. Only single fragments of animal bone - dog and cattle skull, and cattle and sheep/goat teeth were found in the other sections.

Middle Bronze Age pottery including fragments of bucket urns or jars was found in all of the sections, sometimes in large quantities containing large sherds (Fig. 62).

Flint, consisting largely of flakes, but including also a scraper and a serrated flake in the deposit at the end of the ditch, and a core in another section, was also found.

The relatively large quantities of finds from this ditch contrast with the very small quantities of finds associated with the post-built structures and clusters of postholes. The finds in the deposit at the end of the ditch, as well as some of the larger deposits of pottery, may well have been deliberately deposited, although they do not have the character of special deposits. The other finds may well consist of stray material. The residual middle Bronze Age finds from early-middle Iron Age features in the area around ditch 4025 provide further evidence for stray middle-Bronze Age material, and suggest that, despite the absence of any evidence for structures in this area, more stray material was deposited here than around the post-built structures.

Table 25. Summary of finds in ditch 4025

<i>Cut Context</i>	<i>Pot (no. sherds/weight g, fabric, date, forms)</i>	<i>Mean sherd weight (g)</i>	<i>Flint (no. pieces unburnt/burnt)</i>	<i>Animal bone (no./weight g)</i>	<i>Charred plant remains and charcoal (est. no specimens)</i>	<i>Sieved</i>
4014						
4017 (upper)			Flake 1/0		modern grape	y
4016=4015	53/208 F3 MBA R25	3.9	End and side scraper 1/0 Serrated flake 1/0 Flakes 4/0	Horse 1/162 Cattle 5/156 Large mammal 18/43 Sheep/goat 4/19 Medium mammal 14/33 Unident 3/1	Barley/spelt/wheat grain & chaff + Grass + Pomoideae charcoal +	y
4069 (primary)			Chips 3/0	Sheep/goat 1/12 Medium mammal 1/1	Grain + Charcoal +	y
4082						
4095 (upper)	7/116 F3 MBA R25	16.6				
4096	39/451 F3 MBA R25	11.6				
4097	19/202 F3 MBA	10.6	Multiplatform flake core 1/0 (220 g) Flakes 2/0 Blade-like flake 1/0			
4098						
4099						
4100	1/4 F3 MBA	4.0	Flake 1/0	Canid 1/32		
4101 (primary)						
4048						
4041 (upper)			Blade -like flake 1/0			y
4042	1/1 F5 MBA 3/21 F3 MBA 2/30 F4 MBA R25	8.7		Cattle 1/12 Sheep/goat 1/3		y
4043						y
4044	1/42 F4 MBA 12/84 F3 MBA	9.7		Cattle 1/20 Large mammal 3/11		y
4045						y
4046						y
4047						y
4049 (primary)						y
7272/7273 (partial section only)			Flake 1/0			

11.11 Middle-Late Bronze Age pits near ditch 4025 (subgroups 42518, 42517 and 42520; Figs 59-61)

Nine pits found near to ditch 4025 at the north-eastern edge of the White Horse Stone site have been dated to the middle-late Bronze Age transition (Fig. 59), on the basis of the pottery recovered from two of them (7038 and 7069, subgroup 42518). These two pits contained middle Bronze Age pottery (Table 26), including the lug handle of a globular urn or jar and a rim sherd from an ovoid cooking pot (form R6)) as well as late Bronze Age sherds (Morris 2006).

The date of the other pits is less certain. One (7130, subgroup 42517) contained a small number of purely middle Bronze Age sherds, and might, therefore, be earlier in date (Table 26). However, since there was so little pottery in this pit, it may be purely coincidental that it lacks the later pottery. The remaining pits (subgroup 42520) lacked any chronologically distinctive finds (and in three of them, any finds at all). They have been grouped with the other pits on the basis of their similarity in shape and size (Figs 60-1) which contrasts with that of some of the early-middle Iron Age pits in the same area, their location, and the fact that they do not contain metalworking debris (which occurs in many of the early-middle Iron Age pits in this area).

The pits were all rather shallow, slightly assymetrical bowl-shaped features (Fig. 60). They were comparable in size to the middle Bronze Age pits near to structure 647 (Fig. 61), 0.7 m - 2.0 m wide and 0.08 m - 0.42 m deep, and contained single layers of fill.

The other finds in these pits consisted of cattle and sheep/goat teeth, as well as fragments of unidentified bone. The pits also contained a little flint, mostly flakes, but including also a probably middle Bronze Age denticulate, a notch and a core in pit 7130. Two crumbs of fired clay were found in pit 7021.

It is striking that the southern edges of five of these pits were cut by a Romano-British ditch (1310). Whilst there is a great difference in the date of these features, it is possible that a boundary in this location endured from the middle Bronze Age into the Romano-British period. The northern edge of a negative lynchet (4134, thought to have formed in the early-middle Iron Age; Fig. 70) runs close to the Romano-British ditch (Fig. 106), and an agricultural boundary may therefore have existed here which perhaps was first formed in the middle Bronze Age, and was respected throughout the Iron Age, into the Romano-British period.

Table 26. Summary of finds in middle-late Bronze Age pits

<i>Cut Context</i>	<i>Pot (no. sherds/weight g., fabric, date, forms)</i>	<i>Mean sherd weight (g)</i>	<i>Flint (no. pieces unburnt/burnt)</i>	<i>Animal bone (no./weight g)</i>	<i>Other finds</i>
7130/7128	2/24 F3 MBA 4/17 F4 MBA	6.8	Notch 1/0 Denticulate 1/0 Multiplatform flake core 1/0 (216 g) Flakes 2/1 Irregular waste flakes 1/1	Medium mammal unident 1/1	
7038/7039	1/7 F5 - MBA 1/17 F1 - LBA-EIA R6	12.0	Flakes 3/0	Medium mammal unident 1/1	
7069/7070	1/4 F3 MBA 3/10 F4 MBA 14/29 GF1 MBA-EIA 2/1 I3 LBA-EIA 8/37 F1 LBA-EIA 1/1 FS1 LBA-EIA 5/1 F99 Prehist	2.4	Flakes 3/0	Cattle tooth 1/8 Sheep/goat tooth 1/1 Medium mammal unident 1/1	
7021/7022				Large mammal unident 2/8 Sheep/goat tooth 1/1	Fired clay 2/1 g
7034/7035			Flakes 3/0 unclassifiable piece 0/1 (23 g)		
7113/7116			Flakes 9/1 Blade-like flake 1/0 Heavy 'implement' 1/0 (122 g)	Sheep/goat tooth 1/3 Medium mammal unident 7/4	

11.12 Residual middle and late Bronze Age pottery and flint in features belonging to the early-middle Iron Age settlement (Figs 59 and 68)

Small quantities of middle and late Bronze Age pottery in fabrics similar to those found in ditch 4025 and the nearby middle-late Bronze Age pits were found in features belonging to the early-middle Iron Age settlement (Fig. 59). This residual pottery was found in the area around the Bronze Age ditch and pits, and may derive from disturbance of the Bronze Age features, more superficial features which have not survived, or from surface deposits. Like the residual flint discussed below, this pottery adds to the evidence for the deposition of larger quantities of Bronze Age debris around ditch 4025 and the nearby Bronze Age pits than was deposited around the middle Bronze Age structures and postholes to the south.

The major concentration of residual flint in early-middle Iron Age features was also found in the area around the Bronze Age ditch and pits (Fig. 68).

11.13 Radiocarbon dates

Five radiocarbon dates were obtained from middle Bronze Age features: one from the deposit of barley in structure 647; two from the deposit of barley and prunus charcoal in posthole 5415 in posthole cluster 8088; one from the sheep in pit 5454; and one from a horse humerus from the deposit in the end of ditch 4025 (Table 27; Figs 63 and 115).

There is a large discrepancy between the two dates from posthole 5415, the date of the sloe or blackthorn charcoal (NZA-21281) being significantly earlier than that from the barley (NZA-21490). (A chi-squared test gives a value of $T = 35.5$ ($5\% = 3.8$) 1 degree of freedom.) It has already been argued that the barley is more likely to provide a reliable date for this feature than the charcoal.

Overall, the remaining dates are very similar. A chi-squared test shows that they are not significantly different ($T = 3.8$ ($5\% = 7.8$) 3 degrees of freedom). The dates are thus consistent with all of the dated material being contemporary, and suggest the middle Bronze Age activity occurred *c* 1520-1130 cal BC.

Table 27. Summary of middle Bronze Age radiocarbon dates

<i>Subgroup</i>	<i>Feature /context</i>	<i>Result no</i>	<i>Material</i>	δC^{13}	<i>Uncal date</i>	<i>Calibrated dates</i>
Posthole cluster 8088	5415/ 5417	NZA-21281	prunus charcoal	-19.94	3415±30	1870-1620
Ditch 4025	4025/ 4016	NZA-21326	horse humerus	-19.30	3151±35	1520-1310
Pit 5454	5454/ 5462	NZA-22035	sheep/goat tibia	-21.48	3140±40	1520-1310
Structure 647	571/ 572	NZA-21840	charred barley	-24.91	3079±30	1430-1260
Posthole cluster 8088	5415/ 5417	NZA-21490	charred barley	-24.85	3064±50	1440-1130

11.14 Discussion

The middle Bronze Age features at Pilgrim's Way and White Horse Stone are very different from the 'round-houses, accompanied by a few pits, a pond, and perhaps one or two four-post structures' (Brück 1999, 145) which have been taken to be characteristic of middle Bronze Age settlements elsewhere in southern Britain. They are also associated with much smaller and less varied assemblages than usually occur with such settlements.

The date of several of the clusters of postholes is very uncertain. Only structure 647 can be regarded as securely dated. Whilst there were clearly middle Bronze Age activity in cluster 8088, it is unclear how many of the features in that area date from the middle Bronze Age. The date of cluster 8087 and of structure 764 is much more speculative.

The evidence for the chronological relationships of these groups is consequently also poor. One possibility is that, in common with other middle Bronze Age settlements, the presence of four clusters of postholes reflects a shift in the location of activity over time rather

than a widely dispersed synchronic pattern. The radiocarbon dates, however, are consistent with all of the dated activity having occurred at the same time. They thus suggest that the difference in date between the dated clusters was small. It is nonetheless noticeable that features around structure 647 must belong to more than one phase.

The small rectangular structure is unusual in the context of the middle Bronze Age, and very different from the roundhouses more commonly associated with middle Bronze Age settlements. Longer rectangular structures have been identified at a small number of sites (eg Loft's Farm (Brown 1988); Cranborne Chase (Barrett *et al.* 1990). However, all of these are much longer, narrower structures than that at Pilgrim's Way.

Very few finds were associated with structure 647. There is thus very little evidence for its function, and what evidence there is, is contradictory. On the one hand the charred residue on some of the pottery suggests that cooking took place. The grain seems to have been fully processed and was ready for consumption. These finds suggest that the structure could have been domestic. (The reservations expressed above concerning the use of this term in relation to the early Neolithic structure apply equally here.) The small number of pieces of worked flint would be consistent with such an interpretation. On the assumption that weaving was a domestic activity, the fragments of loomweight found in cluster 8088, near to further grain, could also be seen as suggestive of domestic activity. However, charcoal and other fragmentary finds which characterise the postholes of early Neolithic structure 4806 were not found (although this may partly reflect the limited sampling of the postholes). Animal bone is also notably absent from the postholes, even though a sheep skeleton was found in pit 5454 near to cluster 8088 and other bone in the pits and ditch at the north-eastern end of the White Horse Stone site.

A possible reason for the paucity of artefacts associated with the structures is that waste was deposited elsewhere. The recovery of often residual middle Bronze Age finds in tree-throw holes spread widely across the sites suggests that some of the middle Bronze Age debris was dispersed as a result of manuring. The molluscs from ditch 4025 on the western plateau suggest the presence of some form of woodland prior to the middle Bronze Age, but that some clearance occurred when the ditch was cut., and manuring may have been of increasing importance.

Whatever the case, the scarcity of finds in the posthole clusters contrasts with larger quantities in ditch 4025. The presence of residual middle Bronze Age material in Iron Age features near to the ditch, also suggests that the ditch was the focus for more deposition than were the posthole clusters. Brück (1999) has drawn attention to the possible significance of deposition of material in boundary areas in the middle Bronze Age, and the concentration of finds around ditch 4025 appears to provide another instance of this pattern.

It is possible that organic material was deposited in the end of ditch 4025. Otherwise, however, the finds from the ditch appear to consist of miscellaneous debris which contrasts markedly with what can be seen as special deposits in other contexts. These special deposits were of very different kinds. The most striking was the sheep skeleton in pit 5454. However, the two deposits of charred barley – one associated with structure 647 and the other in cluster 8088 could also be seen as special deposits, rather than simply as stray grain. There is, nonetheless, a clear contrast between the animal bone in ditch 4025 and pit 5454 and its absence from the structures.

Overall, although the patterns are difficult to understand, deposition appears to have been quite clearly structured, and in certain respects is similar to the late Neolithic pattern. The structures were associated with deposits of grain whilst animal bone was found only in other contexts. There are, however also striking differences in the finds from the late Neolithic and the middle Bronze Age which mirror much wider developments. The middle Bronze Age animal bone is dominated by sheep and horse. This suggests a very different use of the landscape, and in particular, provides the first evidence which suggests systematic exploitation of the Downs above White Horse Stone. This change in the pastoral regime may be related to the presence of ditch 4025. Unfortunately there is no evidence to show whether ditch 4025 formed part of wider field system. The large deposits of grain found in two of the posthole clusters also contrast with small quantities of charred grain found in earlier contexts. This contrast suggests not only changes in agricultural practice and that agriculture had increased in importance, but, given their use in special deposits, also a change in the symbolic significance of grain. The grain consisted almost entirely of six-row hulled barley which has been identified elsewhere as one of the major grains in cultivation in this period (Giorgi 2006; Grieg 1991, 302). The contrasts in both the pastoral and agricultural evidence from the late Neolithic and the middle Bronze Age is consistent with the evidence for the increasing clearance of the landscape suggested by the molluscs from profile I (see above). Although the date of the clearance suggested by this profile cannot be precisely fixed, it does fall between the late Neolithic and the early-middle Iron Age, and may well have been associated with the extensive evidence for activity in the middle Bronze Age.

The major difficulty in interpreting the middle Bronze Age remains is that the patterns in the distribution of finds might be a product of how ‘waste’ was disposed of, and the location of finds might not, therefore, be an accurate reflection of the location of activities. However, because of the absence of animal bone and the lack of traces of domestic activity (such as the fragmentary material which characterises early Neolithic structure 4806), it perhaps easiest to see the middle Bronze Age posthole clusters as deriving not from relatively permanent houses, but as having been related to agricultural activity. They may have been temporary shelters related to sowing, harvesting and maintaining crops. It is perhaps worth

noting that such activities can be assigned to particular social categories (defined by age, gender and social relationships) who may work seasonally away from the main centres of settlement (eg Richards 1932). However, since fully processed grain was found, with no direct evidence of crop processing, the deposits of charred grain might have derived from quite different kinds of activity. The ditches and pits at the northern end of the White Horse Stone site might, in contrast, have been related to a distinct, pastoral element of the economy. The greater range of debris associated with these features suggests that any settlement is more likely to have lain near the ditches and pits than it is to have been related to the posthole clusters.

12 THE LATE BRONZE AGE (FIGS 64-7; PLS 17-19)

12.1 Late Bronze Age overview

The small number of features dating from the late Bronze Age consisted of a large pit (5421) containing large quantities of pottery and evidence of burning which lay in the SW corner of the White Horse Stone site, and two shallow pits containing deposits of cremated human remains (and little else) on the Pilgrim's Way site (Fig. 64). All of these features have been dated by radiocarbon to the late Bronze Age (1190-890 cal BC). On the basis of these dates it is possible that at least the earliest of the cremation burial/deposits was contemporaneous or quite close in date to the middle-late Bronze Age pits (subgroup 42518) at White Horse Stone, discussed above, near which residual late Bronze Age pot was found.

Five other shallow pits containing usually small deposits of cremated human remains (and in one case also some unburnt infant bone) for which there is no good dating evidence were found scattered over the Pilgrim's Way site (Fig. 64). Whilst these deposits may also date to the late Bronze Age, cremated human remains dating from the late Neolithic and possibly also the Romano-British period have also been found on the Pilgrim's Way site. All of these deposits of cremated remains are considered in this section in order to highlight the similarities and differences between them which might have some bearing on their date.

12.2 The environment

by Elizabeth Stafford

As discussed above, the fill of a large subsoil hollow (923; profile I) in the base of the valley has provided evidence for woodland clearance and the development of areas of open, grazed grassland in this area at some time during the Bronze Age (Stafford 2006b). On the White Horse Stone site, the fills of ditch 4025 suggest the presence of localised scrub or open woodland between the middle Bronze Age and early-middle Iron Age activity on the western plateau, although the extent to which this is representative of the ditch or the wider environment is unclear. The only direct evidence for the environment in the late Bronze Age on the lower slopes of White Horse Stone is provided by a sequence of molluscs taken from pit 5421. In the lower fills, shade-demanding species predominate, and open-country species appear in only very low numbers. The proportion of open-country species increases slightly in the middle layers. It was, however, only in the upper fill that a significant reduction in tree cover is evidenced, and greater evidence for grassland was found.

The two lower-most fills (5453 and 5452) probably consisted of material deriving from late Glacial silts which were redeposited rapidly either during or immediately after the

pit was cut. They were devoid of shell. The assemblage from the overlying fill (5449) probably contained molluscs deriving from topsoil falling into the pit which represent the pre-pit environment, as well as the initial colonizing fauna. Shade-demanding species dominated the assemblage (79%). The main species were the zonitids (60%). *Carychium tridentatum* was present (11%), as well as the catholic species *Arianta/Cepaea* spp. (11%). *Discus rotundatus* was present in small numbers along with some Clausiliidae. The open-country component was very low (4%), most of which comprised *Vallonia costata*. The overall character of the assemblage indicates shaded conditions. The presence of high numbers of zonitids, *Trichia hispida*, *Vallonia costata* and *Pomatias elegans*, and low numbers of *Discus rotundatus* may well be representative of the micro-environment of the pit with bare loose surfaces exploited by the more catholic elements of the local fauna.

Fill 5426 may well represent a discrete erosional deposit. This deposit produced an assemblage of only 90 individuals suggesting that it formed in conditions less conducive to molluscan life and perhaps was rapidly deposited.

Fill 5423 may represent a soil horizon. It is not clear whether this layer represents soil formation within the pit (indicating the feature was left open for some time), or if the soil was redeposited from a contemporary ground surface. The deposit produced an assemblage comprising 488 individuals. Shade-demanding taxa predominated (66%). *Discus rotundatus* increased to 18% and *Carychium tridentatum* to 31% with the zonitids in lesser abundance. *Vallonia costata* continued as the predominant open-country element (15%). The character of the assemblages indicates that soil formation, whether in situ or redeposited, occurred in an environment of open woodland or scrub.

Layer 5456 produced a similar molluscan assemblage dominated by shade-demanding taxa (75%). This deposit was very disturbed and mixed, and probably represents a deliberate backfill of material. Additional woodland species included *Ena obscura* and *Helicigona lapicida*. There was also a minor input from xerophile species including *Vallonia excentrica*, *Helicella itala* and *Pupilla muscorum*.

The upper fill (5422) was distinctly different from the deposits below. The deposit was very similar to the colluvial deposits exposed in the sediment sequences, and as such the molluscan assemblages may reflect the wider environment. Shade-demanding species gradually reduced to 20% although an initial increase in *Carychium tridentatum* may reflect the presence of more herbaceous vegetation or areas of long grass possibly growing within or in the immediate vicinity of the feature. Open-country taxa increased to 45-50%. *Vallonia costata*, *Trichia hispida* and *Arianta/Cepaea* spp. dominated the assemblages, but open-country xerophile species were also present in low numbers indicating perhaps the presence of open-country grassland or arable environments.

12.3 Pits containing cremated human remains

The nine pits containing cremated human remains (Table 28) were scattered throughout the Pilgrim's Way site (Fig. 64), some as isolated features, but five in a loose cluster (including the two dating from the late Neolithic which are not shown in Fig. 64) near the western edge of the site.

Dating

Of these pits, two (852 and 948) have radiocarbon dates placing them in the late Bronze Age (Table 31; Pls 17-18). Two other pits (913 and 952) have radiocarbon dates (Table 18) placing them in the late Neolithic. Another (119=872) can be dated only on the basis of a burnt bone pin which might be Roman or late Neolithic. The other pits containing deposits of cremated remains contained very few artefacts (and none that are chronologically very diagnostic) and no material suitable for radiocarbon dating (Table 29). They could, therefore, be assigned a date only on the basis of their other attributes (such as the size and shape of the pit, their location and the characteristics of the cremated remains). Unfortunately one of the late Bronze Age pits lies near to the late Neolithic pits, and location does not, therefore, provide a convincing basis for dating. Furthermore, the other attributes of the pits and the deposits they contain do not provide any very clear basis for distinguishing between the pits.

The pits

Most of the pits were small, shallow, bowl-shaped features (Fig. 65) measuring between 0.06 m and 0.26 m deep and from 0.22 m to 0.50 m wide (Fig. 66; Table 28). Only two were larger: one of the late Neolithic pits (952) and pit 119=872 which may be Romano-British or late Neolithic. Overall, however, there is very little difference in the size of the pits. The other late Neolithic pit (913) is similar in size to the two pits dated to the late Bronze Age.

The cremated remains

The pits can be divided into three groups according to the quantities of cremated human remains they contain (Table 28).

Table 28. Summary of cremated remains and the pits containing them

Cut	Fills	Sampled	Weight (g)	Max frag size (mm)	Bone size ratio	Colour	Width of pit (m)	Depth of pit (m)	Est volume of pit (m ³)	Date	
<i>Large deposit</i>											
852	853	y	1095	?		black, midwhite	grey,	0.5	0.26	0.029	LBA
	854	y	1235	11	0.96	black, midwhite	grey,				LBA
<i>Small deposits</i>											
948	951						0.3	0.26	0.011	LBA	
	949	y	126	32	0.12	white				LBA	
	950	y	4	16		white				LBA	
872=	873	y	1	7		white	0.58	0.04	0.016	LN/Roman	
119	144		7	21		white	0.8	0.42	0.119	LN/Roman	
	143		285	49	0.51	black grey				LN/Roman	
	142									LN/Roman	
870	871	y	188	45	0.41	black	0.22	0.06	0.001	?	
543	545=544	y	177	53	0.51	white	0.74	0.15	0.046	?	
	553=552	y	94	54	1.02	white				?	
	566=565	y	42	52	0.45	?				?	
	569	y	1	14		white				?	
<i>Very small deposits</i>											
452	453		3	25	0.50	white	0.27	0.15	0.005	?	
925	927	y	12	27	0.09	white with black grey	0.46	0.2	0.019	?	
	926	y	1	13		white with black grey				?	
952	953	y					1.1	0.36	0.204	LN	
	954	y								LN	
	955	y	1	21						LN	
913	914		3	?			0.6	0.2	0.034	LN	

The large deposit

Just one pit, 852, dated to the late Bronze Age, contained a large deposit of cremated bone. This pit contained 2330 g of cremated remains. This is close to the upper range of 2400 g cited by McKinley (1997, 68) as the total weight of the cremated remains of an adult individual. The cremated remains contained identifiable fragments from all parts of the skeleton. They derive from an adult male. The bone fragments vary in colour from black to white, but there does not seem to be any consistency in which parts of the skeleton have been subjected to greater or lesser heat.

Small deposits

The second group consisted of pits containing deposits of between 130 g and 303 g of cremated human remains (although some of the individual contexts in these pits contain smaller quantities). Such deposits were found in pit 948, dated to the late Bronze Age, pit 119=872, dating from the late Neolithic or Romano-British period, and undated pits 870 and 574. In all cases sufficient bone fragments survived to show that they derived from adults, one of which was probably female. The weight of these deposits of cremated remains is far short

of the weight of a complete adult cremation burial, but the deposits are sufficiently large to suggest that they were not merely residual.

Most of the cremated bone was white, but some in pits 119=872 and 870 had not been so fully oxidised and was black.

In pit 543 fragments of unburnt bone from an infant aged 1-3 years were found in the primary fill (569) below the cremated remains as well as in the lowest spit containing cremated remains (566=565).

Very small deposits

The third groups of pits contained, in total, very small deposits of cremated remains weighing between 1 g and 13 g. These deposits could well have been residual. This group consisted of undated pits 452 and 925 as well as two late Neolithic pits, 952 and 913. The smallest deposits, such as that in pit 452, consist of nothing more than a few fragments of cremated bone.

Finds

With the exception of the late Neolithic pits and pit 119, the finds from which have already been discussed, very few finds were recovered from any of the pits containing cremated remains (Table 29).

Both of the late Bronze Age deposits contained charred onion couch grass tubers. These have often been found in cremation burials and deposits, probably because they have incidentally been charred below the pyre or were used as tinder (Robinson 1988).

Pit 852 also contained a little charred wheat and some weed seeds; pit 948 just a few weed seeds.

All of the charcoal identified in the pits containing cremated remains was oak, probably derived from wood used in the pyre. None of the pits was very rich in charcoal.

A few fragments of unburnt animal bone were found in pits 852, 119=872 and 543 (where it occurred with the unburnt infant bone below the cremated remains).

Four of the pits contained small quantities of flint. This consists almost entirely of chips and flakes. Pit 452, however, also contained a scraper and a retouched flake.

Table 29. Summary of finds in pits containing cremated human remains

Cut	Fills	Charcoal	Charred plant remains	Other finds	Burnt flint	Flint	Date
Large deposit							
852	853	<i>Quercus</i> ++				Chip 2/0 Flake 1/0	LBA
	854	<i>Quercus</i> +++	<i>Triticum aestivum/turgidum</i> + <i>Polygonum aviculare</i> + <i>Sherardia arvensis</i> + <i>Arrhenatherum elatius</i> +	cf Unburnt animal bone		Chip 2/2 Flake 8/1 Irregular flake 2/0	LBA waste
Small deposits							
948	951						LBA
948	949		<i>Arrhenatherum elatius</i> ++ <i>Sherardia arvensis</i> +		2/5	Flake 1/1 Misc retouch 1/0 Chip 1/0	LBA
948	950				1/1		LBA
872	873	+					same as 119
119	144			Unburnt animal tooth			LN/Roman
870	871	<i>Quercus</i> ++		Burnt Bone pin			?
543	566=565			unburnt infant bone	6/109	Flake 1/0 Irregular flake 1/0	? waste
543	569			unburnt infant bone Unident unburnt animal bone 1/1			?
Very small deposits							
452	453					Flake 3/0 Irregular flake 1/0 Scraper 1/0 Retouched 0/1	? waste flake
925	927	+					?
925	926	+	<i>Hordeum</i> +				?
952	953	+					LN
952	954	<i>Pinus</i> +					LN
952	955						LN
913	914						LN

Cremation burials and deposits: conclusions

The evidence shows that cremated remains were deposited in at least two phases: the late Neolithic and the late Bronze Age. The date of a further deposit in pit 119=872 is very uncertain, but may belong to the late Neolithic or Romano-British period. However, both of the well-dated late Neolithic deposits were very small and may be residual. The only large deposit, in pit 852, dates from the late Bronze Age, as does one of the small deposits, in pit 948. It is, therefore, perhaps most likely that the remaining small deposits also date from the late Bronze Age.

This suggests that a significant change had occurred in the way in which the Pilgrim's Way site was used. Whereas the site had been the location of structures, possibly domestic, in the middle Bronze Age, it appears to have been abandoned at the beginning of the late Bronze

Age, and used primarily for the sporadic deposition of cremated remains. Even if all of the undated deposits of cremated human bone belonged to the late Bronze Age the site would, however, fall far short of what might be regarded as a cemetery. Although the Pilgrim's Way site was used on several occasions for the deposition of cremated remains, the pits containing those remains are widely dispersed. Furthermore, no evidence for late Bronze Age settlement (except for pit 5421) was found.

Brück's (1995) review of late Bronze Age burial evidence lists no directly comparable instances of well-dated late Bronze Age cremation burials unassociated with settlement evidence and without any accompanying finds. Clearly, however, the absence of associated artefacts makes the dating of such deposits difficult (Needham 1995, 167), and the pattern of dispersed deposits, away from settlement, would normally be archaeologically difficult to detect. It is, therefore, unsurprising that similar finds are rare. The application of radiocarbon dating is, however, beginning to show that such burials may be more widespread than has previously been apparent (eg Timby *et al* forthcoming). This evidence adds a new element to the already wide variety of late Bronze Age burial practices documented elsewhere (Brück 1995). In common with much of the other late Bronze Age burial evidence, such as the disarticulated human bones found on settlements, it suggests, albeit in a different way, that little ongoing significance was attached to the remains of the dead. Not only was the corpse reduced to fragments by cremation, but the remaining fragments were also deposited away from the settlement in an area which does not seem to have been specifically singled out as a cemetery.

12.4 Pit 5421 (Figs 64-5 and 61; Pl. 19)

Apart from the residual sherds around the middle-late Bronze Age pits discussed above, the only other evidence for late Bronze Age activity on the White Horse Stone site is provided by a single large pit (5421). This pit is most noticeable for the large quantities of late Bronze Age pottery it contained (Fig. 67; Table 30). The pottery seems to fall at the transition between the late Bronze Age plain and decorated phases (Barrett 1980), and should date roughly to the 9th century BC. A radiocarbon date obtained on burnt residue on a sherd from the lower fills (5449) of this pit, however, suggests a slightly earlier date range: 1130-890 cal BC (NZA-22006: 2804±40 BP).

The pit was roughly circular (3.40-3.60 m wide) with nearly vertical sides and a flat base, 1.00 m deep (Figs 64-5). The first two layers of fill were archaeologically almost sterile. Two large groups of late Bronze Age pottery were then deposited with just a few fragments of animal bone. The animal bone included a mole femur and ulna which may well be intrusive. Following the deposition of the pottery, a more organic deposit (5456) containing much less

pottery, but including some charred hazelnut shells, a few weed seeds and charcoal was laid down. The pit seems then to have been left open, soil formation began, and several large pieces of sarsen stone were dumped into the pit. The upper levels were similar in consistency to colluvial layers elsewhere on the site, and may have been predominantly natural in origin. They contained more animal bone and flint but less pot than the lower levels.

12.5 Radiocarbon dates from late Bronze Age features

Three radiocarbon dates were obtained from late Bronze Age features: one from burnt residue on a sherd in one of the lower fills of pit 5421 which was part of a large assemblage of late Bronze Age pottery, and two on onion couch grass tubers from pits 948 and 852 both of which contained cremated human remains (Table 31; Fig. 63). The dates from all three features are very similar. A chi-squared test shows that they are not statistically different at a 95% level of confidence ($T = 2.7$ ($5\% = 6.0$) 2 degrees of freedom). This suggests that the contents of pit 5421 and the deposits of cremated remains could have been contemporaneous. The dates suggest that this activity occurred between 1190 and 830 cal BC. The pottery from pit 5421, however, suggests a date near the end of this range, around the 9th century, which is slightly later than the date obtained from this pit (1130-890 cal BC).

Table 31. Radiocarbon dates from late Bronze Age features

<i>Feature /context</i>	<i>Result no</i>	<i>Material</i>	δC^{13}	<i>Uncal date</i>	<i>Calibrated dates</i>
852/854	NZA-21505	charred onion couch grass tuber	-25.48	2868±35 BP	1190-920 cal BC
948/949	NZA-21492	charred onion couch grass tuber	-26.54	2791±35 BP	1010-830 cal BC
5421/5449	NZA-22006	burnt residue on sherd PRN 1563	-26.73	2804±40 BP	1130-890 cal BC

Table 30. Summary of finds in late Bronze Age pit 5421

Context	Pot (no. sherds/ weight g)	Pot forms	Mean sherd weight (g)	Flint (no. pieces, unburnt/burnt)	Animal bone (no. frags/weight g)	Charred remains	plant	Charcoal	Burnt flint (no. pieces/weight)	Burnt stone	Sampled
5422	1/1 FQ1 4/37 FQ2 3/23 FQ5		7.6	Chip 2/1 Flake 2/0 Irregular waste 1/0 Retouched flake 1/0 Multiplatform flake core 1/0 (398 g)	Sheep/goat femur 1/16 Red deer antler 1/86 Medium mammal unident 8/21 Large mammal unident 11/42 Unident 3/2			+	1/9		y
5446 Sarsen stone											
5456				Chip 11/1 Flake 1/1 Irregular waste 0/1 Retouched flake 1/0	Large mammal unident 2/16 Sheep/goat mandible 1/8 Medium mammal unident 2/9	Galium + Corylus shell +	avellana	+ Quercus 2 Corylus 30 Maloideae 11 Indet 14	6/25	Sarsen 2	y y
5423	6/77 I3		12.8								
5426	10/93 F5 2/8 FQ1 29/402 FQ5	R13 R15	12.3		Sheep/goat tooth 1/0 Unident 1/0			+	1/1	Sarsen 6	y
5447	4/3 F99		0.75						1/9		
5449	21/265 F1 4/23 F5 1/1 F99 2/207 FI1 12/169 FQ5	R14 R53	16.6	Chip 1/0 Flake 3/1 Retouched flake 1/0	Mole femur 1/0 Mole ulna 1/0 Unident 6/3			+	2/3	Unident 3	y
5452										Sarsen 1	y
5453									20/135	Sarsen 1	y

+ = 1-10 specimens

12.6 Residual flint (Fig. 68)

Residual flint in the early-middle Iron Age settlement

Since any evidence for earlier prehistoric activity in the area of the early-middle Iron Age settlement might well have been disturbed and obscured by activity in the Iron Age, the commonest category of residual finds - worked flint - was analysed to see if it would identify any foci of earlier prehistoric activity in the area of the Iron Age settlement.

The results of the analysis (Fig. 68) show that worked flint occurred in generally small quantities across the whole site. The only clear concentration occurs in Area 19, near to the middle Bronze Age ditch (4025) and middle-late Bronze Age pits. Although much of the flint here is chronologically undiagnostic, the presence of two denticulates suggests that some, at least, derives from the middle and middle-late Bronze Age activity evidenced also in the nearby ditch and pits.

Residual flint in buried soil 4144

A considerable quantity of flint was also found in buried soil 4144. This soil covered all of the White Horse Stone site from a line running NE-SW, just to the north of early Neolithic structure 4806 (Fig. 3). At the southern end this layer was 0.55 m thick, and became gradually thinner, until petering out to the north of structure 4806.

The flint contained in the buried soil probably includes material from all of the phases of activity in the area it covers which are likely to have involved flint: predominantly early and late Neolithic, but including also some from the Bronze Age.

The overall proportions of the assemblage are remarkably similar to those in Area 19 discussed above with the exception that scrapers are present and denticulates absent.

Given the long period over which it is likely to have formed, the assemblage is of limited interest except insofar as it shows that substantial quantities of flint were discarded which did not end up in subsurface features.

13 THE EARLY-MIDDLE IRON AGE SETTLEMENT (FIGS 69-105; PLS 2 AND 20-31)

13.1 Early- Middle Iron Age overview

The remains of a large part of an early-middle Iron Age settlement were found at White Horse Stone (Fig. 69). This settlement had a quite clearly organised layout, consisting of a complex of intercut pits surrounded by a large number of four-post and other structures, beyond which, around the periphery of the settlement, lay further groups of pits. There are differences in the forms and contents of the pits in differing areas. They include a small pit associated with a deposit of charred grain, cremated human remains and a set of iron tools to the south, two inhumation burials to the west, where almost all of the other (disarticulated) human remains were found, and a group of possible furnace bases and pits containing iron slag to the east.

13.2 Location, lynchet and fields

The settlement covers most of the northern half of the White Horse Stone site (Fig. 60), and was centred around an area of land, slightly flatter than its surroundings, which forms a slight step in the gentle slope of the valley side (Fig. 4).

To the south of the settlement a negative lynchet (4134) was found, running at first along the contours, NNE-SSW, but curving slightly halfway along its excavated length, to run at around 45° to the contours, N-S, down the side of the dry valley. The lynchet reached a depth of 0.50 m towards its northern edge, and became gradually shallower to the south.

The lynchet was cut into the natural chalk and was overlain by the modern topsoil. It may originally have been related to the cultivation of a buried soil (4144, subgroup 19418, the top of which (4960) shows signs of plough disturbance). This soil was worked up to the Romano-British period. The lynchet may have marked the boundary between the Iron Age settlement area and the fields associated with it.

Almost all of the features containing early-middle Iron Age finds lie to the north of the lynchet. Although there were some Iron Age finds from the south, with a few notable exceptions, most of them were clearly residual, many occurring in the post-Iron Age colluvial layers which cover the southern end of the White Horse Stone site and some of the Pilgrim's Way site.

The only features to the south of the lynchet which may have been contemporaneous with the Iron Age settlement were some ditches and pits lying along the northern end of the Roman trackway (1305=19450, Fig. 106) which ran from the White Horse Stone site across the Pilgrim's Way site.

The suggestion that the lynchet and the soil to which it relates were associated with the Iron Age settlement is supported by the molluscs from the site. They suggest that the landscape around White Horse Stone was only extensively cleared AGAIN after the late Bronze Age, and was certainly cleared by the time the Iron Age settlement was occupied.

13.3 Features to the south of lynchet 4134, and the dating of buried soil 4144 (Fig. 70)

The features containing early-middle Iron Age pottery, which lie to the south of the lynchet (4134) are of particular chronological interest since they lie below the buried soil (4144 and its worked upper part 4960), and contain some of the latest finds from features below this soil (Fig. 70). Roman pottery was also found in two pits, 5109 and 7149, stratified below the buried soil, and a single sherd of middle Iron Age pottery and further Roman pottery, dating to the 1st to 2nd centuries AD, was also found between the buried soil (4144) and the Pleistocene deposits below in a scatter of artefacts (5487), just to the north of structure 4806. The discovery of early-middle Iron Age and Roman pottery in features below the buried soil suggests that the soil was still being worked for some time after the features had been cut, and that any traces of the pits within the soil were removed by this subsequent activity. The buried soil was cut by the ditches forming trackway 1305 which appear to have been Romano-British in date. The finds and stratigraphy thus suggest that the buried soil continued to be worked in the early-middle Iron Age and later, but that at some time in the Romano-British period cultivation ceased.

The features containing early-middle Iron Age pottery, which lie to the south of the lynchet (4314), consist of three short stretches of a segmented ditch, a pit and a pit or tree-throw hole. All of these features were covered by the buried soil (4144).

The segmented ditches provide the most secure evidence for early-middle Iron Age pottery stratified below the buried soil (4960). The largest, central segment (7191) contained 10 sherds (73 g) of early-middle Iron Age pottery; the other segments just 1 sherd (1 g) and 3 sherds (14 g). Associated with the pottery were a small number of flint flakes and chips, a small fragment of animal bone, some charcoal flecks and a small amount of burnt stone.

The other features (7149 and 7053) varied in shape and form. The sides and base of pit 7053 (2.3 m wide by 0.31 m deep) were rather irregular and it may have been either a pit cut to remove a sarsen stone or a tree-throw hole. The other pit, 7149, was more regular, having curved sides and a rounded base (1.60 m wide by 0.51 m deep).

Pit 7149 contained a single fragment (2 g) of fired clay and a piece of burnt flint, alongside the five sherds (8 g) of early-middle Iron Age pottery and 9 sherds (17 g) of Roman pottery. Pit 7053 contained just two flint flakes, a small amount of burnt, unworked flint and a small, unidentified fragment of animal bone with its three sherds (25 g) of pottery. The sherds

in this pit could not be unambiguously attributed to a particular phase, and may date from either the early-middle Iron Age or the middle Bronze Age.

The buried soil itself contained considerable numbers of finds amongst which early-middle Iron Age pottery is the most conspicuous. The micromorphological analysis of this soil also identified fragments of pottery, burnt daub, bone and probably cereal phytoliths. It is likely that this material was deposited as the result of manuring (Macphail and Crowther 2006).

13.4 The environment

by Elizabeth Stafford

A marked change in the molluscan assemblages appears to occur some time in the late Bronze Age-early Iron Age (Stafford 2006b). In many of the assemblages there is a dramatic increase in the proportion of open-country species, and a corresponding drastic reduction in shade-demanding species in. This change is likely to reflect a large-scale opening up of the environment, producing much larger tracts of grassland and arable, in an environment almost totally free of shade. Certain species appear for the first time during this period: for example, *Truncatellina cylindrica*, a rare xerophile suggestive of very dry open grassland conditions. *Pupilla muscorum* becomes more abundant suggesting an increase in the amount of bare ground, and *Hellicella itala*, *Vallonia excentrica* and *Vertigo pygmaea* become much more frequent. *Monacha cartusiana* and *Monacha cantiana* also become ubiquitous in deposits dating from the early-middle Iron Age and later. This change must undoubtedly have been associated with the extensive early-middle Iron Age settlement activity on the upper western slopes of White Horse Stone dry valley.

The molluscan evidence from the upper fills of ditch 4025 on the western plateau suggest that following the scrub/woodland environment of the middle Bronze Age, there was a phase of disturbance, and there is evidence of bare ground around the feature, perhaps reflecting some attempt to clear vegetation from the ditch or the increasing proximity of arable and grassland environments. There is a gradual increase in open-country fauna rising to 70% of the assemblage at the top of the sequence. Some shade-demanding elements continue. These were probably reflect the local growth of long grass or scrub in an otherwise dry open environment of grassland and/or arable.

The early-middle Iron Age features also contained assemblages of wholly open-country character. There is some variation in the small proportions of shade-demanding and catholic species which were probably related to tall vegetation growing in damp, open features. Samples of molluscs were obtained from a penannular gully (19020) surrounding a four-poster in the north-western corner of the settlement. The samples from the gully were

generally dominated by xerophile, open-country species, indicating short-turfed grassland. One sample, however, contained an appreciable quantity of shade-demanding species, suggesting that longer, ungrazed grass, a hedge, or scrub lay nearby (Stafford 2006b). A sample from the fill (4181) of the lynchet (4314) consisted of species typical of ploughwash deposits indicating cultivation and the possible presence of damper grassland environments such as might be found at field boundaries. The date of this sample is uncertain, but it probably relates to Iron Age or Roman cultivation.

The assemblages from the buried soil on the lower slopes and valley bottom are mostly suggestive of extensive grassland and arable environments. There was, however, some variation between the profiles. A strong woodland component was recorded in Profile F adjacent to the Pilgrim's Way trackway as opposed to the open-country assemblages of Profiles C and I. *Carychium tridentatum*, *Discus rotundatus*, *Aegopinella* spp., *Oxychilus cellarius* and *Acicula fusca* occur in the uppermost part of the soil. Open-country species made up only a small proportion of the assemblages in Profile F, reaching a maximum of 9%, of which 7% comprised *Vallonia costata*. Although usually classed as an open-country species, *Vallonia costata* does occur in low numbers in woodland (Evans 1972, 157). *Pomatias elegans*, which made up 60% of the assemblage at this level, favours broken ground and loose soil into which it can burrow. Although this species inhabits leaf litter on woodland floors, it also thrives in areas of unstable substrate. Its presence in abundance is often interpreted as reflecting ground disturbance associated with forest clearance (Evans 1972, 132). If these assemblages are representative of a clearance episode, this implies the soil must have been buried fairly rapidly during or soon after clearance, to such a depth that it was protected from mixing and destruction of shell by soil processes or later cultivation. Open-country taxa may not have had the time to colonize any newly opened areas. It is possible that colluvial deposition and burial of the soil occurred at slightly different times. Erosion may have been significantly more rapid subsequent to scrub clearance in the south-east area of the site as it is at this point that the valley slopes are at their steepest. If this is the case, there may not have been enough time for a full open-country fauna to develop before the soil was buried. Alternatively, this may represent a real spatial variation in the landscape. It has been suggested that during the late Bronze Age tree cover was present in close proximity to pit 5421 but that bare ground may have existed a little further upslope (with inputs of colluvial material into this feature). It is possible that some clearance further upslope occurred in the late Bronze Age but perhaps a little later on the lower slopes in the vicinity of the Pilgrim's Way trackway.

13.5 Dating

Whereas evidence for early-middle Iron Age activity south of the lynchet is sparse, to the north of the lynchet almost all of the features have been assigned to the early-middle Iron Age, and there is only sparse evidence for activity in other phases.

13.6 Ceramics and phasing

Pottery is by far the most important source of evidence for the date of the Iron Age site (Fig. 71-2; Morris 2006). Whilst this suggests that the site dates from the end of the 6th to the 2nd century cal BC, it provides less clear indications of the internal phasing of the site.

A small group of pottery probably dating from the 6th-5th centuries cal BC is likely to be amongst the earliest on the site (Ceramic Phase 1; eg pit 4303; Fig. 71-2), and a rather larger group of pottery, probably dating from the 4th-2nd centuries, is likely to be amongst the latest (Ceramic Phase 3; eg pit 6132; Fig. 100-1). The remaining pottery (Ceramic Phase 2) probably dates from the 5th-3rd centuries cal BC.

On the basis of these distinctions, three ceramic phases can be distinguished. These cannot, however, be used in a simple way to define three phases in the life of the settlement. One of the reasons for this is that much of pottery is concentrated in a relatively small number of features, almost all pits, and occurs in only a small number of the postholes.

Equally significant, however, is that fact that although a small number of forms and styles of decoration can be identified as early and late, there is considerable continuity in other aspects of the ceramics. The pottery which allows chronological distinctions within the life of the settlement to be made is rare and occurs in assemblages which are, in other respects, very similar to those which lack such chronologically diagnostic pieces. Whilst the presence of late pottery may indicate that an assemblage is late in date, the absence of such pot cannot be so certainly used to infer that an assemblage is earlier in date.

Ceramic Phase 1: the earliest pottery

The earliest pottery is characterised by incised geometric designs, which, in Wessex, are characteristic of the Early All Cannings Cross phase and the later All Cannings Cross-Meon Hill phases, dated to the 8th-7th centuries BC and the 6th-4th centuries BC respectively (Cunliffe 1991, 64-5, 71-2, figs A:2 and A:6). Further sherds derive from shouldered jars with finger-tip impressions along the shoulder which could also be contemporary with the Early All Cannings Cross phase. Much of this pottery is clearly residual, being associated with later pottery (eg in pits 4067 (Fig. 62) and 4441). However, one pit (4303) in the central pit complex (Area 18) contained two carinated (rather than round-bodied) bowls and one finger-

tip impressed shouldered jar which probably belong to the end of the carinated bowl phase, dating from the 6th-5th centuries BC, rather than later in the 5th-3rd centuries BC when round-bodied bowls become more common (Cunliffe 1991, 71-2).

This pit was marked out also by the fact that it contained by far the largest assemblage of briquetage on the site, the salt from which had affected the other pottery. A comparable, but less characteristic assemblage was found in another pit (4280) which was cut by pit 4303 (Fig. 89-92). The pottery in these pits may be the earliest on the settlement, and hence could provide the best indication of the date at which it began. However, the small quantities of early pottery need indicate nothing more than the deposition of a few old sherds.

Ceramic Phase 2

Most of the pottery from the settlement belongs to Ceramic Phase 2. In contrast to the usual pattern on sites of similar date, this pottery includes a larger number of open forms (bowls) than of closed forms (jars) or straight-profiled forms (neutral profiled vessels; Fig. 71-2). The most common forms (excluding form codes, such as R17, R32 and R43, which relate only to parts of vessels) include round shouldered necked jars (R3), obtuse angled shouldered jars (R7), conical straight walled (R20) and vertical walled (R21) neutral profiled vessels, flared profile (R31 and R49), round shouldered (R33, R38 and R55), strongly shouldered bipartite, neckless, ovoid (R35) and obtuse angled (R42) bowls. A horned bowl (R50) was also found.

These vessels were made in a wide range of fabrics of which flint, and flint and sand tempered are the most common. Jars were generally made in coarser fabrics than bowls.

What little decoration there is consists of finger-nail and finger-tip impressions and finger and cloth wiping. There is, however, a wide range of surface treatments: burnishing, slip or red finish, rustication of various kinds (roughening, addition of clay in bold relief, combing, scratching, areas of finger-tip and finger-nail impressions, and finger and cloth wiping). The use of such surface treatments, and in particular, the application of additional clay, is typical of assemblages of similar date in Kent. Several features of the assemblage, relating both to forms (eg jars: R1, R3; bowls R30, R39, R42, R43, and particularly strikingly R50, the horned bowl) and decoration (combing and finger-tip impressions) find parallels in northern France (see Morris 2006).

Ceramic Phase 3: the latest pottery

Only a small range of late forms can be distinguished. They provide the best evidence for the date of the last use of the site (Figs 71-2 and 100-1). These forms include the saucepan pots (R22), slack-profiled jars (R12 and R 18) and bowls (R46) which can be related to Wessex Ceramic Phases 4-5, dating from the 4th-2nd centuries BC.

The features containing the late forms, however, often also contain large quantities of Ceramic Phase 2 pottery. Only six or seven features contain only, or nearly only Phase 3 pottery. Of these, four are postholes and one a pit in each of which only one vessel is recorded. Pit 6132, however, contained a much larger assemblage of pottery associated with a deposit of cremated human remains, charred grain and iron tools. The vessels in this pit were clearly selected for deposition in this particular context, and it is possible that the late ceramic forms in this pit reflect the fact that the special deposits within it were made at the end of the life of the settlement.

13.7 Radiocarbon dating

Fourteen radiocarbon dates were obtained from Iron Age contexts (Table 32; Figs 73-4 and 115). The dated material was selected with the following aims:

- to assess the ceramic chronology;
- to assess whether there was any spatial development of the site over time which might be represented by a horizontal stratigraphy;
- to assess whether the structures and the pit deposits - especially those with human remains - were contemporaneous;
- to assess whether the iron working was contemporary with the settlement;
- to establish that domestic fowl bones were contemporary with the settlement;
- to examine the chronology of sequences of deposits in pits.

During an early stage of the analysis, two dates were obtained: on grain from pit 6132 and the other from the inhumation in pit 2184. Both dates fell within the period *c* 420-90 cal BC. Since the ceramics indicated that the site was also occupied in an earlier period than these dates suggested, it seemed that it might be possible to exploit the relatively steep step in the calibration curve between *c* 400 and *c* 350 cal BC, which separates the plateaux from *c* 800-400 cal BC and from *c* 350-200 cal BC. All of the subsequent radiocarbon dates in fact either fall into the *c* 800-400 cal BC period or have even wider calibrated ranges. Whilst this does suggest that the deposits in pit 6132 and the inhumation in pit 2184 were amongst the latest features on the site, it does mean that the dates are of less value in addressing some of the questions than was hoped.

Table 32. Summary of radiocarbon dates from the early-middle Iron Age settlement.

Area/Subgroup	Feature /context	Result no	Material	δC^{13}	Uncal date (BP)	Calibrated dates (cal BC)	Modelled dates (cal BC)
Area 21, pit	8037/8026	NZA-22043	sheep/goat bone	-22.13	2527±40	800-510	610-400
Area 9, pit	2130/2120	NZA-22040	human fibula	-20.27	2507±50	800-410	600-400
Area 14, pit	4561/4562	NZA-22044	cattle humerus	-22.42	2469±40	770-400	580-400
Area 19, pit	7011/7152	NZA-21841	<i>Prunus spinosa</i> charcoal	-25.53	2438±30	770-400	540-400
Area 18, pit	4067/4050	NZA-22045	domestic fowl femur	-20.09	2429±55	770-390	560-390
four-poster 4391, Area 20	4353/4354	NZA-22037	charred <i>Triticum</i> cf <i>dicoccum</i>	-23.01	2409±40	770-390	540-390
Area 9, pit	2119/2114	NZA-22042	human fibula	-20.21	2397±50	770-380	540-380
Area 19, pit	7090/7080	NZA-21958	<i>Prunus spinosa</i> charcoal	-26.61	2394±25	760-390	520-390
Area 9, pit	2155/2103	NZA-22038	pig mandible	-21.48	2377±45	770-370	530-380
Area 9, pit	2130/2125	NZA-22041	charred <i>Hordeum vulgare</i>	-23.97	2367±40	760-370	520-380
four-poster 4503, Area 20	4350/4351	NZA-22036	charred <i>Hordeum vulgare</i>	-24.16	2349±40	800-200	520-370
Area 9, pit	2155/2153	NZA-22039	charred <i>Hordeum vulgare</i>	-25.07	2337±40	800-200	510-360
Area 8, pit	2184/2291	GU-9089	human femur	-21.00	2250±70	410-90	510-330
Area 21, pit	6132/6130	GU-9088	charred grain	-23.70	2270±60	420-160	510-340

Overall the radiocarbon dates suggest a date range of 800-90 cal BC for activity associated with the settlement. This overall range is wider than that suggested by the pottery. On the assumption that the dates all derive from a single phase of activity and are relatively uniformly distributed through that phase, a Bayesian approach can be used to narrow this range (Buck *et al.* 1992; Bronk-Ramsey 1995; 2001). The model used for this analysis includes all of the Iron Age dates in a single bounded phase (Figs 73-4). The results narrow the date range to 610-340 cal BC. This range is much closer to that suggested on the basis of the pottery, and lends some support to the overall ceramic chronology. However, the pottery suggests that the site was also occupied at a slightly later date. It may be that the assumptions on which the model is based are not justified with respect to the latest features (ie pits 6132 and and pit 2184). It is however, the earliest dates from pits 8037 and 2130 which fit the model least well. The modelled distributions for these pits are significantly different from the prior, unmodelled distributions (agreement = 34.2% and 58.7% respectively). There are, therefore, both archaeological and statistical reasons for doubting the validity of the model, even if archaeologically the suggested range is plausible.

The dates are also of limited use in refining the ceramic chronology of the site. Overall the dates underline in the homogeneity of the ceramics throughout the life of the settlement. This does not necessarily mean that there was no change in ceramics over time, but rather suggests that at least some elements of the Phase 3 ceramics came into use before c

400 cal BC and that Phase 2 ceramics continued in use after that date. Any change would thus not be evident in the radiocarbon dates.

The dates also provide no indication of any changes in the spatial focus of the settlement over time. In particular, early and late dates were obtained from pits in Areas 8, 9 and 21. The dates from other areas are not very different. Similarly the dates from the four-posters (4353 and 4350) are indistinguishable from the dates from the pits.

The dates from the pits associated with metalworking debris (7011 and 7090) confirm that the metalworking was contemporary with the rest of the settlement.

The date for the domestic fowl bone also confirms that it was contemporary with the settlement. Domestic fowl is known from a number of other settlements of similar date (eg Winklebury Camp: Smith 1977, 64; Yarnton: Hey and Timby forthcoming; Coy and Maltby 1987, 228), but as at White Horse Stone the bones are usually found in small numbers, and fowl do not seem to have formed significant part of the subsistence economy, if they were eaten at all.

The results from the attempts to examine the chronology of sequences of deposition within pits have produced the most interesting results. Samples were taken from the deposits of charred grain in the lower fills of two pits and from animal bone in the upper fill of one of these (2155) and from human bone in the top of the other (2130). Both pits belonged to a group of such features in which charred grain was deposited in the lower fills and large quantities of pottery and animal bone in the upper fills (Fill Type 1, see below). The dates from pit 2155 are not statistically significantly different (chi-squared $T = 0.4$ ($5\% = 3.8$) 1 degree of freedom) and the dates are thus consistent with the grain and bone having been of the same age. The dates from pit 2130, however, are statistically significantly different (chi-squared $T = 4.8$ ($5\% = 3.8$) 1 degree of freedom). Although the overall ranges of the two dates from this pit are similar, the calibrated probability distributions are quite different. The human bone (NZA-22040) probably dates from 800-480 cal BC (88.7% probability; 470-410 cal BC 6.7% probability) whilst the charred grain probably dates from 550-370 cal BC (82.7% probability; 760-680 12.7% probability). It is thus quite likely that the human bone is earlier in date than the stratigraphically earlier grain. The human bone may therefore have been curated. This curation could have consisted either of a 'relic' being carefully kept or the redeposition of old stray or midden material. The human bone in the upper fills of pit 2130, as in other pits in the same area, does not appear to have been treated differently from the animal bone in the same context, and the latter interpretation thus seems as likely as the former.

13.8 The structure of the early-middle Iron Age settlement (Fig. 69; Pl. 2)

The White Horse Stone settlement has a relatively clear spatial structure. During the post-excavation analysis the area of the settlement was divided into the Areas (1-21) shown in Fig. 69. These Areas are not intended to accurately reflect significant differences between parts of the site, but they do provide an easy means of referring to particular areas. Subsequently it proved useful to combine some of these areas to allow comparisons to be made between more or less equivalent areas and numbers of features. It should be stressed that Figure 60 does not show the later features which have obscured Iron Age remains. The blank areas do not, therefore, represent open spaces with the Iron Age settlement, but merely later disturbance.

The organisation of the settlement itself is more accurately revealed by looking at it firstly as having a concentric structure; and secondly as being roughly divided into north, south, east and west quarters.

Viewed concentrically, at the centre of the settlement was a complex of perhaps as many as 180 pits (Area 18), of very varied shape and size, many of which were cut into earlier pits.

Surrounding this central pit complex were areas occupied by post-built structures of differing kinds, arranged into rough bands (Areas 16 and 17, Area 20, and Areas 8 and 9). It is noticeable that although they are appreciably later in date, the Romano-British ditches and trackways which cut this area during the next phase of activity, seem to follow the edges of these areas.

Beyond the bands of post-built structure, lie several more or less localised zones of pits (in Areas 8-9, Area 19, Area 21 and Areas 14-15 especially). It is the contents, size, form and sequences of deposition of these pits which display most clearly the differences in the northern, southern, eastern and western quarters of the settlement.

To the west, the pits in Areas 8-11 were distinguished from the other pit groups by the presence of human remains which, with one notable exception, all occur in these areas. Many of the pits in this area were also characterised by particular sequences of deposition, often with charred plant remains being placed near the bottom of the pit and animal bones (with or without human bone) and pot near the top. They also contain a higher proportion of neutral-profiled and particularly large vessels than the other pit groups.

The pits to the south, in Area 21, are smaller and shallower than most of those in the other pit groups, and generally contain fewer finds. They were, however, characterised by a higher proportion of bowls than the other pit groups and small groups of animal bones from meaty parts of the animal. This area also contains one exceptional deposit which consisted of a small quantity of cremated human remains associated with a substantial deposit of very pure charred grain, a set of iron tools and some of the few neutral-profiled vessels to be found outside Areas 8 and 9.

To the east, the pits in Area 19 are characterised by the presence of iron slag, by a much higher proportion of chaff amongst the charred plant remains than in the other pits, and by the scarcity of animal bones.

To the north, the few pits in Areas 14-16 have fewer, positive distinguishing features, and are characterised rather by the absence of the features characteristic of the other areas. There seem also to have been differences in the kinds of post-built structures around the site. To the south, in Area 20, almost all of the post-holes belong to four-post (or similar) structures. To the north, in Areas 16-17 numerous four-post-structures can also be recognised but a much higher proportion of postholes cannot be assigned to structures. It is thus possible that structures of different kinds including perhaps roundhouses which have escaped recognition also existed here. To the west in Areas 7-8 there is more positive evidence for structures of different kinds, including a roughly rectangular structure and roundhouses. To the east evidence for only one structure, based upon six posts, has been recognised. Numerous four-posters have also been recognised in Areas 1-6, including one set within a penannular gully (Fig. 64). There were also, however, numerous other postholes which may have belonged to unrecognised structures of other kinds.

13.9 Structures

Roughly square four-posters were by far the most common structures. A few structures which can be seen as variants of these four-posters, retaining the square or rectangular plan, but containing larger numbers of posts, have also been recognised. The evidence for other kinds of structures was, in contrast, rather slight. In particular, very little clear evidence for round houses was recognised, although two roughly semicircular arcs of postholes might have derived from such structures (Fig. 66). Two arrangements of postholes suggesting larger, rectangular or trapezoidal structures, are also worth noting. None of these structures was associated with large assemblages of finds, and, although it seems likely that they varied in function, the artefacts associated with them offer few clues as to what those functions were.

13.10 Four-posters and similar structures

Distribution

Four-posters and similar structures, consisting, at their simplest, of nothing more than roughly square arrangements of four posts, appeared to have been constructed in four areas: Areas 1-6, Areas 8-11, Areas 16 and 17, and Area 20 (Pls 20-22).

The extent to which four-posters could be recognised in different areas varied (Table 33). In Area 20, a quite high proportion of the postholes (59%) could be assigned to four-

posters and similar structures (Fig. 83). In Areas 16-17 (Fig. 80), however, only 46% could be assigned to such structures, and no four-posters were recognised in Areas 14-15 (Fig. 79). Similarly, in Areas 1-6 (Figs 75-6) only 33% of postholes could be assigned to such structures. The significance of these differences is open to question. Some of the postholes may well have belonged to four-posters which can no longer be identified. It is, however, also possible that the differences in the proportions of postholes assigned to structures reflect real differences in the kinds of structures which existed in each area.

Table 33. Summary of numbers of 4-post and similar structures and of numbers of postholes unassigned to structures in each area of the early-middle Iron Age settlement

	No. of unassigned postholes	No. of 4-post and similar structures	Total no. of 4-posters	No. of other structures	No. of other postholes	% of unassigned postholes	% of postholes 4-posters	% of postholes in other structures
Areas 1-6	128	16	64			67	33	
Areas 8-11	41	5	20	2	41	40	20	40
Areas 14-15	46			1	8	85		15
Areas 16-17	74	13	63			54	46	
Area 20	65	21	94			41	59	
Total	354	55	241	3	49			

Postholes and sequences of construction

In Areas 1-6 there were two or three places where four-posters were repeatedly built in nearly the same location, each structure being rotated a little or slightly relocated with respect to previous structures so as to avoid the earlier postholes (Figs 75-6; Pl. 20). The most striking example consists of a sequence of four structures (19082, 19074, 19094 and 19079). A similar sequence of three structures (2465, 19107 and 19106) was constructed just to the south. Between these two, lies a less clear cluster of three four-posters (19109, 119110 and 119111) the plans of which also overlap. These sequences include structures belonging to three of the four classes of four-posters distinguished below on the basis of the size of the structures and the size of their postholes.

In other areas of the settlement there is remarkably little overlap between the plans of the four-posters.

The shape of the structures

The four-posters were almost all very close to square. Table 34 shows the ratio of the mean width ENE-WSW to the mean width NNE-SSW. For most of the structures this value is close to 1, indicating that they were very close to square. Six structures, however, stand out as being distinctly rectangular.

One of these (119102; Fig. 78; Pl. 22) was a very small structure in Area 9 which lies at the edge of the cluster of four-posters in this area, near to one of the human burials and

other striking pit deposits. It measured 1.45 m N-S but only 0.95 m E-W, and was thus significantly narrower than any of the other four-posters, as well as being the smallest in terms of area. It seems likely that this structure was of a kind which differed from the other four-posters.

As well as being clearly rectangular, structure 6217, in Area 20 (Fig. 83), was also marked out by being constructed from six posts - three on each side. A further rectangular structure (119110), in Areas 1-6 (Figs 75-6), may also have been constructed from more than four posts, although the post lying midway along its northern edge may, in fact, have belonged to another structure (119111).

The remaining three rectangular structures (19096, 19095 and 19277; Fig. 80) lie in Area 16-17. One of them (19277) is open to differing interpretations. It consists of two parallel rows each containing four posts. It could, therefore, have been a single, long eight-post structure (19277a in Table 34), or two less elongated rectangular structures of four posts each, or a square four-post structure (19277b in Table 34) which, coincidentally, had four posts near its corners.

The other two rectangular structures (19096 and 19095) in Areas 16-17 (Fig. 80) were less ambiguous. They were elongated in opposite directions, but both were constructed with notably large posts (see below) which may have been associated with smaller posts lying along their edges, perhaps forming the walls, and, in the case of structure 19095, a central internal post.

Table 34. Summary of dimensions related to four-posters

<i>Structure</i>	<i>Mean posthole width (m)</i>	<i>Max difference in size of postholes (m)</i>	<i>Mean structure width (m)</i>	<i>Mean W-E width /Mean N-S width</i>	<i>Area (m²)</i>	<i>Area of site</i>
<i>Largest structures</i>						
19085	0.25	0.05	3.63	1.04	13.14	1-6
4497	0.46	0.05	3.50	1.12	12.21	16-17
6224	0.27	0.02	4.20	1.05	17.63	20
6019	0.28	0.06	3.88	1.12	14.97	20
6247	0.35	0.15	4.30	1.15	18.40	20
6143	0.43	0.06	3.75	1.00	14.06	20
<i>Structures with largest postholes</i>						
19061	0.51	0.12	2.38	0.98	5.64	1-6
19094	0.52	0.20	2.63	0.98	6.89	1-6
19053	0.64	0.04	2.85	0.97	8.12	1-6
19060	0.67	0.26	2.70	1.00	7.29	1-6
2465	0.75	0.36	3.13	1.19	9.69	1-6
19096	0.48	0.08	2.88	0.64	7.88	16-17
19095	0.54	0.09	2.70	1.35	7.13	16-17
4345	0.54	0.03	2.98	1.09	8.84	16-17
6261	0.48	0.04	2.50	0.96	6.25	20
4590	0.54	0.30	3.20	0.88	10.20	20
6058	0.56	0.25	2.75	0.96	7.56	20
4503	0.61	0.05	3.23	0.98	10.40	20

<i>Structure</i>	<i>Mean posthole width (m)</i>	<i>Max difference in size of postholes (m)</i>	<i>Mean structure width (m)</i>	<i>Mean W-E width /Mean N-S width</i>	<i>Area (m²)</i>	<i>Area of site</i>
2458	0.51	0.19	2.50	1.13	6.23	8-10
<i>Other structures</i>						
19107	0.39	0.03	2.58	1.06	6.63	1-6
19446	0.25	0.06	2.60	1.04	6.76	1-6
2469	0.33	0.13	3.10	1.03	9.61	1-6
19079	0.35	0.00	2.40	0.96	5.76	1-6
19105	0.37	0.05	2.38	1.02	5.64	1-6
19106	0.42	0.12	2.93	0.95	8.55	1-6
19074	0.43	0.00	2.65	1.00	7.02	1-6
119110	0.30	0.2	2.10	1.27	4.41	1-6
119111	0.26	0.25	2.98	1.02	8.88	1-6
19277b	0.33	0.13	2.38	0.98	5.64	16-17
4560	0.35	0.02	2.25	0.91	5.05	16-17
4700	0.36	0.01	2.88	1.02	8.27	16-17
19277a	0.42	0.50	3.25	1.83	9.66	16-17
6217	0.26	0.15	2.18	0.64	4.51	20
6144	0.30	0.09	2.80	1.04	7.84	20
6142	0.32	0.02	2.38	0.90	5.63	20
6055	0.32	0.02	2.40	1.00	5.76	20
6192	0.33	0.05	2.90	1.00	8.41	20
7123	0.36	0.00	2.20	1.05	4.84	20
4392	0.37	0.04	2.45	1.00	6.00	20
4391	0.40	0.11	2.38	1.07	5.64	20
6140	0.41	0.06	2.33	0.94	5.40	20
8019	0.39	0.16	2.20	0.96	4.84	8-10
2459	0.39	0.06	2.85	1.00	8.12	8-10
8067	0.40	0.10	2.73	0.88	7.40	8-10
<i>Smallest structures</i>						
19109	0.35	0.11	1.93	0.88	3.69	1-6
19104	0.28	0.06	1.88	1.14	3.50	1-6
19082	0.30	0.03	1.95	1.00	3.80	1-6
4630	0.22	0.03	1.53	1.03	2.33	16-17
4641	0.27	0.06	1.45	1.07	2.10	16-17
4548	0.31	0.00	1.83	1.09	3.33	16-17
4621	0.38	0.10	1.40	1.00	1.96	16-17
4313	0.30	0.12	1.50	1.00	2.25	20
6231	0.30	0.13	1.78	0.97	3.15	20
6146	0.43	0.18	1.85	0.95	3.42	20
119102	0.29	0.09	1.20	1.53	1.38	8-10
<i>Structure 19440</i>						
19440*	0.98	0.30	2.9	0.93	8.41	19

* dimensions relate only to four largest posts

Five, six and seven-posters

In addition to structures 6217, 19095, 19096 and perhaps structure 19277, a number of other structures seem to have been constructed with more than four posts. The clearest of these were in Areas 20 and 16-17.

Structure 6019 in Area 20 (Fig. 83) was one of the largest structures. It was constructed of seven posts: three along each side with a seventh central posthole. Despite the size of the structure, the postholes were not particularly large.

Structure 4345 in Areas 16-17 (Fig. 80) was a six-poster, constructed with three postholes along each side. No evidence of a central posthole was found. It was not an exceptionally large structure, although the corner postholes were amongst the largest of those associated with four-posters.

Structure 6144 in Area 20 (Fig. 83) may have been a similar six-post structure, but one of the additional postholes at the centre of one of the sides was set back from the line of the corner postholes and may have been unrelated.

Two other structures (6058 and 6055, both in Area 20; Fig. 83) had additional postholes set more or less centrally along one side, and one other structure (6140) in Area 20 had an additional posthole, positioned off-centre along one side, perhaps, like the additional postholes in structures 19095 and 19096, being related to posts which formed the walls of the structure rather than having been supporting posts.

Structure 19061 and penannular gully 19020

Four-poster 19061 was distinguished from the other four-posters by its association with penannular gully 19020 (Fig. 75; Pl. 21). Only the slightly rounded base of this gully survived (0.10 m deep and 0.70 m wide), although it can never have been very substantial. The gap in the gully, 2.90 m wide, facing NNE, seems, however, to be original rather than a product of truncation. It corresponds to the two northern posts of four-poster 19061. The proximity of the postholes to the gully seems to preclude the possibility that the four posts formed the central post-setting for a round structure.

The only material found in the shallow gully was charcoal. The small quantities of pottery, animal bone and charcoal from the postholes do not generally distinguish them from the other four-posters. The presence of fragments of quern stones is more exceptional.

The function of this unusual arrangement, and whether it differed significantly from the other four-posters is unclear. The presence of the fragments of quern suggests it might have been related to the last stages of cereal processing, perhaps being used to store flour rather than grain. The quern fragments, however, could be unrelated, stray items.

Orientation

The orientation of the four-posters is remarkable uniform across the site. In almost all cases the sides of these structures are aligned WSW-ENE and NNE-SSW. The same orientation seems to be shared by structures 2597, 19098 and 19440 (see below).

Two or three structures do, however, deviate significantly from this orientation, all three of which lie in Areas 1-6 (Figs 75-6). The orientation of the first of these structures, 19061, corresponds to that of the penannular gully which surrounds it. The second, structure 19079, lies in the cluster of four-posters just to the south of structure 19061, and the third, 119110, just to the south of that cluster again.

Types of four-posters: the sizes of postholes and of structures (Figs 85-6)

Although the four-posters were generally very similar in their simple plans, there was considerable variation in the size of the postholes and the area of the squares they defined. The postholes vary in width from 0.22 m to 0.86 m, suggesting that the structures were constructed using posts of significantly different sizes (Figs 85-6). In size the structures vary in width from 0.9 m to 4.6 m, and in area from 1.4 m² to 18.4 m². An attempt was therefore made to analyse systematically the sizes of the postholes and structures and the relationship between them in the hope that it might reveal distinct types.

Figure 86 shows the mean posthole width for each structure against the area defined by the posts. Rather than defining distinct types, the variation in both the size of the structures and of the posts is generally continuous. Most conspicuously marked out is a group of large structures with areas over 11 m² but which had postholes no larger than the smallest four-posters. The remaining structures form a very vaguely linear scatter in which some tendency for larger structures to have larger postholes is apparent. This tendency is, however, very weak, and many of the structures with the largest postholes were no larger than those with much smaller postholes. Thus perhaps rather perplexingly, and in contrast to the results at Danebury (Poole 1984, 87) where posthole diameter was related to size, the largest structures have postholes no larger than the smallest structures, and the structures with the largest postholes are not larger than the structures with the smallest postholes.

To reflect this variation the structures have been divided, rather arbitrarily, into the four groups shown in Table 35.

Table 35. Summary of dimensions of classes of four-posters

	Average posthole width (range m)	Area of square (m ²)
Large structures	0.25 - 0.46	12.21-18.40
Structures with large postholes	0.48 - 0.75	5.64 -10.40
Other structures	0.25 - 0.43	4.51 - 9.66
Small structures	0.22 - 0.43	1.96 - 3.80

It might seem that the differences between at least some of these classes would have corresponded to differences in use (Poole 1984). It is otherwise unclear why the largest structures should have been built with posts that seem to have been substantially smaller than those used in significantly smaller structures. In fact there is little evidence to indicate any functional difference between these classes. They are distributed more or less uniformly across the site.

At White Horse Stone there are few indications from the finds that there were any differences between these structures. The postholes generally contained very few finds: small numbers of pot sherds, a few pieces of animal bone, charred grain and charcoal (Tables 36-7). Overall, there is very little difference in the quantities and kinds of finds associated with the different classes of four-posters, and what differences there are could be related to the size of the postholes rather than to differences in the use of the structures. Overall, it seems that rather than having been related to the use of the structures, the finds associated with the four-posters reflect the general stray detritus which was scattered across the site.

Table 36. Summary of quantities of artefacts in differing types of structures in the early-middle Iron Age settlement

Type	Pot (mean no. of sherds)	Pot (mean weight g)	Animal bone (mean weight g)	No. of postholes with pot (% of total)	No. of postholes with animal bone (% of total)	No. of postholes with charred grain (% of total)	No. of postholes with charcoal (% of total)	Total no. postholes
four-posters with large posts	3.7	26.8	7.7	41 (51)	13 (16)	5 (6)	7 (9)	80
Large four-posters	1.6	13.3	3.9	12 (27)	6 (14)	2 (5)	2 (5)	44
Other four-posters	2.0	9.4	0.5	48 (53)	3 (3)	4 (4)	8 (9)	90
Small four-posters	2.5	14.7	0.3	14 (37)	1 (3)	0 (0)	1 (3)	38
Structure 19440	4.2	41.2	44.8	5 (83)	4 (67)	1 (17)	1(17)	6
Structure 2584	2.1	6.8	0.1	14 (40)	2 (6)	1 (3)	1 (3)	35
Structure 2597	6.4	26.8	0	5 (46)	0	0	0	11
Structure 19098	0	0	0	0	0	0	0	8

Finds from four-poster 4503

The group of finds associated with four-poster 4503 is the only one that stands out from the others. The postholes of this structure contained not only the largest deposit of pottery associated with a four-poster, but also the largest deposits of charred grain and animal bone. The animal bone consisted of an inverted horse skull in the postpipe of posthole 4350 as well as a few unidentified fragments. The charred grain consisted of large quantities of fully processed wheat and barley, and the pottery included a high proportion of burnt or refired sherds. There was, however, no indication that the structure itself had burnt down. A radiocarbon date of 800-200 cal BC was obtained on the grain (NZA-22036 2349±40 BP).

13.11 Other structures*Structure 19440*

Of the other structures, structure 19440 was closest in form to the four posters (Fig. 82). It consisted of a rectangle of six postholes in two parallel rows, comprising a square setting of four very large postholes, up to 1.10 m wide and up to 0.69 m deep, to the NW of which were a pair of smaller postholes (Fig. 87).

It is the difference in size which suggest that rather than having been a six-poster (perhaps similar to structure 6217), the smaller posts here formed a porch or entrance to a structure which was supported by the four large posts. The smaller posts stand just 0.5 m to 0.7 m from the large posts, and if they had stood on the line of the outer wall, the structure would have had a diameter of around 6 m (if it were round).

It is tempting to relate this structure to the evidence for iron production and working which was found in the pits around it. However, the almost complete absence of metalworking debris suggests that the structure predates the metalworking in this area.

The quantity of the other finds - pottery and animal bone in particular - was quite large compared to the four-posters (Tables 36-38), but can perhaps be accounted for most easily by the principle that larger features tend to contain more finds than smaller.

Table 37. Summary of quantities of main groups of finds associated with four-posters and other structures

<i>Four-poster (or other structure)</i>	<i>Pot (weight g)</i>	<i>Animal bone (weight g)</i>	<i>Grain (est no)</i>	<i>Charcoal (est quantity)</i>	<i>Area</i>	<i>Structure type*</i>
2465	473	2			1-6	LP
19053	328	90			1-6	LP
19094	210				1-6	LP
19061	99	37		110	1-6	LP
19060	76	46			1-6	LP
19085		3			1-6	LS
19079					1-6	OS
19446					1-6	OS
19106	127				1-6	OS
19107	67	80			1-6	OS
19074	64				1-6	OS
2469	51			10	1-6	OS
19105	48				1-6	OS
119110	32	1		10	1-6	OS
119111	32	1			1-6	OS
19082	419				1-6	SS
19109	54				1-6	SS
19104	33				1-6	SS
2458	34	120			8-11	LP
2459	19			10	8-11	OS
8067	21				8-11	OS
8019	18			10	8-11	OS
19102	2				8-11	SS
4503	583	279	2100	110	20	LP
4590	130	7	10	10	20	LP
6058	58	12	10	10	20	LP
6261	3				20	LP
6019				10	20	LS
6247	24				20	LS
6143	11				20	LS
6224	8				20	LS
6217	2		70	20	20	OS
6192					20	OS
4391	171	43	50	10	20	OS
6144	95				20	OS
6055	53			10	20	OS
6142	26		50	10	20	OS
4392	18				20	OS
7123	15	3		10	20	OS
6140	14		10	10	20	OS
4313					20	SS
6231					20	SS
6146	1				20	SS
4345	109		10	10	16-17	LP
19095	22	4	10	20	16-17	LP
19096	27				16-17	LP
4497	200	169	30	30	16-17	LS
19277	30	1			16-17	OS
4560	5				16-17	OS
4700	57				16-17	OS
4548	344				16-17	SS
4621	23	2		10	16-17	SS
4630	24				16-17	SS
4641	4	11			16-17	SS

* LP = structure with large postholes; LS = large structure; SS = small structure; OS = other structure

Table 38. Summary of quantities of main categories of finds in early-middle Iron Age structures

<i>Structure</i>	<i>Pot (weight g)</i>	<i>Animal bone (weight g)</i>	<i>Grain (est no)</i>	<i>Charcoal (est quantity)</i>	<i>Area</i>
Structure 19440	247	269	10	10	19
Structure 19098					14
Structure 2597	295				7
Structure 2584	238	4	20	20	7

Structures 19098 and 2597

Two settings of postholes - subgroup 19098 in Area 14 (Fig. 79) and subgroup 2597 in Area 8 (Fig. 77) - suggest that roughly rectangular or trapezoidal structures may have existed. Structure 2597 was much larger and much closer to rectangular (short side *c* 7.0 m, long side *c* 8.5 m) than structure 19098, the sides of which flared out quite markedly (short side *c* 3.0 m, long side *c* 5.0 m). In both cases the postholes ran along only three sides of the structures, leaving what would have been the longest side of the trapeze open.

The postholes in structure 19098 may have been related to pit 4561, the only large pit in this area of the settlement. It is possible that structure 19098 formed a screen around this pit. Structure 19098 may have been quite slight, since its postholes were small, on average only 0.22 m wide (range 0.14 m - 0.27 m; Fig. 87). The postholes in structure 2597 were rather larger, having a mean width of 0.36 m.

Structure 2597 was associated with quantities of pottery and animal bone comparable to those in the largest postholes forming four-posters (Tables 36-38). Structure 19098, in contrast, was not associated with any finds.

Roundhouses and subgroup 2584

Very little clear evidence for roundhouses was found. In part this is probably due to the truncation of the area of the Iron Age settlement, where the topsoil was only a few centimetres deep. Many of the postholes survived only as very shallow features, and others may have been removed entirely. Evidence from sites of similar date elsewhere also indicates that roundhouses were constructed using methods, involving stakes and planks rather than posts, which may leave little archaeological trace (Cunliffe 1991, 244-5). In such cases houses may be evidenced only by their doorposts.

The most plausible evidence for roundhouses consisted of two intersecting posthole arcs in Area 8 (subgroup 2584) which might have been related to two roundhouses of different dates, one with a diameter of *c* 8.5 m; the other of *c* 9.5 m (Figs 77 and 87). Neither of the arcs can be continued to form a complete circle. The postholes in this area were, however, particularly shallow.

A number of other postholes lie in this area which cannot be very clearly related to either structure. It is, nonetheless, noticeable that a group of eight postholes in the south-west corner of Area 8, near to pit 2329, form a symmetrical arrangement which might have been related to an entrance. The pattern is, however, not typical of Iron Age roundhouses elsewhere, nor is it clear to which of the postholes arcs this arrangement might have been related.

The finds from the postholes associated with these structures - pot, animal bone, charred grain and charcoal - were very similar in both kind and quantity to those recovered from the postholes elsewhere (Tables 36-38).

Roundhouses may also have existed in other parts of the settlement. The highest proportion of postholes which have not been assigned to other structures lie in Area 1-6, 14-15 and perhaps also 16-17 (Table 33), and it is possible that other roundhouses existed in these areas rather than in those in which most of the postholes belong to four-posters.

13.12 Pits

The pits belonging to the early-middle Iron Age settlement were generally concentrated in areas where there were few four-posters - near the centre of the site and near its periphery. Their distribution was very uneven (Table 39). Of the 107 recorded pits, just over half, 61, were near the centre of the site in a complex of intercut pits. Only around a third of this complex was excavated, and the total number of pits would have been much higher. On the periphery of the settlement, the main concentrations of pits were in Areas 8-11, 19 and 21, with just a small number of more or less isolated pits in other areas (eg Areas 13-15). The numbers of pits in all of the peripheral areas were, however, much smaller than in the central pit complex.

Table 39. Numbers of pits in the early-middle Iron Age settlement by Area

<i>Area</i>	<i>No. pits</i>
18 (central pit complex)	61 excavated, total = c 180
19	6
21	10
10	2
11	2
9	12
8	3
8-11 Total	19
14	3
15	1
16	2
17	2
14-17 Total	8
13	2
20	1

Pit size and shape

The pits have been classified into the following five categories in terms of their shape and size (Table 40; Figs 88-94).

Table 40. Classification of pit forms (excluding the central pit complex)

Area	1 <i>Vertical sides, flat base circular/oval</i>	2 <i>Vertical sides, flat base subrectangular</i>	3 <i>Pits with small pits in their bases</i>	4 <i>Shallow scoops</i>	Unclear
Area 13	2276 2325				
Area 8		2339 2184 2296 shallow			
Area 9	2214 2283 2171 shallow 2119 2130 2107 2075 shallow	2112	2211=2175 2278=2277 2155=2079		2292
Area 10	8012 8068 shallow				
Area 11	2227				2260
Area 14	4561 4511			4526	
Area 15		4531 shallow			
Area 16	4507	4533			
Area 17				4274 4731	
Area 19	7009 7011			7007 7005 7205 7201	
Area 21	6059			6132 8079 8086 8045 8041 8043 8073 8037 8025 8080	6037
Area 20				4187	

Pit form 1: circular pits with vertical sides and flat bases, and Pit form 2: subrectangular pits with vertical sides and flat bases

Many of the pits in Areas 8-11, in Areas 13 and 14-16 and two in Area 19 (7009 and 7011) had more or less vertical sides and flat bases (Pls 24-5). In size (Figs 89-94) such pits vary considerably, some being very shallow, but others amongst the deepest on the site.

Nonetheless, even taking account of truncation only the very deepest would have reached the depth of at least 1 m suggested by Reynolds (cited in Lambrick and Allen 2004, 117) as being necessary for grain storage.

These pits also varied considerably in plan. Although most were oval or circular (Pit form 1), many tend towards a subrectangular shape (eg pits 7009 and 7011 in Area 19; Fig. 82). A number of the pits were more distinctly subrectangular in plan, and it is worth distinguishing a category of subrectangular pits (Pit form 2). The clearest examples are pits 2339 and 2184 in Area 8 (Fig. 77).

Pit form 3: pits with smaller pits in their bases

A further category of pits also had more or less vertical sides and flat bases but were distinguished by the presence of smaller pits cut from their bases (Figs 89-92; Pl. 23). Three such pits were found, clustered together in Area 9 (pits 2211=2715, 2278=2277 and 2155=2079; Fig. 78). In one case (2211=2175) chalk from the smaller pit cut into the base appears to have been dumped to one side on the base of the larger pit (Pl. 23). It thus seems that the smaller pit was cut into the base of the larger.

The small numbers of mineralised *Fumaria*, *Brassica* and *Rubus* seeds found in the small pit in the base of pit 2155 suggest that these pits might have been latrines. However, seeds can become mineralised in other contexts (Carruthers 2000, 73-6) and the other finds from these pits are generally comparable to those in the other pits in Area 9, even sometimes sharing similar sequences of deposition (see below).

Pit form 4: shallow scoops

In contrast to the pits in Areas 8-11 and 14-16, almost all of which belong to Forms 1-3, almost all of the pits in Areas 19 and 21 (Figs 82 and 84), as well as the few in Areas 20 and 17, consisted of nothing more than shallow scoops (Figs 89-94; Pl. 26).

Furnace bases or smithing hearths

Two of the shallow bowl-shaped pits in Area 19 (pits 7005 and 7007; Fig. 82; Pl. 27) had been intensely burnt. Both were small features, pit 7005 being 0.76 m wide and 0.08 m deep, and pit 7007, 0.63 m wide and 0.19 m deep (Figs 89-94). It is possible that these two small features were the bases of furnace or smithing hearths used in the iron smelting and smithing which took place in this area. Both contained metalworking debris.

The central pit complex (Area 18)

In contrast to the general uniformity of the shape of the pits within the other areas of the site, the pits in the central complex of intercut pits (Fig. 81) were very varied in shape and size

(Figs 78-9), and no attempt has been made to classify them. Many were only partially excavated, and, as a result of the fact that earlier pits were often cut by later, the shape of many is unclear. Although they include some pits which are as deep as those in Areas 8-11 and 14-16, the deep pits in the central pit complex were notably wider than those in the other areas.

Why so many pits of such varied shapes and sizes were cut in this area is unclear. The suggestion that they were cut as quarries for chalk is implausible, since some of the latest pits were cut entirely into earlier pits and would not have touched any fresh chalk. Some might also be interpreted as working hollows created by the repetition of the a task in same place, but many are too deep and too steep sided to be interpreted in this way, and this would also not account for the deposits of clean chalk which form some of the fills. These pits generally contained fewer finds than the pits in other areas, and to modern sensibilities, at least, it seems unlikely that rubbish pits would have been cut in such a central location (even though micromorphological analysis of the deposits from one pit (4164) suggest that it contained possibly human coprolites and burnt waste from cereal processing; Macphail and Crowther 2006). Whatever the reasons for the presence of this complex, they seem to have been less carefully cut than the pits in Areas 8-11 and 13-16.

Sequences of deposition (Figs 95-7)

Not only were there differences in the form and contents of the pits in different parts of the site, but also in the sequences in which different categories of finds were deposited. Analysis of the contents of the peripheral pits (in Areas 8-11, 14-16 and 19-21) suggests that there were distinct patterns in the order with which differing kinds of finds were deposited (Figs 95-7). In contrast the sequences of deposition in the central pit complex were very varied. The most characteristic feature of the deposits in the central pit complex was that dark, organic deposits, often containing finds, seem to have been covered by more or less sterile chalk layers.

The sequences of deposits in the pits (excluding the central pit complex) have been classified into eight types on the basis of varying criteria (Table 41 and Figs 95-7). The numbering of these types is now rather erratic, as a result of modifications of the original classification, but has been retained to ensure compatability with the specialists reports and the site archive. Type 4 pits were those with too few finds to be included in the analysis, and type 7 pits were those which could not be included in an analysis of sequences of deposition because they contained only single layers of fill. Although this analysis thus covers only a fraction of the total number of pits, the patterns are sufficiently distinctive to be worth some comment.

Table 41. Summary of sequences of deposition in peripheral pits (Type 1 to 6)

Type	Lower fills				Upper fills				Pit	Area
	Charred grain	Bone	Pot	Human bone	Charred grain	Bone	Pot	Human bone		
1	X					X	X		2107	9
									2171	9
									2276	13
									2155	9
2	X					X	X	X	2214	9
									2130	9
3						X	X	x	2119	9
									2339	8
									2260	11
									2277	9
3a						X	X		6059	21
									8043	21
									8045	21
									8037	21
									8025	21
5					X	X	X	x	2227	11
									4187	20
									8079	21
6a	X	X	X						4561	14
	X		X						4526	14
			X						4533	16
6	X			X		X	X		2184	9
	X		X		X	X		X	8012	10
	X		X	X	X		X		6132	21
	X		X		X		X		4507	16
		X					X		2175	9
4 (single fill)	X	X	X						8068	10
	X		X	X					2296	8
			X						2075	9
			X						2283	9
									8073	21
									8086	21
									4531	15
									2417	6
	X		X						4511	14

(Type 4 = pits with few finds; Type 7 = pits with single layers of fill; Pits 2292, 2325, 2112, 8080 and 6037 have too few finds to be classified)

The most characteristic feature of the pits in areas 8-11 and 21 (with single outliers in Areas 13 and 20) was that most of the finds were deposited only in the upper layers of fill. This was characteristic of pit types 1-3 and 5. Only a few pits with sequences of deposits in areas 9, 10 and 21 do not belong to one of these types.

Types 6 and 6a

In contrast, none of the small number of pits in areas 14-16 fit this pattern. They have thus been classified as type 6 which includes all of the pits which do not fall into any of the other types and which have varied sequences of deposition. It is, however, striking that three of the

pits in these areas (half of those that could be analysed in this way) contain finds only or almost only in their lower fills and contain no (or almost no) finds in their upper fills, the opposite of the pattern in the pits in other parts of the site (Pl. 25). These pits have been classified as type 6a.

Types 1 and 2

Of pit types 1-3 and 5, types 1-2 were distinguished by the presence of often large deposits of charred plant remains, consisting almost entirely of charred grain, in their lower fills. Above these, were deposits of pottery and animal bone. Type 2 pits also contained human bone, mixed with the animal bone in their upper fills, but otherwise the sequence of deposition was the same as that in the type 1 pits (Pl. 24). A pair of radiocarbon dates from the grain in the base of pit 2130 and human bone in its upper fill suggests that the human bone might have been older than the stratigraphically earlier grain. It is thus possible that the human bone was curated either intentionally or because it, perhaps like the associated animal bone, was redeposited from midden deposits. Another pair of dates from grain in the base of pit 2155 and from animal bone in its upper fills is, however, consistent with the animal bone and grain being of the same age.

Types 3 and 3a

Type 3 pits lacked the charred plant remains in the lower fills but also contained often large deposits of pottery and animal bone in their upper fills. A subcategory (type 3a) consists of the shallow pits in Area 21, most of which contained deposits of this type.

Type 5

Type 5 pits again contain deposits only in their upper fills, but these contain not only pottery and animal bone but also charred plant remains and, in one case, also human bone.

Type 8

The final category of note is type 8 which consists of pits containing iron slag. The sequence of deposition in these pits is much more varied, especially in the shallower pits, classified as type 8a. However, in the two largest pits in this area (7009 and 7011) it is worth noting that the bulk of the finds, including the metal production and working debris occurred in the upper fills, and that most of the charred plant remains occurred in the lower fills.

Patterning in the vertical distribution of finds in pit fills has previously been demonstrated by Hill (1995). The pits he analysed, however, do not seem to have been characterised by sequences similar to those in pit types 1-3 and 5. It is possible that the more or less consistent

sequences of material in these pit types were related to a consistent sequence of activities, and it is suggested below, on the basis of a more detailed analysis of the finds, that these sequences may have been related to feasting, which perhaps formed part of wider ceremonies involving the deposition of charred grain in the base of the pits.

13.13 Pottery

Pottery quantities

Most of the early-middle Iron Age pottery assemblage was recovered from pits (Figs 71-2; Morris 2006). There was, however, considerable variation in the quantities of pottery found in particular pits. Most contained rather small assemblages of 25 or fewer sherds (less than 200-300 g). A number of pits were, however, distinguished by very large assemblages (over 2 kg).

Pottery forms and sizes

There was variation in the forms of pot which were recovered from different parts of the site (Table 42). Overall, jars (closed forms, R1-18: see Figs 71-2) and bowls (open forms, R30-56: see Figs 71-2) were the commonest forms, occurring in roughly equal numbers. Neutral-profiled vessels (straight profiled forms, R20-26: see Fig. 72) were, in contrast, quite rare. Nearly three-quarters of the neutral-profiled vessels were found in Areas 8-11, the largest number coming from pit 2155. Other examples were found in Areas 16, 18 and 21 (the latter example being associated with the grain, tools and cremated human remains in pit 6132).

In Areas 8-11, 14-16 and 18 jars and bowls occurred in roughly equal quantities. However, in Area 21, nearly three-quarters of the pottery consisted of bowls, and in Areas 19 and 20 jars made up around three-quarters of the assemblages.

As well as these gross differences in the proportions of forms in each area, there were also more subtle differences in the sizes of vessels in differing parts of the site (Table 42). Overall, the early-middle Iron Age vessels at White Horse Stone were large compared to those at other sites of comparable date in southern England (Morris 2006). A large proportion of the largest vessels, with diameters over 0.32 m were jars, most of which were found in Areas 8-11 where they occurred, in particular, in pits 2119, 2155, 2211, and 2260. Other large jars were found in pit 4561 in Area 14, pit 4533 in Area 16 and pit 6132 in Area 21.

Some of the largest bowls (diameters over 0.32 m) were also found in Areas 8-11, but the very largest (diameter 0.40 m) were found in Area 18, and in particular, in pit 6101.

Many of the smallest vessels - jars, bowls and neutral-profiled vessels - with diameters of 0.08-0.10 m were found in Areas 8-11.

Table 42. Summary of size of pots by area and form group(quantified by no. of records)

Jars	Diameter of vessel (m)																	Total	as % of pots in Area	As % of form group	
	0.08	0.10	0.12	0.14	0.16	0.18	0.20	0.22	0.24	0.26	0.28	0.30	0.32	0.34	0.36	0.38	0.40				Unmeasurable
Areas 8, 9 & 11		2		4		2	3	3	1	1	2	4		4	5		5	18	54	45	38
Areas 14-16		1		1	2	1		1	3	1		2			2		1	7	22	58	15
Area 18					3	1	7	2	2	1			1					15	32	41	22
Area 19						2		1				1						9	13	68	9
Area 20					1		1	2	4	2			2					5	17	77	12
Area 21														2				3	5	22	3
Total	0	3	0	5	6	6	11	9	10	5	2	7	3	6	7	0	6	57	143	47	100
Bowls																					
Areas 8, 9 & 11		1		6	5	1	2		8	5			4					18	50	41	37
Areas 14-16							1	4	2									8	15	39	11
Area 18					2	2	7	3	4	2	2						3	18	43	54	32
Area 19					2	1												3	6	32	4
Area 20		2			1	1			1									0	5	23	4
Area 21				3		2	2	2	3				1					4	17	74	13
Total	0	3	0	9	10	7	12	9	18	7	2	0	5	0	0	0	3	51	136	45	100
Neutrals																					
Areas 8, 9 & 11	1			1			1		2		3	2						7	17	14	74
Areas 14-16							1											0	1	3	4
Area 18													1					3	4	5	17
Area 19																		0	0	0	0
Area 20																		0	0	0	0
Area 21					1													0	1	4	4
Total	1	0	0	1	1	0	2	0	2	0	3	2	1	0	0	0	0	10	23	8	100

Pottery use

Evidence for the use of the pottery - consisting primarily of charred residue, sooting and abrasion - was surprisingly scarce, occurring on just 1.8% of the assemblage (Morris 2006). Most of the pottery with evidence for use was found in the central pit complex (Area 18) even though this area contained significantly less pottery than Areas 8-11 (c/cf also Area 19 with relatively little pot but a quite high incidence of evidence for use). Overall, however, what is most striking is the scarcity of evidence for use in the very large assemblage from Areas 8-11.

Placed pots

With the exception of pit 6132, described below, the only indication for the deliberate placing of pots, was found in pit 8073, in Area 21. A vessel, now smashed, may have been placed in the centre of this pit. However, this pot was in an unusual organic tempered fabric (VF1) which occurred only in this pit, and its date is uncertain.

Overfired and refired pots

A number of features, distributed widely across the settlement contained overfired, refired and burnt pot. A particular concentration of overfired pottery was, however, found in postholes in Areas 16-17 (Fig. 80). Posthole 4232 contained three overfired pots - two jars and one bowl - two of which were fused together. Nearby, posthole 4544, part of four-poster 4548, contained a bowl in a similar condition. Whilst the refired sherds may derive from structures burning down (for which, however, there is no evidence), the overfired pots probably derive from firing errors. They thus suggest that pottery may have been fired in this part of the site.

13.14 Animal Bone

Of the species represented in the animal bone from the pits, cattle and sheep/goat were the most common but pig was also relatively common. A range of other species - horse, dog, red and roe deer and domestic fowl - occurred in much smaller quantities (Table 43). Rodent and amphibian bones probably represent intrusive or incidental inclusions. By far the largest assemblage overall occurred in the pits in Areas 8-11. The small numbers of pits in Areas 13, 14-16 and 21 also contained appreciable quantities of animal bone.

Table 43. Summary of early-middle Iron Age animal bone by area (No. frags/weight (g))

Area	Cattle	Sheep/goat	Pig	Equid	Dog	Red deer	Roe deer	Large mammal	Medium mammal	Fowl	Rodent	Amphibian	Unidentified	Total
8 to 11	41/1303	50/336	30/180	4/155	2/21	4/268		80/403	395/511		6/0	11/1	70/8	693/3186
13	10/219	3/13						49/186	5/14				1/8	68/440
14 to 16	10/672	12/82	8/39					23/87	73/145					126/1025
18	20/659	17/110	10/67	4/242			1/33	36/289	71/163	1/2			2/29	162/1594
19	2/54	1/3		1/41		6/10		29/96	7/20				3/34	49/258
21	8/361	14/37	6/31			1/21		27/130	52/62					108/642
Total	91/3268	97/581	54/317	9/438	2/21	11/299	1/33	244/1191	603/915	1/2	6/0	11/1	76/79	1206/7145

Cattle

Cattle were represented most frequently by teeth. There were, however, marked differences in the distribution of other parts of the skeleton across the site. In most areas, only small, resilient elements which bear little meat - teeth and small foot bones as well as occasional fragments of skull - were found. The other parts of the skeleton were represented most commonly in Areas 21, 8-11 and 14. Area 21 contained relatively few cattle bones but these included a high proportion of long bones, scapula and hips, as well as a few pieces of skull and teeth (Pl. 26). It was only the pits in Areas 8-11 and 14 which contained much richer assemblages, including long bones, shoulders, hips and vertebrae, as well as teeth and foot bones.

Sheep/goat

The distribution of parts of sheep/goat skeletons differed slightly from that of cattle. Sheep/goat was again represented in most areas by teeth (the only sheep/goat bones in Area 19), small foot bones and fragments of skull (in Areas 13, 14, 16 and 21). Areas 8-11 again contained the largest assemblages, consisting of most of the shoulder, hip, long bone and skull fragments on the site as well as all of the vertebrae. Area 18 also contained richer assemblages of sheep/goat bones than the other areas, including fragments of shoulders, hips and long bones, albeit in smaller quantities than Areas 8-11.

The only articulated animal bone recovered from the area of the settlement was a sheep's foot, found in pit 8037 in Area 21 and the fragmentary remains of a partially articulated sheep, consisting of the skull, mandible, teeth, an atlas, caudal, lumbar and thoracic vertebra (some of which were articulated) and ribs in pit 8080 in the southern part of Area 21. Pit 8037 has one of the earliest radiocarbon dates associated with the settlement (800-510 cal BC; NZA-22043 2527±40 BP). The only evidence for the date of pit 8080 was two small, corroded and unidentifiable iron objects one of which lay at the northern end of the pit, the other at the southern.

Pig

Pig was much more poorly represented than the other species, and almost absent from Area 19. In most of the other areas (13-14, 16 and 21) pig was represented almost entirely by teeth with a few small foot bones and fragments of skull. Other bones occurred only in Area 18 (two scapula fragments and an ulna) and again in Areas 8-11 which, as well as having a couple of long bone fragments, contained the largest group of skull and foot bones.

Other species

Other species were represented by much smaller quantities of bone than the main domesticates. The two dog bones both occurred in pits with isolated fragments of human bone in Area 8. Both of the Red deer bones also occurred in pits which contained disarticulated human remains, again in Areas 8-11. Antler, of both red and roe deer, was more widely distributed, albeit still rare. Horse was represented by small foot bones and teeth, as well as two fragments of femur from the central pit complex (Area 18).

A single domestic fowl femur was found in pit 4067, and gave a radiocarbon date of 770-390 cal BC (NZA-22045 2429±55 BP).

Worked horn and antler

Limited evidence for horn and antler working was recovered from pits in Area 11 (a sheep horn core from pit 2227 which had horn removal cut marks, and a red deer antler tine from pit 2260 which had been chopped through and polished) and Area 19 (fragments of red and roe deer antler sawn through in preparation for working from pit 7009). Fragments of burnt antler found in pit 6132 suggest one possible use for this antler: they may have been the remains of the handles of the burnt iron tools with which they were associated.

13.15 Charred plant remains

Numerous large samples of charred plant remains, consisting mostly of cereal grains and very varied proportions of chaff and weed seeds, were recovered from the pits. Of the cereals, wheat, mostly emmer and spelt, was most common, but there was also an appreciable quantity of barley (six-row hulled) and some oats. Although large samples of oats in two pits suggest that they were cultivated, the smaller quantities in the other pits suggests that it may have grown wild as a crop weed. Other cultivated species were represented in much smaller quantities, and included flax and pulses (*Vicia/Lathyrus/Pisum*). Wild species which may have been consumed included raspberry/blackberry, hazelnuts and sloe/blackthorn. Mineralised *Brassica* seeds were also found in a couple of contexts, including one where they were associated with an inhumation and may have derived from the stomach contents.

The early stages of crop processing were not represented. A few barley rachis fragments were found in the samples from pits in Area 19, but they may be no more than a few accidentally incorporated fragments.

Differing stages and products or by-products of the final stages of crop-processing are represented in the samples dominated by wheat. These can usefully be divided into four categories. Fully cleaned grain was found in large deposits in the lower fills (2639 and 2142) of pits 2107 and 2214 (Pl. 24) in Area 9 and in posthole 4350, part of four-poster 4503 in Area 20. Smaller deposits, more likely to be stray grain, were found in other postholes in the same four-poster and in the upper fills of pit 2107 (2108).

A quite large deposit of fully processed grain (6099) was also found in pit 6132, associated with a set of iron tools and a small deposit of cremated human remains. Most of the grain in pit 6132, however, had not been dehusked (context 6130), and it may have been stored as spikelets to provide protection from fungal and insect infestation. A further large deposit at a similar stage of processing was found in the lower fills (2125) of pit 2130 in Area 9. Further similar samples were found in the upper fills of pit 2107 (contexts 2111 and 2109) and, in much smaller quantities which may be stray, in pit 8079 in Area 21.

In marked contrast to the deposits with fully or almost fully processed grain, the samples from the pits in Area 19 (7007 and 7201) consisted almost entirely of chaff, especially spikelet forks and glume bases derived from dehusking of emmer and spelt.

Two pits (2184 and 8012) in Areas 8-11, both of which contained human remains, also contained small samples of charred plant remains which appeared to be a mixture of fully cleaned grain and crop-processing waste. The samples were, however, all small, and probably consist of a mixture of stray material.

In contrast to the pits in which wheat dominated, samples from two pits (2155 and 2276) in Area 9 and Area 13 respectively, contained deposits of charred plant remains in which oats dominated. Since the oats were not well cleaned it is possible that they were intended to be used as animal feed.

13.16 Human remains (Figs 98-9; Pls 28-31)

Almost all of the human remains were found in pits in Areas 8-11 (Fig. 104). The only exceptions were deposits of cremated bone in pit 6132 in Area 21 and a very small, probably residual deposit in pit 2415 in Area 13. There was, however, no evidence for the date of the latter.

In most cases the human remains consisted of isolated bones in pits which were not, in other respects, exceptional. There were, however, two almost complete, but very different inhumations, and one apparently placed group of human bones.

*Inhumation burials:**Burial 2296 (Figs 98-9; Pl. 28)*

Pit 2296 was a shallow, roughly subrectangular pit 1.27 m by 0.78 m wide (with a bulge on the NW side), only 0.12 m deep. The articulated skeleton of an adult male lay supine with his head to the SE within this pit. The right arm was extended; the left arm bent so that the hand lay on the upper left hand side of the chest. The position of the pelvis, at the SW edge of the pit, and of the remains of the left foot, adjacent to the pelvis, suggests that the legs were drawn up over the lower torso, perhaps simply to fit the corpse into a small pit. The legs and skull in particular were damaged, probably because they were nearest the top of the pit.

The burial seems to have been provided with a small range of grave goods. Two very finely made, small ceramic spindlewhorls were found, one to the left of the skull, the other next to the left radius (Fig. 98). They were the only spindlewhorls found on the settlement.

Burial 2184 (Figs 98-9; Pl. 29)

In contrast to the apparently deliberate placement of burial 2296, the skeleton of a 9-11 year old in pit 2184 appeared to have been dumped in a heap on one side of the pit. It is, however, possible that the body was originally seated or squatting against the side of the pit and subsequently slumped as a result of decay. The pit was subrectangular, with vertical sides and a flat base (2.00 m by 1.30 m wide and 1.08 m deep). The skeleton lay in the primary fill (2253). Although an almost complete skeleton was present, it was not fully articulated. The skull had become detached from the mandible and lay on the torso. A few other bones were also out of place. This may reflect post-depositional movement, deriving from nothing more than the decay of the body itself.

A sample of charred plant remains taken from the stomach area of this burial contained large numbers of mineralised *Brassica* seeds, possibly from its stomach contents.

The only exceptional artefacts were fragments of triangular fired clay loomweight(s) in the second fill (2187), just above the burial, and two fragments of iron nail in the upper fill (2185). Very few fragments of loomweights were found elsewhere on the settlement, and nails were also uncommon. Neither type need have been deliberately associated with the burial. Otherwise, the finds were similar to those from other pits in this area of the settlement. In particular, the large assemblage of pottery and animal bone in the upper fills is comparable to those in pits with type 5 fill sequences in this area. A radiocarbon date obtained from the human bone (GU-9089 2250±70 BP: 510-330 cal BC) suggests that this might be one of the latest features associated with the settlement.

Placed human remains in pit 8012 (Figs 98-9; Pl. 30)

Although pit 8012 contained only a small selection of human bone, they appeared to have been deliberately placed. The oval pit had vertical sides and a flat base, measuring 1.62 m by 0.53 m wide and 0.53 m deep. The bones lay on top of the primary fill. The long bones had been positioned so as to form three sides of a trapeze within which the skull had been placed. The mandible lay outside this trapeze with the teeth facing down. A flint hammerstone also lay within the longbone trapeze. To the south, a sandstone slingshot - the only example found on the settlement - was found near to sherds from an R3 jar which was associated with a dark brown organic deposit, possibly the remains of food which had been placed with the bones.

Alongside these finds, which may have been deliberately placed with the bones, there were further sherds of pottery, probably stray charred grains of wheat and chaff, a few hazel nut shells and bean or pea, and, in the upper fills, a few animal bones.

Cremated remains and other deposits in pit 6132 (Figs 98-9; Pls 31-2)

Pit 6132 was a shallow rather irregular oval-shaped pit, with steep sides and a flat base, 0.18 m deep and 1.40 m wide. It contained a deposit of 292 g of cremated human bone. This weight is far below the 1000 - 2400 g expected as the total weight of a cremated adult (McKinley 1997, 68). The cremated remains were probably originally contained within an R30 bowl (Vessel No. 6; 6137: see Fig. 100). This vessel and most of the other pottery appeared to have been refired, perhaps because they were placed on the pyre. A set of metal tools - an iron knife, a small iron blade, four iron awls and a copper alloy ring headed pin - were probably also contained within the bowl (Fig. 101; Fell, Keys and Shaffrey 2006). These tools appeared to have been burnt (perhaps at the same time as the human remains) since they were covered with haematite. Four fragments of burnt antler found amongst the cremated remains may be the remains of the knife handle. A small sandstone whetstone was associated with these tools.

To the NW of the bowl lay a large deposit of almost fully processed wheat (6130) which was probably originally contained within an R1 jar (Vessel 5). Sherds from a further vessel (Vessel 7), an R30 bowl, were also found in this area. A smaller quantity of fully processed charred wheat was found in the upper fill of the pit.

In the W corner of this pit (6100) the remains of three further vessels (Vessels 1-3) were found as well as sherds from another vessel (Vessel 4 - further sherds from which were found in the SE corner, near to the cremation deposit). A possible footring base and a few body sherds were also found near the W corner.

A radiocarbon date (GU-9088 2270±60 BP: 510-340 cal BC) suggests that this might have been one of the latest features associated with the settlement.

Cremated remains in pit 2415

Pit 2415 lay near the north-western edge of the Iron Age settlement (Fig. 75). It contained a very small quantity (7 g) of probably redeposited cremated human remains, including a fragment of a probably adult longbone shaft. This pit also contained modern grape and fig seeds, and may therefore be quite recent.

Disarticulated human bone

The remaining human bone all occurred as usually single, disarticulated fragments (Fig. 98). There is no apparent pattern in the parts of the skeleton or the age or sex represented by these few fragments. They consist of a fragment of juvenile skull vault from pit 2214 (Pl. 24), an adult lumbar vertebra in pit 2339, and two fragments of adult fibula from pits 2130 and 2119. Since pit 2119 cuts pit 2130 it is possible that the fibula fragment in this pit was residual from pit 2130.

In each case the human bones were mixed with the animal bone in the upper fills of the pits, and did not appear to have been treated differently from the animal bone. However, radiocarbon dates from pits 2130 and pit 2155 suggest that there may have been differences in the way in which the human and animal bone was treated. Whereas the animal bone in the upper fill of pit 2155 may have been the same age as the charred grain in the lower fills, the human bone in the upper fill of pit 2130 may have been older than the stratigraphically earlier charred grain below. Whilst the human bone may have been specially curated it is also possible that, perhaps like the animal bone, it derived from a midden.

Apart from the human remains, the finds from the pits with disarticulated human remains were similar to those in the other pits in Areas 8-11. It is, however, perhaps worth noting that the only dog and red deer bones (but not antler which occurs more widely) were found in these pits (dog in pits 2119 and 2214, and deer in pits 2119 and 2214). A fragment of a shale bracelet was also found in pit 2130 in the same context as the human fibula fragment.

13.17 Iron smelting and smithing debris

Large quantities of slag from the production and working of iron were found in Area 19 (Fig. 104). Very little slag was found elsewhere.

The evidence for the production or smelting of iron consists of furnace bottoms, furnace slag and smelting slag as well as raked and run slag. Mixed with the evidence for smelting were slags deriving from smithing: smithing hearth bottoms and microslags produced by the hot working of iron, including hammerscale. The slags thus indicate both the primary working of iron blooms and the secondary production of iron artefacts.

Pit 7009 contained by far the largest quantities of slag (81.6 kg), but slag also occurred in varying quantities in most of the early-middle Iron Age pits in Area 19. Two shallow, bowl-shaped pits (7007 and 7005) which had been subject to intense heat may have been furnace bases or smithing hearths (Pl. 27). Both contained slags from smelting and smithing.

Despite the presence of large quantities of iron slag, very few iron artefacts were found on the settlement.

13.18 Charcoal

Samples of charcoal from four pits containing iron slags in Area 19 (pits 7007, 7009, 7011 and 7205), from three pits containing human remains in Areas 8 and 9 (pits 8012, 2296 and 2184), and from three other pits spread more widely across the site (pit 8025 in Area 21, pit 2155 in Area 9 and pit 4561 in Area 14) were analysed.

In the samples containing iron slag, oak charcoal dominated, suggesting that oak was the main fuel used for iron production and working. A small amount of hazel charcoal was also found in these pits.

The other pits, both those containing human remains and those without, contained more varied assemblages of charcoal containing, in differing proportions, oak, hazel, blackthorn and ash. This charcoal may derive from domestic fires and perhaps other activities such as crop drying.

A small amount of oak charcoal was also identified in pit 6132. It may have been used as fuel for the pyre.

13.19 Soil micromorphology and chemistry

Samples for soil micromorphological and chemical analysis were taken from a posthole (4350, part of four-poster 4503) and two pits (pit 4164, Area 18 and pit 2214, Area 9; Macphail and Crowther 2006).

The postpipe of the posthole contained conspicuous deposits of pottery and charred grain and an inverted horse skull, all of which mark it out from the other postholes associated with the settlement. Analysis of the fill suggested that the postpipe also contained material burnt at a high temperature associated with slag-like siliceous material, possibly redeposited from the iron production and working in Area 19, as well as plant- and dung-tempered daub. The postpacking deposit contained fine charcoal, burnt chalky subsoil and ash which may derive from the burning of the basal, compacted layers of dung from a stable.

Pit 4164 contained a deposit of humic (probably manured) turf mixed with chalk, as well as fine charcoal and probably human coprolites. Similar material was found in pit 2214: turf, burnt chalky subsoil, coprolitic material and burnt cereal processing waste.

13.20 Metal artefacts

Despite the large quantities of iron slags, very few metal artefacts were found on the settlement. The most notable finds were a group of iron and copper alloy tools from pit 6132 (Fell, Keys and Shaffrey 2006), associated with deposits of cremated human remains and charred wheat.

Almost all of the other metal finds were iron nails, spikes or wire fragments. Many of these were found in pit 7009 in Area 19, associated with a large quantity of iron slag. These scraps might reflect the fact that iron was reworked in Area 19. A copper alloy rivet was also found in this pit. The only other notable pieces were fragments of iron sheet associated with rivets and nails found in two of the pits with smaller pits cut from their bases (2211 and 2155) in Area 9.

Metal artefacts in pit 6132 (Fig. 101)

A set of six iron craftsman's tools and a copper pin were found in pit 6132 (Fig. 101). They had probably been placed in the same pot as the cremated human remains. Traces of haematite were found on all but one of the iron tools and tenorite on the copper pin, suggesting that they had been burnt, perhaps with the human remains. However, since none shows extensive damage, either the pyre did not reach a high temperature, or the tools were placed at the edge of the pyre or at a late stage of the firing. Four fragments of burnt antler found amongst the cremated remains may be the remains of the knife handle. A whetstone found with the metal tools may be part of the same kit.

The tools consist of two knives and four awls of differing forms (Table 44). The large size of the awls suggests that they may have been used for working untanned hide (rather than leather) into heavy-duty items such as harnesses and straps, or for working a particularly thick kind of textile. The small pin has a notched terminal and a bent shoulder placed well down the stem.

Table 44. Summary of metal artefacts in pit 6132 (Fig. 101)

<i>SF no.</i>	<i>Type</i>	<i>material</i>	<i>length</i>	<i>width</i>	<i>Notes</i>
106	Knife blade and tang	Fe	178 mm	24 mm	in near pristine condition; no carburisation; traces of haematite
111	Knife with iron handle	Fe	61 mm		curved double edged blade, tapers to a blunt tip; handle 27 mm long, rectangular in section; suspension hole near tip of handle
107	Awl	Fe	106 mm	6 mm	blunt spatulate end; tip oval-sectioned, stem round-sectioned, tang square-sectioned; traces of haematite
108	Awl	Fe	103 mm	4 mm	incomplete at tip; stem round-sectioned, tang square-sectioned; traces of haematite
109	Awl	Fe	124 mm	4 mm	sharp, pointed tip; stem round-sectioned; tang square-sectioned
110	Awl	Fe	130 mm	5 mm	lozenge-shaped tip; biconvex section 25 mm from pointed tip; upper stem and tang square-sectioned; traces of haematite
112	Ring-headed pin	Cu with a trace of Sn	39 mm		traces of tenorite

13.21 Spindlewhorls, loomweights and other fired clay

The fired clay recovered from the settlement mostly consisted of amorphous fragments distributed in no particular pattern across all parts of the site. A small number of vitrified fragments from pits in Area 19 in particular probably derived from furnaces or smithing hearths in that area.

What is most striking about the fired clay, however, is the scarcity of loomweights and spindlewhorls. The only two spindlewhorls were two very finely made, small examples associated as grave goods with the male inhumation in pit 2296 in Area 8 (Fig. 98). The nearby juvenile burial in pit 2184 was associated with some of the very few fragments of triangular loomweights (Fig. 102). The only other fragments of loomweights (also triangular) were found in pits 4561 and 4507 in Areas 14-16.

13.22 Shale, querns and rubbers, and other worked stone

Like the spindlewhorls and loomweights, the evidence for querns and rubbers is scarce, even though grain was plentiful, and may have been stored in some quantity. Of the three definitely identified fragments of quern, two were found in postholes belonging to four-post structures in Areas 1-6 (19060, set within the pennanular gully, and 19061); the other was in pit 2171 in

Area 9. Three further possible fragments of quern or rubber were found in pits and postholes in Areas 18 and 19.

Most of these fragments were made of sarsen, but one was of greensand and another of sandstone. All of these stone were available locally.

A small sandstone whetstone was found in the pit, 6132, with cremated human remains and charred grain. It was associated with a set of iron tools (see above) which it may have been used to sharpen.

A possible slingshot, made of sandstone, was found in pit 8812 associated with a set of placed human bones.

A shale disc was found in pit 4067. Shale occurs locally in the Wealden clay, and this may have been a roughout for a bracelet which was never completed. Although the evidence is slight, it does indicate that some shale was imported as either raw material or partially finished objects. A fragment from a shale bracelet was found in one of the upper fills of pit 2130 in Area 9 associated with a human fibula and a large quantity of animal bone and pottery.

The remaining pieces of worked stone consist of fragments of sarsen with squared edges from pits in Areas 14 and 9. The original form and function of these fragments is unclear.

13.23 Discussion

The structure of the settlement

The distribution of structures and pits and of the deposits within them is quite clearly structured (Figs 69, 102-5). The significance of that structure is not always clear, but certain general distinctions between different parts of the settlement can be discerned. Overall, spatial organisation seems to have been centralised rather than segmentary (based around individual household units). That is, rather than the settlement having consisted of several roundhouses, each with its own four-posters and pits, the four-posters are grouped together, as were the pits containing certain kinds of deposits.

Although the settlement was unenclosed, the lynchet to the south suggests that the boundary between the settlement and the fields beyond was clearly marked (Figs 3 and 69). There was a substantial boundary zone (Area 21) between the lynchet and the main area of the settlement (Area 20) in which shallow pits, including pit 6132, were cut, but which contained no structures (Fig. 84). The special deposits in pit 6132 may have been deliberately placed in this boundary zone.

The land around the settlement appears to have been open grassland (Stafford 2006b). The Downs to the north-east, and the ground running gently down to the river to the south-

west would have provided a good range of environments for the cattle, sheep and wheat upon which the subsistence economy of the settlement seems to have been primarily based.

Resources and exchange

Most of the resources for which there is evidence on the site would have been available locally: sarsen, sandstone and greensand used for querns, rubbers and whetstones, shale, from which a bracelet was made, as well as iron ore and clay. A variety of clay sources were exploited for potting and the manufacture of fired clay artefacts.

There is thus very little evidence for exchange. The only items which can be shown to have come from further afield were salt (as shown by briquetage), shell-tempered pottery, and the copper alloy pin from pit 6132. This must be regarded as a minimal group of imports since it is quite possible that some of the material which could have been obtained locally was also obtained through exchange. Archaeologically invisible exchange, of livestock, perhaps grain and other foodstuffs, organic materials (eg textile), as well of people through marriage, may well have been more important than the exchange which can be demonstrated. The presence of so many four-posters and multiple rebuilds of some of these structures could also be seen as evidence for centralised storage of grain, which would have been redistributed (Gent 1983). In truth, however, the function of the four-posters is unknown, and spread over the centuries through which the settlement was occupied, there may have been relatively few four-posters at any one time. There is also other evidence which hints at artefacts made on the site having been traded or exchanged out. The scarcity of iron artefacts, despite the presence of substantial quantities of iron slag suggests that iron tools may have been exchanged out. The roughout for a shale bracelet suggests that such items may also have been made on the site and exchanged out. Overall, however, the evidence for exchange is very limited.

With the exception of the copper pin in pit 6132, these imports are concentrated in the north and east of the site: most of the shell-tempered pottery and the briquetage, for example, occurred in Areas 14-18. It is striking that, with the exception of odd sherds of shell-tempered pottery, there were no imports in other parts of the site, and in particular in the very rich assemblages of finds in Areas 8-11.

Production and processing

Aside from exceptional finds associated with burials and deposits of human remains, most of the evidence for the processing of resources coming into the site and for the production of artefacts from them, also comes from the northern and eastern sides of the settlement (in Areas 1-6 and 14-19). The few loomweights were found in Areas 14-16 (Fig. 102). The concentration of overfired sherds and vessels in Areas 14-17 suggests that pottery may have been fired nearby, although no other evidence for pottery production was found. The roughout

for a shale bracelet was found in the central pit complex (Area 18). The fragments of quern were found in Areas 1-6 and 19. One of these was associated with the four-poster set within a penannular gully. The longest sequences of four-posters, built repeatedly in the same place, were also found in this area. The differences between the four-posters in this area and those elsewhere suggests a different function or status which may have been related to the presence of quern fragments. This cannot, however, be related very clearly to the evidence for crop processing. No debris from processing crops was found in Areas 1-6. Evidence for the first stages of crop processing were not found on the site, and may have taken place elsewhere, perhaps in the fields, if the grain was not imported from another site already processed. Debris from the later stages of crop-processing was concentrated in Area 19, and fully processed grain was found in the pits in Area 8-11 (as well as in pit 6132 in Area 21).

All of these categories of evidence for production - loomweights, overfired sherds and querns - are, however, rare, and it is thus difficult to be certain of the significance of their distribution. Their scarcity is part of a more general characteristic of the settlement: the paucity of domestic evidence, and in particular, of houses. The only evidence for roundhouses was found in Area 8. On the basis of the few domestic finds, however, it might be suggested that other houses might have lain on the northern side of the settlement. The postholes were of little use in identifying such structures, nor were any hearths identified (other than those probably related to iron smelting or smithing in Area 19). However, a high proportion of the postholes in Area 20 seem to have belonged to four-posters, and the postholes thus suggest that any other domestic structures were most likely to have been in Areas 1-6 or 16-17, or that they left no clear archaeological trace.

The evidence for iron smelting and smithing in Area 19 provides the clearest evidence for the processing of, and manufacture of artefacts from, resources brought into the site. The presence of microslags such as hammerscale and of furnace and smithing hearth bases provides very strong evidence that this activity took place in Area 19 (rather than just the debris having been deposited there). In the other areas, debris may have been deposited some distance from the actual location of the activities from which it derives. Different kinds of material may have been deposited in differing areas either because they lay close to the activities from which they derived or because distinctions were made between differing categories of debris.

Areas 1-6 and 14-19 could thus be characterised as the areas in which resources coming into the site were processed. This is consistent with the fact that most of the items imported into the site were found in these areas. It is also striking that these areas are generally poor in animal bone. The pits in Area 19, in particular, contain poor assemblages of animal bone, consisting almost entirely of teeth and small foot bones which might be characterised as stray butchery waste. There were few pits in Areas 1-6 and 14-16, and those

that were found generally contained few finds. The one striking exception was pit 4561 in Area 14. This pit, however, as well as two others in this area, contained sequences of deposition with pottery and other finds in the lower fills, which were the opposite of those in Areas 8-11.

Area 19 was one of the main foci for deposition, pits 7009 and 7011 in particular, containing large quantities of material. The finds from these pits, however, contrast markedly with those in Areas 8-11. Not only do they contain large quantities of iron slag, which is absent from the pits in Areas 8-11, but they also contain chaff compared to fully or almost fully processed grain; teeth and foot bones compared to the meatiest joints represented on the settlement; average-sized pots compared to conspicuously large. The contrast between these two areas could be seen as being between waste from production and processing and waste from consumption. There also seem to have been differences between the northern and eastern sides of the settlement. Iron smelting and smithing was located in an 'industrial' area marked out for the deposition of waste, in contrast, perhaps, to the more domestic areas along the northern side of the settlement.

Storage

The very numerous four-posters, found in particular in Areas 20 and 16-17, would usually interpreted as having been used for storage, and more specifically as granaries (Gent 1983). No direct evidence in support of this interpretation was found at White Horse Stone, nor was there any evidence to explain the considerable variation in the size and robustness of these structures. Such arrangements of posts could have formed the basis for numerous different kinds of structures with numerous different functions. Reynolds (1979, 81) suggested barns, byres, sheds, stables and chicken houses (a radiocarbon date confirms the presence of domestic fowl contemporary with the settlement) and there are no doubt other possibilities (cf. Poole 1984). It is quite likely that the differences in the four-posters at White Horse Stone reflect a variety of functions. Reynolds (1979, 81) calculated that the walls of an average-sized four-poster filled with grain would have had to withstand a thrust of 8 tonnes. It is thus perhaps most likely that the structures with the largest postholes were used to store grain. In general, however, the distribution of the four-posters suggests that most of the storage structures were located along the southern side of the centre of the settlement in Area 20, with smaller groups along the northern side in Areas 16-17 and 1-6

Most of the pits would have been too shallow to have been effective as grain-storage pits. Only the deepest pits, which are concentrated in Areas 8-11, might have been deep enough to be used to store seed grain. The deposits of charred grain found in the bases of some of these pits could be interpreted as the result of cleaning the pits by burning them out (although Reynolds (1979, 76) suggests that this is not actually necessary on practical

grounds). Much of this grain, however, was fully processed for consumption rather than storage, and is unlikely to derive from attempts to purify the pits. The fact that most of the artefacts in these pits were concentrated in the upper fills suggests that they were not simply cut as rubbish pits. Their original function thus remains unclear.

Consumption

In contrast to the evidence for production from the northern and eastern sides of the site, and for storage around the centre of the site, the pits on the western and southern sides of the site (Areas 8-11 and 21) seem to contain debris deriving from consumption. In the pits in Area 21 (with the exception of pit 6132) this was marked by the presence of a high proportion of bowls and of cattle bones from the most meaty joints (and an absence of teeth and foot bones). These pits were clearly marked off from the main area of the settlement, between the four-posters in Area 20 and the lynchet. The deposits in these pits, however, were small compared to those in Areas 8-11.

The assemblages from the pits in Areas 8-11 were not only amongst the largest on the settlement, they also had a very striking composition. The pits included most of the neutral-profiled vessels and most of the large jars and bowls (with diameters over 0.32 m) as well as many of the smallest (with diameters of less than 0.10 m). The pits showed relatively little signs of having been used. The pits in Areas 8-11 also contained by far the largest quantity of animal bone, and this bone contained a very high proportion of the bones (vertebrae, scapulae, innominate bones, humeri and femora) of cattle, sheep and pig from the meatiest joints of these animals. These species were often represented in other areas only by teeth, distal limb bones and occasionally pieces of skull. The large jars and bowls and meat bearing bones in this area can easily be seen as the remains of food preparation and consumption on a larger scale than is represented elsewhere, perhaps sufficient to be termed feasting. The fact that the pits associated with this activity appear to have been little used - perhaps being discarded after only one use - further underlines the distinct character of the activity related to the deposits in Areas 8-11.

These deposits of pottery and animal bone occur in the upper fills of the pits, and seem to have formed the final phase of more or less consistent sequences of deposition, perhaps relating to the closing of the pits. In some cases, large deposits of fully or almost fully processed grain were found in the lower fills of these pits. As well as deriving from the burning out of pits, this grain might have been deliberately deposited, either as a means of disposing of accidents during drying or cooking, or as symbolic deposits. These pits could thus be seen as partially conforming to Cunliffe's (1992) suggestions regarding the symbolic significance of pits, even though there is little evidence that they were used to store grain. The presence of possibly curated human bone in the upper fills of at least one of these pits could

also reflect their symbolic importance. It is, however, also possible that the human bone, perhaps like some of the animal bone, had been redeposited from a midden rather than having been carefully curated. The atypical four-poster in Area 9 might also have been related to the ceremonial or ritual activity represented by the deposits in Areas 8-11 and by the burials in the same areas.

Overall, the evidence for consumption in Areas 8-11 and 21 contrasts markedly with that for production and processing in Areas 1-6 and 14-19. The site could thus be seen as having been organised around a sequence of activities leading from the raw resources being brought into the site through processing and production to consumption. The artefacts used in the possibly relatively low-status productive activities, such as querns, spindlewhorls and loomweights, are poorly represented in contrast to the conspicuous evidence for feasting.

Human remains

The human remains in Areas 8-11 provide the only means of relating the structure of the settlement to human life cycles. The location of human remains in the southern and western parts of the site could be seen as consistent with the broader pattern in which resources were initially processed in the northern and eastern areas of the site and consumed in the southern and western areas.

Several different kinds of burial rites - or ways of treating human remains - can be distinguished: articulated inhumations, disarticulated (decayed) remains, and cremated remains. There may even have been some spatial patterning in the distribution of these remains. Thus, at the northern end of the distribution of burials, pit 2296 contained an articulated inhumation, and, next to this, the articulated remains of a child had been placed in pit 2184. To the south of this, in Area 9, usually single, disarticulated bones, from already decomposed corpses were deposited with larger groups of animal bone. In these deposits, the human bone does not appear to have been treated any differently from the animal bone, although some of it may have been deliberately curated. These disarticulated bones also included one group of apparently arranged long bones and a skull in pit 8012. Further to the south-west, a small deposit of cremated human remains was deposited in pit 6132. The other material in this pit - the grains, metal tools and pit, and the pots themselves, were also burnt, and it seems again, that the human remains were treated in the same way as other categories of material.

There is, however, also evidence which suggests that the differences in the treatment of human remains may have a chronological dimension. The most unusual deposits - the cremated remains in pit 6132 and the inhumation in pit 2184 - produced both of the latest radiocarbon dates associated with the settlement. This need not imply a broad development of burial rites over time (for which there is little supporting evidence elsewhere), but may rather

reflect the fact that these opposed burials (one an intact corpse, the other cremated) were made at or near the time that the settlement was abandoned.

Almost all of the population of the settlement must have been treated, at death, in ways which are archaeologically invisible. Given their very limited number, all of the burials on the settlement probably represent unusual ways of treating human remains. Their exceptional character is perhaps reflected in the association of the adult male in pit 2196 with spindlewhorls which would perhaps usually be thought of as female associated artefacts (although more on the basis of general ethnographic analogies than of direct archaeological evidence). The set of iron tools in pit 6132 is an equally unusual find. Whatever the significance of these patterns, the remains of most of the inhabitants of the settlement must have been deposited elsewhere, and were thus taken off the settlement.

The wider context

The organisation of the White Horse Stone settlement combines features which are common on early-middle Iron Age settlements with more unusual elements. The arrangement of all of these features within the settlement seems, however, to have been organised in a way which contrasts with many settlements of similar date and size.

The major difficulty in comparing the organisation of the White Horse Stone settlement with others derives from the absence of clear evidence for the location of roundhouses. It seems likely, however, that the settlement contained several, contemporary roundhouses. It would thus contrast with the only extensively excavated Iron Age settlement near to White Horse Stone (albeit probably slightly later in date): the enclosed settlement at Beechbrook Wood (Brady 2006). The features within the double enclosure at Beechbrook Wood were poorly preserved but it seems likely that it contained only a single social unit, residing in one or two roundhouses, and was thus broadly comparable to numerous other, better known small enclosed sites (eg Mingies Ditch (Allen and Robinson 1993) or Little Woodbury (Bersu 1940); Cunliffe 1991, 218-41). White Horse Stone also contrasts with Beechbrook Wood in being unenclosed. This may be part of a broader chronological trend. Champion (1994, 131) has noted that in eastern England, almost all enclosed settlements belong to the middle and later Iron Age. As at other unenclosed settlement (eg Lambrick and Allen 2004), the boundaries of the settlement seem, nonetheless to have been quite clearly defined, even though they were not marked in archaeologically visible ways. The lynchet to the south of the White Horse Stone settlement suggests that the fields ran nearly to the edge of the settlement. Whether the boundary was marked by a hedge or in some other ephemeral way is unclear.

The size of the White Horse Stone settlement suggests that it would have been more comparable in scale to slightly larger settlements, such as Ashville (Parrington 1978; Muir

and Roberts 1999), Little Waltham (Drury 1978) or Winnall Down (Fasham 1985), which contained more extensive groups of roundhouses. Many of these slightly larger settlements contrast with White Horse Stone in that they appear to have had a segmentary organisation, consisting of repeated units, usually centred on roundhouses, whereas the organisation at White Horse Stone appears to have been centralised with features or deposits of particular types grouped together in different areas. In the Upper Thames Valley, for example, Hingley and Miles (1984) have noted that four-posters are associated with particular roundhouses or groups of roundhouses and are not grouped together as they are at White Horse Stone. The centralised organisation of White Horse Stone is in this respect more comparable to hillforts (Guilbert 1975).

In the case of hillforts this centralised spatial organisation may be related to centralised political control. The differences in spatial structure of settlements may thus reflect organisation at differing social levels. Whereas in the Upper Thames Valley settlements, structure like four-posters were organised at a domestic (household or roundhouse-group) level, at White Horse Stone they were organised at a political level, and were related to a social group which encompassed the whole settlement. Although this type of organisation is represented most clearly in hillforts, elements of a similarly centralised spatial arrangement may be represented at other sites, more comparable in scale to White Horse Stone, in ways which are not immediately obvious. Hill (1995) for example, has argued that at Winnall Down the distribution of deposits in pits reflects a centralised scheme encompassing the whole settlement, even though the distribution of structures in most phases seems to reflect a roundhouse-centred organisation.

The large number of four-posters at White Horse Stone also recalls hillforts and could be used to argue that the site acted as a central place for storage, albeit on a smaller scale. In the Upper Thames Valley it has been suggested that unenclosed settlements of a scale similar to White Horse Stone played such a role in the context of a wider settlement system (although in this case pits were used for storage; Cunliffe 1991, 231). Unfortunately, too little is known of Iron Age settlement around White Horse Stone to assess its possible relationships with other types of site. It is also likely that over the life of the settlement only a few of the four-posters were extant at any one time. It is perhaps worth adding that White Horse Stone lies to the east of the main distribution of hillforts in Kent, most of which are relatively late in date compared to White Horse Stone (Cunliffe 1982, 45).

Within the White Horse Stone settlement, although the distribution of deposits of particular types is in some cases, unusually distinct, their character is generally similar to those at many other settlements of similar date. The evidence for iron production and working provides one example which, in contrast to the usual pattern, often is spatially restricted at other sites. Evidence of iron smelting and smithing, including furnace or hearth bases, similar

to that at White Horse Stone occurs commonly enough on Iron Age settlements (Tylecote 1986), and, as at White Horse Stone, the debris is often concentrated in a particular part of the site (eg Hanworth and Tomalin 1977; Lambrick and Allen 2004). There are no doubt good practical reasons why iron extraction and forging should be located in a particular area, away from other activities, and the localisation of such activity does not necessarily imply that they were highly specialised activities. However, even such practical considerations result in conceptual distinctions being made between differing areas of the settlement, and thus imply wider relationships with other areas and activities. In the case of White Horse Stone, iron production and working was located in an area where crop processing debris was dumped, suggesting that iron working was not regarded as a high status activity. Although evidence for iron working is often localised on other sites, an association with crop processing waste does not appear to have been a widely occurring pattern.

Similarly, although the occurrence of inhumations and disarticulated human remains in pits at White Horse Stone is comparable to numerous other sites of similar date which fall within the wider pit burial tradition (Whimster 1981; Wait 1985), they are not generally concentrated in one area of the site as they are at White Horse Stone (although there may be certain tendencies in the spatial distribution of human remains on other sites, such as a concentration around entrances (Hill 1995)).

The question of whether human remains were treated differently from animal remains arises not only at White Horse Stone, but also at other sites (eg Hill 1995). At White Horse Stone it seems that disarticulated human bone was not clearly distinguished from animal bone. It is, however, worth noting that the possible association, amongst what seem otherwise to have been more or less randomly selected bone assemblages, between human bone and dog and deer bone echoes wider patterns (Hill 1995), and suggests that there may be more patterning in these deposits than is at first apparent. The cattle, sheep and pig bones associated with the human bone at White Horse Stone do not, however, seem to differ from those in the same area without human bone. White Horse is perhaps unusual in containing almost no groups of articulated animal bone. Hill (1995) has interpreted such deposits as sacrifices. They may, however, form only one category of sacrificial deposits. Sacrifices frequently end with the consumption of the victim, and it has been argued that consumption forms the crucial final phase of sacrifices and other rituals, including funerals (Bloch 1992). The association of human remains with the large deposits of meat bearing bones and large bowls and jars in Areas 8-11 at White Horse Stone is consistent with the ritual pattern suggested by Bloch (1992). This association does not, however, appear to occur widely on other sites.

The inhumations and the cremation deposit at White Horse Stone stand out, not only from the treatment of animal bone, but also, to varying extents from wider Iron Age burial practices. The juvenile skeleton in pit 2184 fits well within the wider pit burial tradition, not

only because it involves a child (Whimster 1981; Wait 1985), but also because the skeleton lay at the base of the pit (Hill 1995). The adult male inhumation in pit 2296 is more unusual, since not only may the pit have been cut for the burial (rather than being reused), but also because he was provided with two spindlewhorls as grave goods. Although not common, burials with grave goods, including some with spindlewhorls (eg Lambrick and Allen 2004, 232) have been found elsewhere.

The deposit of cremated remains in pit 6132, associated with a set of iron tools and charred grain, all seemingly deposits in pots, is more exceptional, and appears to lack any close parallels. Both cremation burials and sets of tools are rare in this period. Although comparable large iron awls have been in contexts of similar date in Britain (Cunnington 1923; MacGregor and Simpson 1963) and on the continent (Vouga 1923, 115-6, pl xlvi; Jacobi 1974, pl 11), the best parallel for a set of tools seems to be Tumulus de Celles, Cantal, France, where implements presumed to be for leatherworking were found with leather cutting tools and woodworking tools in a funerary context very different from that at White Horse Stone (Pagès-Allary *et al.* 1903). It is tempting to link the rite of cremation at White Horse Stone to the late Iron Age evidence for cremation associated with the Aylesford-Swarling culture, the type site for which lies nearby (Evans 1890; Cunliffe 1991, 132-41). There is, however, no evidence from other sites to show that the rite was practised elsewhere in the intervening period, nor, other than burial in urns, are there any further similarities in grave goods or other aspects of the burial rite.

TOWNS AND THEIR RURAL LANDSCAPES I

14 THE LATE IRON AGE AND ROMANO-BRITISH PERIOD (FIGS 106-7)

14.1 Late Iron Age and Romano-British overview

Evidence for activity in the late Iron Age and Romano-British period was very limited. Although the early-middle Iron Age settlement was abandoned, the fields around it seem still to have been worked. Some of the boundaries of the Iron Age settlement appear also to have been remembered, since a set of ditches and trackways were formed which, in part, followed the edges of the earlier settlement (Fig. 106). Very few other Romano-British features were found, but these include two pits south of the lynchet which lie below the buried soil (19418). These are the latest features covered by the buried soil. The upper part of the buried soil (19419) was cut by ditches defining a trackway or road which ran N-S from the White Horse Stone site into the Pilgrim's Way site. These ditches contained Roman pottery and no later finds, and thus suggest that cultivation of the buried soil ceased in the Roman period. Unfortunately most of the Roman pottery was in a very poor condition, and cannot be used to assign more precise dates to this sequence. This trackway may have formed part of the Rochester to Hastings Roman road.

14.2 The environment

by Elizabeth Stafford

The assemblages examined from the colluvial sequences at White Horse Stone unsurprisingly produced assemblages dominated almost entirely by open-country assemblages and are fairly typical of dry valley ploughwash deposits (Stafford 2006b). The dating of these sequences is a little tenuous, artefactual dating providing only a *terminus post quem* for deposition. There is limited evidence for colluvial deposition prior to the formation of the Iron Age palaeosol in the base of the valley. This is in general concurrence with the molluscan assemblages, at least on the lower slopes, which suggest that substantial tree cover and relative stability persisted up until the Late Bronze Age in some areas. It is difficult to interpret precisely what the fluctuations in the various open-country species signify given the variety of different sources from which the shells may have derived. There is, however, evidence for both short-turfed grassland and arable environments within the catchment. The very presence of colluvium suggests extensive areas of bare ground within the catchment suggestive of arable cultivation.

The colluvial sequence examined on the lower slopes (profile C) produced some evidence for environmental change. The lower silty part of the colluvial sequence appears to have been deposited rather quickly given the low numbers of shells. There does, however,

appear to be a trend up profile to increasing stability with greater shell numbers, perhaps reflecting a slow-down in colluviation. The assemblage indicates grassland in the vicinity coincident with evidence of Roman activity. Truncating these colluvial deposits, three linear gullies defined the extent of a ditched Romano-British trackway (1305). All three features were sampled on the lower slopes where they were stratified within colluvial deposits adjacent to profile C. Ditch 4001 contained an assemblage dominated by shade-demanding species indicative of scrub environments. However, the adjacent ditches (4004 and 4006) only contained a minor component of shade-demanding species comprising a few zonitids and *C. tridentatum*. The assemblages were dominated by *Trichia hispida*, the Valloniidae, *Helicella itala* and, to a lesser extent, *Pupilla muscorum*. This suggests that the scrub present in ditch 4000 was contained within the feature and may represent some form of hedgeline in an otherwise open environment. The hedgeline may have formed a boundary alongside the trackway. The thin layer of colluvium sealing the Roman ditches within profile C produced sherds of medieval pottery. This in itself suggests a hiatus in the sediment sequence, possibly a cessation in colluviation in the Roman and post Roman period, and renewed accretion associated with medieval activity, although one cannot rule out a later episode of erosion.

On the western plateau, trackway 2463, ditches/trackways 1307 and 2423 ran around the edges of the early-middle Iron Age settlement. In ditch 2100 the assemblage was mixed, comprising shade-demanding and open-country species. The shade-demanding components are not particularly indicative of woodland conditions, as some commonly occurring species are absent. The vegetation was probably lusher within the ditch than it was in the surrounding area. The growth of tall grass in the ditch is reflected in the high numbers of *Trichia hispida* and zonitids. The open-country xerophiles *Pupilla muscorum* and *Helicella itala* were, however, also present in significant numbers, along with lower numbers of Valloniidae, suggesting short grassland in the vicinity with perhaps some bare ground and disturbance. In Ditch 2249 shade-demanding species predominated in the lower fill. The assemblage was, however, diverse. *Carychium tridentatum* was abundant, with lesser quantities of the zonitids, *Trichia hispida*, *Discus rotundatus*, *Acanthinula aculeata* and one shell of *Ena obscura*. Again the Valloniidae were present in low numbers along with *Vertigo pygmaea* and *Candidula* spp. The assemblage indicates the presence of long grass/scrub within the feature, perhaps a hedgeline. The upper fill contained significantly fewer shade-demanding species with much greater numbers of *Vallonia costata*, *Pupilla muscorum*, *Vertigo pygmaea* and *Helicella itala* suggesting more open conditions.

14.3 Romano-British ditches and trackways around the early-middle Iron Age settlement (Figs 106-7)

The remains of a Romano-British trackway (2463) which survives as a concave hollow, over 3.5 m wide and 0.4 m - 0.5 m deep, was found leading into the area of the early-middle Iron Age settlement from the western side of the White Horse Stone site (Fig. 85). Around 10 m from the edge of the excavation, ditches and trackways diverge from the end of this track, one set heading to the NE (2409, 2424 and 2378), the other to the SE (2464 and 2423). The northern set appear to have continued in a straight line to the other side of the site (1308 and 1309) although their central sections do not survive. Near to the eastern side of the site these features follow a boundary which seems to have been marked in the early-middle Iron Age by four-posters and other post-built structures. To the south, the features also run for around 45 m along a limit defined by pits and structures belonging to the Iron Age settlement. These ditches may have then turned to the NE where, nearer to the other side of the site, and again following a line defined by four-posters belonging to the Iron Age settlement, further Romano-British ditches were found (1311, 1310 and 1307). One of the latter ditches (1310) cuts the edges of a row of middle-late Bronze Age pits, suggesting that the boundary here may have been of some antiquity. Overall, the Romano-British features form three sides of a rectangle, enclosing most of the area previously occupied by the Iron Age settlement.

All of these features survived only as shallow features. There were, however, marked differences in their profiles (Fig. 107). Some were wide features, and seem to be the remains of hollow trackways rather than ditches. Three of the other features, however, had sections which suggested that they were ditches rather than trackways.

Not surprisingly given their locations, most of them contained quite large quantities of residual Iron Age pottery. Roman pottery was, however, found in three of them, as well as pieces of brick and tile. The pottery cannot be dated very precisely, but a deposit of pottery dating from the later Romano-British period, AD 200-350, found in trackway 2463 is worth noting.

14.4 Other Romano-British finds in the area of the Iron Age settlement

Small quantities of Roman pottery were found in two pits and one posthole in the area of the Iron Age settlement. One pit (4040) lay within the central pit complex (Area 18). Other than Roman pottery the only finds it contained were a fragment of iron nail or wire and some charcoal. The second pit (2254) lay in Area 10 of the Iron Age settlement. It contained a larger quantity of early-middle Iron Age pottery as well as some animal bones. The posthole

(4004) lay near to the later trackway (2008) which ran through the middle of the Iron Age settlement, and contained no other finds. It is possible that all of these finds were intrusive.

14.5 Pits containing Roman pottery below the buried soil

Small quantities of Roman pottery were found in two pits which lay below the buried soil. One of these pits (5109) lay to the south of the early Neolithic structure 4806, next to trackway 1305=19450. It was a circular, bowl-sectioned pit, 1.80 m wide and 0.58 m deep. Alongside the Roman pottery, it contained fragments of cattle radius and two flint flakes, one of which was retouched.

The other pit (7149) lay near the eastern edge of the excavation, just to the south of the lynchet. It was also bowl-shaped in section (1.60 m wide by 0.51 m deep). Alongside the Roman pottery it contained five sherds (8 g) of early-middle Iron Age pot, a small amount of fired clay and a piece of burnt flint.

Although Roman pottery, dating to the 1st to 2nd centuries AD, was also found between the buried soil 4144 and the Pleistocene deposits in a scatter of artefacts, just to the north of structure 4806 recorded as context 5487, these two pits were the latest features stratified below the buried soil and thus provide the most reliable *terminus post quem* for the end of its cultivation. A *terminus ante quem* is provided by the ditches of trackway 1305.

14.6 Trackway 1305=19450

Trackway 1305=19450 was defined by a series of roughly parallel ditches, 11 m - 13 m apart, which ran for just over 300 m N-S across the southern part of the White Horse Stone site (1305) and across all of the Pilgrim's Way site (19450; Fig. 106). The ditches varied along their lengths, from 0.70 m - 1.40 m wide, and from 0.13 m - 0.51 m deep, and were generally roughly V-shaped in section. Alongside the Roman pottery, they contained a fragment of an iron ring, a little residual flint, animal bone and charred oats. The presence of Roman finds (given their general scarcity) and the absence of post-Roman finds (given that the trackway runs quite close to the medieval crop drier described below) are both noticeable, and suggest that the trackway was Romano-British.

The ditches defining this trackway cut the earliest colluvial layers (4149; 4145, 4146 and 4147) which overlay the buried soil (4144). The buried soil and the colluvial layers immediately above it thus have *termini post* and *ante quem* which lie in the Romano-British period. Unfortunately, the pottery cannot provide any more precise indication of when in this period the soil went out of cultivation.

This trackway may have formed part of the Rochester to Hastings road. Margary (1973) suggested that, after descending the Downs escarpment, the road continued along the line of the bridleway (2008) which runs through the White Horse Stone site (see below). However, none of the Romano-British ditches and trackways in the northern part of the White Horse Stone site appear to have respected the bridleway, which seems, instead, to have cut through them. Trackway 1305 follows the alignment of the Roman road to the south much more closely than does the bridleway, and is, therefore, more likely to have formed part of the road.

TOWNS AND THEIR RURAL LANDSCAPES II

15 THE ANGLO-SAXON PERIOD (FIGS 108-10; PL. 34)

15.1 Anglo-Saxon overview

Evidence for Anglo-Saxon activity was focused on the West of Boarley Farm site (Fig. 109). There four pits containing animal burials as well as further pits and postholes (but no clear structures) were found. The finds included animal bones which suggest that the site was used for butchering animal carcasses or preparing leather. There was, however, also evidence for agriculture. Four possibly contemporaneous ditches may have formed a related field system, but the dating evidence was very poor and the ditches could have been earlier in date. Radiocarbon dates on the animal burials suggest that activity occurred in the mid-late Saxon period, from the late 7th to the 10th century AD.

A radiocarbon date on an inhumation burial found during the excavation of the Pilgrim's Way section (Figs 6 and 108) suggests that the burial belongs to roughly the same period. Although near to the Pilgrim's Way trackway, this burial was not stratigraphically directly related to the earliest trackway, and thus does not provide any precise indication of its date. The only other evidence for Anglo-Saxon activity on the Pilgrim's Way and White Horse Stone sites was a single organic-tempered early-middle Saxon sherd from pit 7140 in Area 19 of the early-middle Iron Age settlement. The only other finds in this pit were a fragment of animal bone and a flint flake.

15.2 The Pilgrim's Way section burial (Fig. 108; Pl. 34)

Almost the only traces of Anglo-Saxon activity on the White Horse Stone and Pilgrim's Way sites was the inhumation of a female skeleton (9025), aged 25-35 years, found in the step which was made for safety reasons in the Pilgrim's Way section (Figs 6 and 108; Pl. 34).

The burial lay in a shallow, linear feature (9011) with nearly vertical sides, the full extent of which was not revealed in the step in the section. A ridge ran along the length of the undulating base of this feature. The skeleton was supine. The head would have been at the western end; the right leg lay over the left at the eastern end. The left hand lay on the left side of the chest. The cranium, all of the cervical and two of the thoracic vertebrae, both arms and the right hand were missing. Since the feature in which the skeleton lay was so shallow these bones may well have been removed by post-depositional disturbance. No associated grave goods were found.

A radiocarbon date on the femur gave a date of cal AD 680-970 (GU-9013 1190±60 BP). It thus dates from the same general period as the Anglo-Saxon features at Boarley Farm.

The burial provides only problematical evidence for the date of the Pilgrim's Way. The stratigraphic relationship between the two is not direct, and the burial does not provide a *terminus post quem* for the trackway.

15.3 West of Boarley Farm (Figs 109-10; PLS 35-6)

Pits containing animal skeletons

Animal burials were found in four pits at the West of Boarley Farm site (Figs 109-10), two (1036 and 1004) at the northern end of the main scatter of archaeological features, and two (1061 and 1040) near the southern end. Two of the burials consisted of almost complete, articulated skeletons: a cow in pit 1036 (Pl.35) and a horse in pit 1061 (Pl.36). Both lay on their left sides on the base of the pits. A deposit of articulated goat limbs, from at least four animals, was placed over the upper right leg of the cow. Pit 1036 also contained a domestic fowl ulna and further sheep/goat distal limb bones. The only other find in pit 1036 was a residual retouched flint flake. The horse in pit 1061 was associated with a few isolated sheep bones (tibia and phalanx) and a cattle tibia.

The pits were both oval and had roughly vertical sides and flat bases (1036: 2.15 m wide, 0.62 m deep; 1061: 2.50 m wide, 1.10 m deep; Fig. 110). A number of other pits of similar size and shape were found, none of which, however, contained articulated animal remains. Pit 1061 was cut by pit 1057 which appears to be much later in date (see below).

Radiocarbon dates were obtained for both of these burials, the cattle skeleton in pit 1036 giving a date of cal AD 770-1000 (GU-9086: 1150±50 BP), and the horse skeleton in pit 1061 a date of cal AD 670-950 (GU-9087: 1210±50 BP).

The other two pits were smaller and contained less complete animal skeletons. Pit 1004 contained the partial, disturbed burial of a young horse, consisting of maxilla, a pair of mandibles, a pair of radii and a broken pair of humerii. Pit 1004 was a shallow pit (0.17 m deep) with shallow edges (1.50 m wide) and an irregular base (Fig. 110).

No articulated animal bone was recorded during the excavation of pit 1040. However, pairs of femora and humerii, as well as an ulna and metapodial from a neonate pig were found. Since the bone was extremely fragile, it is possible that this represents the remains of a complete neonate pig. Pit 1040 was circular in plan and U-shaped in section (1.08 m wide and 0.50 m deep; Fig. 110). As well as the pig bone it contained two sheep teeth, fragments of horse humerus, ulna and mandible, a residual flint flake and three sherds (20 g) of early Roman pottery. Despite the presence of this pottery, it seems likely that this pit was contemporary with the others containing animal burials.

Other pits

Ten other pits were scattered with no apparent order throughout the main concentration of features (Fig. 109). They were very varied in shape and size (Fig. 110). Five had more or less vertical sides and flat bases and were similar in shape to the pits containing animal bones. They were also generally similar in size (from 1.25 to 3.00 m wide and from 0.32 to 0.85 m deep). Some of these pits were distinctly subrectangular in plan (1146, 1062 and 1134) whilst the others were oval or irregular (1133 and 1038). A further two pits (1079 and 1164) were oval in plan and had U-shaped sections (1.3 - 2.0 m wide and 0.5 - 0.7 m deep). The remaining three pits (1108, 1142 and 1143) were shallow, oval pits, sometimes rather irregular, but generally bowl-shaped in section.

Almost all of the finds were recovered from the vertical sided pits. The other pits as well as the postholes and ditches contained very few finds.

The finds from these pits were dominated by animal bone. Leaving aside the cattle burial in pit 1036, cattle bone was rare, consisting of a humerus in pit 1142 and a vertebra in pit 1133. Pig bone was also scarce, consisting of fragments of skull and teeth in pit 1146 and humerus and teeth in pit 1142. Horse was not represented in these pits. Most of the remaining animal bone consisted of sheep/goat bones: horncore, mandible, scapula and foot bones in pit 1038 and skull, mandible and teeth in pit 1146. The presence of predominantly head and foot bones of sheep/goat (which includes also sheep/goat bones associated with the animal burials) suggests that the site may have been used for the processing of sheep/goat carcasses, either simply as a butchery site or in the preparation of leather.

The remaining bones derive from cod and young domestic fowl (both in pit 1146). Unidentified fragments were also found in pits 1143 and 1062.

Pits 1142 and 1143 both contained large deposits of charred plant remains. These consisted primarily of almost fully processed free-threshing wheat and oats with very little chaff and much smaller quantities of six-row hulled barley, a few flax seeds and hazelnut shells and a small range of weed seeds.

Very few artefacts were recovered from these pits. The included undated pottery in pit 1146, and five sherds (145 g) of early Roman pottery in pit 1142. A little fired clay was also found in pit 1146, and residual flint flakes in pits 1009 and 1079.

Pit 1057

Pit 1057 contained a very mixed group of artefacts including flint chips and flakes, early-middle Iron Age pot, Roman pottery and tile, a sherd of Ipswich ware, medieval pottery and tile, and post-medieval or modern glass from a bottle or vessel. It thus seems likely that this pit was very much more recent than the other pits at Boarley Farm, and perhaps contains a range of debris collected from the field. Pit 1057 also contained a large group of animal bones

consisting of cattle long bones, vertebrae, shoulder, hips, mandible and teeth, a similar range of sheep bone, and fragments of horse skull and foot bones. The charred plant remains consisted of a small quantity of almost fully processed grain, largely free-threshing wheat and six-row hulled barley with a few oats, hazelnut shells and weed seeds, and a mineralised grape pip. The pit also contained a large quantity of charcoal. It cut pit 1061 which contained a horse burial, and much of the bone and charred plant remains it contained may have derived from that pit.

Ditches

Two parallel ditches (1303 and 1304) around 2 m apart, ran across the southern part of the West of Boarley Farm site, and two further ditches (1301 and 1302), aligned at right angles to each other, ended in the northern part of the site (Fig. 109). It is possible that all of these ditches were parts of the same system of boundaries. The relationship of ditches 1301 and 1302 in particular suggests that they formed two sides of a field or enclosure with an entrance in the corner. All of the ditches were shallow (depth 0.07 m - 0.52 m) but quite wide (1.80 m - 2.75 m).

The date of these ditches is uncertain. Very little material was found within them: a single sherd (4 g) of middle-late Bronze Age pottery in ditch 1301 and a single Roman sherd (9 g) in ditch 1304. Such small quantities of finds provide a very poor basis for dating. The other evidence which might have a bearing on their date is also contradictory. On the one hand, the absence of any Anglo-Saxon material from these ditches, and of animal bone which occurs in considerable quantities in the Anglo-Saxon pits suggests that the ditches predate the Anglo-Saxon activity in this area. On the other hand, the fact that the Saxon pits and postholes seem to respect the ditches suggests that the ditches were still extant at the time of the Anglo-Saxon activity.

Postholes

A scatter of postholes was concentrated around the gap between the two perpendicular ditches (1301 and 1302) but extending also towards the two parallel ditches (1303 and 1304; Fig. 109). Although certain alignments can be made out in the distribution of these postholes no clear structures or fence lines have been identified.

Only a small proportion of these postholes were excavated and very few finds were recovered. Three of the postholes (1075, 1112 and 1114) contained single sherds of Roman pottery. A further three (1077, 1088 and 1103) contained undated pottery. The date of the postholes is thus as uncertain as that of the ditches. Some, at least are likely to be contemporary with the Anglo-Saxon pit deposits, but others may be Roman. Residual flint chips, flakes and bladelets were found in four other postholes (1028, 1005, 1026 and 1118).

16 THE PILGRIM'S WAY (FIGS 2 AND 6-7)

16.1 Pilgrim's Way investigation overview

The Pilgrim's Way ran east-west between the White Stone and Pilgrim's Way sites (Fig. 2). A section was cut across the trackway between these two sites with the aim of determining when the trackway had first been established (Figs 6-7). This section revealed the history of the trackway as a series of hollow-ways (9054, 9039 and 9022) lying below its modern surface.

16.2 Form and relative chronology

The earliest of these hollow-ways (9054) seemed to be on a SE-NW alignment that differed from that of the current trackway. It may, therefore, be unrelated to the modern Pilgrim's Way. This hollow-way was represented as a more or less flat-based feature, *c* 4 m wide, with sloping sides, up to 0.85 m deep. A considerable depth of deposits (9051 and 9053) had completely filled this hollow way before the next (9039) had formed.

The remains of the second (9039) and third (9022) hollow-ways were on the same alignment as the present day Pilgrim's Way (9014). These were wider features than the earlier trackway (*c* 6 m in the case of 9039 and *c* 9 m in the case of 9022). Both had rather irregular bases (up to 0.72 m deep in the case of 9039 and up to 1.0 m in the case of 9022) and sloping sides.

A considerable depth of sediment (9044, 9043, 9038, 9034 and 9035) had also accumulated in and over the second hollow-way (9039) before the third (9022) had formed. There were thus hiatuses between both the first and second and between the second and third hollow-ways. In contrast, the modern Pilgrim's Way appears to be a continuation of the third.

16.3 Fills and flint surfaces

Although all of these hollow-ways are likely to have been formed simply as the result of erosion caused by traffic moving along them, all of them were filled with naturally accumulated layers of silty clay. Layers of flint seem to have been laid in all of them, presumably as a means of providing a more stable and less muddy surface. The first hollow-way (9054) contained just one such layer which had been laid near its base after the first layer of sediment (9053) had accumulated. The second hollow-way (9039) contained two flint layers (9047 and 9045), again laid after layers of sediment (9048-9 and 9046) had accumulated. The third (9022) contained four substantial layers of flint, the first (9031) lying

on its base, but the others (9029, 9026 and 9023) again interleaved with layers of silty clay (9030, 9027-8, 9032 and 9024).

16.4 Absolute dates

The evidence for the absolute dates of these trackways is unfortunately vague. Burial 9025 was stratigraphically below the third hollow-way (9022) and has a radiocarbon date of cal AD 680-970 (GU-9013 1190±60). Unfortunately this provides no precise indication of the date of the earlier hollow-ways. The latest finds which seem to have been stratified below the hollow-ways were Roman sherds and tile as well as one fragment of medieval or post-medieval tile. These were found in colluvial layers in the Dry Valley section. It is, however, impossible to correlate these layers reliably with those in the Pilgrim's Way section. Nonetheless, all of the hollow-ways overlie the buried soil (4144=9005) which itself seems to have been worked into, but not after the Roman period. The earliest hollow-way (9054) must, therefore, be post-Roman, and the earliest hollow-way on the alignment of the Pilgrim's Way must be later still, and is thus likely to be Saxon, or date from later in the medieval period.

THE MEDIEVAL AND RECENT LANDSCAPE

17 THE MEDIEVAL PERIOD (FIGS 111-2; PL. 37)

17.1 Medieval overview

Evidence for Medieval activity was limited. A crop drier, a scatter of postholes (including a possible rough structure), a hollow way and two ditches (which might have formed field boundaries) in the north-east corner of the Pilgrim's Way site suggest that the area was primarily agricultural (Fig. 86). Around 1 km south-east of the Pilgrim's Way site a set of six medieval pits containing a large assemblage of pottery was found.

17.2 Medieval activity at Pilgrim's Way

Crop drier 390 (Fig. 112; Pl. 37)

The clearest evidence for medieval activity on the Pilgrim's Way site consisted of the remains of a roughly built crop drier. The foundation of this crop drier consisted of a key-hole shaped pit (Fig. 112; Pl.37), the sides of which had probably been in part shored up with sarsen stones.

The circular part of the pit was just under 3 m wide and had steeply sloping sides (except on the western side where the side sloped much more gradually). There was a depression in the middle of the otherwise flat base, in the centre of which was a small posthole (697). This posthole might have held a post which supported the floor. The primary fill (391=695) of the depression contained large quantities of charcoal as well as charred free-threshing wheat, six-row hulled barley, oats and a few weed seeds. There was, however, no indication that the base of this part of the crop drier had been burnt.

Over this fill was a layer of sarsen stone fragments forming a very irregular surface. These stones were probably originally placed against the sides of the pit, and may have helped to support a raised floor. Some of these stones were burnt on both sides, and may have been reused since there were no other indications of burning in this part of the crop drier.

Alongside the posthole in the centre of the pit, two further postholes were found: one (702) at the very edge of the pit, just outside one of the standing sarsen stones, and another (700) nearby, just outside the pit. There was no indication, however, that these postholes were related to the crop drier.

The fire heating the oven would have been placed in the subrectangular extension or flue, which ran for about 1.2 m from the south-eastern side of the pit. This was similar in depth to the circular part of the pit, had similar steeply sloping sides, and was just less than 1.2 m wide. Two sarsen stones stood at the entrance between the circular part of the pit and

the flue. These stones (692 and 691) were both very roughly rectangular, and stood 0.64 m and 0.80 m tall in holes cut to hold them (694 and 556). Both stones showed signs of having been burnt. Traces of burning were not found within the flue, but were found in the entrance between the two standing sarsen stones. The evidence for burning here was, however, very localised. It may not, therefore, derive from the original use of the oven, even though that would have required only very low temperatures (Beresford 1979, 140).

Filling the pit up to the top of the standing stones was a thick deposit (392) consisting of stones, flint and soil, all burnt, which must have been deposited once the oven had already gone out of use.

Following the deposition of further fill (559), a short curved gully (657) was cut through the end of the flue, and ran for about 6 m aligned roughly N-S. Traces of burning were found in the southern end of this gully. It cannot, however, have been related to the use of the oven since the oven was already almost completely filled by the time the gully was cut.

The finds from the crop drier itself (Table 45) suggest that it was probably in use at some time in the 11th to 13th centuries AD. Pottery of this date was found throughout the fills of the pit itself (392 and 559, although there was none in its primary fill (391=695) where only a few residual early-middle Iron Age sherds were found). A similar assemblage of pottery was found in the curved gully (657).

The primary fill (391) contained the charred grain and charcoal mentioned above which may have been accidentally charred during its use.

The main fills of the pit (392 and 559) also contained a small group of animal bone, the deposition of which, like the pottery, must post-date the use of the oven.

Table 45. Summary of finds in crop drier 390 and associated features

Feature/section	Fill	Pottery sherds/weight g	(no.	Animal Bone	Flint	Charred remains	plant
gully 657	651	38/365	12th-13th century (some possibly 14th century)	Unidentified - 1	11 chips 6 flakes 1 irregular waste flake		
gully 657	698	1/2	12th-14th century		1 blade 7 chips		
gully 675	561	2/34	12th-14th century		1 backed knife 2 bladelets 12 flakes 2 irregular waste flakes 45 chips		
pit 390	392	13/192	11th-13th century	horse - 1 maxilla medium mammal - 1 rib sheep goat - 1 humerus, 1 mandible unidentified - 19			
pit 390	559			Cattle - 1 metatarsal Horse - 1 phalanx Sheep/goat - 1 tibia Unidentified - 3			
pit 390	695= 391	4/6	11th-13th century and possibly residual Iron Age		2 burnt unworked flint fragments 42 chips	wheat 85 barley 20 oats 16	

Feature/section	Fill	Pottery sherds/weight g)	(no.	Animal Bone	Flint	Charred remains	plant
					6 flakes	cereals 208	
					4 irregular waste flakes	chaff 3	
						weeds 15	
						charcoal	
posthole 700	699				7 chips		
					6 flakes		
					3 irregular waste flakes		
					1 core rejuvenation flake		
posthole 702	701				3 chips		
sarsen stone hole 694	693				4 chips		
sarsen stone hole 694	707				3 flakes		
					12 chips		
					1 flake		

Hollow-way 472

The crop drier was located adjacent to a hollow-way, which ran for 83 m roughly N-S along almost the same line as the later bridleway (2008), following the contours of the dry valley (Fig. 111). The hollow-way was more severely truncated towards its southern end, and had been completely removed from the southern side of the site.

The bottom of this feature was reached in only one section (496) where it was lined with two layers of dense cobbling (499 and 500) consisting mostly of flint nodules (20 mm - 90 mm across). The cobbled surface was marked by wheel ruts which at one point (497) in this section had worn through the cobbling.

The only evidence for the date of the hollow way were fragments of horseshoes and horseshoe nails found in the cobbling, including one medieval horseshoe with no calkins or fullering. These finds suggest that the hollow-way was unlikely to date from earlier than the 13th century. It may well be contemporary with the crop drier.

Postholes

A scatter of postholes was found in the north-eastern corner of the Pilgrim's Way site, some of which may have been contemporary with the medieval features in this area (Fig, 111). Two of them (434 and 436) contained pottery similar to that in the other medieval features in this area, whilst a third (432) contained flakes of a glazed pot and of tile which might be of similar date.

No very coherent patterns can be made out in the distribution of the postholes. The only place where a structure might be made out is around 15 m north of the crop drier, where six postholes (661, 664-5, 671, 680 and 686) might have been related to a rectangular structure, perhaps a rough shelter associated with the crop drier.

Pits

Lying near some of these postholes was a large, irregular pit (423), around 8 m wide and over 0.44 m deep (Fig. 111). Apart from probably residual flint (including a blade, a piercer and a retouched flake) in its primary fill (451), the only finds from this feature all lay in its upper fill (449). These consisted of two sheep/goat teeth and three fragments (29 g) of peg tile. The tile is the only material which gives any indication of date, but can be dated no more closely than to the medieval period. The date of this feature cannot, therefore, be established with any certainty, although it may be contemporary with the hollow-way, crop drier and at least some of the nearby postholes.

Pit 625 which lay to the east of hollow-way 472 also contained three sherds (28 g) of medieval pottery similar to that associated with the crop drier.

Ditches

Two ditches (305 and 308) in the north-eastern corner of Pilgrim's Way also contained medieval pottery dated to the 11th to 14th centuries, and hence may have been contemporary with the other medieval features in this area (Fig. 111). In both cases the quantities of pottery are very small, and might be residual.

Both of the ditches were traced over only short stretches. Ditch 305 ran roughly E-W, and ditch 308 roughly N-S. Because the two ditches were so far apart it is difficult to see them as having been related but it is perhaps worth noting that ditch 305 ran roughly perpendicular to the hollow-way (472) and ditch 380 roughly parallel, so they may have formed parts of a more extensive system of field boundaries.

Relationship with tree-throw holes

Three tree-throw holes were found which contained medieval finds (Fig. 111). One of these (868) lay in the north-west part of the Pilgrim's Way site, away from most of the other medieval features. It also contained a couple of sherds of middle Bronze Age pottery as well as charred grain, hazelnut shells and charcoal. The other two (342 and 367) both contained medieval pottery similar to that associated with the crop drier. Tree-throw hole 367 also contained fragments of tile and two nails, as well as three small fragments of unidentified animal bone. Both of these tree-throw holes were part of a row of tree-throw holes which lay parallel to the hollow-way (472).

17.3 Medieval pits and pottery near Boarley Lane (ARC 420, 59+200)

A small cluster of postholes, pits and a ditch were found during the watching brief near Boarley Lane, around 750 m to the south-east of the West of Boarley Farm excavation (Fig. 1). The most significant aspect of these features was the large assemblage of mid to late 13th century pottery they contained.

The medieval features consisted of three rectangular pits (23, 35 and 29) with near vertical sides and flat bases, a larger oval pit with sloping sides, and five postholes. One of the postholes (40) was square in plan, but contained a circular postpipe; the other postholes (49, 52-3 and 55) were oval in plan. The postholes were quite consistent in size, measuring around 0.7-0.9 m across and 0.1-0.2 m deep. A ditch (39), V-shaped in section, ran NNE-SSW for 12 m across the site. It contained no finds and its date is uncertain. A recent rectangular pit (45) containing chicken wire was also found near to the medieval pits.

The largest assemblage of pottery was found in pit 23 (838 sherds, 11.9 kg) where it formed a layer in the base of the pit. A large group of pottery was also found in pit 35 (147 sherds, 1.5 kg), but only much smaller quantities in postholes 40, 49 and 52. The other finds from these features consisted of peg tile, sheep/goat, cattle, pig and bird bone, oyster shell, pieces of slightly curved copper alloy with at least one nail hole (in pit 21) and iron nails and strips. No finds were recovered from the other features. Similar pottery (including sherds which join with others from pit 21) was, however, found in a demolition layer (21) which also contained pieces of tile, oyster shell and pieces of limestone and mortar, and which overlay most of the medieval features.

Although the precise function of the features is unclear it seems that they were associated with a now demolished structure. No further traces of this structure were found in the watching brief.

18 POST-MEDIEVAL AND MODERN FEATURES (FIG. 113)

18.1 Post-medieval overview

Few post-medieval and modern features were identified on any of the sites. This implies a lack of recent disturbance which, in part, accounts for the preservation of prehistoric features. The most important of the recent features was a bridleway (2008) which ran N-S across the White Horse Stone site. Even this was significant only in the negative sense that it probably destroyed a band of features belonging to the middle of the early-middle Iron Age settlement. This bridleway was thought to have formed part of the Roman road running from Rochester to Hastings. However, only modern finds were recovered from the wheelruts cut into the chalk which defined the bridleway, and it seems not to have been respected by the Romano-British ditches which surround the Iron Age settlement. The Romano-British trackway (1305) discussed above is more likely to have formed part of the road.

Features in the area of early-middle Iron Age settlement

Pieces of post-medieval tile, glass and pottery were found in other features in the area of the early-middle Iron Age settlement. In most cases these consisted of a few small fragments in the upper fills of pits which otherwise contained large, purely Iron Age assemblages (pit 2276 and 8045) or equally small quantities of finds in postholes which belonged to quite well-defined early-middle Iron Age structures (posthole 4552 which forms part of four-poster 4500). In these cases it seems likely that the more recent finds were intrusive, and the features have thus been assigned to the early-middle Iron Age. Pit 6110 contained a few fragments of medieval or post-medieval tile in its upper fills, as well as very large assemblage of early-middle Iron Age pottery and human and animal bone. Since this pit cut a ditch running parallel to the bridleway and contained such an unusual assemblage of charred plant remains (consisting almost entirely of weed seeds) it seems likely that contents may derive from clearance of the surrounding area. The pit thus seems to be recent, despite the large quantity of Iron Age finds.

There are only a small number of other features in the area of the early-middle Iron Age settlement which may have been quite recent. Ditch 2009, which runs along the north-west edge of the excavation contained medieval or post-medieval peg tile, and follows a recent field boundary. An irregular pit (2181) cut the end of this ditch and must also be relatively recent. Ditch 4454 contained fragments of glazed tile and post-medieval glass as well as probably residual early-middle Iron Age and Roman pottery. It ran from the eastern edge of the excavation up to the bridleway on an alignment that differed from that of the middle Bronze Age and Romano-British ditches and trackways in the same area. It thus also

seems to be a recent feature. The only other probably recent feature was a square pit (6147) near to the bridleway which contained a sterile fill.

The southern part of the White Horse Stone site

The features at the southern end of the White Horse Stone site were protected from recent disturbance by the buried soil and colluvial layers above. It is thus not surprising that no recent features were identified in this part of the site.

Pilgrim's Way

Much of the Pilgrim's Way site was also protected from recent disturbance by the buried soil and other deposits. Many of the recent features on this site were found on its eastern side, in the same area as the main concentration of medieval features. The only other feature which seems to have been modern was posthole 346, which lay to the south of middle Bronze Age structure 647. It contained part of a 17-18th century bottle.

19 UNDATED FEATURES (FIG. 114)

Many features, especially postholes, which lack any direct dating evidence have been assigned to phases on the basis of their locations, and are described above. It is for this reason, for example, that there are no 'undated' features in the area of the early-middle Iron Age settlement. No attempt has been made to describe all of the remaining undated features. Rather, only undated groups of features, located away from dated groups, are briefly described here.

Potentially the most significant of these were two loose groups of features to the north and south of early Neolithic structure 4806. To the north lay two diffuse scatters of postholes (subgroup 19442 to the north and 19441 to the south) in the same area as two late Neolithic pits (7000 and 7024) and a few early-middle Iron Age and Roman features (5109, 7197, 7053 and 7149). None of these postholes contained any finds, nor was there any obvious spatial order in their distribution.

To the south of structure 4806 lay four pits (subgroup 19438) and two very diffuse groups of postholes (subgroups 19460 near to the pits and 19459 to the south). These features lay in the same area as the main concentration of sarsen stones, and at least some of the pits may have been created for or by the removal of sarsens. Of these features only two pits contained any finds. Pit 4879 contained some charred wheat and pit 5022 a few fragments of cattle bone. These two pits were both elongated oval features which lay next to each other on the same alignment. They might have formed part of a segmented ditch but there was no indication that the ditch continued any further. A tree-throw hole (4964) in the same area contained four flint flakes and a blade-like flake.

In the north-west corner of the Pilgrim's Way site two short segments of a ditch (subgroup 19136) were found near to an isolated stakehole (882). A short distance to the south a couple of further postholes (877 and 875) were found near a group of late Neolithic pits (subgroup 19396). None of these features contained any finds.

Further south still, two pits (956 and 859) and eight postholes (subgroup 19461) were found in the same area as late Neolithic pit 952 and late Bronze Age pit 948. One of these pits (859) contained a small group of cattle bone (fragments of innominate, radius, astragalus, phalanx and tooth) as well as further unidentified bone fragments. Given their composition and location, these finds are most likely to date from the late Neolithic, but given the presence of late Bronze Age and also possibly Roman features (pit 119=872) in the same area it is impossible to be certain. The second pit (956) was cut by late Neolithic pit 952, and must thus be late Neolithic or earlier in date. It contained no finds. Of the postholes, only one (921) contained any finds, and they consisted of just three flint chips and a flake. A further undated posthole (933) was found further south.

Small numbers of postholes were also found to the south of middle Bronze Age structure 647 (subgroup 19462) and to the north of early Neolithic structure 972 (subgroup 19463). None contained any finds.

20 GUIDE TO THE ARCHIVE

The site has been analysed and published as part of the Channel Tunnel Rail Link Section 1 Post-excavation Project. This Integrated Site Report is one of 20 publication level site reports available to download from the Archaeology Data Service website:

<http://ads.ahds.ac.uk/catalogue/projArch/ctrl/>

These present synthesised data from key site sequences at an interpretative scale that can be assimilated into complementary studies. The ADS site also includes five schemewide specialist reports, which provide synthetic overviews of the specialist data from CTRL Section 1 in its regional context. Underpinning the site reports and overviews, is a comprehensive archive of individual specialist reports and databases, which are also available to download. The CTRL reports and data can be accessed through the ‘Project Archives’ section of the ADS website.

Hard copy publication of the CTRL Section 1 results comprises a single volume synthetic overview of the excavated results in their regional context, which includes a complete site gazetteer and guide to the archive (Booth et al 2007).

Table 46 below details all available digital data for the White Horse Stone site. The Post-excavation assessment report is included in the digital archive, but assessment databases have only been included for categories of material which were not subsequently subject to full analysis. All reports and accompanying figures are presented as downloadable, print-ready Adobe Acrobat files (.pdf). ADS also maintain archivally stable versions of report image pages (.tiff), sometimes available at higher resolution than the pdf versions, and of the text (.rtf). Report texts and databases are also available as text files (.csv). The digitised site plan is available as an Arcview shapefile (.shp) and in drawing exchange format (.dxf).

Table 46: Digital archives

Description	Filename root	Principal authors and organisation
Integrated site report		
Integrated site report	WHS_ISR	Hayden C with Stafford E (OWA JV)
Integrated site report figures	WHS_ISR	Hayden C with Stafford E (OWA JV)
Site research database		
Site database	WHS	Hayden C with Stafford E (OWA JV)
CAD/ GIS drawings		
CAD drawing	WHS_CAD	OWA JV
GIS limit of excavation shapefile	WHS_GIS	OWA JV
GIS feature plan	WHS_GIS	OWA JV
Specialist research reports		
Ceramics (early prehistoric)	CER_EPR_WHS	Edwards E (OWA JV)
Ceramics (later prehistoric)	CER_LPR_WHS	Morris EL (Southampton)
Ceramics (late Iron Age and Roman)	CER_ROM_WHS	Stansbie D (OWA JV)
Ceramics (post-Roman)	CER_MED_WHS	Mepham L (OWA JV)
Lithics	FLI_WHS	Cramp K (OWA JV)
Small finds	SFS_WHS	Fell V (English Heritage), Keys L (Freelance) and Shaffrey R (OWA JV)
Faunal remains	ENV_Fauna_WHS	Kitch J (OWA JV)
Charred plant remains	ENV_Charredplants_WHS	Giorgi J (MoLSS)
Geoarchaeology	ENV_Geoarch_WHS	Stafford E (OWA JV)
Geoarchaeology	ENV_Geoarch_WHS	Macphail RI (UCL) and Crowther J (UW Lampeter)
Wood charcoal	ENV_Charcoal_WHS	Alldritt D
Human remains	HUM_WHS	Witkin A (OWA JV) and Boston C (OWA JV)
Radiocarbon dating	DAT_WHS	Allen MJ (OWA JV), Hayden C (OWA JV), Barclay A (OWA JV) and Bayliss A (English Heritage)
Specialist datasets		
Ceramics (early prehistoric)	CER_EPR_WHS	Edwards E (OWA JV)
Ceramics (later prehistoric)	CER_LPR_WHS	Morris EL (Southampton)
Ceramics (late Iron Age and Roman)	CER_ROM_WHS	Stansbie D (OWA JV)
Ceramics (post-Roman)	CER_MED_WHS	Mepham L (OWA JV)
Lithics	FLI_WHS	Cramp K (OWA JV)
Small finds (stone)	SFS_WHS	Shaffrey R (OWA JV)
Faunal remains	ENV_Fauna_WHS	Kitch J (OWA JV)
Charred plant remains	ENV_Charredplants_WHS	Giorgi J (MoLSS)
Wood charcoal	ENV_Charcoal_WHS	Alldritt D
Human remains	HUM_WHS	Witkin A (OWA JV) and Boston C (OWA JV)
Post-excavation assessment		
Post-excavation Assessment text	WHS_PXAssessment	OA
Post-excavation Assessment figures	WHS_PXAssessment	OA
Post-excavation Assessment datasets	WHS_PXAssessment	OA

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