Channel Tunnel Rail Link

London and Continental Railways

Oxford Wessex Archaeology Joint Venture

Medieval ironworking evidence at Mersham, Kent

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ABSTRACT

As part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL), Canterbury Archaeological Trust was commissioned to undertake a detailed archaeological excavation on land situated to the south of the church of St John the Baptist, in Mersham, Kent (OS NGR 605946 138812). The excavation was carried out between December 1998 and January 1999, under the project management of Rail Link Engineering, on behalf of Union Railways (South) Limited (a subsidiary of London and Continental Railways).

Limited evidence for late Anglo-Saxon settlement activity was indicated by five refuse pits and a shallow gully. Both smelting and smithing evidence were associated with this phase in the form of large quantity of metallurgical debris found in the largest pit.

The medieval period (AD 1050-1250) represented the main phase of occupation of the site with an intensification of both domestic and industrial activity. Domestic features included one possible timber built structure and some probably associated cess and rubbish pits containing domestic refuse. Industrial features included a consecutive sequence of drainage ditches feeding a small pond and refuse pits containing quantities of metallurgical waste. The activities identified in the late Saxon and early medieval periods had largely ceased by the middle of the 12th century.

A new field system was established in the late medieval period and only agricultural related features were found from this phase onwards. It is likely that the focus for domestic/industrial activity moved elsewhere in the late medieval and post-medieval periods.

RÉSUMÉ

Canterbury Archaeological Trust fut chargé d'entreprendre des fouilles archéologiques sur un terrain situé au sud de l'église de St John the Baptist, à Mersham, dans le Kent (coordonnées géographiques OS NGR 605946 138812). Ce site fait parti 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 (Channel Tunnel Rail Link -CTRL-). Les fouilles furent menées entre décembre 1998 et janvier 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 preuves d'occupation de la fin de l'époque anglo-saxonne étaient limitées à 5 fosses à déchets et un fossé peu profond. Des traces de fonte et de forge étaient également associées avec cette phase, sous la forme de larges quantités de débris métallurgiques découverts dans la plus large des fosses.

La période médiévale (1050-1250) représenta la phase principale d'occupation du site, avec une intensification des activités à la fois domestiques et industrielles. Les structures domestiques comprenaient une éventuelle structure en bois ainsi que des fosses à déchets contenant des détritus domestiques et peut-être associées à des fosses d'aisance. Les structures industrielles incluaient une série consécutive de fossés de drainage qui alimentaient un petit bassin ainsi que des fosses dépotoirs contenant des quantités de débris métallurgiques. Les activités intensifiées pour la fin de l'époque saxonne et le début de la période médiévale avaient largement cessées vers le milieu du XIIème siècle.

Un nouveau système agraire était établi à la fin de la période médiévale et à partir de cette phase, uniquement des structures de nature agricole furent mises en évidence. Il est probable que le centre d'activités domestiques et industrielles fut déplacé ailleurs au cours des périodes médiévales et modernes.

ZUSAMMENFASSUNG

Im Rahmen umfangreicher archäologischer Untersuchungen im Vorfeld des Baus der Bahnstrecke durch den Kanaltunnel (Channel Tunnel Rail Link) wurde der Canterbury Archaeological Trust mit einer umfassenden archäologischen Ausgrabung auf einem Landstück südlich der Kirche St. John the Baptist in Mersham, Kent, beauftragt (OS NGR 605946 138812). Die Grabung fand zwischen Dezember 1998 und Januar 1999 unter der Projektleitung von Rail Link Engineering im Auftrag von Union Railways (South) Limited (einer Tochtergesellschaft von London and Continental Railways) statt.

Vereinzelte Hinweise auf eine Siedlungstätigkeit in spätangelsächsischer Zeit gaben fünf Abfallgruben und ein flacher Abzugskanal. Auch Belege für Schmelz- und Schmiedearbeiten, die in Form größerer metallurgischer Abfallmengen in der größten Grube auftraten, standen mit dieser Siedlungsphase in Zusammenhang.

Die Hauptsiedlungszeit der Stätte fiel ins Mittelalter (1050-1250 n. Chr.). Damals wurden sowohl die häusliche wie auch die gewerbliche Aktivität intensiviert. Zum häuslichen Bereich zählte ein mögliches Holzgebäude mit einigen Jauche- und Abfallgruben, die Hausabfälle enthielten und möglicherweise mit dem Gebäude in Verbindung standen. Hinweise auf gewerbliche Aktivitäten lieferten mehrere hintereinander angelegte Entwässerungsgräben, die in einen kleinen Teich mündeten, sowie Abfallgruben mit größeren Mengen an metallurgischem Material. Die verzeichneten spätangelsächsischen und frühmittelalterlichen Aktivitäten waren Mitte des 12. Jahrhunderts zum großen Teil beendet.

Im späten Mittelalter wurde ein neues Feldsystem angelegt. Für die Zeit danach wurden nur noch landwirtschaftliche Merkmale gefunden. Wahrscheinlich verlagerte sich der

Schwerpunkt der häuslichen und gewerblichen Aktivität im Spät- und Nachmittelalter anderswohin.

ABSTRACTO

Como parte de un extenso programa de investigación arqueológica previo a la construcción del Channel Tunnel Rail Link (CTRL), Canterbury Archaeological Trust fue encargado de realizar una excavación arqueológica en detalle en el terreno situado al Sur de la Iglesia de San Juan el Bautista en Mersha, Kent (OS NGR 605946 138812). La excavación se realizó entre los meses de Diciembre de 1998 y Enero de 1999 bajo la dirección de Rail Link Engineering (RLE) para Union Railways (South) Limited (parte de London and Continental Railways).

Cinco basureros y un surco poco profundo indicaron limitada evidencia de ocupación durante el periodo Anglo-Sajón tardío. Evidencia de fundición y de forja, en gran cantidad de debris metalúrgicos encontrados en el hoyo más grande, se asociaron con esta fase.

El periodo medieval (1050-1250 d.C.) representó la fase principal de ocupación del yacimiento con la intensificación de ambas actividades doméstica e industrial. Entre las estructuras domésticas se incluyen una construida posiblemente en madera y hoyos de basura asociados conteniendo desechos domésticos. Entre las estructuras industriales se incluyen una secuencia consecutiva de zanjas de drenaje abasteciendo a un pequeño estanque y hoyos de basura conteniendo gran cantidad de desecho metalúrgico. Las actividades identificadas en los periodos Sajón y Alto Medieval cesan hacia mitad del siglo XII d.C.

Un nuevo sistema de campiña se estableció en el periodo Bajo Medieval y únicamente se encontraron estructuras asociadas con la agricultura durante esta fase y en adelante. Es probable que el foco de actividad industrial/doméstica se moviera a otro lugar en el periodo bajo medieval y post-medieval.

ACKNOWLEDGEMENTS

The investigations at Westenhanger Castle were undertaken principally by staff from the Canterbury Archaeological Trust (CAT), with support and overall management framework during the post-excavation phase provided by the Oxford Wessex Archaeology Joint Venture (OWA). The work was supervised by an archaeological team from Rail Link Engineering (RLE), on behalf of the employer, London and Continental Railways.

The fieldwork and post-excavation assessment were supervised by Adrian Gollop and managed by Mark Houliston. Other members of the field team are credited in the main project acknowledgements in the digital archive (ADS 2006). The site archive and assessment were compiled by Alison Denton, Mick Diack, Emily Dodd, Mark Houliston and Simon Pratt.

The following specialists contributed to this report: Grace P Jones (later prehistoric pottery), Lorraine Mepham (medieval pottery), Ian Riddler (small finds), Phil Andrews (metallurgical residues), Jennifer Kitch (animal bones), Chris Stevens (charred plant remains) and Simon Skittrell (CAD draughtsman). All illustrations were prepared by Peter Atkinson. The abstract was translated by Mercedes Planas (Spanish), Gerlinde Krug (German) and Valerie Diez (French).

Sub-editorial work was carried out by Valerie Diez. The report was edited by Julian Munby (medieval period team leader). Julie Gardiner was the project senior editor.

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1 INTRODUCTION

1.1 Project background

The Canterbury Archaeological Trust (CAT) was commissioned by Union Railways (South) Limited (URS) to undertake a detailed archaeological investigation on land situated to the south of the church of St John the Baptist, Mersham, Kent (OS NGR 605946 138812). This work formed part of an extensive programme of archaeological investigation carried out in advance of the construction of the Channel Tunnel Rail Link (CTRL). 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).

The site was identified during a desk-based assessment (URL 1994) and geophysical survey (URL 1996) of the immediate area, followed by evaluation (URL 1998). Detailed area excavation was undertaken between December 1998 and January 1999 (URS 2001), proceeded by further evaluation to the east of the site (URS 1999a). The location of the site is shown on Figure 1 and the details of the archaeological works are given in Table 1. One other site in the immediate vicinity, just across the road to the west of this site, was the investigation of the foundations of Bridge House, Mesham, prior to its bodily removal to a new location nearby (to be separately reported).

Table 1: Fieldwork events

Fieldwork Event Name	Type	Fieldwork Event Code	Contractor	Dates of Fieldwork
Mersham	Evaluation	ARC MSH 97	MoLAS	1997
Mersham	Excavation	ARC MSH 98	CAT	Dec. 1998 - Jan. 1999
East of Mersham	Evaluation	ARC EMM 98	CAT	Jan. 1999

The main site had a total area of 0.995 ha and lay to the south of the boundary wall of the church of St. John the Baptist and to the north of the cutting of the London to Folkestone railway line. It was bounded to the east by a tree-lined fence. The western boundary lay some 60 m east of and parallel to Church Road.

1.2 Geology and topography

The Mersham site falls within the Wealden Greensand landscape zone (Fig. 1). The site occupies a slight spur on the edge of the Hythe Beds, a distinct formation of Lower Cretaceous lime and sandstones, which partly outcropped at the site. To the south and west, the land drops onto underlying Atherfield and Wealden Clay. The solid geology is capped in most places by a distinct deposit of red/brown calcareous sandy clay, up to 0.05 m thick, which is thought to be particular to the immediate vicinity of Mersham. This in turn is capped by a pale orange/brown sandy clay, a loessic drift material that blankets the Hythe Beds throughout the wider district.

The site is located some 2.5 km north-east of the East Stour river, on the upper edge of the valley. The central, northern and eastern parts of the site occupied a relatively flat area, dipping gently from north to south, but that dropped away more steeply to the south and west towards the river. The site had been under arable cultivation prior to the commencement of CTRL works. This ploughing had caused relatively deep erosion of the underlying deposits. The level of the truncated natural varied from 63.70 m to 61.10 m OD in this area, and to a low point of 57.85 m OD in the south-western corner of the site.

1.3 Archaeological and historical background

Mersham lies within a landscape known to have been occupied intermittently from the Mesolithic period onwards. Residual Mesolithic and Neolithic flint implements have been recovered from Aldington (Bradshaw 1967; Alpin 1995), and a probable late Neolithic or early Bronze Age stone mace-head has been recovered from Smeeth (Kelly 1988). Aldington and Smeeth are respectively *c* 3.5 km south-east and *c* 1.9 km east of Merhsam. An assemblage of worked flint recovered during the CTRL excavation at Bower Road included late Mesolithic to early Bronze Age material (Diez 2006), and at Mersham 'many flint flakes and scrapers of Neolithic types' were recorded during a rescue excavation in Bower Lane (Bradshaw 1967). More intensive prehistoric activity is known from Waterbrook Farm (Rady 1999), with material reflecting both Mesolithic, and late Neolithic or early Bronze Age activity. At Blind Lane (URS 2000a) evidence for middle to late Bronze Age activity was recovered, including a largely complete bucket urn related to the Deverel Rimbury tradition of the mid 2nd millennium BC.

Occupation appears to have intensified from the late Bronze Age, as seen at Little Stock Farm (Ritchie 2006) evidenced by sub-rectangular enclosures, ring-ditches, field systems, pits, postholes and hearths. Both Little Stock Farm (Ritchie 2006) and Waterbrook Farm (Rady 1999) have evidence for activity continuing into the Iron Age; the latter site continuing into the early Roman period. At Boys Hall Balancing Pond (URS 2000b), a late Iron Age and

early Roman field system and cremation burials were excavated, whilst similar evidence was found at Blind Lane (URS 2000a), the field system falling into disuse by the 2nd century AD.

From the early Roman period the region was traversed by two known roads, one to the west of the site connecting Canterbury to the Weald (Cleere and Crossley 1995), and an adjoining route to the south, running WSW-ENE from Lympne to the small Roman town at Westhawk Farm, situated *c* 5 km to the west (Booth *et al*. forthcoming). Other early Roman settlement is indicated at Park Farm (Hicks 1993), *c* 4 km to the west, and at Bower Road (Diez 2006), *c* 1 km to the south-east, but evidence for later Roman activity is restricted to the sites at West Hawk Farm (Booth *et al*. forthcoming) and Bower Road (Diez 2006), both of which appear to fall into decline by the late 3rd century AD with a very reduced level of activity thereafter into the 4th century.

There is only limited archaeological evidence for Anglo-Saxon activity in the vicinity of Mersham. This is restricted to an important group of burials found near Bower Farm in 1828 and a series of poorly recorded spot finds of artefacts and a cinerary urn, discovered in the parish before 1853 (URS 2001). However, the place name *Merseham* (Maersa's homestead) is first recorded in a charter of AD 858, and again in a subsequent charter dated 863 (Sawyer 1968, nos. 328 & 332). Both these charters suggest that, by the late Anglo-Saxon period, estates and possibly parishes had become identifiable, reflecting a well-established settlement pattern.

By the time of the Conquest Mersham had been granted to the prior and convent of Christ Church, Canterbury and, although it was listed as a manor belonging to the Archbishop of Canterbury in the Domesday survey, the Priory appeared to have regained its authority over Mersham shortly afterwards (Smith 1943, du Boulay 1966). From the charter and Domesday records, medieval Mersham operated a mixed farming system, based on plough lands, meadows, and dens (woodland pastures), which provided both timber and pannage for 30 pigs. The ville consisted of 39 villagers and nine small holders, and had a church and two mills. It also generated rents from two salt houses, probably sited in the Faversham/Whitstable area. Archaeological evidence suggests that at least part of the medieval settlement was focused to the east of Mersham church, where quarrying during 1967 exposed hearths, wells, and pits associated with pottery sherds dated to the 13th and 14th centuries (Bradshaw 1967).

The parish of Mersham extends from the Holmsdale area below the Downs as far as the edge of the Weald. The wealden dens belonging to the parish lay further to the south in the wealden commons (Witney 1976, 260). The village settlement was polyfocal, with separate nuclei at Mersham Hatch and Mersham Street (now defined as a Conservation Area and situated some 500 m north of the excavation). A further nucleus lay immediately north of the site and now includes of a group of listed buildings; the parish church in its medieval

graveyard and, to the west of the church, Court Lodge, an important hall house and its associated barn. The earliest known reference to the church dates to *c* 1040 and it was rebuilt in the 12th century. Court Lodge dates from the first half of the 14th century, when it was under the control of Christ Church Priory, Canterbury (Pearson et al. 1994, 91). The fourth nucleus was situated to the south of the site, and was separated from it by the cutting of the London to Folkestone railway line. Known locally as The Forstal, it consists of a widely spread group of eleven buildings of historic interest, seven of which are listed, around a former common or green.

2 AIMS

The aim of this report is to present synthesised data at an interpretative level that can be assimilated into complementary studies. This synthetic report is supported by the fieldwork and research archive which is freely available as a web-based digital archive.

In support of the CTRL Project Monograph (Booth *et al.* 2007), the Mersham report integrates key assemblages and stratigraphic data into a site sequence secured on key dating evidence from artefact groups. The report includes a discursive narrative describing the sequence of activity and reasoning evidence (URS 2003, 15-16).

The updated research aim specific to Mersham focuses on the evidence for Anglo-Saxon and early medieval ironworking and the changes evident in this industry through time (URS 2003, 40).

Other site aims include the refinement of the chronology and understanding of the site morphology, including the differentiation of domestic and industrial activities to help characterise the status and function of the site within the rural economy (URS 2001).

3 METHODS

The site was originally identified at the desk-based assessment stage (URL 1994). Detailed excavation was undertaken during December 1998 and January 1999. All fieldwork, from site stripping to recording and sampling, was conducted by Canterbury Archaeological Trust (CAT) in accordance with a Written Scheme of Investigation (URS 1999b) prepared by the Project Manager, Rail Link Engineering (RLE).

Most of the features recovered during the excavation appeared to have been affected by truncation, the greater part of which was probably due to modern cultivation. Surviving feature profiles suggest that the modern ground level was between 0.10 m and 0.30 m lower than that in early medieval times. In places deeper truncation was prevented by the

outcropping Hythe Beds, but where these dropped away to the south and west, the depth of truncation was estimated to be as much as 1.5 m, aided by natural surface erosion.

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

The post-excavation analysis and report were carried out by CAT on behalf of the Oxford Wessex Archaeology Joint Venture (OWAJV) following the methodology set out by the Updated Project design for archaeological analysis and publication (URS 2003). All project design documents are available in the digital archive (ADS 2006).

4 RESULTS

4.1 Phase summary

The overall phase plan is shown on Figure 3. The sequenced phases of the site are based initially on the stratigraphic record, and their dating depends almost entirely upon ceramic evidence. In some cases pottery evidence alone was used as the basis for assigning discrete features to specific phases. Occasionally features with no dating evidence could be attributed to a phase on the basis of feature morphology and the characterisation of its fills. In addition to the presence of redeposited prehistoric flintwork and pottery, the following phases were recorded on site:

- Late Anglo-Saxon (AD 775-1050): There was limited evidence for settlement during this phase, including five refuse pits and a shallow gully. The largest refuse pit had a proportionally high concentration of metallurgical waste, including significant evidence for both smelting and smithing of iron.

- Medieval (AD 1050-1250): This phase reflects a degree of continuity from the earlier Anglo-Saxon phase, but with an intensification of both domestic and industrial activity. Domestic features included at least one timber built structure and associated cess and rubbish pits containing domestic refuse. Industrial features included a consecutive sequence of drainage ditches feeding a small pond and refuse pits containing quantities of metallurgical waste. A new boundary ditch following the edge of the natural plateau defined the southern limits of the site.

- Later medieval (AD 1250-1550): This phase represented a radical change in the use of the site, with the cessation of previous activity and the establishment of a new field system.

This retained the line of the earlier southern boundary, whilst establishing two additional boundaries to the east and west.

- Post-medieval (AD 1550 to the present day): The western boundary ditch was retained and a new northern ditch, with access point, was cut. A series of rectangular features attributed to agricultural activity, and further miscellaneous post-holes and refuse pits, indicated a focus of activity towards the eastern limits of the site.

Table 2 provides quantities and percentages of pottery per phase.

Table 2: General quantification of pottery by phase

Phase	Count	Weight (g)	Count %	Weight %
Unphased	26	284	9.4	9.3
Anglo-Saxon	9	112	3.3	3.7
Early medieval	177	1768	65.6	59
Late medieval	35	444	13	14.8
Post-medieval	30	449	11.1	15
Total	***277***	***3057***		

4.2 Hunter-gatherers and Early Agriculturalists- Mesolithic to Late pre-Roman Iron Age (*c* 13,000 uncal bc - *c* 300 BC)

No features of earlier prehistoric date were identified at Mersham, but a small assemblage of redeposited worked flint and prehistoric pottery was retrieved during the course of the excavation. This material comprised 24 worked flints, including mostly undiagnostic flakes, a Mesolithic blade core and a Neolithic arrowhead, and seven sherds of locally produced pottery dated from the late Bronze Age to the early Iron Age. All of this material was recovered from post-Roman contexts.

4.3 Towns and their rural landscapes I - The Later pre-Roman Iron Age and Romano-British landscape (c 300 BC to c AD500)

Evidence for later pre-Roman Iron Age activity was suggested by the presence of three sherds of residual late Iron Age pottery recovered from post-Roman contexts. No evidence for Romano-British activity at Mersham was identified.

4.4 Towns and their rural landscapes II - The post-Roman and Anglo-Saxon landscape (*c* AD 410 to *c* AD 1000)

The first significant activity at Mersham took place during the middle to late Anglo-Saxon phase (*c* AD 775-1050) (Fig. 3). This consisted of four refuse pits (1075, 1101, 1115, 1147), an E-W aligned gully (1016), and a large pit (1160) associated with the disposal of both horn working and metallurgical waste. A further feature (1181), perhaps part of a pit, had been largely truncated by later ditches (1057 and 1065). Pit 1075 and gully 1016 each contained one sherd of pottery (weighting respectively 7 g and 6 g) dated to AD 775-875. Features 1101, 1115, 1147 and 1160 contained respectively 5 g (one sherd), 26 g (one sherd), 32 g (three sherds) and 19 g (two sherds) of pottery, dated to AD 850-1050. The remaining Anglo-Saxon pottery was recovered from later contexts, indicating extensive reworking of deposits (Mepham 2006). All the Anglo-Saxon pottery was of local production, with the exception of a single residual sherd recovered from a late medieval ditch (1065).

The dating of the recovered pottery confirmed that Mersham had an established settlement by the late Anglo-Saxon phase, with its origins probably extending back to a middle Anglo-Saxon date. Although the small number of features attributed to this phase may be the result of later truncation, it is more likely due to the settlement's focus being located outside of the excavation area. This would have probably been to the north, between Mersham church and Court Lodge.

It is difficult to characterise the nature, morphology and economy of the late Anglo-Saxon activity. The majority of features contained material characteristic of a domestic settlement, including waste animal bone (1252 g) and utilitarian pottery forms (jars) typical of a mixed rural economy (Kitch 2006; Mepham 2006). Other activities include evidence for specialised horn working, indicated by the proportionally large quantity of cattle and particularly sheep/goat horn cores recovered from the upper fills of the large waste pit (1160), and evidence of ironworking.

Metalworking activities

Pit 1160 contained a large quantity (51.434 kg) of metallurgical debris. This included material from both smelting and smithing. Considerably smaller quantities of residual tap (smelting) slag were recovered from three of the smaller refuse pits (1075, 1101 and 1115). Evidence for ironsmithing is commonly found on Anglo-Saxon sites, but traces of smelting are rare. Within the Weald the only smelting site identified from this period is the middle Anglo-Saxon site at Millbrook in the Ashdown Forest, Sussex, dated to the 9th century (Tebbutt 1982).

No features directly associated with iron smelting were identified during the excavation, though these are likely to have lain in the immediate vicinity. A geophysical

survey undertaken before the excavation failed to indicate any anomalies which could be attributed to hearths or furnaces (URL 1998), and perhaps the relatively shallow remains of such features had been destroyed by later cultivation. The metalworking evidence appears to have been restricted to a relatively tightly-defined area. No evidence for metallurgical waste was recovered during evaluation work to the east of the excavated area (URS 1999a), and it is unlikely that metal working debris would have been transported very far from where it was produced (Andrews 2006).

The nature of the smelting slag indicates that shaft furnaces were utilised, from which the molten slag was tapped. This contrasts with the middle Saxon site at Millbrook, in the Ashdown Forest, Sussex, where the Continental non-tapping type of furnace was used (Andrews 2006). This type of furnace was introduced into parts of eastern and southern England during the Anglo-Saxon period, but was replaced in the 9th and 10th centuries by a re-introduction of the slag-tapping furnace (Cleere and Crossley 1995, 42-3).

There is a general lack of comparable archaeological evidence for ironworking in the Weald during the Anglo-Saxon period. An early charter refers to an iron mine at Lyminge, being granted by Oswy, King of Kent to the Abbot of St Peter's in 689 (Sawyer 1968, no. 12), and whilst it is possible this grant relates to dependant lands on the Wealden Clay, the discovery of ironworking evidence at Mersham, less than 12 km to the west, is significant. Sparse ores do occur in the Lower Greensand in this area, and it is probable that the ore smelted at Mersham would have been locally sourced.

None of the four surviving Anglo-Saxon charters relating to Mersham contains any reference to ironworking (Sawyer Nos. 328, 332, 1047 & 1090). It is possible that this early industry was linked to Christ Church Priory, which held Mersham by the mid-11th century. Quantities of iron smithing debris had been recovered from Anglo-Saxon contexts during excavations within Christ Church Priory (Bennett 1986; Jarman 1996; Houliston 1997), and the absence of comparable smelting evidence might suggest that sites such as Mersham supplied this demand for iron blooms as part of their customary dues.

4.5 The medieval and recent landscape - *c* AD 1000 to the modern day

4.5.1 Early medieval (AD 1050-1250)

Spatial distribution and nature of the occupation

The early medieval phase is represented by an intensification of activity across the site (Fig. 4). As with the earlier late Anglo-Saxon phase, features exhibited evidence of truncation, and it is probable that this had removed many of the shallower traces of settlement, leaving only a partial record. Activity during this phase reflects a degree of continuity from the late Anglo-

Saxon phase, with evidence indicating the presence of a well-established mixed rural economy incorporating more specialised local industry.

A boundary ditch (1057) was cut along the edge of the natural plateau, defining the site's southern limit. This ditch, which measured 2.20 m wide by 0.95 m deep, was truncated by a late medieval ditch (1056), and subsequent post-medieval field drain (1046), making its full extent difficult to trace. It is possible that the ditch turned to the NE, as followed by the later alignment of ditch 1056, following the natural slope of the plateau, but it is equally possible that this ditch continued to the NW, represented by the truncated remnants of ditch 1059. This ditch produced 3 sherds (16 g) of pottery dated to 1050-1225.

A series of ditches (1067, 1068 and 1070), were aligned approximately parallel with boundary ditch 1057 to the north. These ditches have been interpreted as channels, measuring between 1.12 m and 2.18 m wide by 0.23 m and 0.60 m deep, and sloping from NW to SE, draining towards a small collecting pond (1113). Alternatively, they could be boundary ditches with ditches 1057 and 1070 forming an early droveway towards pond/waterhole 1113. It is possible that these features were associated with the ironworking process. The pond, which measured 8.15 m long by 5.25 m wide and 0.90 m deep, had no surviving evidence for a lining, but might have been designed for the washing of iron ore prior to roasting, in addition to the quenching of blooms. Ore roasting was necessary to oxidise the ore, remove water and help break it down into smaller pieces which increased the surface area thereby improving the efficiency of the smelting process (Andrews 2006). Finds included 6 sherds (44 g) of residual late Anglo-Saxon pottery and 18 sherds (117 g) of early medieval pottery, dated to 850-1050 and 1050-1225, along with 6 fragments (64 g) of animal bone recovered from channels 1068 and 1070.

A total of 82 pits was cut during the early medieval phase. Although these pits are concentrated in the western half of the site and respect the southern boundary ditch 1057, no obvious spatial or morphological pattern was evident. The pits were all rounded, sub-oval to circular in shape, and varied widely in size, with diameters of between 0.45 m and 2.93 m and depths of between 0.05 m and 1.30 m. The primary function of these pits is not immediately clear. At least nine (1060, 1130, 1131, 1149, 1151, 1153, 1157, 1177 and 1180) were originally cut as cess pits, indicated by the remains of cess-like material in their primary fills (URS 2001), but mineralised remains, which are often associated with cess type material, were similarly recovered from pits 1027 and 1145. It is likely that the majority of pits were cut to extract clay soils, used both in the construction of hearths, furnaces and as daub for buildings. In this respect, use of these pits for the disposal of refuse was probably a secondary function, and this is reflected in the intermixed nature of the refuse they contained. Of the 82 pits excavated, 41 pits (1022, 1023, 1025, 1027, 1033, 1037, 1058, 1060, 1063, 1069, 1072, 1073, 1076, 1102, 1104, 1105, 1107, 1108, 1109, 1110, 1112, 1117, 1129, 1130, 1131, 1137,

1141, 1145, 1146, 1149, 1151, 1152, 1157, 1161, 1164, 1166, 1167, 1169, 1170, 1171, and 1180) contained both industrial and domestic refuse, characterised by metallurgical waste, animal bone, charred plant remains and pottery. An additional 18 pits (1044, 1074, 1111, 1128, 1134, 1139, 1140, 1144, 11531154, 1159, 1162, 1163, 1165, 1172, 1173, 1178, and 1179) contained only industrial metallurgical waste, and six pits (1024, 1050, 1071, 1103, 1126, and 1177) contained only domestic waste.

A possible timber structure was represented in the north of the site by three beam slots (1013, 1015 and 1066) and three post-holes (1014, 1018 and 1021). The structure would have had an internal length of 7.6 m and a minimum width of 4.0 m, its south-east side having been removed by the cutting of later ditch 1065 (Fig. 6). An entrance into the building's north-west facing frontage was represented by the terminal end of beam slot 1015 and post-hole 1014. A carbonised deposit in beam slot 1013 possibly represented the *in situ* remnants of the timber ground beam. No other evidence for *in situ* burning was identified, but it is probable that the structure had been purposefully dismantled, as indicated by the irregular sides recorded in beam slot 1015, indicating removal of the timber ground beam, and the digging of pit 1017 associated with the removal of post 1018. The function of this structure is unknown. No floor or occupation surface was observed and only part of the structure survived. Pottery recovered from beam slot 1015 included a single sherd (2 g) of late Anglo-Saxon pottery (c AD 850-1050) and four sherds (136 g) of early medieval pottery (c AD 1050-1225). Pottery (6 g) from post-hole 1014 was dated to c 1050-1225.

A gully (1026), aligned NW-SE extended from the north-west frontage of the building, approximately in-line with the possible entrance. This gully, which potentially drained surface water away from the building's frontage, cut the south-west side of backfilled pit 1027, but was cut by pit 1024 at its north-west terminal. Pit 1024 also cut another pit, 1025, on its western side, which may have been contemporary with gully 1026. Finally, pit 1025 was truncated again on the other side by pit 1023. Pits 1027, 1024, 1025 and 1023 contained respectively two (24 g), one (11 g), one (3g) and 38 (441 g) sherds of pottery dated to 1075-1225 and some animal bones (924 g combined). Pit 1024 also contained a fragment of a basalt lava quern (SF 219), and pits 1023 and 1025 each contained a knife (SF 66 and SF 220). This assemblage of domestic finds (Fig. 5) is likely to represent waste probably associated with the building. It is perhaps significant that the only surviving building identified during the excavation was in the north part of the site, close to Mersham church and Court Lodge. A further 18 probable post-holes (1030, 1031, 1032, 1035, 1043, 1114, 1118, 1132, 1133, 1135, 1136, 1142, 1148, 1150, 1155, 1156, 1176, and 1179) were scattered within the western half of the site, north of boundary ditch 1057, but no further structures could be reconstructed from their distribution.

Metalworking activities

The quantity of metallurgical waste (342.731 kg) recovered from the early medieval phase was far greater than that recovered from the late Anglo-Saxon phase, with the majority of features containing residual metallurgical waste. The largest quantity was purposefully disposed in pits, with the greatest concentration (186.901 kg) derived from pit 1161, which is estimated to have contained approximately 3.75 tonnes of ironworking debris (Andrews 2006). This pit cut the west side of the late Anglo-Saxon pit 1160, and probably resulted in a degree of mixing and redeposition of earlier material in the later pit. In addition, pit 1152 produced 37.32 kg of metallurgical debris, and pits 1172, 1178 and 1162 each produced 5 to 10 kg, all of which were within a *c* 20 m radius of pit 1161, suggesting a focus of metalworking activity immediately either side of drainage channels 1067, 1068 and 1070. A further 21 early medieval pits (1022, 1037, 1072, 1104, 1105, 1107, 1108, 1109, 1111, 1117, 1129, 1130, 1131, 1145, 1153, 1157, 1163, 1164, 1165, and 1179), each produced 1 to 5 kg of metallurgical waste.

The waste recovered from the early medieval phase represented a technology comparable to that identified during the late Anglo-Saxon period, with no morphological or other differences in the debris present. Analysis of the relative proportions of ironworking debris failed to indicate any difference in the amount of smelting and smithing undertaken between the phases. The evidence for ironworking seems therefore to represent a continuous activity (Andrews 2006).

It is probable that the majority of smithing debris was derived from forging or bloom consolidation, but some may have derived from the manufacture of finished objects. Recovery of a rectangular iron bar (SF 391; Fig. 5) from drainage channel 1070 may indicate a subsequent stage of iron production (Riddler 2006), in which the bloom was converted into smaller bars perhaps for trade or distribution to Christ Church Priory. A small iron punch (SF 475; Fig. 5), possibly used in working non-ferrous metals, came from a post-hole south of ditch 1070. Possible offcuts derived from metalwork included two iron strips (SF 69 and 689) from pits 1129 and 1167 and post-medieval ditch 1099, and four iron sheets (SF 474, 476, 644 and 690) from pits 1073, 1131, 1161 and 1171. An iron axe (SF 559; Fig. 5), the socket of which was fractured, may have been collected for recycling (Riddler 2006), and was dumped within pit 1145 along with other metallurgical debris.

Domestic occupation

The discard of domestic refuse, characterised by the presence of animal bones, charred plant remains and pottery, appears to have had less of a spatial focus than that suggested by the metallurgical residues. The majority of domestic refuse was located in pits intermixed with

ironworking waste. However, six pits containing only domestic waste (1024, 1050, 1071, 1103, 1126, and 1177), appear to be located on the periphery of the distribution of metalworking debris.

The faunal assemblage included a large number of articulated remains and a mix of domestic food waste and horn working activity waste (Kitch 2006). Cattle were predominant, followed by sheep/goat, then pig, horse, dog and cat. The limited ageing data suggest that cattle would have been used for traction, milk, meat and leather, with on-site leatherworking indicated by an awl (SF 67) recovered from pit 1033. Sheep and goat would have been kept for milk and meat, and their skins as well as for wool, with textile production indicated by the presence of a loomweight (SF222) recovered from pit 1129, a bone pin beater (SF 180) from ditch 1036, a spindle whorl (SF 390) from pit 1104 and two fibre processing teeth (SF 389 and 473) from pits 1104 and 1109. Sheep and goat horn cores also displayed evidence to suggest a continuation of hornworking activity from the late Anglo-Saxon phase, with horn cores concentrated in pits 1161, 1172 and 1173, and the high quantity of horn cores present suggest these were imported specifically to Mersham for this activity. Hornworking may also imply the production of hides, which could have supplied parchment to Christ Church Priory. Pig would have been primarily used for meat, whilst horse, dogs and cats would have been kept as working animals. Horses would have been used for traction and possibly riding. Dogs would have been kept as guarding, hunting and herding animals. Cats would have been kept as mousers and ratters. Fish also appear to have been an important part of the diet at Mersham, possibly due to the influence the Priory, including both coastal and deep-sea species. Mersham is *c* 12 km from the nearest fishing port at Hythe.

The area represented by the excavation appears to have been preferentially used for the disposal of waste. The number of micromammals and amphibians recovered from soil samples suggests that the refuse within pits was left exposed, attracting scavengers and insects. Use of the area in this way may explain the disposal of several articulated animals in pits, including a complete horse from pit 1129, a piglet skeleton from pit 1141, a dog from pit 1051 (undated but which could belong to this phase) and a cat from pit 1173.

Charred plant remains from cultivated and wild species were recovered from several pits. The predominant cereal grains were free-threshing wheat and hulled barley and it is probable that oats were also cultivated. Other species included beetroot, broad bean, plum, flax, hazelnut and possibly lentil. Many of the wild species present were common crop weeds, but the presence of mainly large weeds and the fact that cereal grains outnumbered weed seeds indicated that these samples were derived from the later crop processing stages (Stevens 2006).

The early medieval pottery recovered from Mersham reflects utilitarian forms consistent with the continuation of activity identified during the Anglo-Saxon period. The

transition between late Anglo-Saxon and early medieval wares is often difficult to distinguish, with late Anglo-Saxon shelly and shelly-sandy wares closely related to early medieval Ashford-type wares, and late Anglo-Saxon sandy wares similar to early medieval Canterbury wares. It seems that Canterbury wares supplemented the local industry market from the early medieval period (representing 50%), with the local Ashford-type wares forming up to 45% of the assemblage (Mepham 2006).

The artefactual and stratigraphic evidence show that activities identified in the late Saxon and early medieval phases had largely ceased by the middle of the 12th century.

There is little evidence to suggest that the early medieval settlement was situated within the excavated area. The lack of identified building structures and the abundance of metallurgical waste suggest that the excavations have identified an industrial zone on the periphery of the settlement, also utilised for the discard of domestic refuse.

4.5.2 Late medieval (AD 1250-1550)

The late medieval phase is represented by a change in land use, with the cessation of previous on-site activities and the establishment of a new enclosed field system. A NW-SE aligned ditch (1056), up to 2.6 m wide and 0.77 m deep, was cut along the previously backfilled early medieval southern boundary ditch (1057). This ditch originated beyond the south-east limit of excavation, and was possibly identified in evaluation trench 3638TT, approximately 79 m to the south-east (URS 1999b). The ditch extended 110 m across the excavation area before turning north-east, continuing beyond the northern limit of excavation. The SW-NE alignment of ditch 1056 was only visible in section as it was entirely re-cut by post-medieval ditch 1046 (Fig. 6). A second ditch (1065), 2.9 m wide and 0.85 m deep, and aligned NE-SW extended from the northern limit of excavation for a distance of 65.8 m before terminating 0.3 m short of ditch 1057, and dividing the site in half. Ditches 1056 and 1065 produced respectively 11 sherds (164 g) and 23 sherds (279) of with a date range of AD 1475-1550. Whilst the primary fill of ditch 1065 has a date range of 850-1225, perhaps indicating an origin in the early medieval phase. It stratigraphically post-dated the backfilled drainage ditches 1067, 1068 and 1070, and the remnant beam slots 1013 and 1066. Both ditches contained small quantities of probably residual metallurgical waste and animal bone, and the only coin retrieved from the excavation, a silver halfpenny of Edward I/II (*c* AD 1302-1310), was recovered from the secondary fill of ditch 1056.

The continuation of ditches 1056 and 1065 beyond the northern limit of excavation appears to have been preserved in the modern day field boundaries. Ditch 1056 possibly traversed Court Lodge, running parallel with the south-east face of a 14th-century barn, and continuing as a public bridleway to the north-east of Church Road. Ditch 1065 appears to

represent a southern extension of the existing boundary separating the Court Lodge from Mersham Church. The concentration of early medieval features within the area defined by the later medieval ditches 1056 and 1065, situated directly opposite Court Lodge, might suggest a direct association between the observed early medieval phase activity and the manorial centre. No explanation for the change in activity, including the apparent termination of ironworking and use of the site for refuse disposal is available. Perhaps the evidence for medieval occupation to the east of the parish church indicates a shift in settlement focus. However, documentary sources indicate that iron was one of the customary dues collected from Mersham by Christ Church Priory, probably from Anglo-Saxon times, and certainly in the mid-13th century, when 12 pieces of iron valued at 3s. were collected as 'Dues' in 1265-6, and a smith was also employed by the Priory at Mersham, shoeing horses and making cartwheels (URS 2001; Canterbury Cathedral Archives, Mersham Bedels' Rolls, 1).

4.5.3 Post-medieval (AD 1550 to modern day)

Agricultural use of the site was modified during the post-medieval phase. A renewed field ditch (1046), 1.12 m wide by 0.54 m deep and aligned NE-SW, was cut on the line of the in-filled western arm of boundary ditch 1056, extending beyond the northern and southern limits of excavation. A further two ditch segments, 1036 and 1062, both aligned NW-SE and separated by a 6 m wide access point, were cut along the northern edge of the site, and a possible third field boundary, parallel and *c* 80 m east of ditch 1046, was represented by a 11.9 m long by 0.68 m wide, NE-SW aligned gully 1019, up to 0.22 m deep, and a line of 4 post-holes 1008, 1009, 1020, and 1042. Five sherds (185 g) of pottery were recovered from ditch 1046 giving a date range of *c* AD 1550-1825. Ditch segment 1036 produced 9 sherds (97 g) of which the latest dates to c.1550-1700. Ditch 1046 was modified during the later part of the post-medieval phase by the laying of a ceramic field drain along its base, before being purposefully backfilled.

A closely set series of 25 shallow rectangular NW-SE aligned features (1005, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1100, 1182 and 1183), were located east of the field boundary defined by gully 1019 and fence posts 1008, 1009, 1020 and 1042. These have been identified as planting beds associated with horticultural activity, and measured between 1.0 m to 11.96 m long by 0.65 m to 1.3 m wide and 0.10 m to 0.28 m. deep. Two miscellaneous post-holes 1001 and 1098, were found adjacent to the planting beds, and were similarly attributed to post-medieval horticultural activity. A possible ditch (1099), extended from the north-east corner of the excavated area towards the south-west for a distance of 14.55 m, truncating the

south-east terminal of horticultural feature 1100. This ditch had a width of 0.5 m and a depth of 0.34 m, and contained a fragment of glass dated to AD 1500-1799.

Two gullys 1120 and 1122, measuring between 7.2 m and 10.15 m long by 0.86 m and 0.95 m wide and up to 0.27 m deep, aligned NW-SE and NE-SW respectively, lay to the west of the boundary defined by gully 1019 and fence posts 1008, 1009, 1020 and 1042. The function of these features remained unclear, but a possible structural element was indicated by post-holes 1119 and 1121, cut within the opposing terminals of gullys 1120 and 1122 and a third post-hole 1124, immediately to the east. Pottery (5 g) recovered from the fill of gully 1120 had a later date range of 1550-1700 AD.

Further post-medieval features included eight pits (1004, 1007, 1006, 1010, 1011, 1012, 1039 and 1061), an irregular gully (1029), and the remnants of a cart track (1002) traversing horticultural feature 1100 and aligned parallel with ditch 1099 (Fig. 6 inset).

5 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 level 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 3 below details all available digital data for the Mersham 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. Report texts and databases are also available as text files (.rtf and .csv respectively). The digitised site plan is available as an Arcview shapefile (.shp) and in drawing exchange format (.dxf).

The following tables (3, 4 and 5) summarise the archive components.

Table 3: Digital archive

Description	Filename root	Principal authors and organisation
Integrated site report		
Integrated site report	MSH_ISR	Helm R (CAT)
Integrated site report figures	MSH_ISR	Helm R (CAT)
Site research database		
Site database	MSH	Helm R (CAT)
CAD/ GIS drawings		
CAD drawing	MSH_CAD	CAD drawing
ESRI ArcMAP GIS project	MSH_GIS	ESRI ArcMAP GIS project
GIS limit of excavation shapefile	MSH_GIS	GIS limit of excavation shapefile
GIS feature plan	MSH_GIS	GIS feature plan
Specialist research reports		
Ceramics (later prehistoric)	CER_LPR_MSH	Jones GP (OWA JV)
Ceramics (post-Roman)	CER_MED_MSH	Mepham L (OWA JV)
Small finds	SFS_MSH	Andrews P (OWA JV) and Riddler I (Freelance)
Faunal remains	ENV_Faunal_MSH	Kitch J (OWA JV)
Charred plant remains	ENV_Charredplants_MSH	Stevens C (OWA JV)
Specialist datasets		
Ceramics (later prehistoric)	CER_LPR_MSH	Jones GP (OWA JV)
Ceramics (post-Roman)	CER_MED_MSH	Mepham L (OWA JV)
Faunal remains	ENV_Faunal_MSH	Kitch J (OWA JV)
Charred plant remains	ENV_Charredplants_MSH	Stevens C (OWA JV)
Post-excavation assessment		
Post-excavation Assessment	MSH_PXA	CAT

Table 4: Artefactual and environmental archive index

Item	Number of fragments	Weight (g) if appropriate	Number of boxes
Flint (total)	24	-	1 size 1
Pottery (total)	277	3062	1 size 2
Prehistoric pottery	10	46	
Anglo-Saxon pottery	50	651	
Medieval pottery	203	2087	
Post-medieval pottery	14	278	
Ceramic Building material (total)	327	9002	2 size 2
Small Finds (total)	80	1836	1 size 1 1 size 3
Iron	66	657	
Copper Alloy	2	1	
Lead Alloy	1	0	
Bone	1	3	
Coins	1	0	
Glass	4	0	
Ceramic	1	110	
Wood	1	0	
Stone	3	1066	
Fired Clay (total)	357	6620	1 size 3
Animal bone	1798	27432	1 size 1
Slag (total)	3214	430845	25 size 1

Cardboard boxes
Size 1 = Bulk box 540mm x 406mm x 260mm
Size 2 = Museum box 430mm x 300mm x 235mm
Size 3 = Half box 430mm x 305 mm x 100mm

Table 5: Fieldwork and research paper archive

Contents	**Comments**
Final report	
Primary Context records	
Context checklists	18 sheets
Context record sheets	561
Synthesised context records	
Matrices	3 A3 sheets
Survey Reports	
Printout of survey data	1 A3 sheet
Survey request sheets and data	4 A4 sheets
Catalogue of drawings	
Plan record sheets	3 A4 sheets
Section record sheets	2 A4 sheets
Primary drawings	
Plans	6 A1 sheets
	119 A3 sheets
Sections	1 A1 sheets
	46 A3 sheets
Finds Box and bag lists	
Finds compendium	
Box contents sheets	1 A4 sheet
Catalogue of photographs	
Black & white photo record sheets	13 sheets
Colour photo record sheets	16 sheets
Primary environmental records	
Sample register sheets	3 sheets
Sample Sheets	102 A4 sheets
Plan showing location of soil samples	1 A3 sheet (folded)

6 CATALOGUE OF ILLUSTRATED FINDS

Figure 5

2 Jar, Romanised grog-tempered native coarse ware, AD 50-120. Ditch 173.
3 Plate, Romanised grog-tempered native coarse ware, AD 43-65. Ditch 173.
4 Bowl, Canterbury coarse grey sandy ware, AD 55-100. Ditch 173.
5 Jar, Romanised grog-tempered native coarse ware, AD 43-70. Ditch 183.
6 Jar, Romanised grog-tempered native coarse ware, AD 43-200. Ditch 173.
7 Jar, Romanised grog-tempered native coarse ware, AD 50-100. Ditch 173.
8 Plate, Romanised grog-tempered native coarse ware, AD 43-100. Ditch 173.
9 Bowl, Canterbury coarse grey sandy ware, AD 43-200. Ditch 173.
10 Beaker, Canterbury coarse grey sandy ware, AD 70-120. Ditch 173.
11 Jar, Romanised grog-tempered native coarse ware, AD 43-150. Ditch 173.
12 Jar, Romanised grog-tempered native coarse ware, AD 43-100. Ditch 173.

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