Channel Tunnel Rail Link

London and Continental Railways

Oxford Wessex Archaeology Joint Venture

Prehistoric Worked Flint from Section 1 of the Channel Tunnel Rail Link

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CTRL Specialist Report Series

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ABSTRACT

Flint assemblages were recovered throughout the length of the CTRL from preliminary field walking, 77 evaluations and 40 detailed excavations, of which eleven were sufficiently large to warrant detailed analysis. The overall density of flint was relatively low although its recovery provides important evidence for unbroken prehistoric activity from the Palaeolithic to the late Bronze Age in Kent.

The results have highlighted the important role of the Lower Greensand ridge as an axial route to the coast with access via tributary valleys to the Clay with Flints and Wealden hinterland in the Mesolithic. Early/middle Mesolithic activity was recorded at Saltwood Tunnel where eight hollow based microliths were found in a tree throw feature. Significant late Mesolithic assemblages with triangular and crescentic microliths were collected from Beechbrook Wood and Sandway Road, where traces of activity areas were preserved around hearth features. These sites are thought to represent hunting camps of early 6th millennium BC date.

Mesolithic and early Neolithic assemblages using technologies that were virtually indistinguishable from one another demonstrated continuity of landscape use along the Greensand ridge. Activity increased on the Chalk, with continued use of areas capped by Clay with Flints. Important domestic flint assemblages were recovered from tree throws at Eyhorne Street, stressing the important role that these features continued to play in the landscape both as centres for occupation and catchments for midden debris. Elsewhere, at Saltwood Tunnel and Beechbrook Wood, Neolithic material was recovered from deliberately cut pits. Miscellaneous retouch was most prevalent but formal tools were dominated by scrapers and microdenticulates, comparable with other early Neolithic sites from Southern Britain.

The excavated assemblages included material from the important sites of White Horse Stone, with an associated early Neolithic long house dated to the early fourth millennium BC and Pilgrim's Way, adjacent to the Medway Megaliths. Assemblages from the house were small with both sites interspersed with features of late Neolithic date, associated with Grooved Ware. Differential distributions suggested that there may have been some form of structured/placed deposition in these pits.

A few small diagnostic groups of material from field walking were assigned to the Mesolithic or early Neolithic, however most of the surface flint was considered to represent late Neolithic or Bronze Age assemblages, with earlier material more frequently preserved in sub surface hollows or pits.

The onset of agriculture in the Neolithic and Bronze Age lead to increased deposits of colluvium frequently sealing earlier sites on lower slopes.

Occupation continued across the entire area throughout the Bronze Age where relatively small flint assemblages reflected the declining standards of flint technology. They occurred in pits,

postholes and increasingly, from ditches, features used to define land boundaries, settlement enclosures and funerary monuments.

RESUME

Des assemblages de silex taillés furent retrouvés tout le long de la ligne ferroviaire du tunnel sous la Manche (Channel Tunnel Rail Link -CTRL-) sur des prospections préliminaires, 77 opérations de diagnostic et 40 fouilles. De ces ensembles, 11 étaient suffisamment importants pour mériter une analyse détaillée. La densité de silex en général était relativement peu élevée bien que ces découvertes fournissent des traces importantes d'activité préhistorique continue depuis le paléolithique jusqu'à la fin de l'âge du Bronze dans le Kent.

Les résultats ont mis en évidence le rôle important de la chaîne de grès (Lower Greensand) comme route axiale vers la côte avec accès par des vallées tributaires vers l'argile à silex et l'arrière pays au mésolithique. L'occupation du mésolithique inférieur et moyen fut enregistrée sur le site de Saltwood Tunnel où huit microlithes à base concave furent découverts dans une cavité d'arbre déraciné. Des assemblages significatifs du mésolithique tardif, y compris des microlithes triangulaires et en forme de croissant, furent ramassés à Beechbrook Wood et à Sandway Road, où des traces de zones d'occupation furent préservées autour de foyers. Ces sites sont supposés représenter des camps de chasse du début du VIème millénaire avant JC.

Des assemblages du mésolithique et du début du néolithique, utilisant des technologies virtuellement impossibles à distinguer l'une de l'autre, démontrent une continuité dans l'utilisation du paysage le long de la chaîne de grès. L'occupation s'intensifia sur la craie, avec une utilisation continue des zones couvertes d'argile à silex. Des assemblages domestiques de silex furent récupérés dans des cavités d'arbres déracinés à Eyhorne Street, démontrant le rôle important que ces dernières continuent à jouer dans le paysage à la fois comme centres d'occupation et comme emplacement pour des débris de déchets. Ailleurs, à Saltwood Tunnel et à Beechbrook Wood, le matériel néolithique fut retrouvé dans des fosses creusées délibérément. Les retouches diverses étaient fréquentes mais les outils explicites étaient dominés par des grattoirs et des micro-denticulés, comparables avec d'autres sites du début du néolithique au sud de la Grande-Bretagne.

Les assemblages de fouilles incluent le matériel provenant des sites importants de White Horse Stone, qui contenait une maison longue néolithique datée du début du IVème millénaire avant JC, et de Pilgrim'sWay, adjacent au mégalithes du Medway. Les assemblages provenant de la maison longue étaient réduits. Les deux sites étaient parsemés

de structures de la fin du néolithique associées à de la céramique de type *grooved ware*. Des distributions différentielles semblent indiquer que des dépôts délibérés aient été placés dans ces fosses.

Quelques groupes diagnostics de matériel provenant des prospections furent attribués au mésolithique, cependant la plupart des silex de surface était considérée représenter des assemblages de la fin du néolithique ou de l'âge du Bronze. Le matériel de date précoce a été plus fréquemment préservé dans des creux ou des fosses sous la surface.

Le commencement de l'agriculture au néolithique et à l'âge du Bronze aboutit à des dépôts accrus de colluvions qui scellèrent souvent les sites plus anciens situés sur les pentes inférieures.

La zone entière fut continuellement occupée au cours de l'âge du Bronze où des assemblages de silex relativement réduits reflètent les standards déclinant de la technologie lithique. Ils se trouvent dans des fosses, des trous de poteaux et de plus en plus dans des fossés, structures utilisées pour définir les limites de territoire, les enceintes de sites d'habitation et les monuments funéraires.

ZUSAMMENFASSUNG

Entlang des gesamten Channel Tunnel Rail Link (CTRL) wurden bei ersten Feldbegehungen, 77 Bewertungen und 40 ausführlichen Grabungen Feuersteinfunde sichergestellt, von denen elf aufgrund ihres Umfangs eine genauere Analyse rechtfertigten. Die allgemeine Feuersteinfunddichte war relativ gering. Dennoch lieferte ihre Bergung wichtige Hinweise auf prähistorische Aktivitäten vom Paläolithikum bis zur späten Bronzezeit in Kent.

Die Ergebnisse bestätigen die bedeutsame Rolle des Lower-Greensand-Rückens als zur Küste verlaufende Achse, zu der im Mesolithikum über Seitentäler Zugang zum Wealden und den Ton-Flint-Schichten (Clay with Flints) im Hinterland bestand. Aktivitäten aus der Früh-/Mittelsteinzeit waren am Saltwood Tunnel zu verzeichnen, wo acht Mikrolithe mit konkaver Basisretusche in einer durch Baumwurf entstandenen Vertiefung gefunden wurden. Signifikante Fundkomplexe, die dreieckige und sichelförmige Mikrolithen aus dem späten Mesolithikum aufwiesen, tauchten im Beechbrook Wood und an der Sandway Road auf, wo Spuren menschlicher Aktivitäten um Feuerstellen herum erhalten waren. Es wird angenommen, dass diese Stätten im frühen 6. Jahrtausend v. Chr. als Jagdlager genutzt wurden.

Fundinventare aus dem Mesolithikum und dem Frühneolithikum, die kaum unterscheidbare Techniken aufwiesen, demonstrieren die anhaltende Landschaftsnutzung entlang des Greensand-Rückens. Im Kalkgebiet nahm die Aktivität zu, allerdings wurden auch die von Ton-Flint-Schichten überlagerten Bereiche weiterhin genutzt. Wichtiges Fundmaterial aus Feuersteinen für den

Hausgebrauch wurden aus Baumwürfen an der Eyhorne Street geborgen. Sie wiesen auf die bedeutsame Rolle hin, die der Flint weiterhin in der Landschaft spielte, sowohl in Siedlungszentren als auch in Abfallhalden. Am Saltwood Tunnel und im Beechbrook Wood wurde neolithisches Material in ausgehobenen Gruben sichergestellt. Der größte Teil bestand aus unterschiedlichen Retuschen, die eigentlichen Werkzeuge wurden von Schabern und gezähnten Mikroklingen dominiert, ähnlich wie an anderen frühneolithischen Fundstellen in Südengland.

Zu den Ausgrabungsfunden zählte auch Material von den wichtigen Stätten White Horse Stone mit seinem auf das frühe 4. Jahrtausend v. Chr. datierten Langhaus aus dem Frühneolithikum und Pilgrim's Way direkt neben den Medway-Megalithen. Zum Langhaus gab es nur wenige Funde, aber beide Stätten fielen durch mit Rillenkeramik assoziierte Funde aus dem späten Neolithikum auf. Die differenzierte Verteilung ließ auf eine Form strukturierter oder intentioneller Deponierung in diesen Gruben schließen.

Einige kleinere Materialgruppen, die aus den Feldbegehungen herrührten, wurden dem Mesolithikum oder Frühneolithikum zugeordnet, wobei der größte Teil des in der Oberflächenschicht enthaltenen Feuersteins als spätneolithisch oder bronzezeitlich angesehen wurde, da älteres Material häufiger in tieferen Mulden oder Gruben konserviert ist.

Das Einsetzen der Agrarwirtschaft im Neolithikum und in der Bronzezeit führte zur verstärkten Bildung von Kolluvium, das an den unteren Hängen häufig ältere Stätten unter sich begrub.

Während der Bronzezeit hielt die Besiedlung der ganzen Gegend an, wobei die relativ geringen Feuersteinfunde die abnehmenden Standards bei der Flinttechnik verdeutlichen. Die geborgenen Funde stammen aus Gruben und Pfostenlöchern sowie zunehmend mehr aus Gräben, Strukturmerkmalen zur Festlegung von Flurgrenzen, Siedlungsbefestigungen und Grabdenkmälern.

ABSTRACTO

A lo largo del recorrido del CTRL se recuperaron concentraciones de sílex de prospecciones anteriores, 77 evaluaciones y 40 excavaciones, de las cuales once eran lo suficientemente amplias como para un estudio más detallado. A pesar de que la densidad general de sílex era relativamente baja, su registro proporciona importantes evidencias de una actividad continuada en Kent desde el Paleolítico hasta el final de la Edad del Bronce.

Los resultados han destacado el importante papel de la arista del Lower Greensand como ruta axial a la costa con acceso vía valles tributarios al Hinterland de Arcillas con sílex y Wealden en el Mesolítico. En Saltwood Tunnel se evidenció cierta actividad de principios y mediados del Mesolítico en donde se encontraron ocho hollow-based microlitos en un hoyo de derrumbe de árbol. En Beechbrook Wood y Sandway Road se registraron concentraciones importantes de microlitos triangulares y semicirculares del final del Mesolítico, en donde se conservaron huellas de actividad alrededor de hogares. Se cree que estos yacimientos representan campamentos de caza de principios del VI milenio BC.

Concentraciones mesolíticas y de inicios del Neolítico demuestran una continuidad en el uso del paisaje a lo largo de la arista de Greensand utilizando una tecnología casi idéntica una a otra. La actividad aumentó en el Chalk con uso continuado de áreas cubiertas por Arcillas con sílex. En Eyhorne street se recuperaron importantes concentraciones de sílex doméstico en agujeros de derrumbe de árboles, subrayando el importante papel que juegan estos agujeros en el paisaje, tanto como centros de actividad como áreas de acumulación de desechos. En cuanto a otras áreas, en Saltwood Tunnel y Beechbrook Wood se recuperó material neolítico en hoyos excavados deliberadamente. El retoque variado prevalece pero entre los útiles identificables predominan las raederas y microdenticulados, semejante a otros yacimientos de comienzos del Neolítico en el sur de Gran Bretaña.

Las concentraciones excavadas incluyen material de yacimientos importantes como White Horse Stone con asociación a una casa alargada del Neolítico Inicial, datada en torno de comienzos del IV milenio BC y Pilgrim's Way adyacente a los megalitos de Medway. Las concentraciones de la casa eran pequeñas con ambos lados dispersos de estructuras del Neolítico tardío asociadas con cerámica acanalada. La distribución diferencial sugería alguna forma de disposición estructurada en esos hoyos.

Pequeños conjuntos de material selecto de las prospecciones fueron atribuidos al Mesolítico o Neolítico Inicial, aunque la mayor parte del sílex superficial se consideró que representaba concentraciones del Neolítico Tardío o Edad del Bronce con material anterior conservado frecuentemente en huecos u hoyos bajo la superficie.

El comienzo de la agricultura en el Neolítico y Edad del Bronce trae un aumento de los depósitos coluvio-aluvial cubriendo frecuentemente yacimientos anteriores en pendientes bajas.

A lo largo de la Edad del Bronce, la ocupación continuó en todo el área donde el declive en la tecnología del sílex se manifiesta en los pequeños conjuntos de sílex. Aparecen en hoyos, agujeros de poste y mayormente en zanjas para definir límites territoriales, cerramientos de ocupación y monumentos funerarios.

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Credit for the completion of this component of the CTRL project belongs first and foremost to the specialists who carried out recording, analysis and reporting of the assemblages mentioned here: Kate Cramp, Rebecca Devaney and Phil Harding. Thanks are also due to specialists involved at the assessment stage: Philippa Bradley and Tania Holmes. The worked flint team leader during the analysis stage was Phil Harding. Niall Donald established the database format for the worked flint datasets. Illustrations were prepared by Elizabeth James (flint artefacts) and Rob Goller (location maps). The abstract was translated by Mercedes Planas (Spanish), Gerlinde Krug (German) and Valerie Diez (French). This report was edited by the project senior editor, Julie Gardiner. Additional comments on the draft text were made by Alistair Barclay (early prehistoric team leader). Management support was provided by Stuart Foreman (project manager) and Valerie Diez.

1 INTRODUCTION

1.1 Project background

This report primarily represents an overview of the results of analysis of stone tool assemblages from eleven major detailed excavations that were excavated as part of an extensive programme of archaeological investigations carried out in advance of construction of Section 1 of the Channel Tunnel Rail Link (CTRL). It also refers to the results of an initial phase of field walking, evaluation trenching, and numerous watching briefs that were conducted prior to construction of the 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, the subject of this report, lies entirely within Kent and runs from Fawkham Junction (Gravesham) to Folkestone.

The report considers the impact of human activity on the landscape by the earliest hunting groups and traces their influence through their stone tools to the settled farming communities of the late Bronze Age, when stone tools had all but ceased to be part of the archaeological record. For much of its length the CTRL crosses the Lower Greensand (Folkestone Beds) of the Kent Weald, a geological deposit that is not conducive to the survival of organic remains. Stone tools therefore frequently form the only source of material to identify human activity across the study area. Mention is also made of clusters of worked flint that were identified during field walking at the east end of CTRL Section 2, in the Ebbsfleet Valley, where the two phases of work overlap and where results are also directly relevant to Section 1.

Detailed excavation reports for each site can be found in the CTRL Integrated Site Report Series (ADS 2006) along with individual specialist reports, including those that relate specifically to stone tool assemblages, which have been compiled by the following authors. These reports have formed the primary source for this overview and should be referred to for further information.

Beechbrook Wood (Cramp 2005a), White Horse Stone, Pilgrim's Way, East and West of Boarley Farm (Cramp 2005b)

West of Northumberland Bottom (Devaney 2005a), Tollgate (Devaney 2005b), Cobham Golf Course (Devaney 2005c), Leda Cottages (Devaney 2005d), South East of Eyhorne Street (Devaney 2005e), South of Snarkhurst Wood (Devaney 2005f), Saltwood Tunnel (Devaney 2005g), Little Stock Farm (Devaney 2005h), Sandway Road (Harding 2005).

1.2 Geological context of the CTRL route

The construction of the CTRL has provided a major opportunity to examine the evolution of an oblique transect of the Kent landscape through the archaeological remains. The route (Fig. 1) extends from the Thames Estuary, crossing the dip slope of the Upper Chalk (BGS Solid and Drift Geology, Sheet 288) of the North Downs, much of which is covered by Thanet Sand along its northern fringes. The crest of the North Downs escarpment, overlooking the Weald, reaches a height of *c* 200 m OD and is frequently capped by surface deposits of Clay-with-Flints or Tertiary deposits. The railway passes through the North Downs via a North Downs Tunnel, 3.3 km long, which enters the Chalk immediately south of Nashenden Farm and exits at White Horse Stone. No archaeological fieldwork was necessary along the course of the tunnel, which coincided with the highest part of the North Downs and therefore interrupted this otherwise unbroken transect across Kent. The railway exits from the escarpment and descends into the Weald of Kent, running for approximately 4 km across Gault Clay at *c* 55-60 m OD, north of Maidstone, before reaching the dip slope of the Lower Greensand at Snarkhurst Wood. The railway follows the continuous Lower Greensand ridge for most of its course to Folkestone, although, in places, it strays onto the Sandgate and Hythe Beds, consistently avoiding the Wealden Clay to the south.

The rail link crosses two of the major drainage basins of North Kent, those of the Rivers Medway and Stour. The former has a tributary, the River Len, which flows parallel to the line of the Lower Greensand and Gault Clay. The source of the Len at Lenham is separated by only 1.5 km from the headwaters of the River Stour, which also flows parallel to the strike of the solid geology and to the route of the CTRL. However in most cases the rail line runs perpendicular to the surface drainage patterns which flow down the scarp slopes or dip slopes of the respective geological bands. This relationship of solid geology and drainage patterns has not only strongly influenced the route of the CTRL but has had major influences on the sequence of human activity in this part of North Kent as seen in the evidence of the stone tools.

Although the solid geology and drainage combine to form the background to the route of the CTRL the location of the Chalk directly influences the source of fresh flint. However the mapping of the British Geological Survey Drift geology also shows the distribution of Head Deposits. Many of these extend from coombes in the Chalk escarpment that were formed by periglacial melt water. They cross the Gault Clay and frequently include derived flint, which provided a readily accessible source of raw material for stone tool manufacture to those living on the Lower Greensand.

2 AIMS AND METHODS

2.1 Research aims

The plan to construct the CTRL was closely linked with a detailed programme of archaeological investigations and reporting from its initial conception. It was recognised that the results would make it possible to reconstruct a more detailed record of human settlement and activity across this part of Kent, a county previously assessed on a county-wide basis in 1982 (Leach 1982).

The route was divided into a series of five geological and topographical landscape zones. These zones included three, the North Kent Plain (on the south edge of the River Thames estuary) the North Downs and the Wealden Greensand, which covered the line of the CTRL south of the Thames Estuary and are largely synonymous with the area covered by CTRL Section 1. A preliminary set of broad research aims was defined to study the impact of human activity on the landscape including the evidence from stone tools. The aims were intended to reconstruct the natural environment and identify changes made by human activity, address the use and consumption of resources by ancient communities and consider the distribution of social, political and ritual organisation on the landscape. Within each geographical zone were six carefully integrated chronological divisions, each with their own specific research aims. Of these, Hunter-Foragers (400,000-4,000 BC), which included the Mesolithic and early Neolithic Transition, early Agriculturalists (4,000-1,600 BC) and Farming Communities (1,600-100 BC) were relevant to the chronology, distribution and activities of early communities as reflected in the recovery and distribution of stone tools; indeed worked stone frequently formed the most common form of data for many of the sites in these phases of early human activity.

Following the completion of all fieldwork the combined results of the project, including fieldwalking material, evaluation assemblages, excavation and watching-brief collections, were reassessed and the aims reviewed and elaborated on a scheme wide basis for each chronological period, in the light of the data collected. The updated research design reflected to a greater extent how stone tool assemblages might indicate the initial selection, distribution and use of sites within the landscape and beyond through time. It sought to define the diversity and distribution of human activity in more detail, to consider changes in human behaviour and land use resulting from the effects of agricultural activity, land clearance and division on the environment and to assess continuity of use and expansion from an initial location.

Of particular relevance to the study of the stone tool assemblages were questions that related not only to the initial deposition of material but also post-depositional factors. It was necessary to consider the nature, sequence and variations in events across chronological boundaries, effects of erosion from exposed slopes, burial by colluvium and the influences of bioturbation. Variations in topographical and geological boundaries also carry significant implications for the survival, density

and recovery of the data, and need to be addressed to indicate the value of the evidence. The conclusions drawn can also be used to predict broader patterns of human activity in areas beyond the limits of the rail link route.

2.2 Fieldwalking and evaluation

2.2.1 Fieldwalking methods

An initial phase of evaluation along the route began in 1990 (URL 1994b; 1995b), when artefact collection was undertaken from the surface of any fields that lay within the easement of the route and which were ploughed on a regular basis. This technique is well established and has been used successfully for identifying distribution, spatial patterns, density and chronological indicators of all types of artefact, but is especially valuable for detecting worked stone assemblages and concentrations of burnt flint. It has been used to illustrate landscape development across large blocks of land (Richards 1990) and transects that may include variations in geology (Tingle, 1991). Surface collection continued annually, mainly from autumn to spring, when surface weathering and crop rotation allowed optimum visibility, until 1994 at which time 506 ha had been surveyed; of these 126 hectares fell within areas that were subsequently excluded from the final line of the railway.

All surface collection was undertaken using a systematic linear transect sampling strategy (URL 1994b), which involved surveying a corridor approximately 100 m wide centred on the mid-line of the railway. Areas designated for construction compounds, stations and other additions were extended for up to 400 m either side of the line. Individual fields were allocated unique Oxford Archaeology Unit (OAU) numbers that could be used to identify each survey site. Artefacts were recorded in collection units 20 m long, along transects 20 m apart. All major artefact groups, including worked and burnt stone, were collected, and details recorded of individual fields as the survey progressed.

Details of surface visibility were considered to be of paramount importance for providing reliable indicators of the value of artefact recovery. Each field surface was rated as ‘good’, ‘fair’ or ‘poor’ according to well-defined criteria that included surface weathering, crop growth, stubble or compaction. Results for 42 fields covered in 1990 to 1993 (URL 1994b) indicated that conditions were ‘good’ or ‘fair’ in 93% of all cases. Details of slope and topography, lighting and weather conditions were also recorded.

2.2.2 Field walking results

The results (URL 1994b; 1995b), which were quantified directly to a database, identified a total of 27 flint scatters, which were felt to define significantly discrete areas of activity and could be separated from thin ‘background’ spreads of material. Each scatter, which may have been associated with other artefact types, including pottery, was assigned a ‘confidence rating’ from 1 to 3. This was designed to

indicate levels of significance to each scatter; some spreads could be assigned to a single period by associated diagnostic implements, stone technology or ceramics, however elsewhere spreads could be shown to be clearly multi-period.

The entire field walking programme (Figures 2 and 3, Table 1), which covered 380 hectares, produced 2,023 pieces of worked flint, of which 97 were retouched pieces and 83 were cores. There were also 2,987 pieces of unworked burnt flint. The recovery rate throughout the project fell from 7 pieces found in the seasons 1991 to 1993 to 5 pieces per hectare in 1994. Quantities of burnt flint in 1994, in contrast, were enhanced. Even on the Chalk of the North Downs this is a relatively low density of material when contrasted with the results of the Stonehenge Environs Survey (Richards 1990), where densities of 0-10 pieces of worked flints per 50 m linear collection unit (p.15) were omitted from the principal artefact distribution. Only four fields at Ebbsfleet (OAU 1467), which lies within the area of Contract 2, Sandway (OAU 1346) and Harringe Court Field (OAU 1361) (URL 1994b) and Northfleet Riding School (OAU 1803) (URL 1995) produced assemblages that exceeded 100 pieces. The remainder averaged only 34 pieces of material.

A small quantity of material, principally blades and bladelets was classified as Mesolithic, however most surface scatters comprised undiagnostic, robust hard hammer struck flakes of indeterminate age or which might indicate multi period activity. This material had withstood prolonged mixing in the ploughsoil and was frequently characterised by post depositional edge damage. It was generally considered likely to be of Bronze Age date, with multi platform flake cores, which were assigned to the Neolithic or Bronze Age. Rarely were there diagnostic implements and identifiable technological characteristics that could be used to provide some indication of chronology.

Some, but not all, areas that were included in the field walking project were later subjected to excavation, however the results of the surface collection provided supplementary data that could be used in the wider interpretation of prehistoric activity at specific sites. The late Mesolithic site at Sandway Road was not included within the field walking survey; however a compact scatter of worked flint comprising 127 flakes and two cores was found approximately 300 m south of the excavated area (OAU 1346) (URL 1994b). This material, considered to be of (early) Neolithic date and assigned a confidence rating of 1, has provided additional evidence of late hunter gatherer/early farming activity in that area.

Field walking in the area of the important early Neolithic site at White Horse Stone was restricted to two fields at Boarley Lane (east) (OAU 1813) and Boarley Lane/Farm (west) (OAU 1337) (URL 1994b) although work was undertaken at White Horse Stone (OAU 3100) in 1994 (URL 1995). The results at Boarley Lane produced diffuse background scatters that were allocated confidence ratings of three. The field at White Horse Stone produced a small scatter of worked flint that was considered to be of Neolithic date with a confidence rating of 2. The ensuing excavations confirmed the residual nature of flint at Boarley Lane and resulted in the discovery of important early and late Neolithic activity at White Horse Stone. However it is questionable whether the sites at

Sandway Road or White Horse Stone could have been predicted from the results of the fieldwalking given that both sites were covered by colluvium.

2.2.3 Evaluation trenching

The second phase of exploration centred on evaluation trenching, which targeted specific locations along the route some of which were subsequently upgraded to area excavations according to results. There were 77 evaluations between Fawkham Junction (Gravesham) and Folkestone. These evaluations were generally undertaken using mechanical excavators to remove topsoil and subsoil with the inevitable loss of unstratified material from these contexts. Features exposed were sampled by hand excavation to determine basic details of date, preservation and condition of the resource before decisions were made whether the most appropriate response required additional area excavation or a controlled watching brief. Forty detailed excavations, including watching briefs, were undertaken. These were grouped into 28 landscape blocks for post excavation purposes of which 20 produced results of sufficient significance to warrant production of an integrated site report. The majority of sites produced flint assemblages, but many were small and/or unstratified and only eleven were assessed as significant enough to warrant specialist analysis. These eleven sites are listed in Table 2 by broad period, drainage and geology and are located on Figure 1. Totals from White Horse Stone also include material from Pilgrim's Way and Boarley Farm, which together form components of the same site. Assessment records exist for all other sites, for evaluation and field walking finds.

Detailed excavation was also commenced by area machine stripping with features sampled, half sectioned or totally excavated by hand with artefacts recorded by context. This strategy was consistent throughout the project; however the retrieval of worked flint was increased at the late Mesolithic site at Sandway Road by a comprehensive sampling and sieving programme to recover both microdebitage (chips) and microliths. Here the southern part of a circular feature (Central Pit) was excavated and sieved by 0.25 m grid squares in spits 50 mm deep and sieved through 4 mm mesh, with selected quadrants sieved to 1 mm. Two other areas (North and South Spreads), thought to represent the base of a former truncated palaeosol, with undisturbed distributions of material, were excavated by 0.50 m grid and by spit 0.10 m deep and also sieved through 4 mm mesh. Artefact recovery was similarly inflated at White Horse Stone where quantities of microdebitage were recovered from all features especially the post holes of an early Neolithic structure, a number of Grooved Ware pits and a remnant Iron Age palaeosol. Flint from this deposit was principally collected by hand with additional material retrieved from samples and sections.

The results of the individual evaluations, excavations and watching briefs have been individually described and reported. They are catalogued and summarized by site in Table 3 and period in Table 4, which both show assemblages from stratified contexts within cut features, and also quantities from secondary or unstratified contexts.

Table 5 indicates provenance of flint by feature type and period from individual sites. It shows that most of the flint was recovered from undated, redeposited or unstratified contexts and that only relatively small quantities of material were located in primary contexts.

2.3 Recovery of microdebitage through seiving

Sieving was used extensively within the project to process spoil from stratified features and deposits to recover flint chips, defined as pieces <10mm long. This microdebitage is likely to have been derived primarily from prehistoric flint working, blank production or tool manufacture/resharpening although it may also include a few pieces removed accidentally by ploughing or natural soil movement. The predominant sieving strategy involved processing all spoil from excavated pits, as at Beechbrook Wood, through 4mm mesh. At Sandway Road the Central Pit and North and South Spreads were subjected to more detailed sampling to recover artefacts by wet sieving through 1mm mesh. Chips, many diagnostic of specific flaking processes, were retrieved by systematically sorting the 2mm residue. The 1mm fraction consisted of coarse sand, was considered to be too small to contain meaningful data and was ignored. The recovery of quantities of diagnostic microdebitage from the 2mm residue in the Central Pit highlighted the evidence for Mesolithic tool manufacture that was contained in this material. It did little to resolve whether the flint from this feature was likely to be *in situ* or comprised quantities of dumped waste. The sampling strategy confirmed that many diagnostic artefacts relating to microlith manufacture, use, breakage and discard were irrecoverable by conventional excavation and could only be recovered by sieving through an appropriately small sieve mesh.

Chips formed 42% of the total collection at Sandway Road, as recovered from 4mm mesh. This quota, from an open-air site, was eclipsed by chips from three chronologically separate features (1623, 1910, 1374) at Beechbrook Wood dated to the Mesolithic, early Neolithic and early Bronze Age. The results calculated at 64%, 62% and 72% respectively of each feature showed no appreciable reduction in the chip component through time although the proportions of deliberate to accidental and retouch to debitage chips undoubtedly changed as technology and individual assemblage composition changed from blade-based to flake-based from the Mesolithic to early Bronze Age. The Mesolithic assemblage at Beechbrook Wood was contained in a tree throw hollow, making it similar to Sandway Road, and may have preserved small, but none the less *in situ* deposits. The assemblage contrasted with those from the early Neolithic and early Bronze Age pits which are more likely to have contained dumped material in secondary contexts. Chips are virtually impossible objects to recover from a flaking floor without some form of ground cover or implement to shovel them into the pit. Some chips are inevitably left behind although, as in an early Neolithic long house at White Horse Stone, this residue, accounting for 450 chips, appeared unreasonably high and exaggerated the size of the worked flint assemblage, 39 pieces, which was otherwise quite small.

The microdebitage component was arguably most informative in the interpretation of open-air Mesolithic sites where diagnostic chips related to specific processes could be identified, highlighting activity areas where microliths using the microburin technique were manufactured. Broken retouched pieces were also identified as well as discrete flaking areas. This material, often *in situ* and present on remnant living surfaces in subsurface or tree throw hollows at Sandway Road and Beechbrook Wood, helped to define both discrete activity areas and broader patterns of occupation at camp sites. Microdebitage continued to provide useful information of *in situ* activity areas into the early Neolithic where worked flint was also recovered from tree throw hollows. Elsewhere chips were more likely to have been included with midden debris unrelated to their source of manufacture. Most other stratified worked stone assemblages were recovered from pits, ditches or other cut features and served to indicate where the associated assemblage was of a single period and was not residual. In Neolithic, and more specifically Bronze Age assemblages, chips were less diagnostic many of them being abrasion chips or accidental by-products formed around the point of percussion during debitage with occasional retouch chips. Analysis of flake assemblages throughout Britain has consistently indicated that core preparation abrasion and faceting had ceased to be employed by the late Bronze Age. Microdebitage from unstratified or derived/reworked contexts including palaeosols were considered to be of limited value.

2.4 Burnt flint

2.4.1 Burnt flint from fieldwalking

Virtually all phases of work along the route of the CTRL produced quantities of burnt flint. When found in isolation it was of limited value as an indicator of activity; individual pieces may have resulted from manuring while larger quantities may have been the product of relatively recent hedge clearance bonfires. However where it was associated with other material especially scatters of worked flint, it provided additional detail of, primarily prehistoric, industrial, ritual or domestic activity.

The field walking project (Figures 2 and 3) produced 2,330 pieces of burnt flint (Table 1). It accounted for 41% of all flint in the initial seasons of field walking in 1990, 1991 and 1993 but escalated to 79% in the relatively small campaign of 1994. This inconsistency made it difficult to correlate the results from the two phases of work, especially as the second phase was of restricted extent. However significant trends in the data were discerned along some areas of the route that were subsequently tested by excavation.

A cluster of fields (OAU 1467, 1828, 1801, 1830) at the head of the Ebbsfleet Valley, which formed part of Section 2 of the CTRL, incorporated land overlooking and including the Springhead and produced assemblages of burnt flint with associated worked material. The assessment of the worked flint assemblage concluded that most was likely to be of Bronze Age date. Five hundred and four pieces of worked flint were collected from a large tract of land at the top of the hill but only 167

pieces of burnt flint were found, accounting for only 25% of the total assemblage. Near Springhead at the base of the slope the burnt flint component, from a relatively small field, rose to 80% of all material recovered. Subsequent excavation revealed a group of burnt mounds, features that are commonly associated with Bronze Age activity near water sources. This satisfactory use of field walking data was possible because it represented a compact parcel of land that was surveyed under consistent conditions.

Dense concentrations of burnt flint were also present immediately to the east in a number of sites that were also field walked and subsequently excavated. These included a site West of Northumberland Bottom, 2 km east of Springhead in fields (OAU 1802, 1803, 1804), and another site immediately to the east at Tollgate, which was not available for surface collection. Parts of field 1803 were included in both phases of the field walking survey and confirmed the variations in the recovery rate between the two surveys. Burnt flint quotas for this field rose from 39% of the total finds assemblage in the initial survey to 87% in 1994; however at 74% and 58% respectively for fields 1802 and 1804 burnt flint totals were higher than the average (41%) for the survey of 1990/1 and 1993. The associated worked flint assemblages were also considered to be of Bronze Age date.

2.4.2 Burnt flint from excavations

Subsequent excavations at the site West of Northumberland Bottom revealed an isolated Beaker burial and a scatter of residual Neolithic and Bronze Age flint across the site. However most of the features, including pits associated with a late Bronze Age/early Iron Age furnace were of later prehistoric or Roman date, when flint working was in decline. The excavations produced an additional 1,177 pieces of burnt flint, weighing 32,639g, which may relate to this later prehistoric activity. At Tollgate 4,117 pieces (37,573g) of burnt flint and 620 pieces of worked flint were recovered from features that were also primarily of late Bronze Age and Iron Age date.

Excavations at Cobham Golf Course, also on the Chalk and which was also unavailable for surface collection produced 238 pieces of burnt flint (8,131g) and 439 pieces of worked flint from the excavation. Sites on the Greensand also produced vastly increased quantities of burnt flint from the excavations, although burnt flint totals from features on the Chalk were consistently higher than from those on the Greensand. At White Horse Stone 293 pieces (2,744g) of burnt flint and 5993 pieces of worked flint contrasted with 38 fragments of burnt material and 24 worked pieces from the surface collection. Similarly at Saltwood Tunnel values rose from 9 pieces from surface collection to 302 pieces (4,005) and from 18 worked pieces to 1,781. The enhanced figures from the excavated totals are to some extent inflated by the recovery of small fragments and chips from sieved residue. Sites at Little Stock Farm and south of Snarkhurst Wood, with 29 and 63 pieces respectively, actually produced more burnt flint from the surface collection than from the excavation; each site producing only 15 pieces each. Worked flint, conversely, increased from 31 pieces each to 118 and 141 pieces respectively.

Although burnt flint weights were larger on sites located on the Chalk, burnt flint from the Upper and Lower Greensand, presumably derived from gravel deposits, consistently averaged 44% of each assemblage. Most sites produced some burnt flint, which accounted for up to 73% of the surface collection (25 pieces) at Hurst Wood (OAU 1815) although no burnt flint was recorded from land west of Blind Lane (OAU 1353), despite the retrieval of 30 pieces of worked flint. Most of the burnt flint from these excavations was recovered from excavated pits, ditches or from overlying deposits. However at Sandway Road (Figure 8) clusters of burnt flint could be used to reconstruct the locations of hearths. These features are regarded as centres of activity around which most other tasks were undertaken. Hearths at Sandway Road were composed of clusters of burnt flint although there was no evidence of deliberate hearth structures, hearthstones, charcoal or modification of the underlying sand. The distribution of burnt unworked flint, plotted at 100g intervals, identified a number of discrete clusters up to 1m across. These concentrations were frequently associated with spreads of worked material, of which only a small proportion might be burnt. This implied that human activity had taken place around the periphery of the fire, yet avoiding the chance of being burned. More refined processing of the data at 25g intervals indicated it might be possible to identify smaller hearths, possibly short term hearths that were sufficient for comfort or to provide enough heat to warm and straighten green arrow shafts or to process resin. No hearths were located in the late Mesolithic hollow at Beechbrook Wood, however 367 struck flints, or 23% of the assemblage, showed signs of having been burnt, suggesting that a hearth may have been situated not far beyond the edge of the feature.

3 PREVIOUS KNOWLEDGE

The archaeology of Kent has been subjected to a number of surveys and assessments in recent years. These have included reviews of the Palaeolithic that formed part of a nation-wide survey, Southern Rivers Palaeolithic Survey (Wessex Archaeology 1993; 1994). Other reviews have been undertaken specifically for the Mesolithic (Jacobi 1982) and Neolithic (Clarke 1982) periods in Kent. These county-based reviews highlighted the apparent paucity of known archaeological sites from the county. Clarke, in particular, highlighted the lack of recent, detailed work and the need for research, particularly in relation to the archaeology of south-east England and to the adjoining county of Sussex. To some extent this reflects the lack of attention paid to archaeology during previous large-scale engineering projects. The CTRL, for large parts of its course, follows the line of the Maidstone to Ashford railway and beyond as the Ashford to Folkestone railway, as well as the M20 motorway. The results of the archaeological work along the CTRL suggest that these major communication links, which cut huge swathes along the Greensand ridge, undoubtedly destroyed archaeological remains that went unrecorded at the time of their construction.

Data held on the Kent Sites and Monuments Record (SMR) has also been used to study the known distribution of Mesolithic, Neolithic and Bronze Age activity, through the stone tool record, both within the corridor of the CTRL and further afield across the county. This was taken as the most current record of artefact distributions in Kent. However it has been necessary to simplify the data to make it more accessible for study and to 'iron out' some of the less well defined classifications. For example the Neolithic period, classified by the SMR within the date range 4,000 to 2,350 BC contains 50 separate entries to describe stone tool artefact types. While individual entries may include records of material noted or collected during past field work most of the entries refer to specific artefacts. However the record contains 13 varying descriptions used to describe axes, including general references to adzes, axes, fragment of a hand axe and polished axe as well as find spots of specific implements that are described in more detail. These records do not describe the raw material or consistently indicate whether the implement was polished or flaked. All records of this type of Neolithic core tools were therefore amalgamated as 'axes'. Similar amalgamations were made to debitage groups, including flakes, blades and cores that were classified by period in the Sites and Monuments Record but which frequently contain material that it is difficult to classify accurately by period. Records relating to the Neolithic period were condensed into arrowheads, axes, scrapers and 'flint'. Using a similar approach the Mesolithic period was reduced to microliths, axes, which were presumed to be of tranchet type and 'flint', while the Bronze Ages comprised (barbed and tanged) arrowheads, 'implement', scraper and 'flint'.

4 RAW MATERIAL

The assemblages from the CTRL were entirely composed of worked flint. It is likely that most, if not all, flint from the project came from the chalk of the North Downs. The pattern of flint exploitation appears to suggest that irrespective of where the site was located along the route there was a consistent strategy through time of raw material procurement. There is a consistent absence of flint that appears to have been taken from a primary source in the Chalk. It is inevitable that large post-holes, pits and ditches that were constructed on the Chalk of the North Downs would have produced small quantities of fresh flint from ditches and pits. There is nothing to indicate that there were ever any sites on the North Downs that were comparable to the flint mining sites of Sussex. It is possible that small-scale, shallow hollows may have been dug at points where seams of flint outcropped or to exploit nodules that had been reworked from the natural Chalk by periglacial activity. However most of the flint from sites on the chalk appears to have been from secondary sources, principally from surface deposits of clay with flints.

Sites on the Greensand Ridge, which runs parallel with the Chalk escarpment, were rarely more than 1.5 kilometres from the base of the Chalk scarp but preferentially exploited flint from secondary sources principally from head gravel. These deposits, mapped by the British Geological Survey, were

eroded by post glacial streams from the local middle and Upper Chalk of the North Downs and now occur as outwash deposits that extend from the base of the scarp across the Greensand. Flint is predominantly nodular with a patchy cortex, up to 3mm thick, that has frequently been weathered to a thin rind. The cortex is frequently stained a dirty off-white colour from its source in the local head deposits. Internal colour is variable ranging from high quality dark grey to black flint, frequently with lighter patches of coarse grained inclusions, to light grey flint. Although individual nodules frequently contain incipient thermal fractures nodules clearly retained sufficient quality to undertake tool manufacture.

All sites contained quantities of Bullhead flint, the distinctive material that can only be identified by the presence of its characteristic green cortex that overlies an orange band. This material occurs both where the Chalk is covered by Thanet Sand to the north of the North Downs and at the base of the Woolwich and Reading Beds where they overlie the Chalk. However it is essentially similar to and flakes as well as most flint that is not closely related to the Thanet Sand. It is likely that nodules of Bullhead flint were also present in the head gravel deposits at the base of the Chalk scarp. Small quantities occur consistently through the extent and chronology of the CTRL although there was a relatively large amount of material, 14 pieces, from two tree throws at Pilgrim's Way. This isolated occurrence may reflect the preferences of a single knapper or represent the product of one nodule. Either way there is nothing to indicate deliberate selection of Bullhead flint in large quantities.

Fragments of bi-zoned or marbled flint were also present amongst Mesolithic material at Sandway Road. This flint is also native to the North Downs and was probably incorporated in head gravels at the base of the Chalk.

The absence of large broken debitage fragments from the Mesolithic site at Sandway Road suggested that prepared cores may have been introduced to the site and possibly stored for future use at subsequent visits to the site. Similarly there was relative scarcity of core preparation flakes in the Mesolithic assemblage at Beechbrook Wood, which suggested that cores were prepared elsewhere. This method of obtaining and conserving raw material has advantages in a mobile group where hunting bands may occupy a defined territory that allows repeated visits to favourable areas of raw material supply.

Imported flint may have been included in ground and polished tools from the project. These are most likely to have been imported from the Sussex mine sites on the south side of the Weald. Only five flakes from ground implements were found on excavations at Sandway Road, Snarkhurst Wood, White Horse Stone, Pilgrim's Way and Northumberland Bottom with two fragments located by field walking at Boarley Lane (east) (OAU 1813) and near Snarkhurst Wood (OAU 1842). These pieces represent at most individual implements, and may comprise knives or axes. There is no way of assessing whether the flakes resulted from impact during use or were flakes removed during reworking. Either way there appears to be little evidence for large scale reworking of ground axes.

The flake from Northumberland Bottom, which lies on the dip slope of the North Downs, was of a pale grey colour and of good quality flint.

5 PHASE 1 - HUNTER-GATHERERS (400,000-4,000 CAL BC)

5.1 The Palaeolithic

Kent contains some of the most important, well documented sites, deposits and collections of flint implements in Britain that provide evidence of the earliest human activity at the edge of North West Europe. Most discoveries of this period comprise hand axes that have been eroded from former land surfaces and incorporated into the gravel terrace deposits of the major rivers. The most important sites are located in the River Thames Estuary especially in the terrace deposits around Swanscombe which provide a chronological sequence from the Hoxnian Interglacial (OIS Stage 11 - 400,000 BP) to OIS Stage 7 (200,000 BP). However evidence is not restricted to the river valley stratigraphy. Notable collections were made on the Wealden Greensand around Ightham immediately west of Maidstone by Benjamin Harrison in the late 19th century. Hand axes have also been found from the Clay with Flints capping the North Downs, north of Wrotham and on Wood Hill, east of Deal (Scott-Jackson, 2000). These revelations have shown that the North Downs were probably more intensively occupied than had previously been thought and it was reasonable to assume that Palaeolithic implements might be found during the construction of the CTRL.

The most significant addition to the catalogue of Lower Palaeolithic material produced by the CTRL project from North Kent was a pointed hand axe (Figure 4.1) made on a nodule of Bullhead flint. It was found during evaluation work South-East of Tollgate, Cobham (ARC TGS97) (URL 1997) with a scatter of waste flakes, which were tentatively considered to be associated with it. The material lay in a solifluction deposit, on the upper slopes of a coombe on the dip slope of the North Downs. The hand axe was in a fresh condition, which suggested that it had not moved far.

A large flake made by the 'Levallois' technique (Figure 4.2) was also found during subsequent excavations at Tollgate in a pit of probable Bronze Age date. This technique of flake manufacture, which includes radial preparation of the core, evidence for which is preserved on the dorsal surface of the flake and faceting of the striking platform is characteristic of middle Palaeolithic industries, for which there is ample record in the area (Wymer 1968). However the technique was also employed in the late Neolithic and it is equally possible that this flake may be related to associated later prehistoric flint work that was also found in the pit.

The hand axe in all probability represents a single artefact that became incorporated into the soliflucted Chalk during periglacial conditions, from a former interglacial land surface, as the chalk moved down-slope from the surrounding uplands. However Roberts (1999, 383) demonstrated, by using refitting flakes that were found in a glacial mass movement deposit at Boxgrove, that it was

possible to show that early hominids also survived in glacial conditions. If the hand axe and associated flakes are all of Palaeolithic date, it may represent a similar episode in Kent. The coombe (Figure 5), a tributary of the Ebbsfleet immediately to the west, is one of a series that drains across the dip-slope of the North Downs into the Thames valley. Palaeolithic implements have been found in similar soliflucted Chalk in the Ebbsfleet valley, most importantly middle Palaeolithic/Levallois material at Bakers Hole, Northfleet (Wenban-Smith, 1995). More recently three hand axes were found in soliflucted Chalk at Springhead (Andrews pers. comm.) during the construction of the CTRL, within Section 2 of the project. If the flake from Tollgate is of middle Palaeolithic date it may originally also have originated from the solifluction deposits

The hand axe and possible middle Palaeolithic 'Levallois' flake from Tollgate also complement other less well provenanced implements that have been found towards the tail of the North Downs at the edge of the Clay with Flints to the east. An indeterminate number of 'implements' was found at Cobham by W. Whitaker of the Geological Society (Wessex Archaeology, 1993), although their current whereabouts is now unknown. Other discoveries of both single implements and larger collections have been found in a band that extends eastwards from Cobham along the base of the dip slope and fringes the south edge of the River Medway estuary. These sites include the important assemblages from Frindsbury (Cook and Killick, 1924) and Twydall (Payne, 1915).

One piece, classified as a possible hand axe and found from fieldwalking at Sandway (OAU 1347), represents the only possible Palaeolithic implement from the CTRL to be found from the Greensand. Palaeolithic implements from this immediate area are uncommon but not unknown. Records of material from Head gravel at Charing (Roe, 1968, 143) probably refer to material derived from the North Downs in solifluction deposits. A hand axe was found by Mr. G. Bunyard in 1885 (Evans 1897, 611) at Rowton Chapel, Lenham, 2 km east of Sandway. This implement, the whereabouts of which is unknown, was found near the headwaters of the Great Stour, which lies immediately east of the watershed of the River Len. Wymer (1999, 109) stressed the importance of river courses as routes in the Palaeolithic, with the additional benefits provided by interconnecting headwaters at the watershed. A hand axe was found in a field at the watershed of the Rivers Bristol Avon and Thames at Hankerton, Wiltshire (Wessex Archaeology 1994, 97) with others at the headwaters of the Rivers Wylye and Avon in the River Salisbury Avon basin (Harding in press). Locations near spring-heads were also valuable sources of fresh water for both hunting bands and game. A flake, also from fieldwalking and classified as possibly Palaeolithic was found at Nashenden Valley (OAU 1824), a tributary of the River Medway.

5.2 Late Glacial

The reintroduction of human communities into North Kent following the retreat of the Devensian Ice approximately 10,000 years ago is a particularly important milestone in the development of the

landscape. It marks the beginning of an unbroken sequence of human activity in the area, which is currently represented by an initial low level of re-colonisation and which becomes increasingly more evident by the late Mesolithic. The results of the work of the CTRL are especially valuable by adding additional evidence to this phase of prehistory. Virtually all the additional data and our understanding of life styles and land use are derived from the recovery of stone tool assemblages and scatters of burnt flint. The Lower Greensand is notoriously unsuited to the preservation of post-holes that might preserve traces of structures. Similarly it has prevented the preservation of bone and other organic remains that might illustrate food supplies or similar aspects of the economy. There is virtually no charcoal and few preserved deposits with pollen so that understanding of woodland clearance and land management is derived from studies undertaken in other parts of Britain. The more detailed chronology of the late Glacial period and the Mesolithic remains reliant on the study of microlith typology, a tool that is traditionally associated with use as composite projectile points.

The earliest phases of recolonisation are represented by a thin scatter of material from Kent of late Glacial and 'long blade' character, most notably specific scatters from the Ebbsfleet Valley (Burchell 1938) and 800-900 pieces from deposits at Springhead found during work related to the CTRL (Levers pers. com). These locations both fall within the area of Contract 2. Further afield in Kent assemblages of this date have been recovered from Riverdene, near Canterbury and Underdown Lane, Herne Bay (Wright pers. com). The distribution of material, as in many parts of Britain however remains scarce suggesting that although human activity was present at the end of the Last Glaciation, that activity was very restricted. This makes the discovery of a burin from an early Bronze Age ring ditch at Saltwood Tunnel all the more significant. Made on a blade, it was heavily patinated, unlike other material from the site, with a carefully abraded striking platform (Harding *et al*. 2002, 39). The proximal end of a broken flake from a late Bronze Age ditch at the site was thought to be of the same date.

5.3 Mesolithic

5.3.1 Previous knowledge

The distribution of Mesolithic material across Kent as listed by Wymer (1977) reflected a continuation of Mesolithic activity that was documented from the Sussex Weald, where activity was densely clustered along the Lower Greensand Folkestone Beds and less frequently the Hythe Beds immediately to the south. There was a limited range of find spots from the North Downs with virtually nothing from the Wealden Clay in the extreme south.

Wymer recorded only 21 locations of Mesolithic activity within a band along the Folkestone and Hythe Beds 20km west and 11km east of Sandway Road. Only six of these find spots were accurately provenanced, the remainder being general records allocated by parish. The total number of pieces amounted to approximately 1,869 artefacts of which 1,587 pieces were from three sites,

Harrison's Nursery, Parkwood Farm and Polhill, Red Horse/House at Harrietsham 2.5km west of Sandway Road. In addition Jacobi (1982) listed eighteen microliths from Fairbourne Court. Wymer's catalogue records principally tranchet axes or flakes and blades with only 18 microliths. These locations did little to illustrate the potential density of occupation of the Kentish Weald in the Mesolithic and did not have access to more recent discoveries, including large assemblages (URL site 1371 and 1372) recorded as having been collected by Lord Monckton at Lenham (URL 1994a). Sites in the Great Stour valley in the immediate vicinity of Beechbrook Wood and Saltwood Tunnel fared little better. Apart from an assemblage of 58 pieces from Sandyhurst Lane, Ashford, Wymer (1977) listed only two blade/flakes from Hothfield and a microlith from Saltwood. However sites at Evegate Farm and Park Wood Farm, Smeeth, where 191 and 41 pieces, respectively, of Mesolithic flint were recorded, indicated that occupation continued eastwards along the Greensand Ridge.

Jacobi (1978) undertook a review of Mesolithic activity in Sussex, a county with a long tradition of Mesolithic research. The geology is, in many respects, directly comparable to that of Kent, incorporating the southern edge of the Wealden geosyncline, with the Chalk Downs beyond. He reaffirmed the results of early studies, including those by Clark (1934), that indicated that Mesolithic activity had spread from the Lower Greensand 'girdle' at the edge of the Central Weald outwards north across the Weald and south to the Downs in the late Mesolithic. The character of the activity also varied between the Weald, where microliths were more plentiful, to the Chalk where tranchet axes were more frequent. Care (1979) demonstrated that this distribution was often linked to deposits of Clay-with-Flints, where surface nodules provided a suitable source of good quality raw material for core tool manufacture. Tranchet axes were not entirely absent on the Weald; however they had frequently been reworked and were often accompanied by increased numbers of tranchet axe sharpening flakes. This work in Sussex provides a useful model for comparable activity in Kent.

The distribution of Mesolithic material in Kent, as plotted from the Sites and Monuments Record onto the underlying geology (Figure 6), indicates that, as in Sussex, material is present across most parts of the county. Records of activity increase to the west and are predictably especially common on the Upper and Lower Greensand. Records also show a concentration of material along the watershed dividing the Rivers Cray and Darent. The distribution indicates that Mesolithic occupation also extended onto the North Downs, although the zone between the Rivers Medway and Stour and an area immediately east of the River Stour are poorly represented. There is no reason to believe that this relative paucity of find spots represents a true picture of Mesolithic activity in this area of the North Downs given the evidence of extensive occupation elsewhere and there is a similar trend in the distribution of Neolithic material. It may reflect the nature of the data or the lack of serious fieldwork in those areas. There is a distinct cluster of activity at the east end of the Downs overlooking the present English Channel and also a large concentration of find spots in the west of the North Downs of Kent. A more detailed examination of the data suggests that much of this activity on the Downs did

not apparently take place directly on the Chalk but on areas that are capped by deposits of Clay-with-Flints, reflecting the phenomenon seen in Sussex (Care 1979).

Mesolithic activity is also apparent along the north edge of the Chalk dip-slope in North Kent, beyond the route of the rail link, where it abuts deposits of Tertiary rocks fringing the Thames Estuary. This strip of land would have been relatively well placed to exploit the maritime resources of the coast, by the late Mesolithic approaching its present position. Tranchet axes are again especially plentiful at the west end of the Downs far outnumbering records of 'Mesolithic flints'. Inevitably activity is well represented along the Greensand Ridge at the base of the North Downs scarp. The relatively sparse distribution in the central Weald appears to be only contradicted by find spots influenced by the course of the River Medway.

5.3.2 Contribution of CTRL

Field walking

The route of the CTRL crossed two of the major geological deposits that have the potential to contain Mesolithic occupation in Kent, the Chalk and Lower Greensand, but did not extend south across the Weald Clay.

Evidence for Mesolithic activity on the North Downs derived from field walking during the preliminary survey was particularly scarce. This may be partially explained by the overall low density of worked flint from the CTRL field walking survey. It may also relate to a genuinely low density of Mesolithic occupation on the Chalk or reflect artefact size, distribution, survival and recovery on a surface that is likely to have been heavily ploughed. The results did nothing to indicate whether Mesolithic occupation, especially as additional tranchet axes, might confirm whether activity was more common from the Clay-with-Flints, a deposit that was rarely crossed by the line of the CTRL. Surface visibility on both of these geological types is in any case likely to be obscured by a 'back ground' spread of natural flint.

An assemblage, which it was thought might include a small residual element of Mesolithic/early Neolithic material with an otherwise Bronze Age assemblage, was found in field OAU 1830 near Ebbsfleet (Figure 2). Mesolithic material was known to exist in a quarry east of this field and from others in the area (OAU 1538, 1539). Another small quantity of probable Mesolithic material was recorded from an excavation at Cobham Golf Course, where a small number of blades including a long retouched blade were found. These sites both lie close to the boundary of the Chalk with Oldhaven, Reading and Thanet Beds and lie in an area where Mesolithic material has previously been recorded on the Sites and Monuments Record. As such these isolated instances reflect an existing and possibly predictable pattern of Mesolithic use of land along the fringes of the Chalk Downs.

The recovery of material from the Greensand ridge is somewhat larger and more predictable. Preliminary research for the CTRL (URL 1994a) revealed a previously unrecorded, large surface

scatter of (?late) Mesolithic flints, that was apparently collected during field walking by Lord Monckton from the Lower Greensand (Site 1372). The assemblage, totalling 11,000 pieces, was found approximately 250 m immediately south of the excavation site at Sandway Road and on the east bank of the same stream. A mixed collection of, similarly undocumented, Mesolithic and Neolithic worked flint had also been found by Lord Monckton from adjacent fields on the west bank of the stream along the line of the M20 (Site 1371). The former is an especially large collection to have been assembled from surface collection and nothing of this size was reported by the systematic survey undertaken before the construction of the CTRL. Neither of these sites is recorded by the Kent Sites and Monuments Record nor has it been possible to confirm their authenticity, status, composition or present location.

The Kent Sites and Monuments Record also records concentrations of Mesolithic material (TQ85SE12LB) at Park Wood Chicken Farm (Site 1072 URL 1994a), Red House (Site 1073 URL 1994a) and Harrison's Nursery (Site 1074 URL 1994a) at Harrietsham approximately 2km west of Sandway Road.

Surface collections of Mesolithic material were also recovered during the field walking survey for the CTRL (1995a; 1995b) from land at Charing. A field at Newlands Road and East of Newlands (OAU No 1816), which lay on the east bank of a tributary stream of the Great Stour was located that contained two small scatters, comprising 25 flakes, seven cores and burnt flint. Diagnostic evidence was restricted to a microburin while an end scraper, a retouched blade, an opposed platform blade core and a core made on a flake were also considered to be Mesolithic. Significantly Mesolithic material had been found previously during quarrying at Newlands Sandpit, Charing (Kent SMR TQ94NW8LB) in a field (Site 1078- URL 1994a) on the opposite bank of the stream.

Excavation

Evidence of Mesolithic activity from the results of excavation (Figure 6) was slight but significant. A retouched blade from an unstratified context at the excavation at Cobham Golf Course may be of early Mesolithic date. However there was no other associated material of that date at the site or anywhere else along the route of the CTRL so that its dating must remain uncertain. Possibly the most significant evidence of early Mesolithic activity relates to the contents of a shallow 'pit'/hollow from Saltwood Tunnel, which produced eight Mesolithic 'Horsham' points (Figure 10.3-10).

The largest excavation of Mesolithic material undertaken along the line of the CTRL, indeed the largest yet conducted in Kent, took place at Sandway Road where a large, relatively undisturbed late Mesolithic assemblage comprising over 11,000 pieces of worked flint (Table 4) was excavated. The total included 223 microliths, mostly of geometric form (Figure 10.11-40), but an otherwise relatively limited retouched tool kit (Figure 11.54-66), which accounted for only 3% of the assemblage total. There were also 228 microburins with 1814 blades and bladelets, 3866 flakes and 267 cores (Figure 11.48-53). There were also 4434 chips, which accounted for 40% of the total

assemblage. The site covered an area of approximately 900 sq. m and lay on the gravel terrace of a tributary stream of the River Len. The site represented open-air activity that was apparently preserved in sub surface hollows and probable tree throws on the gravel terrace. These preserved spreads enabled activity areas where flaking and microlith production had taken place to be identified (Figure 8). All surrounding areas of activity had been partially truncated, possibly by prehistoric ploughing. There was nothing to indicate that any of these features had been deliberately constructed or modified.

A small but significant assemblage of late Mesolithic debitage and waste from the manufacture of microliths was also found in a feature, 5 m in diameter, at Beechbrook Wood. The group (Table 4), which comprised 1,393 pieces of worked flint, included 30 microliths, predominantly scalene micro-triangles (Figure 10.41-47), 58 microburins, 160 blades and bladelets, 339 flakes, nine cores and 760 chips. The assemblage was considered to represent a representative sample of material produced by a small band during a temporary, possibly over-night, camp to refurbish hunting equipment. The feature was excavated by quadrant, with one square metre of one quadrant removed in spits. This methodology was sufficient to indicate a broad pattern of spatial distribution but insufficient to define possible hearths or specific activity areas. The ratio of microliths to microburins suggested that surplus microliths were manufactured and removed from the site for future use. A small number of, probably redeposited, microliths and microburins were also found in an early Neolithic pit approximately 100 m south of the Mesolithic spread. This may indicate that, as at Sandway Road, the Mesolithic activity formed part of a linear spread of activity along the bank of a stream course. There was otherwise nothing to indicate the extent of the camp.

Occasional single items, principally microliths, including an obliquely blunted point, from early/middle Neolithic pit 126, and a scalene triangle, from an Iron Age pit, at the site South East of Eyhorne Street could be assigned to the Mesolithic according to the typology. There were also two obliquely blunted points and a rod microlith from unstratified deposits at Saltwood Tunnel. Other excavated sites produced individual pieces or small quantities of poorly stratified or redeposited material that could be classified, at best, as Mesolithic or early Neolithic. Most of this material was speculatively dated according to certain technological criteria, principally platform abrasion, blade or blade-like form, previous parallel blade scars and soft hammer percussion. There were blades and bladelets from sites (Figure 6) at Cobham Golf Course, which is located on the Chalk, South of Snarkhurst Wood, South East of Eyhorne Street, Leda Cottages and Saltwood Tunnel, which all lie on the Upper Greensand Ridge. A retouched blade was found at Cobham Golf Course and a utilized blade from West of Northumberland Bottom, which is also located on the Chalk. Excavations at South of Snarkhurst Wood, Cobham Golf Course, Leda Cottages and Saltwood Tunnel also produced blade cores. This corpus of material is generally very small, most of it is unstratified but is likely to be of late Mesolithic date. Its distribution, particularly on the Upper Greensand confirms the value of this geological zone, indicates the level of occupation that probably occurred within the Weald and

implies an expansion of population and hunting communities through the late Mesolithic into the early Neolithic.

The reason why Mesolithic material appears to have survived in such a variable way is difficult to assess. The surface visibility and artefact size are undoubtedly contributory factors, however there is also a strong possibility that site location and post depositional factors have also contributed to the survival and discovery of Mesolithic sites. The results of the excavation at Sandway Road showed that the site lay on a gravel terrace that had been covered subsequently by colluvium from higher slopes. Ironically the site, which produced the largest assemblage of worked stone from any period along the route of the CTRL, was not detected by field walking, although Lord Monckton's unconfirmed assemblage found immediately south of Sandway Road and on the same terrace deposit was apparently recovered from the surface. The recovery of a small amount of Mesolithic material by field walking from the surface of a similar tributary valley location at Newlands may represent only a small sample of material from a site that is similarly buried by colluvium.

The location of sites like Sandway Road and Beechbrook Wood has, together with distributions compiled from surface collections, hinted that topography was very important in the selection of suitable camp sites. The discovery, identification and exposure of these sites, or indeed sites of any age that are covered by colluvium, is highly dependent on a requirement that the rail line needs to be constructed at a point where it is necessary to remove the colluvium. Any sites that are buried by colluvium in the deeper valley bottoms, even if the rail line intersects with the site, may go undiscovered if, following the removal of topsoil, the colluvium is sealed by embankments. Other sites in similar valley bottom locations that are subjected to relatively small-scale disturbance by bridge foundation piers are also less likely to be discovered by such engineering works. It is highly likely that the density of Mesolithic sites may be underrepresented, with other sites not only on either side of the actual rail easement but also along the course of the railway itself. Extensive early Bronze Age occupation was discovered in 1987 at the base of the North Downs escarpment beneath deposits of colluvium at Holywell Coombe during the construction of the Folkestone Terminal of the CTRL (Preece and Bridgland 1998). The deposition of hill wash was initiated during the early Bronze Age but was preceded by periods of widespread surface erosion.

5.3.3 The Mesolithic in a wider context

In his review of the state of the Mesolithic in Kent Jacobi (1982) considered in more detail the chronological development of the Mesolithic in south east England and the more precise importance and contribution of a number of key sites (Figure 6) in Kent to that study. He recognised three microlith tool kits, an early, basal or 'broad blade' technology, a later Wealden technology, corresponding to Reynier's (1998) early Mesolithic Horsham type, starting soon after *c*. 8,000 cal. BC, and a late Mesolithic narrow blade technology. The 'broad blade' and Wealden technologies were both poorly represented in Kent, although he considered that a small collection of material from

Ditton (Clark 1932) probably indicated that hunting groups were utilising the area from 7th to 8th millennium cal. BC. The Wealden technology contained obliquely-backed microliths, isosceles and rhomboid pieces and basally retouched Horsham points, a form that became more asymmetrical through time. Sites were restricted to South East England, primarily east Hampshire, Surrey, Sussex, south Hertfordshire and south Essex, but was only represented in Kent by a small assemblage of fifteen microliths from Fairbourne Court, Harrietsham, which contained five 'Horsham' points, including three of the asymmetrical variety. Jacobi (1982) stressed the difficulty of assigning too much importance to assemblages of limited size but considered that the recovery of these five hollow-based points from Harrietsham should be regarded as more than just coincidental.

The cluster of eight, primarily symmetrical, hollow-based 'Horsham' points (Figure 10.3-10) apparently found in a shallow 'pit'/hollow at Saltwood Tunnel is particularly interesting. The feature lay at the southern edge of the excavation and was clearly defined. However there was nothing to show conclusively that it had been constructed deliberately. The microliths were not located at the base of the feature but approximately half way down the fill, only 0.10m below the ground surface, and had undergone some vertical displacement by bioturbation. There was no associated debitage and a scatter of charcoal flecks was shown, on examination, to be of recent date. The balance of evidence suggests that it is highly likely that the feature is of natural origin or a tree-throw feature. Each microlith was plotted accurately, although the absence of specific details relating to orientation meant that it was impossible to reconstruct precise relationships between individual pieces, including the possibility that they had been hafted in a composite tool. The group recalls discoveries at Seamer Carr, North Yorkshire (David, 1998), where two groups of later Mesolithic microliths, comprising sixteen and seventeen pieces respectively, were found, with no associated material, in deposits of Boreal peat, dated by radio carbon to 7260-6600 cal BC (Har-5789; 8020±90 BP). The microliths from Group 2 contained a single 'straight backed lanceolate piece' that is similar to the microliths from Saltwood Tunnel, but which lacks the trimmed base. Despite the presence of fragments of poplar or willow there was insufficient evidence to show conclusively whether these microliths had once formed part of a composite arrow or had been caches of finished tools. Whatever the origin of the feature at Saltwood Tunnel it extends the distribution of Jacobi's Wealden/Horsham technology to the eastern-most extent of the Lower Greensand Ridge.

Jacobi's third, narrow blade, Mesolithic technology was associated with small scalene pieces, lunates, and rhomboid and trapeze type microliths. He included seven sites from four diverse locations in Kent; on the present coast at Lower Halstow (Burchell 1925; 1927; 1928; 1931; 1957), the Lower Greensand at Addington (Alexander 1961, 2-3), towards the base of the Chalk dip-slope at Perry Wood, Selling (Woodcock 1966; 1976) and from two rock shelters in the Central Weald at Stonewall, Chiddingstone. Assemblages from these sites had all been recovered by excavation, however many had been subjected to selection, dispersal or loss making it difficult to attempt any form of accurate reassessment.

At least six separate artefact scatters were located within an area of approximately 1.62 ha (four acres) at Addington, including two scatters immediately adjacent to the Chestnuts megalithic tomb (Alexander 1961, 5 and 29-36), indicating the potential density of activity that may exist along parts of the Greensand Ridge. Furthermore 100 sherds of 'Windmill Hill' ware were also found on the old ground surface beneath the barrow mound. At Stonewall retouched tools were dominated by microliths, which accounted for 60% of the retouched tool component. Jacobi (1982) speculated that this might have been due to excavation methodology rather than to reflect Mesolithic activity. Tool assemblages were supplemented by microburins, type fossils of microlith manufacture, scrapers and truncated flakes and blades, however at Addington and Stonewall eighteen and fourteen classes of retouched tools were present, which indicated a diverse range of activities. Virtually all sites produced core adzes and/or tranchet re-sharpening flakes in a variety of ratios from 1:4.6 (Addington) to 1:95 (Stonewall). Jacobi (1982) was at pains to stress that these ratios were remarkably unreliable without comprehensive sieving to maximise microlith recovery.

More recently late Mesolithic material has been excavated on the east Kent coast at Finglesham, Northbourne (Halliwell and Parfitt, 1983). Additional excavated assemblages were recovered from Priory Gardens, Orpington (Grey and Tyler 1991) and Well Hill, Chelsfield (Jones 1953), both in Greater London. None of these sites were located on the Lower Greensand.

Few of these sites were dated accurately. Pollen from samples of peat, which overlay the Mesolithic material at Lower Halstow (Clark 1932, 63; 1936, 158), was considered to be of late Mesolithic date (6,000-4,000 cal. BC). However Jacobi (1982) argued that the rarity of both lime and elm suggested that the formation of the peat might be much later. Furthermore he considered, citing sea level changes, that the underlying 'marsh clay' site might be considerably earlier and that neither the peat nor the 'marsh clay' were of use as reliable indicators of the Mesolithic industry. He concluded that the typology of a single microlith suggested a date after 7,800 cal BC. Pollen analysis was also used at Addington (Burchell and Erdtman 1950; Dimbleby 1963) to date a mineral soil that was associated with the artefacts. This study also suggested a late Mesolithic date for the industry.

Only at Stonewall (Jacobi 1982) was radio carbon dating used to establish the dates of two stratified Mesolithic hearths with associated stone tool industries. Rock shelter B produced dates of 7,000 cal BC and 5,800 cal BC from charcoal with geometric and crescentic microliths with a basally retouched 'Horsham' type point. Overlying hearths, which were also found with small geometric microliths, produced dates within the range of 5,400 cal BC and 4,300 cal BC.

Radio carbon determinations obtained from charred samples in the Central Pit at Sandway Road has reaffirmed the difficulty of obtaining reliable radio carbon dates from Mesolithic sites. Hazelnuts produced a result of NZA-11934 9318±50BP (8740-8330 cal. BC) and grains (*Triticum/Hordeum sp*) dates of NZA-11935 6920±45 (5900-5710 cal. BC) and NZA-11936 3523±45 (1960-1690 cal. BC). The oldest and most recent of these dates both lie outside the expected dates

suggested by the typology of the microlith assemblage, which falls within Jacobi's (1982) narrow blade technology sub-type. Only the middle date of the early 6th millennium BC lies within the anticipated late Mesolithic phase.

The radio carbon dates from Sandway Road were the only results obtained from samples directly associated with Mesolithic flints along the line of the CTRL. At Beechbrook Wood charcoal of *Alnus/Corylus*, found in a tree throw feature at the base of a Bronze Age ring ditch near to the Mesolithic feature, produced a date of 6020-5840 cal. BC (NZA-20049 7072±BP). This date, which is broadly comparable with assumed activity at Sandway Road, may also apply to other microliths of similar form and frequency that were found along the Lower Greensand ridge. The 223 microliths from Sandway Road accounted for 67% of all retouched material, while the 30 microliths from Beechbrook Wood provided 69% of the retouched tool component. These figures are broadly similar quotas to the 95 microliths from Stonewall (shelter B), which formed 60% of the retouched component, but far in excess of values for Jacobi's other Kentish sites. The value of employing an extensive sieving strategy was illustrated at Sandway Road, where a representative sample of sediment, weighing 2,678g, from the Central Pit was processed through a 2mm and 1mm mesh. The 2mm residue contained an additional 10 microliths, often broken, seven microburins and five Krukowski microburins and indicated the potential quantity of material that may be lost to 4mm mesh. Samples taken elsewhere across the site that were processed in the same way were less productive indicating that it is impossible to extrapolate total tool densities across the entire site from a limited number of samples.

The microlith assemblages from Sandway Road and Beechbrook Wood were similar in type and frequency to that excavated at Rock Common, Sussex (Harding 2000) where a middle/late Mesolithic campsite was recovered from the Greensand Ridge on the south side of the Weald. Although this assemblage, for which no radio carbon dates were available, contained primarily crescentic microliths similar to those from Sandway Road it also included six hollow-based 'Horsham Points suggesting some continuity from the Wealden technology to the narrow blade tradition of the late Mesolithic. The results of the work of the CTRL, especially the results at Saltwood Tunnel, Sandway Road and Beechbrook Wood have helped not only to extend firm evidence for occupation of the north Weald into Kent but also illustrate continuity of occupation throughout the Mesolithic period.

5.3.4 Site location

The distribution of Mesolithic material as plotted from the Sites and Monuments Record (Figure 6) indicated that although occupation could be detected across most of the county it was concentrated along specific bands of geology, principally the Lower Greensand Ridge, or at the edges of two geological units. However a detailed consideration of Mesolithic activity found during the CTRL project, principally from the small number of excavated sites, suggests that there might have been

preferred locations for camp sites, influenced by topography, water supply, communications and access to raw material, within individual geological bands.

Sandway Road was located on a terrace forming the east bank of a tributary stream that flowed south into the headwaters of the River Len. Additional uncorroborated material found by Lord Monckton, to the south (Figure 7, URL Site 1371 and 1372), on what is likely to be the surface of the same terrace suggests that this may have formed part of a large concentration of Mesolithic occupation. Although this assemblage has not been authenticated it is entirely plausible that Mesolithic material was found here with its favourable geology, topography and drainage. There are ten other records of Mesolithic material (Figure 7) within three kilometres west of Sandway Road (Wymer 1977; Jacobi 1982) including a number of previously unrecorded locations (Gardiner pers. comm.). Nine contain sufficient material to suggest that they formed campsites; one find-spot to the south on the Hythe Beds at Ulcombe is of a tranchet axe. Three of the sites are small groups that are located in the floodplain of the River Len, including a compact scatter of blade material found during field walking (field 1346) in the early stages of the CTRL project, approximately 300 m south of Sandway Road. The assemblage was considered to be of early Neolithic date, but contained no diagnostic implements. Given the similarities of late Mesolithic and early Neolithic technologies, the difficulties of recovering microliths by field walking and the recorded presence of early Neolithic material in the area it is quite possible that this material is of either period. Larger assemblages of Mesolithic material are known from Fairbourne Court, Harrietsham (Jacobi 1982), Runham Farm at Lenham and concentrations centred on Park Wood Chicken Farm at Red House, Harrison's Nursery and Goodington Lane, Harrietsham. Most of these sites are located on or near tributary streams that flow south off the Folkestone Beds into the Len, which flows along the boundary of the Folkestone and Hythe Beds. The few sites that are located on the Hythe Beds are also frequently located close to tributary streams that flow down the dip slope into the River Len. Streams are far more frequent on the Folkestone Beds than they are on the Hythe Beds, however the Hythe Beds, for example near Runham Farm, do contain a number of dry valleys that may have been active during the Mesolithic. These assemblages were of similar composition to those found at Sandway Road, including microliths and debitage and probably represent occupation sites; however they also contained tranchet axes with tranchet axe sharpening flakes, components that were not present at Sandway Road. Such a large concentration of sites suggests not only long-term occupation of the area but also probable reuse of individual sites.

It is ironic that this high density of Mesolithic activity on the Greensand Ridge at the head waters of the River Len should lie immediately south of an area of the North Downs for which there is virtually no evidence for Mesolithic activity (Figure 6). Furthermore this area is also immediately south of a major dry valley system that bisects the North Downs, from the crest of the scarp to the coast at the present site of Faversham and commands easy access eastwards across the watershed of the River Stour. The pattern of site distribution noted (Figure 7) for the River Len is not immediately

evident in the headwaters of the River Stour. This may to some extent be due to the presence of Chilston Park, a formal 17th and 18th century Park that has been maintained as permanent pasture. Elsewhere in the River Stour valley, however, records of Mesolithic activity at Evegate Farm and Park Wood Farm, Smeeth (Wymer 1977) were reinforced with material produced during the CTRL from Beechbrook Wood and a small spread of surface flint from fields at Newlands Road and East of Newlands (OAU field 1816 - URL 1994b). These sites were also located on, or close to the east banks of small south flowing tributary streams, where fresh water, relatively dry areas for camp-sites, access to game and routes to the Chalk of the North Downs were readily available. It is conceivable that this distribution is representative of Mesolithic activity along the entire length of the Greensand zone of Kent.

More recently work in advance of the proposed West Malling By-Pass, west of Maidstone; (Wessex Archaeology 2005b) has shown the important relationship between drainage and topography in the location of Mesolithic camp sites on the Lower Greensand ridge. A small quantity of worked flint, mostly of late Neolithic and Bronze Age date but including a late Mesolithic microlith and a tranchet adze, were found on an area of higher ground overlooking the confluence of the Leybourne and West Malling streams, small water courses that flow from the west and south to join and form a west bank tributary of the River Medway.

The pattern can be extended beyond Kent to other locations in the Weald. At Farnham, Surrey, Oakley (*et al* 1939) studied 21 flint scatters on the sands and gravels of the River Wey valley. Ten sites were located on river bluffs, eight in the valley itself and only three were found on the hilltops. Within this relatively confined environment the flint tool assemblages showed noticeable contrasts, with microliths and microburins concentrated on the bluff locations and tranchet axes in the valley sites. The contrasts in the composition of the flint tool assemblages from these sites are marked by the relative frequencies of microliths/microburins and tranchet axes. It is commonly believed (Barton 1992) that the microlith-dominated industries, marked by a limited range of tool types, indicate relatively short term hunting camps and that the lower valley sites, often with axes and a more expansive range of tool types, were long-term, base camp sites where a wider range of activities was undertaken.

5.3.5 Activity areas

The excavation at Sandway Road indicated that large parts of the Mesolithic activity area have undoubtedly been truncated over much of its extent at some time in the past. However the basal parts of the truncated soil profile have been preserved in sub surface hollows, including some that may represent tree throw features that showed variations in the distributions and composition of types of artefacts. These remnants are sufficiently distinct to suggest that they reflect where specific activities took place (Figure 8). As such they provide some evidence to make it possible to speculate about how the campsite may have been organised. The most clearly defined areas are sufficiently discrete to

suggest that the distributions reflect a single phase of activity, although it is most probable that the area did form part of a territory that was colonised and systematically revisited on a regular basis.

The greatest density of artefacts was recovered from the Central Pit, an area that was perversely too small and the quantity of material too great to allow the identification of individual areas of activity. If such areas existed their presence has undoubtedly been obscured by the shear quantity of other, possibly superimposed, material around them and by the possible effects of trample across the area. The value of the spatial data from the feature was, in any case, reduced by the fact that the northern half was excavated as a single context and systematic excavation using a grid was only adopted in the southern half. Artefact distributions for most categories of material showed that the greatest quantities lay towards the centre of the feature, where the depth of deposit was greater and material may have migrated down-slope from the rim of the feature. What is unclear is just how large this spread of material in the Central Pit may once have been? It is possible that it extended to the dense concentration at the south end of the North Spread, in which case the duration of occupation and number of participants required to create such a large quantity of material may have been relatively large. Spatial analysis and artefact composition of two contrasting worked stone clusters at Thatcham, Berkshire (Harding 2003) was used to speculate on the possible uses of the site. One was relatively structured, including chips, with clusters of cores, flakes and blade/lets with microliths and microburins. This area was regarded as one incorporating tool manufacture, microlith production and repair of hunting equipment. The other cluster, by contrast, lacked microdebitage and contained broken cores and fragments, which suggested that this area might have represented a refuse dump. This conclusion was, to some extent, supported by accumulations of disarticulated animal bones.

The material in the Central Pit at Sandway Road contained microdebitage, which suggested that at least some of the material was likely to be *in situ.* There is a possibility that the larger material may also be *in situ* or have been dumped. The interpretation of this assemblage is, in any case, made more difficult by the absence of bone and other organic material, which did not survive at Sandway Road and is likely to have constituted a significant part of the evidence at the site. It is possible that this area combined attributes of both tool manufacture and rubbish disposal, marking an area that was set aside to allow the remainder of the camp to remain largely uncluttered.

The most valuable areas for reconstructing where specific activities may have taken place lay in the North and South Spreads where small clusters of stone artefacts, separated by 'blank' areas, could be detected. Potential activities that could be identified mostly related to flaking activities especially blank production, the conversion of bladelets to microliths using the microburin technique and microlith use or discard, possibly in the repair of hunting equipment. This interpretation provides only a relatively narrow range of activities, maintains the interpretation of microliths as projectile points and the primary function of the site as a hunting camp and does not make provision for scraping activities traditionally taken to include hide processing. The composition of the assemblage is, in any

case, heavily biased towards the manufacture and use of microliths indicating a relatively narrow range of activities.

Artefact distributions were thinner and more easily defined in the South and North Spreads compared with the Central Pit; the broad picture suggests that occupation as represented by stone tool use may have been more intensive in the South Spread. There are areas of burnt flint within the North and South Spreads that have been interpreted as hearths, which are surrounded by scatters of worked flint. One such hearth in the North Spread had no microliths or microburins and probably indicates where flaking took place. Elsewhere this flaking waste was mixed with microburins or microliths indicating that multiple tasks were undertaken there. Isolated areas where microburins or microliths were found almost exclusively suggested that tool blanks as blades were sometimes moved from the flaking area and that the microliths themselves were also transported across the site to areas of use or tool repair. These included discrete areas where scalene triangles and crescents were identified that were in themselves different from scatters of backed microliths indicating that it is possible to discern where microliths of differing types appear to have been used. None of the other specific tool types occurred in sufficient quantities to provide useful indications of where other activities including scraping, cutting or detailed leather working may have taken place.

5.3.6 Site function

Barton (1992), following the work of Mellars and Rheinhardt (1978) attempted to assess site function by examining tool diversity between selected early – middle Mesolithic sites and their location in the surrounding landscape. Barton defined sites containing a restricted tool component, principally (oblique) microliths, end scrapers and microdenticulates as high ground hunting camps where game movements could be monitored, microliths produced and hunting equipment serviced. The restricted tool kit implied that a limited range of other activities was also taking place. These sites often included tranchet axe sharpening flakes, although the axes were seldom present having been removed to the next camp. Barton contrasted the hunting camps with low lying river side locations, which were characterised by a wider, more diverse tool component and activities, including burins, axes/adzes and drill bits. Figure 9 shows that the retouched tool assemblages at Sandway Road and Beechbrook Wood were both highly dependent on microliths, accompanied by miscellaneous retouched pieces and limited numbers of other tool types, including scrapers. In this respect they are almost identical to the site at Rock Common, West Sussex (Harding 2000) and also compare well with other middle-late Mesolithic sites at West Heath, Hampstead, (Collins and Lorimer 1989) and Hermitage, High Hurst wood (Jacobi and Tebbutt 1981). These sites were considered to represent relatively ‘high level’ hunting camps. Their retouched tool assemblages contrast with early Mesolithic ‘low level’ river side assemblages at Star Carr, Yorkshire (Clark 1954), Thatcham, Berkshire (Wymer 1962), Broxbourne, Hertfordshire (Reynier unpublished) and Three Ways Wharf, Uxbridge, Middlesex (Lewis forthcoming) and a late Mesolithic site on the A34, Berkshire (Bellamy 2000). Microliths are less

frequent at these sites and the tool component is broader implying a more diverse range of activities. Using this model the microlith component places Sandway Road and Beechbrook Wood firmly with other 'high level' hunting camps; however this conclusion is somewhat at variance with their locations on slight river valley locations that do not necessarily lie on commanding topographical locations. It is highly probable that the camps lay in relatively wooded valleys, a position that might otherwise cause it to be included as a 'low level' home base.

Mellars and Rheinhardt (1978) examined the distribution of Mesolithic occupation and land use in southern England, particularly the Weald, by using data derived from Wymer (1977) to plot the distributions of microliths, tranchet axes and 'pebble' mace heads. The results correlated strongly to those of a similar exercise undertaken by Clark (1932) who showed that Mesolithic occupation was associated with areas of coarse textured sandy soils. They acknowledged that there were problems with the data, principally that it was derived from old collections, which frequently lacked small items especially microliths, there were few results from detailed excavations and it also failed to allow for the effects of soil erosion or accumulation. They considered that these factors would be minimal and would be restricted to slope locations. More recent surveys in Hampshire (Shennan 1985) have done little to contradict the data available to them. The size and scope of the CTRL project has undoubtedly provided as unbiased a set of results as it is likely to obtain from a transect of the Wealden geology for the discovery of Mesolithic sites, including those that are buried. The work included field walking across broken ground, evaluation, excavation and watching briefs.

The addition of data produced by the CTRL project has also tended to confirm the results of previous research. The principal occurrences of Mesolithic material are clustered along the Greensand Ridge, with a sparse presence on the Chalk beyond. Mellars and Rheinhardt (1978) argued that this was related to the natural vegetation, which was naturally less luxuriously vegetated on sandy soils. The lack of undergrowth provided sparse cover for game and could be improved by fire to create totally open environments that were suitable for hunting. They considered that this open landscape, in conjunction with a ready water supply, would provide the most suitable environment for base camps. Adjacent geological beds with richer soils and denser vegetation would be exploited for plant foods and flint, from the Chalk. This model regarded it as likely that primary movement occurred along the open sandy environments with forays to the north and south for short distances to collect additional essential resources.

The detailed locations of sites close to Sandway Road, a small surface assemblage from Newlands and other sites in the Great Stour valley, including Beechbrook Wood, along the line of the CTRL have hinted that tributary valley locations may have provided preferred locations for camp sites. These sites would provide easy access to the Chalk hinterland to the north where supplies of better quality flint were available. The results of the project have suggested that, in general, little attempt was made to exploit these sources and that preference was given to locally available supplies of poorer quality nodules from head gravel. This use of secondary flint sources is generally recurrent

across much of the Weald (Oakley *et al* 1939), although cortex on flint at Ipping Common, West Sussex (Keef, Wymer and Dimbleby 1965) suggested that chalk flint was being exploited for tool manufacture. Given the relative proximity of the Chalk to the Lower Greensand, the evidence for occupation of the Chalk by Mesolithic groups and use of nodules on the Chalk for the manufacture of tranchet axes it is perhaps surprising that there was only limited use made of Chalk flint. At both Sandway Road and Beechbrook Wood it was considered that the absence of cortical fragments hinted that nodules had not been prepared on site. Nodules may have been quartered at a raw material source, in some cases on or near the Chalk, unwanted cortex removed and rejected and core blanks transported around or stored at regular camp sites.

Local tributary valleys would have made access to the land at the base of the Chalk scarp to the north much easier. The broader distribution of Mesolithic material indicates that although sites are apparently more concentrated around the arc of the Lower Greensand, in what is now Hampshire, Sussex and Surrey, with only relatively sparse concentrations in Kent, occupation did extend across the Central Weald. The topography immediately to the south of the Rivers Len and Stour drains towards the central Weald across the Sandgate Beds and Hythe Beds to the River Beult and movement to the south along river courses may not have been so easily achieved. However the traverse of the Weald is arguably less severe than the Chalk scarp making it more easily accessible without direct recourse to utilising drainage patterns. A number of sites have been excavated in the High Weald where work at rock shelters at High Rocks (Money 1960), Hermitage Rocks (Jacobi and Tebbutt 1981) and The Rocks, Uckfield, East Sussex (Hemingway, in progress) suggest intermittent occupation of natural outcrops that provide shelter for small parties of hunters. Quantities of worked flints are relatively low, although Hermitage Rocks produced 4,329 pieces of flint of which large numbers of microliths were present with notches and burins. High Rocks produced only 54 microliths. The relative preponderance of microliths has lead to the conclusion that this occupation represents limited, possibly seasonal and recurrent sporadic occupation, possibly during hunting trips.

By the period of the later Mesolithic most areas of Southern England are likely to have witnessed major changes to the natural vegetation. The birch and pine, which had colonised the landscape following the retreat of the Devensian ice cap, had been replaced predominantly by deciduous woodland. These species, primarily oak, elm elder and lime with hazel, holly and ivy are likely to have predominated by 6,000BC. Mellars and Rheinhardt (1978) pointed out that this provided a generalisation and that individual geological beds would have produced their own variations to this picture. Sandy soils would encourage open ‘dry’ oak wood with limited shrub cover, which would provide optimum conditions for hunting while ‘wet’ oak wood would dominate on areas of fertile loam, where fruits and vegetables might be found. They added that evidence from Ipping Common, Sussex (Keef *et al* 1965) and Oakhanger sites VII and VIII (Rankine and Dimbleby 1960) showed that the natural vegetation cover on these two Lower Greensand sites had been burned off by fire to create a more open environment. They noted that repeated use of this technique would produce

podsolisation of generally infertile soils, such as those on the Lower Greensand. There is nothing to show whether burning was ever employed as a technique of controlling undergrowth at Sandway Road or Beechbrook Wood, although it is plausible. It is uncertain, in any case, how the natural vegetation cover of the terrace at Sandway Road may have differed from that on the surrounding Lower Greensand. The spreads of burnt flint are predominantly concentrated and are more likely to have resulted from camp fires than rapid, relatively short term burning of undergrowth. Few of the flint artefacts show traces of scorching or burning from inclusion in fires. Charcoal has not survived in any quantity anywhere although fragments of sufficient size were recovered from a tree throw feature at Beechbrook Wood. These fragments were unaccompanied by any clear evidence for human activity but provided a radio carbon date that was probably contemporary with the late Mesolithic occupation at the site.

5.3.7 Sub surface hollows

A recurring feature of the excavations at Sandway Road and Beechbrook Wood were a number of 'pit' features or sub surface hollows, in some cases of geological origin but most frequently regarded as tree throws. The cluster of eight 'Horsham' points was similarly located primarily in the upper parts of a hollow at Saltwood Tunnel where they may have been cached or lost. These hollows have been described in some detail (McPhail 1987; McPhail and Goldberg 1990) as circular or 'D' shaped features marked by a deeper crescent-shaped pit on one side. They were distributed across the entire site at Sandway Road, where they were sealed by colluvium. Although the upper parts were almost certainly truncated they were the principal containers of the Mesolithic burnt and worked flint assemblage. It may partially explain why material is frequently recovered as surface finds while other evidence for preserved Mesolithic activity along the route is so limited. The largest concentration of material at Sandway Road was found in a deeper hollow, referred to as the Central 'pit'. Most of the artefacts had undergone some vertical resorting by bioturbation, but were nevertheless recovered from the upper parts of the filling, suggesting that the hollow had undergone some preliminary silting from the root bole before use by hunting groups.

Drewett *et al* (1988) was also aware of 'pit' features that occurred on late Mesolithic sites, but was less certain about their origin. In a review of Mesolithic occupation in Sussex he divided sites into those from rock shelters, sites with pits, flint knapping sites and specialized activity areas, where flints were relatively scarce. Five sites were listed that contained 'pits' of uncertain function or origin that are similar to those found at Sandway Road. The site at Abinger, Surrey (Leakey 1951) contained an oval pit 4.5 m long, 3 m wide and 1 m deep with two post holes at one end. It was dug into the natural Greensand and contained 1,056 pieces of worked flint, including 60 microliths, scrapers, tranchet axe sharpening flakes and an axe. There were also cores, utilized flakes and knapping debris, which extended beyond the edge of the feature onto the surface around the pit. Three irregular, oval pits that lay near the junction of the Lower Greensand and the Gault Clay were also excavated at

Selmeston, Sussex (Clark 1934). These pits were also associated with an extensive flint industry, including 136 microliths with burins, scrapers, tranchet axes and debitage. The work at Farnham, Surrey (Clark and Rankine 1939) uncovered four irregular pits, which produced over 39,000 pieces of worked flint, including 690 microliths, 403 scrapers and 15 axes. The pits averaged 6.3 m long, 3.4 m wide and approximately 1 m deep. Pit II was excavated in spits 0.15 m thick and the authors noted that flints were found throughout the fill, suggesting 'that the flints had silted into the pit from the edge after its abandonment' (Clark and Rankine 1939, 67). There was, in any case, nothing to indicate that worked flints were more prevalent on the floor of the hollow. Two flakes from polished axes were found in pits I and III, with Neolithic pottery; however despite this these objects were regarded as intrusive strays and the pits were interpreted as dwellings. Drewett (*et al* 1988) had little doubt that they were man-made but felt that they were more likely to represent flint extraction pits.

The similarities of the pits and flint assemblages at these sites, and at Farnham in particular, to that at Sandway Road, are very marked. Both sites contained large numbers of microliths of which geometric pieces formed a large proportion and are located on gravel terraces close to a fresh water source. Oakley (Clark and Rankine 1939) recorded that the 'dwelling-pits' at Farnham had been dug into gravel, which was largely unstratified, disturbed and lay on Chalk that contained solution pipes into which oval depressions had formed that were filled with sand with scattered flint artefacts. The form and filling of the Central Pit at Sandway Road is immediately similar to those from Farnham. It was circular, approximately 3 m in diameter with sloping sides and a rounded base. The results of the excavation, part of which was undertaken within a grid and in controlled spits, produced 5,162 pieces of worked flint, of which 115 were microliths. An additional 10 microliths were recovered from the residue of samples that were processed through 2mm mesh. This concentration accounted for the densest concentration of material from the excavation. The assemblage had undergone considerable vertical resorting and it is possible that flint from Farnham far from having silted in from the edge of the feature (Clark and Rankine 1939, 67) may also have been subjected to the same phenomenon.

Evans (*et al* 1999) reassessed the evidence for Mesolithic 'pit dwellings' at Farnham (Clark and Rankine, 1939) and concluded that these dwellings were undoubtedly tree throw pits. He also argued that upturned tree stumps would have been highly visible markers that could be revisited by a group within a defined territory in an otherwise deeply wooded environment. Objects required for reuse could be cached for retrieval in subsequent visits. They observed that a fallen tree also created a ready made clearing that could be utilised without the need to fell any standing trees. They pointed out that large concentrations of artefacts adjoining the tree hollows might indicate that the upturned stumps, where they were still extant, had been incorporated into a temporary shelter/dwelling. More permanent Mesolithic structures are relatively rare although circular huts, averaging 6m in diameter have recently been recorded from Howick, Northumberland and East Barns, East Lothian (Waddington 2003).

It is entirely possible that tree throws, modified or unmodified, provided shelter at Sandway Road and elsewhere along the Lower Greensand ridge. The hollows frequently contained the largest concentrations of burnt flint with deposits of occupation debris to the south facing aspect, although it was impossible to be certain whether similar material existed to the north beyond the extent of the spread. The spread of debris adjacent to one hollow formed an arc of material that extended away from the hollow, with knapping debris, microburins and satellite hearths. There was no data available to show which species of trees were present at Sandway Road, although it is more likely that the soils favoured the acid loving varieties, creating a relatively open 'dry' oak environment (Mellars and Rheinhardt 1978) with birch and pine. These species are relatively stable but more susceptible to wind blow when they are found on sandy soil, conditions that prevailed, especially at the margins, in the South and North Spreads at Sandway Road. Any fallen trees may have supplied the only available natural shelter in what may have been a relatively open landscape.

6 PHASE II - EARLY AGRICULTURALISTS (4,000-1,600 CAL BC)

6.1 Early Neolithic

6.1.1 Introduction

Flint and stone axes comprise the most easily recognisable Neolithic artefacts as surface finds and are the most numerous Neolithic implements from the county. Their presence demonstrates that Neolithic communities had entered and settled an area. The presence of axes also carries an implied episode of forest clearance, possibly associated with the construction of substantial timber structures. Clarke (1982) mapped the positions of 45 flint axes, 27 of stone and 20 locations of flint artefacts, while Ashbee (2004) has located 77 polished axes, of which 18 were of 'fine grained stone'. Like the data listed by the Sites and Monuments Record (Figure 12) there is frequently nothing to date or separate early Neolithic pieces from late Neolithic artefacts. The sample listed on the Sites and Monuments Record contained 157 find spots of flint and stone axes,116 flint artefact(s), 34 arrowheads of unspecified types and 23 scrapers; 99 additional entries, listed as 'prehistoric' were removed as unclassifiable.

The distributions of Neolithic activity as plotted by Clarke (1982), Ashbee (2004) and from the Sites and Monuments Record data have illustrated broad similarities in the results although there are variations in the individual surveys; it is rarely possible to separate flaked axes from polished implements with any degree of certainty. The results show general agreement that there was a more marked increase in activity across the North Downs from the linear distribution of Mesolithic material along the Greensand of the Weald. Ashbee (2004) shows especially dense concentrations of flint axes around the Medway Gap, coinciding with the Medway Megaliths. Stone axes, possibly imported by sea, were more frequent along the River Thames estuary, extending to the base of the dip-slope of the

North Downs, with others extending up the course of the Rivers Medway and Great Stour into the Weald. Flint axes were present on the North Downs, especially between the Rivers Medway and Stour, where they were probably manufactured from the local raw material with some transported south to the Weald.

Both Clarke (1982) and Ashbee (2004) recorded sites with early Neolithic pottery around the coast near Deal and Thanet with other locations containing pottery, axes and other flint artefacts from the edge of the Chalk Downs at Folkestone. Further inland groups of material could be identified at the edge of the Weald on the Upper Greensand, although strangely very little pottery was known from the Medway Gap. Finds of Neolithic pottery have also been made along the Thames Estuary but are rare from the North Downs.

6.1.2 Previous studies

Apart from stone tool concentrations the most tangible evidence for Neolithic occupation in Kent is apparent from a number of earthwork monuments. The most impressive group lies south of the River Medway Gap on the north edge of the Weald where a cluster of megalithic monuments lie astride the River Medway. These monuments (Figure 13) known as the Medway Megaliths comprise a group on the east bank including the Upper White Horse Stone, probably a chambered tomb that now survives as a standing stone, the Coffin Stone, Kits Coty, Little Kits Coty and Lower White Horse Stone, which is no longer visible. Together with a smaller group on the west bank near Addington they form the largest concentration of megalithic monuments in Kent and demonstrate intensive occupation of that part of the county in the Neolithic period. A group of earthen long barrows (Figure 14) at Julliberrie's Grave, Boughton Aluph and Elmsted, which are otherwise relatively scarce in Kent, are located on the Chalk in a comparable location to the Medway Megaliths overlooking the River Stour as it bisects the North Downs.

The results of artefact distribution as plotted from the Sites and Monuments Record (Figure 12) also suggested that Neolithic settlement across the Weald might have been influenced by the major drainage patterns, especially within the basin of the River Medway. The data when superimposed on the solid geology and Clay-with-Flints capping showed denser concentrations across the North Downs especially towards the eastern and western edges. Oddly the SMR did not show a group of axes plotted by Clarke on the Chalk between the Rivers Medway and Stour. However the results demonstrate quite clearly that the distribution of flint axes frequently coincides with a surface capping of Clay-with-Flints especially on the Downs east of the River Stour.

This phenomenon was noted by Gardiner (1990, 131) in a comparable study of surface flint scatters and flint axes on the Southern Weald and the South Downs of Sussex, Dorset and Hampshire. She demonstrated that the Clay-with-Flints frequently provided an alternative source of large, good quality nodules for flint axe production, away from the early Neolithic centres of production around the major Sussex mines at Cissbury, Harrow Hill, Findon and Blackpatch. The Clay-with-Flints also

influenced the preferred settlement pattern during the late Neolithic - early Bronze Age transition, a period that was previously poorly represented in Sussex. She also showed (1990, 123) that flaked axes were mostly restricted to the Chalk, the source of the raw material, with nuclei predictably around the manufacturing sites of the Sussex mimes. Polished axes were more evenly distributed with a spread of, presumed finished, tools in to the Weald.

It has not been possible to separate the distributions of flaked and polished axes as plotted by Clarke (1982), Ashbee (2004) or from the Sites and Monuments Records. Nor has it been possible, from the data available, to establish whether the spread of axes across the Kentish Weald contains greater numbers of polished or flaked axes. Neither survey shows any distinct concentrations that might be expected to represent previously unrecorded industrial sites; however most counties with natural Chalk geology, apart from Sussex with examples in Norfolk, Wiltshire and Oxfordshire, rarely include specialised mining sites. It is more likely that prehistoric groups knew where seams of good quality flint could be found outcropping on the surface, as material in the base of dry coombes or as nodules from Clay-with-Flints. Once the axe had been flaked, grinding and polishing could have been undertaken using residual blocks of sarsen on the Chalk or appropriate slabs of sandstone on the Weald.

6.1.3 Continuity of land use

Evans (*et al* 1999) described the deposition of material in tree throws at Barleycroft Farm, Cambridge into the earliest phases of Neolithic clearance and settlement when communities are believed to have continued many aspects of the Mesolithic lifestyle, particularly the habit of being mobile for regular periods of time. The flint assemblage had retained features of the Mesolithic technology, principally flakes, blades and microdenticulates, but had acquired trappings of the early Neolithic culture, including laurel leaves, leaf arrowheads and flakes from broken or reworked ground axes. Subsequent early-middle Neolithic activity was represented by the digging of regularly cut pits. Evans (*et al* 1999) acknowledged that deliberately constructed pits were also present in the earliest phases of the Neolithic, as at Coneybury, Wiltshire (Richards 1990), where the 'anomaly' produced a date of 3980-3708 cal BC (OxA 1402), but considered that the use of natural features also played an important role in the day-to-day existence of the early Neolithic. He considered that the quantity and range of material found in the tree throw features, which at Hinxton, Cambridgeshire occurred in the upper fills of the feature, argued that it represented midden material.

This analogy may not be entirely replicated in Kent although there are undoubted similarities with deposits and features in the county, including some along the rail line. The results of excavation also suggest some level of unbroken use of the landscape from the Mesolithic to the early Neolithic. Mesolithic flint, some considered to be *in situ,* was found below the Chestnuts tomb, Addington (Alexander 1961, 9) where early Neolithic pottery was also discovered. Along the rail line a relatively high frequency of blades within a scatter of flaking debris found in a tree throw South East of

Eyhorne Street was considered sufficient to suggest that this material was of early/middle Neolithic date. Elsewhere stray early Neolithic artefacts, including a flake from a polished axe and a leaf arrowhead were mixed with the Mesolithic material in sub-surface hollows at Sandway Road. Other early Neolithic flint assemblages were found in pits; at Beechbrook Wood a flint industry was uncovered, associated with Plain Bowl pottery, which was virtually indistinguishable from a late Mesolithic assemblage excavated from a tree throw near by. Two more early Neolithic pits, dated from charred hazelnuts to 3650-3380 cal BC (NZA-20599) and containing flint, were excavated at Saltwood Tunnel. Both pits also produced early Neolithic Plain Bowl pottery. With the exception of material from post holes at White Horse Stone early Neolithic material along the line of the CTRL, as with the late Mesolithic, was consistently restricted to tree throws, natural or pit type features. Given the density of Mesolithic material present along the Lower Greensand ridge it is not entirely surprising that the locations of some of the late Mesolithic camp site flint assemblages have coincided with early Neolithic material. However it is probable that some are not coincidental and mark continued use of the existing landscape and territorial divisions by communities that were adapting to an early Neolithic way of life. This period of transition from the relatively mobile hunting and gathering lifestyle to one of increased stability and the construction of the first formal monuments including causewayed enclosures and long barrows but also pits, marks one of the most important episodes for human populations and its effect on the landscape.

Clarke (1982) stressed the general level of neglect and lack of excavation, research and publication that had been undertaken in the study of the early Neolithic of Kent. He considered that on a regional scale much could be added to the record by undertaking systematic field walking surveys, a strategy that has been adopted by the CTRL. He also noted the frequent recovery of Neolithic artefacts from hill wash deposits where they had migrated down from higher slopes following the introduction of agriculture and the clearance of the native woodland cover. The effects of colluvium were ably demonstrated at Holywell Coombe (Bennett *et* al. 1998) and have been repeated on the CRTL by the discovery of a probably truncated Neolithic and Bronze Age landscape preserved beneath hill wash at White Horse Stone. In addition Clarke (1982) recognised that stratified groups were generally only known from small assemblages found in isolated pits and artefact scatters, a fact confirmed and elaborated on subsequently by Healy (1983).

6.1.4 Evidence from Fieldwalking

Diagnostic stone tools, collected by field walking, have been used successfully to study, interpret and date scatters of worked flints that indicate areas of prehistoric activity in the landscape. Richards (1990 Table 6) employed an established list of chronological attributes to assess flint collected during the Stonehenge Environs Project; however the concept that variations in the quantities of material of chronologically distinct periods could be detected from field walked assemblages had been addressed earlier by Healy (1983) in an analysis of worked flint from Tattershall Thorpe, Lincolnshire. She used

a combination of diagnostic retouched tools, including early Neolithic leaf arrowheads and microdenticulates with increased proportions of blades and blade-like flakes with prepared striking platforms to define early Neolithic industries. She contrasted these early Neolithic assemblages with others of late Neolithic and Bronze Age date which she defined using chisel, oblique, barbed and tanged arrowheads with piercers, squat or broad flakes and multi-platform, discoidal or 'Levallois' type flake cores. The results demonstrated that material of late Neolithic and Bronze Age date more frequently occurred in the plough disturbed zone, masking flint of early Neolithic date, which was preserved in pit type features below the plough soil. She demonstrated that this was a recurring trend of sites in East Anglia citing results from comparative analyses of samples from Broome Heath (Wainwright 1972) and Spong Hill, both in Norfolk. She explained this phenomenon by referring to work by Crowther (1983) who suggested that it might result from the deposition of material introduced to the area from off-site activities or that ploughing had been responsible for the removal and mixing of later prehistoric land surfaces and features. Healy noted that although pits and other sub-soil features occurred throughout the prehistoric period that they were 'almost ubiquitous' on sites of late fourth and early third millennium but less frequent from the late third millennium onwards. She concluded by venturing to suggest that flint scatters, defined by field walking, would be biased in favour of material dating to the first and second millennium BC at the expense of earlier material, which might be preserved in subsoil features below.

Gardiner (1990), studying the distribution of material on the Clay-with-Flints of Sussex, Hampshire and Dorset confirmed Healy's (1983) assertion that early Neolithic flint scatters were frequently difficult to detect as surface assemblages. These conclusions suggest that many of the surface flint scatters detected during the field walking survey along the route of the CTRL are more likely to reflect broad settlement patterns during the late Neolithic and early Bronze Age than the early Neolithic on the North Downs and Lower Greensand of Kent.

The average density of worked flint in the CTRL corridor (Table 1) was low; however there were sufficient variations in total quantities to make it possible to isolate thirty eight discrete scatters of worked flint containing 2,022 pieces of material. Individual clusters (Figures 2 and 3) ranged from 504 pieces of worked flint at Ebbsfleet (OAU1467) to 9 flakes at Hurst Wood (OAU 1815) (mean 53 pieces) which reflected probable areas of prehistoric activity. Apart from one group, Newlands (OAU 1816) which contained a significant quota of blades and blade-like flakes that were sufficiently diagnostic to be classified as Mesolithic, the remaining groups were all listed as probably of Neolithic or Bronze Age date. Seven of these clusters at Woodcut Farm, south of Snarkhurst Wood (OAU 1842); Sandway, two clusters of 134 (OAU 1346) and 60 pieces (OAU 1347); Station Road, Parsonage Farm, 31 flakes (OAU 1352); Little Stock Farm, 31 artefacts (OAU 1355); Saltwood Tunnel, 18 pieces (OAU 1368); White Horse Stone, 24 pieces (OAU 3100)) were subsequently examined in excavations. The small, nucleated scatter defined at White Horse Stone included 23

flakes some with characteristics of soft hammer percussion that were attributed to the (early) Neolithic.

Further east at Detling (OAU 3101) a group of seventeen flakes also included some with soft hammer characteristics. Elsewhere along the length of the Greensand Ridge collections of flint, predominantly flakes, were of mixed composition; however isolated pieces with soft hammer characteristics, while not comprehensively diagnostic, indicate that there was likely to have been a continued presence from at least the early Neolithic along the Greensand below the Chalk escarpment.

The field walking survey recovered two early Neolithic leaf-shaped arrowheads that were both found on the Greensand ridge east of Ashford. They included an unfinished example from Sevington Church Lane and west of Blind Lane (OAU 1820) associated with a neatly retouched scraper on a thin blank, a blade-like flake and early prehistoric pottery; material that is more typical of a domestic assemblage. A broken leaf shaped arrowhead from Harringe Court, Sellindge Converter (east) (OAU 1361) was found with a small diffuse spread of undiagnostic flint which may or may not have been related, but possibly lost during a hunting expedition. A miscellaneous, undated arrowhead was found at Westenhanger (OAU 1366-7).

Neolithic activity on the North Downs, probably early Neolithic, is also suggested from material showing elements of systematic debitage. These included a small number of flakes and blades with scrapers from Ebbsfleet (OAU 1467, 1828, 1801, 1830) that were produced by soft hammer percussion. They were distinctive among a surface assemblage of 498 flakes, most of which were collected from OAU 1467, that was considered to be of Bronze Age date. On nearby land at Northfleet (OAU 1802) and Nashenden Farm (OAU 1807) material of probable Neolithic date was also recovered from otherwise mixed assemblages. Although only limited detail can be recovered from this data it is sufficient to confirm that occupation had extended across large parts of Kent by the (early) Neolithic period.

The absence of large quantities of diagnostic early Neolithic surface flint does not suggest large scale occupation; however its absence may argue that yet again, as at Beechbrook Wood and Saltwood Tunnel, early Neolithic flint is often better preserved in sub surface features.

6.1.5 Raw material

The distribution of worked flint, although thinly spread, suggests that there were few parts of the area that had not been colonised by the early Neolithic period. Flint sources associated with early Neolithic assemblages suggest that flint was obtained from immediate surroundings, much as it had been in the Mesolithic period. The adoption of a gradual but more stable use of the landscape is likely to have produced quantities of fresh flint from broken ground as by-products of forest clearance, the breaking up of land for agriculture and the construction of ceremonial monuments. None of the sites produced enough flint to indicate any form of industrial flint knapping activity along the line of the CTRL. There was similarly no evidence for flint extraction in Kent such as that seen on the South Downs

flint mining sites in Sussex, although it is likely that some trade was established with these sources just as stone axes were eventually imported from Cornwall and the North of England. The flint of the North Downs is generally of good quality and the derived flint was probably sufficient to sustain all the needs of the local economy. Some flint from White Horse Stone appeared to have been obtained as fresh flint from the Chalk, which lies adjacent to the site. All excavated sites recorded some use of Bullhead flint, although there is nothing to indicate that this was an intentional feature of raw material selection.

6.1.6 Excavated material

The results of the field walking and the subsequent excavations have made it possible to assess the survival of material in subsurface hollows, pits and ditches and contrast the results with the quantities and character of flint produced by surface collection. The excavated assemblages have often been of limited quantity (Table 4) but analyses have been sufficient to confirm that occupation of the landscape continued from the late Mesolithic into the early Neolithic along the line affected by the CTRL. Much of this appears to have resulted from early Neolithic settlement that expanded from the nucleated occupation of the Greensand Ridge in the late Mesolithic.

The technology of these late Mesolithic assemblages was consistently indistinguishable from that of the early Neolithic and included the use of flakes as bladelet cores. This was nowhere more marked than at Beechbrook Wood, in the Great Stour valley (Figure 14), where it was impossible to be certain how much of the debitage in an early Neolithic pit, associated with Plain Bowl pottery, comprised residual Mesolithic material or simply represented unbroken, transitional activity into the early Neolithic. The pit lay approximately 120 m south of a tree throw containing a late Mesolithic flint assemblage. Two geometric microliths and six microburins, seemingly of late Mesolithic date, were found in the early Neolithic pit. Cramp (2005a) noted that, possibly significantly, no microliths were found in any Bronze Age features at the site, which lay to the east. This suggests that the early Neolithic activity initially continued to exploit broadly the same parts of the landscape as had been utilised by the Mesolithic communities.

This persistent pattern of land colonisation could be traced from the late Mesolithic through the early and late Neolithic to the early Bronze Age from discrete features at Sandway Road. Isolated diagnostic early Neolithic flint artefacts, including a flake from a ground flint axe and a leaf arrowhead, were found with the late Mesolithic material although, as at Beechbrook Wood, there were no perceptible differences in the remaining technology. Abraded sherds of early, middle and late Neolithic pottery were also found (Trevarthen 2005). Most of these pieces came from tree throw features that were sealed by the later colluvium, and suggest that occupation continued in the general area of the Mesolithic activity. A small number of flakes with abraded striking platforms thought to be

of Neolithic date were found on the higher ground to the east, which may reflect expansion of activity out from the stream-side location.

At Saltwood Tunnel, at the east end of the route near Folkestone, two small but well-cut pits, 136 and 175, were dated by early Neolithic pottery, but in most other respects the technology was again almost indistinguishable from that of the late Mesolithic. Of specific interest was the recovery of 28 pieces of debitage from Bullhead flint from the two pits. This represents a substantial quantity of a little used raw material from what was otherwise a relatively small assemblage. There was nothing to indicate that the material could be conjoined, so impossible to confirm that it came from a single nodule. This specific use of Bullhead flint also left unresolved whether it represented deliberate or random raw material selection and whether it resulted from specific ritual use.

Elsewhere the evidence for early Neolithic activity, and the transition from the late Mesolithic in particular, was more tenuous. Excavations South East of Eyhorne Street produced evidence of activity spanning the period from the Mesolithic to the early Bronze Age. This site, like White Horse Stone, lay within easy reach of the Medway Megaliths. Stratified assemblages were generally small, but one apparently intact assemblage, comprising 103 pieces including blades and chips from a tree throw, was considered to be of early Neolithic date. The 87 chips recovered from this feature suggested that the assemblage was derived from flaking, possibly *in situ*, and tool production that was undertaken as an open air activity. Three other features contained only 35 pieces of material including flakes with blade scar facets on the dorsal surfaces, a microlith and fragments of early Neolithic pottery. These pieces were thought to be redeposited or to have silted into the features; nevertheless they represent important indicators of the distribution of Mesolithic and early Neolithic settlement and activity across the landscape. There was also a broken leaf shaped arrowhead from the topsoil.

Worked flint of probable early Neolithic date was recovered as individual pieces or as small groups of material from unstratified contexts, in redeposited material or in colluvium from other sites along the route of the CTRL. This material was sufficient to hint at early Neolithic activity at Cobham Golf Course, Boarley Lane, Tollgate and South of Snarkhurst Wood.

Evidence of Mesolithic and early Neolithic activity was relatively sparse on the thin soils of the North Downs where flint occurs naturally. A probable retouched Mesolithic blade and scatter of residual material of probable Neolithic date was found with assemblages that were primarily of early to late Bronze Age date at Cobham Golf Course.

The continued use of the landscape from the Mesolithic to the early Neolithic was most apparent in the presence of stone tools, however radio carbon dates of 8,530-8280 cal BC (NZA-21349, 9182±40 BP) and 7,600-7,520 cal. BC (NZA-21381, 8516±35 BP) were obtained from residual *Pinus* charcoal that was found in post holes of the early Neolithic long house at White Horse Stone. There was no associated worked flint or other evidence of Mesolithic occupation to indicate whether the charcoal reflected deliberate clearance of the natural forest cover by Mesolithic communities or originated from natural fires; however White Horse Stone lies conveniently close to

the spring line at the base of the Chalk scarp to have made the area an attractive one for Mesolithic occupation.

The earliest definite human activity at White Horse Stone was confirmed by radio carbon dates for material in post holes of an early Neolithic long house (Figure 17) and by associated pottery. It was however difficult to integrate the flint assemblages from this structure and from a number of associated tree throw hollows into the overall chronology. Three flakes, with irregular waste, and chips were found in two tree throws that were thought to relate to possible woodland clearance in advance of the construction of the long house. The post holes of the structure itself produced an additional 38 pieces of worked flint and 239 chips (84%), possibly related to the construction and use of the house. No tools were present.

Twenty four other natural hollows or tree throws within, near or south of the long house provided 297 pieces of worked flint, also mainly chips from sieved residues. There was a scraper, a backed knife and three retouched flakes. Some edges showed traces of use although the sample was too small to draw any significant conclusions. All this material was thought more likely to be of early Neolithic date (Hayden 2006a) due to pottery that was present in the tree throws; however the flint assemblages were too small and insufficiently diagnostic to confirm this. In addition (Figure 17) three pits within the house, three pits and two circular structures to the south of the long house, all dated by late Neolithic pottery, offered the possibility that intrusive material may also be present in the tree throws.

A second post built long house that was also thought to have been of early Neolithic date was found at Pilgrim's Way, but this also produced minimal quantities of worked flint. Worked flint in tree throws was primarily of late Neolithic date.

The absence of large quantities of worked flint from White Horse Stone and Pilgrim's Way was not confined to the early Neolithic but extended to the late Neolithic. The construction and use of the long house did not apparently generate large quantities of domestic and industrial refuse. It was considered (Hayden 2006a) that the interior and immediate surroundings of the structure were systematically kept clean and that refuse was deposited at a midden, although tree throws across the site, which might be expected to have contained midden material, were also consistently clean or considered to be of a later date (Hayden, 2006a). The most prevalent artefacts, chips, were recovered by sieving which suggested that there was once a thriving flint industry at the site, although there was no clear distribution of material. Features that were not sieved produced, not surprisingly, few chips but also produced only small numbers of flakes, artefacts that are normally recoverable by hand excavation. Furthermore there was a marked absence of any blades from the site, an artefact that is considered to be common in the early Neolithic and the presence of which made the early Neolithic industry almost indistinguishable from that of the late Mesolithic at Beechbrook Wood. The apparent absence of worked flint from the initial phase of occupation at White Horse Stone may to some extent be offset by the relatively large amounts of derived flint that were present in an Iron Age palaeosol,

features of Iron Age and later date and unphased features. This may suggest, along with the absence of definite internal features, that evidence of the earliest occupation has been dispersed or truncated by later activity.

Table 5 summarises by site the number of contexts and types of feature that contained flint along the CTRL. It confirms the frequency with which pits occur throughout prehistory but demonstrates that they provide a greater source of worked flint throughout the Neolithic period than they do from the onset of the Bronze Age. Furthermore tree throw features, as discrete assemblages from Beechbrook Wood, Sandway Road and Eyhorne Street demonstrate, almost exclusively serve as catchments for flint in the Mesolithic and Neolithic periods. Even at White Horse Stone, where flint was notably scarce, it was concluded (Hayden 2006) that flint of early and especially late Neolithic date was more likely to survive in tree throw features and pits than later prehistoric material, although it was never possible to date individual groups. As with Mesolithic occupation, associated activity areas around these features rarely survived intact. It is possible that the reduction in the number of occurrences of flint working in tree throw features through time reflects the clearance of any natural woodland, truncation of features through the onset of agriculture and the establishment of more permanent, settled communities, although as agriculture became more prevalent deposits of colluvium may have accumulated to seal tree throw hollows and pits. As such the results of the CTRL substantiates Healey's (1983) and Gardiner's (1984) conclusions that there is likely to be a bias towards the survival of early Neolithic flint work in pits and tree throw features.

Flint artefacts preserved in tree throws are, as with the Mesolithic assemblages, likely to have undergone some degree of vertical movement as a result of bioturbation, especially on the sandy soils of the Greensand. As the soils were broken up by agriculture, or vegetation clearance, material is also likely to have undergone horizontal movement, especially on steeper gradients. Sites, both on lower slopes but especially those exposed higher up, would have been truncated and soils containing artefacts redeposited as colluvium at the base of the slope. This soil movement may initially have been relatively slight but increased with repeated and more efficient ploughing methods. Worked flint, mainly undated material, was found in thick deposits of colluvium at both Sandway Road and White Horse Stone. A broken leaf shaped arrowhead (Figure 15.71) was recovered from a similar deposit during work East of Boarley Farm, a site that formed part of the work at White Horse Stone. This suggests that soil movement may have started at a relatively early date in the Neolithic, although Neolithic material found in extensive deposits of hill wash at Holywell Coombe (Bennett *et al.* 1998) was considered to have been incorporated when colluviation commenced, probably in the early Bronze Age. Most recently some truncation is likely to have occurred from machine stripping in advance of rail-link construction.

Table 5 also charts the gradual decline in the use of flint in the Bronze Age as it coincides with an apparent increase in the number of ditch features, dug to define land boundaries or funerary monuments. It also reflects that the largest component of worked flint from most assemblages in the

project was frequently made up of residual material from features of late prehistoric or later date, unstratified or undated contexts. Finally it confirms the apparent expansion of permanent settlement from the Lower Greensand onto the Chalk at a time when land division boundaries became established features of the Bronze Age landscape.

No complete ground and polished flint and stone axes were found during the work on the CTRL nor was there evidence for the manufacture of core tools, which may have taken place on the North Downs where flint was more readily available. However five flakes from polished axes and two fragments of axes, that had broken during use or reworking, were recovered. Only one flake, from a Grooved Ware pit at Pilgrim's Way, was stratified in a reliable context; the remaining pieces frequently occurred in areas where evidence of Neolithic activity was present. Individual flakes were found from contexts at Sandway Road, Snarkhurst Wood and Northumberland Bottom from unstratified or redeposited material or as at White Horse Stone from an Iron Age feature. The two fragments, one from Woodcut Farm, South of Snarkhurst Wood (OAU 1842) and a heavily burnt piece from east of Boarley Lane (OAU 1813), were found by field walking. The recovery of these relatively small fragments indicates that broken pieces have undoubtedly been overlooked as surface finds and that distributions are more often based around unbroken specimens that were discovered as chance finds. Evidence for polished axe use at Boarley Lane, White Horse Stone and Pilgrim's Way may be anticipated in view of the fact that these sites, which are all located at White Horse Stone, lie close to the Medway Megaliths.

Leaf shaped arrowheads, which are the most diagnostic indicators of early Neolithic activity, were also found in small quantities, although none were found in well stratified contexts. A specimen from Beechbrook Wood (Figure 15.70) was found in a later ring ditch as was that from Saltwood Tunnel (Figure 15.72), while the example from East of Boarley Farm (White Horse Stone) was recovered from the colluvium.

6.1.7 Pit assemblages

The composition of flint assemblages from pit type features, those that were dug deliberately and others involving expedient use of hollows resulting from tree throws can provide some idea of the range of activities that took place in the immediate locality of the feature. The relative quantities of unretouched material, chips and debitage to retouched tools (Table 4) allows some conclusions to be made about whether the contents represent discarded industrial waste or were derived from domestic/ritual activities. Data from associated pottery, burnt flint, charcoal and bone can be added to the data. Regrettably organic remains were absent along most of the CTRL due to the acidic soils of the Lower Greensand. Microdebitage is also an important indicator of flint working activity; diagnostic chips (Newcomer and Karlin, 1987) indicating blank production, tool manufacture or resharpening. Chips are not systematically collected and discarded with larger waste products, being more frequently left on the flaking floor.

The pit at Beechbrook Wood (Table 4) contained 671 pieces of worked flint, including 417 chips (53%). When the chips and residual diagnostic Mesolithic artefacts were excluded from the assemblage the largest component (96%) comprised flakes, blades, six cores (Figure 15.73) and other miscellaneous flaking waste. This debitage indicated that a complete range of flaking took place at the site; however core preparation flakes were again scarce reaffirming that as with the late Mesolithic assemblage, this activity probably took place elsewhere, possibly at the raw material source.

The retouched tool component, which included a scraper, five retouched flakes and blades and three microdenticulates (Figure 15.74), contributed only 4% to the remaining assemblage. This is broadly comparable to that of material from the excavated ditches at Windmill Hill (Pollard 1999, Table 191); however the assemblage at Beechbrook Wood was also supplemented by the identification of 109 utilised, but unretouched, edges among the debitage, increasing the 'tool' component to 46%. This strongly suggests that although flaking debris was present that most of the contents were those of a refuse deposit. This may be a far more representative sample of utilised material, which is frequently unidentifiable or goes unrecognised in many pit assemblages. The flint may have accumulated from a diverse range of domestic or ritual activities in the immediate area, a conclusion that was to some extent confirmed by the fact that none of the assemblage could be refitted.

A similar conclusion was made for the two assemblages from pits at Saltwood Tunnel. They comprised 40 and 50 pieces of stratified worked flint (Table 4), including only three chips despite the fact that the contents of the pits were sieved. Blades accounted for 37% and 24% respectively of the debitage component. The retouched material, including scrapers (Figure 15.75-9), microdenticulates with retouched flakes and blades, comprised respectively 21% and 6% of the totals from each pit; however as at Beechbrook Wood, if chips, broken flakes and burnt material were excluded, all the tools and most of the debitage showed traces of use-wear. This increased the tool component to 67% of the complete assemblage. The implements included a broken scraper (Figure 15.76) from pit 175 with marginal edge damage; both fragments were recovered. Breakage was considered to have resulted from an intentional blow; however it is equally arguable that a cone of percussion visible along the snapped edge, is one of many incipient impacts that are present on the surface of the weathered cortex suggesting that breakage resulted from 'end shock' as the scraper was being retouched. Either way the combination of discarded, broken tools, minimal quantities of chips and absence of cores or refitting pieces suggested that the assemblage was primarily derived from domestic or ritual activity.

In contrast the assemblage of 103 pieces from a tree throw feature found during work South East of Eyhorne Street comprised flaking debris, a large chip component and no retouched material, leading to the conclusion that this represented a, possibly *in situ*, flaking site.

6.1.8 Comparative studies

The quantities of material from the early Neolithic pit features and tree throws are relatively low when compared with the contents of some early Neolithic pits situated on the Wessex Downs; at Rowden, Dorset (Woodward 1991, 73) pit 327, dated to 3,790-3,387 cal BC (HAR-5248) and 3,950-3541 cal BC (HAR-5247), contained 1,913 pieces of flaking waste, including 780 chips. The assemblage included a large quantity of knapping debris, much of it refitting, which was thought to represent discarded industrial waste. Other relatively large flint assemblages have been recovered from Chalk Down land sites, as with the 2,664 pieces that were present in five early Neolithic pits at Hemp Knoll, Wiltshire (Robertson-Mackay 1980). Totals from individual pits, which were dated to 3650-3000 cal. BC (HAR-2997) and associated with plain bowl forms of pottery, ranged between 1,400 and 32 pieces. Here there was a large retouched and utilised component, which comprised 24% of the assemblage, suggesting that a substantial quota of the worked flint represented domestic refuse.

The totals for the sites along the CTRL are more comparable with worked flint totals from pits excavated at the early Neolithic causewayed enclosure at Staines (Robertson-Mackay 1987, Table 4). At this site in the Thames Valley most flint was taken from local gravel sources, the nearest Chalk lying approximately 15km upstream. There were 16 pits, which produced 1,274 pieces of struck flint and totals for individual features ranged from six to 408 pieces. There were only 34 retouched tools from these pits, primarily scrapers and notched flakes, of which the latter formed an imprecise group that may have resulted from intentional retouch or accidental damage (Healey and Robertson-Mackay 1987, 116). However it was clear (Healey and Robertson-Mackay 1987, Table 12) that from the entire site, including material from ditch segments, that the largest classifiable retouched tool components comprised scrapers and serrated flakes (microdenticulates). These tools, which may represent hafted composite implements, were often characterised by a narrow band of gloss along the cutting edge. This has been interpreted as residue resulting from working or cutting silica rich vegetable material such as wood (Curwen 1936), rushes or osiers (Smith 1965) or cereals (Bell 1977, 26).

The results of excavations at Windmill Hill from 1925 - 1937 and 1957 – 1958 (Pollard 1999) also demonstrated the frequency with which early Neolithic tool assemblages are dominated by scrapers, microdenticulates and retouched pieces.

The largest retouched tool component along the CTRL comprised miscellaneous retouched flakes and blades, with eight examples from two of the five pits; however scrapers (Figure 15) formed the most consistently classifiable group, accounting for seven examples from four pits. Three microdenticulates were found in the early Neolithic pits at Saltwood Tunnel, with others (Figure 15.74) in the Beechbrook Wood pit but none were present from the late Mesolithic and Bronze Age assemblages at Beechbrook Wood. At Sandway Road, in contrast, microdenticulates were found in the late Mesolithic material.

The tool assemblages from the CTRL therefore are compatible with other early Neolithic assemblages from other parts of Southern Britain, suggesting that they represent the same broad range of activities. However, Healey and Robertson-Mackay (1987) noted that although many larger assemblages have appeared to be superficially similar they frequently display notable variations.

The assemblages from the CTRL contain none of the other categories of material that occur in larger groups: diagnostic knives, piercers, fabricators, laurel leaves, arrowheads, axes and adzes or hammer-stones. It may be that the assemblages are simply too small to include all but the more common groups of material or indicate that activities on the Greensand Ridge were restricted to processing tasks, including scraping or cutting, that were related to the geology, environment or land use. It is possible that some blank production was undertaken at the flint source and that only usable blanks transported to settlement sites. If this is true large quantities of undiagnostic, unidentifiable, early Neolithic, core preparation waste could now form part of surface scatters. Such robust preparation flakes are likely to be indistinguishable from flakes of later Neolithic or Bronze Age date.

All stages of tool production from manufacture, use and re-sharpening were unquestionably undertaken at settlement sites. It is possible that flint was of greater value on the Lower Greensand where flint does not occur naturally. This may have lead to an increased need to re-sharpen existing tools rather than manufacture new ones, which may, in itself, account for some of the large numbers of chips that have been recorded from a number of the sites. Two re-sharpening chips typical of those produced in scraper manufacture (Newcomer and Karlin 1987) were extracted from undated sieved residue at the east end of excavations at Sandway Road.

The flint assemblages from both Staines and Windmill Hill were both compiled from important ceremonial centres that are likely to have been visited by relatively large groups of people, producing large quantities of material. In 1998 the first causewayed enclosure in Kent was excavated at Chalk Hill, Ramsgate (Shand 1998; Dyson *et al.* 2000; Oswald *et al.* 2001), since when two others (Figure 14) have been discovered in evaluation projects, both at Kingsborough Manor, Eastchurch, Sheppey (Oswald *et al.* 2001; Wessex Archaeology 2002, 2005a). Small flint assemblages were recovered from both enclosures. There are no confirmed locations known from the North Downs or Weald of Kent, although probable causewayed enclosures have been plotted from aerial photographs. These lie at the tail of the North Downs at Eastry (Oswald *et al.* 2001) and at the southern entrance to the Medway Gap at Burham (Oswald *et al.* 2001). There is also an unconfirmed causewayed enclosure at Castle Hill, Folkestone, with two other unlikely enclosures at Margate and Chalk, near Gravesend (Oswald *et al.* 2001; Ashbee, 2004).

The largest assemblages of early Neolithic material from the CTRL have been found in pits; however it is also common for worked flint to be recovered from ditches. These features, frequently form part of a causewayed enclosure or long barrow and are known to contain *in situ* knapping debris or rubbish, either as ceremonial or domestic refuse or as placed deposits. Only one short length of ditch (240), from excavations South East of Eyhorne Street, was found with both early/middle

Neolithic pottery and six associated flint flakes. These relatively small numbers of pieces of worked flint from the CTRL make it difficult to make any more than general comparisons with assemblages that are recorded from other parts of Southern England.

6.1.9 Settlement evidence

There are relatively few early Neolithic structures that have been recognised in Britain. Darvill (1996) noted that many of those known have been discovered by chance, including, as at White Horse Stone, structures that had been buried beneath deposits of colluvium. Internal features, especially floor surfaces are frequently rare because they have often been lost prior to the discovery of the structure, although he noted that pits inside the structure are not uncommon. These features form the principal sources of artefacts, including flints, which are otherwise scarce within the buildings, although finds are often present in pits and hollows outside the walls.

The lack of data makes it difficult to interpret the significance and function of the few worked flints found with the rectangular post built structures at White Horse Stone and to consider their relationships to the structure. However even where deposits are better preserved the rarity of material inside a structure is not unusual. There is a significantly more extensive corpus of excavated early Neolithic buildings in Ireland. Worked stone assemblages of varying quantity and composition are almost always present. They demonstrate that there are often a diverse range of relationships between individual structures and any associated stone tool assemblages. Some sites have produced traces of lengthy, complex, multi-phased occupation including, as at Ballyharry, Co. Antrim (Moore 2003), evidence of attack and reconstruction/rebuilding. However structures with small stone tool assemblages, similar to that from White Horse Stone, have also been described including one with a small, tool-rich assemblage found at Drummenny Lower, Co. Donegal (Dunne 2003). The limited size of the stone tool assemblage was considered to indicate, not that the structure had been kept scrupulously clean but that it had only been occupied for a relatively short period of time. Tools had been used but not manufactured on the site. At Coolfore, Co. Louth (Ó Drisceoil 2003) two structures were also found, both of which contained flint debris, mostly debitage, and pottery from the foundation trenches, suggesting that at least one of the buildings had been dismantled before completion. Larger quantities of material were found in pits and a cobbled area that lay between the two structures, hinting that specialist activity areas lay beyond the extent of any structure. This segregation of flint knapping areas can also be demonstrated among modern ethnographic communities. Studies of the Wola, a stone using group of horticulturists of Papua New Guinea (Sillitoe and Hardy 2003) have provided some relevant observations to demonstrate how one group of settled stone using people regarded flaking debris. Nodules were tested and broken at the raw material source and suitable fragments transported to the settlement for flaking. This was undertaken adjacent to or at the side of the house, avoiding locations where people might walk. Superstition ensured that it did not occur inside the house.

6.2 Middle Neolithic

Petit tranchet, chisel and oblique arrowheads (Green 1980, Fig.37), a classification developed from the *petit tranchet* and *petit tranchet* derivative implements of Clark (1934) comprise a group of arrowheads with an unretouched (*tranchet*) edge. A questionable oblique arrowhead, from field walking at Sandway Road, was recovered from the initial surface collection on the route of the CTRL. Stratified *petit tranchet* and chisel arrowheads found in the course of excavation include a *petit tranchet* arrowhead (Figure 18.83) from a post-hole that was sealed by colluvium and associated with a pit at Little Stock Farm. Hazelnuts from the post hole provided a radio carbon date of 3,350-3,030 cal. BC (NZA-1991, 4,482±35 BP) a date corroborated by the presence of middle Neolithic Peterborough ware. There were no other associated features.

Another *petit tranchet* arrowhead (Figure 18.84) was found in pit 711, one of four, that lay immediately north of the probable early Neolithic post built long house at Pilgrim's Way (Figure 17). Only 13 pieces of worked flint, of which 38% were chips, were also associated with Peterborough ware, too few to contribute meaningful comparisons with other assemblages on the site.

Petit tranchet and chisel arrowheads are most densely concentrated in the Yorkshire Wolds, the Brecklands and parts of Wessex (Green 1980, 103). In his initial classification of the type Clark (1934) was of the opinion that the *petit tranchet* was of Mesolithic origin. Wainwright and Longworth (1971, 259) demonstrated that chisel arrowheads at the West Kennet Avenue and upper ditch silts of Windmill Hill often coincided with Mortlake, Fengate, Beaker and Collared Urn pottery with oblique arrowheads common with late Neolithic Grooved Ware. Green (1980, 111) also noted that all *petit tranchet* arrowheads in his sample from 'so-called' Mesolithic settlements were from sites that were contaminated by Neolithic or Bronze Age activity and preferred to regard them as of this date. As more specimens have been discovered from stratified contexts this trend is maintained; a group of 28 chisel arrowheads were found at Etton (Middleton 1998, 234). Most were assigned to the late Neolithic but three were found in pits associated with middle Neolithic pottery. A transverse arrowhead was also found with sherds of Ebbsfleet ware from a group of eight pits at Sipson Lane, Sipson (Richardson, 1982, 164; Thompson *et al* 1998, 88). The *petit tranchet* and chisel forms of arrowhead are the least diagnostic of the *tranchet* group. Given the limited nature of the assemblages at Little Stock Farm and Pilgrim's Way, and the associated material, there is no reason why they should not form part of middle to late Neolithic occupation in the area.

6.3 Late Neolithic and Bronze Age

In a study of Neolithic material from Sussex, Hampshire and Dorset, Gardiner (1984) reassessed collections contained in 42 English museums and private collections. Such an exercise had not been

undertaken previously and no comparable study has been attempted in Kent. She drew attention to the fact that late Neolithic assemblages frequently coincided with the location of late Mesolithic material where there was no recorded early Neolithic occupation. She suggested that, despite the acknowledged difficulty in recognising early Neolithic material from field walked contexts, this might represent re-colonisation of favoured locations in the third millennium BC. Until comparable data is available from Kent it is not possible to make similar deductions about the distribution of late Neolithic occupation in Kent, although it is entirely plausible.

Much of the worked flint collected from the surface of the ploughed fields along the route of the CTRL was undiagnostic flake material; however its robust nature, broad morphology and hard hammer mode suggested (URL 1994b) that most of it was likely to be of late Neolithic or Bronze Age date. The collective results of the field walking surveys produced relatively small quantities of worked flint, averaging 5 to 7 pieces per hectare over the four years of the project, although small but discrete scatters could be defined. The thirty eight individual clusters (Figures 2 and 3) from the surface collection ranged from 504 pieces of worked flint at Ebbsfleet (OAU 1467) to nine at Hurst Wood (OAU 1815), mean 67. Clusters were 'rated', using the broad technological and morphological divisions employed by Pitts (1978), Ford *et al* (1984) and others to provide a guide to the general level of confidence that could be assigned to the date of each cluster. Most contained a few diagnostic residual pieces of more than one period with other undiagnostic and undated material, primarily waste flakes. However clusters at Ebbsfleet (OAU 1467), Northfleet (OAU 1802-4, 3103), Nashenden Valley (OAU 1824) and East of Pluckley Road and Newlands (OAU 1817) were assigned a Neolithic-Bronze Age/Bronze Age date, with a general 'confidence' rating of 1-2. In some cases, as at Boxley Road (OAU 1339) an undated flint scatter of 38 pieces was found in the same field as nine sherds of late Bronze Age/early Iron Age pottery. Similarly late Bronze Age pottery and middle to late Bronze Age ditched enclosures and track-ways are known from land adjacent to the fields at Northfleet (OAU 1435), which supports the evidence of the flint scatters. Sites with a 'confidence' rating of 2 or 3 were assigned with reduced levels of certainty, but were generally thought more likely to be of Neolithic (late) or Bronze Age date. This tends to confirm Healy's (1983) conclusions that late Neolithic and Bronze Age material is frequently more prevalent in the plough-soil horizon.

6.3.1 Excavated material

Table 5 confirmed the regularity with which late Neolithic flint assemblages along the line of the CTRL continued to occur in pits and tree throw hollows, where they were often associated with Grooved Ware pottery. The density and distribution of late Neolithic activity was best demonstrated in the area excavations at White Horse Stone with its adjacent site at Pilgrim's Way (Figure 17). Twenty-two flints were also found in a number of post-holes associated with Grooved Ware pottery at the site South East of Eyhorne Street, although none were diagnostic artefacts.

Assemblages at these sites were dominated by broad flakes reflecting similar changes evident in flake morphology across Britain from the early Neolithic into the late Neolithic and early Bronze Age (Smith, 1965; Pitts 1978; Ford 1987). Twenty four pits were excavated at White Horse Stone and Pilgrim's Way, frequently in groups of between two and four features, but with individual outliers in places. There were also four tree throw/hollow features. Not all features contained flint but of those that did collectively contained 1,688 pieces of worked flint, of which 64% and 32% respectively of the totals from each site were chips. The role of the chip component remains an important indicator of flaking activities and contributes towards separating *in situ* core preparation scatters, tool blank debitage and retouching areas from dumped waste; however as Hayden (2005a) noted the recovery of microdebitage at these sites was biased towards features that were processed by sieving. The largest flint assemblages from pits inclusive of chips showed a marked distribution from pits 4929, 4943 and 4952 and 4874, 4965 and 5256, two groups adjacent to the late Neolithic structures at White Horse Stone, where they were associated with Grooved Ware pottery. If the chips are excluded the results show that flakes and retouched material were both relatively scarce from the former group and that large assemblages were contained further away from the structures in tree throws 5125 at White Horse Stone and pit/tree throw 909 at Pilgrim's Way. Flakes, retouched material, cores, broken cores and tested nodules were also correspondingly more plentiful in tree throw 5072, where chips accounted for only 5% of the total. These relatively enhanced values for flakes and cores in this area and in adjacent pits may represent the disposal of knapping waste or the place where flaking took place, beyond the house. It is possible that the absence of chips in these areas relates to the reduced use of abrasion in the flaking process and that chips at the house are by products of retouch to create, resharpen or modify tools; artefacts that are otherwise also poorly represented.

Pairs of refitting flakes and broken flakes from pits and tree throw features at White Horse Stone and Pilgrim's Way demonstrated that *in situ* deposits were present and made it possible to identify small details of prehistoric behaviour, although it was impossible to conjoin large reduction sequences. The differential condition of two refitting flakes found in inter-cutting pits at Pilgrim's Way suggested, for example, that the two pits had not been open at the same time and indicated extended use or reoccupation of the site. Similarly manufacture, use and discard over a short period of time was deduced from two conjoining flakes from pit 4965 at White Horse Stone, one of which showed traces of edge retouch. These small details aside, it was uncertain whether the material in tree throws reflected undisturbed flaking activity or the location of midden deposits. In addition the absence of large amounts of material, including complete refitting sequences, makes it appear that occupation was relatively short term, possibly requiring little use of flint, however, given the presence of quantities of animal bone that would have required processing it is more probable that debitage has been removed or eroded from the site.

The retouched tool components at the White Horse Stone early Neolithic and Grooved Ware pits formed 6% and 4% respectively of each total assemblage, this rose to 19% in the Grooved Ware

pits at Pilgrim's Way. The early Neolithic retouched tool assemblages were composed primarily of retouched flakes and blades with scrapers The Grooved Ware assemblages also included miscellaneous retouched material but were marked by a more diverse tool-kit, including implements for scraping (Figure 18.86-9), piercing (Figure 18.93-4), cutting (microdenticulates) (Figure 18.90-1), hunting (Figure 18.85), and hammering, that might reflect a greater range of activities in the late Neolithic. Hayden (2005a), using correspondence analysis to examine variations and similarities of artefact composition in the late Neolithic pits from White Horse Stone and Pilgrim's Way, observed that there was a direct relationship between the frequency of retouched material and the location of features containing animal bone. These features were located towards the limits of the late Neolithic pit complexes; however of 89 retouched pieces listed in the totals, 29 pieces were recovered from four tree throw features. The distribution of retouched material in pits was noticeably inconsistent; of three pit groups, comprising ten pits, four contained 26 pieces of retouched material while six other pits contained collectively only six retouched pieces. It was frequently apparent that within each pit group there was often one pit in which retouched material was more plentiful. Numbers were generally insufficient to reconstruct activities that were being undertaken.

This pattern of differential distribution is reminiscent of that observed by Barrett *et al*. (1991) at Firtree Field, adjacent to the Dorset Cursus, who calculated the contents of late Neolithic pits as a ratio of debitage to retouched material and contrasted the results with nine assemblages from midden or domestic occupation deposits. The results from the midden deposits produced a consistent linear relationship between debitage and retouched material. Some of the pit contents were indistinguishable from domestic refuse assemblages but others contained more retouched material, which together with faunal remains hinted towards deposition that was unrepresentative of domestic refuse. Barrett concluded that although domestic and 'ritual' activities were sometimes inseparable that higher numbers of implements might indicate deliberate selection indicative of 'ritual' activity. Similar patterns have been observed at Eynesbury, Cambridgeshire (Harding 2004) where paired late Neolithic pits frequently contained contrasting quantities of retouched flint implements.

6.3.2 The context of the Late Neolithic flint

The discovery of late Neolithic Grooved Ware pits at White Horse Stone and Pilgrim's Way containing pottery and worked flint should not be viewed in isolation but in association with the overlying surface scatter of worked flint and with material contained in a probable Roman soil horizon and other deposits of colluvium. These overlying deposits contained some of the largest collections of worked flint from the site.

The field walking survey of 1994 (URL 1995) detected a small, but discrete, cluster of worked flint comprising 23 flakes and a piece of irregular waste (OAU 3100). There were no retouched tools although the material was sufficiently diagnostic to be recognised as of Neolithic date. It is by no means unusual to find that diagnostic late Neolithic assemblages survive in plough soil as surface

scatters sealing pits with relatively small assemblages of Grooved Ware material. In an initial phase of surface collection across King Barrow Ridge, Wiltshire, within sight of Stonehenge, Richards (1990, 19) recovered an average 39 pieces of worked flint from individual 50m linear collection units. This included enhanced numbers of retouched pieces, including diagnostic late Neolithic implements. Intensive surface collection of 1.5h using a 5m grid confirmed these results, which were used, in conjunction with geophysics to locate a number of trenches. The excavation by hand of 12 areas, totalling 300 sq m recovered a total of 7,128 pieces of worked flint from the topsoil, of which 178 (2.4%) were retouched tools. An isolated pit and four other pits in a cluster were excavated that produced 1,880 pieces of waste material of which 65% were chips, a proportion comparable to White Horse Stone. Although the quantity of flint from the CTRL field walking was consistently less than that from the King Barrow Ridge it is likely that material, including additional retouched tools, was present in the plough soil that was removed by machine.

Richards was keen to stress that it was likely that material from the surface collection included elements of flint-work from several phases. However the results did contain diagnostic implements, including chisel arrowheads that were undoubtedly contemporary with the construction and use of the pits. The quantification of these arrowheads (Riley 1990, Table 130) showed that of thirty two specimens 31% were found from total collection, 63% from excavation of the topsoil and only 6% (2 examples) from stratified pit contents.

late Neolithic settlement sites are frequently only represented by relatively small numbers of individual pits. Gibson (2003, 139) explained the absence of refuse by arguing that Neolithic sites, as at Durrington Walls, may well have been equipped with a midden from which organic remains have decomposed and the remaining more durable material, especially flint, been spread by subsequent ploughing. Organic remains are likely to have formed a major component of any prehistoric settlement. Gibson supported Case's view (1969, 188) that pits rarely comprised complete assemblages of broken material but contained only a representative sample of the individual items of refuse, representing no more than 'token offerings', that were likely to be derived from larger 'rubbish scatters'. If this was the case he considered that these 'tokens' may have been deliberately 'planted' as symbolic offerings or structured deposits to promote future growth, fertility or supply of good raw material. In any event he considered that these symbolic objects had been taken from ordinary domestic contexts and were therefore representative of activity on the site.

6.3.3 Flint assemblages with Grooved Ware

Wainwright and Longworth (1971) catalogued 116 sites that were known to contain Grooved Ware pottery and reviewed their associated artefact assemblages. Pits were found on 39 of the sites and, where they occurred in clusters with post-holes, as along the CTRL, frequently provided the best evidence of domestic occupation. Associated artefact assemblages of sufficient size to be meaningful were only present at 34 locations, but of these 30 (88%) produced flint artefacts. They identified 19

retouched tool types that were also prevalent with Grooved Ware assemblages and identified the most frequent as scrapers, transverse arrowheads, microdenticulates, knives, awls and fabricators.

The most prevalent retouched pieces at White Horse Stone and Pilgrim's Way were retouched flakes and blades, which formed 36% of the total at the former and 38% at the latter. Tools that could be classified more precisely comprised end or end and side scrapers (Figure 18.86-9), microdenticulates (Figure 18.90-1) and chisel arrowheads (Figure 18.85), results that are broadly consistent with the most frequent groups of tools compiled by Wainwright and Longworth (1971). The reversal in frequency of microdenticulates and chisel arrowheads may be explained by the small size of the sample, or be related to activity undertaken on the Greensand Ridge. At a local level the results for White Horse Stone and Pilgrim's Way also showed reversed frequencies of microdenticulates and scrapers. The relative importance of microdenticulates may hint at some specific use related to the cultivation or cropping of silica rich plants on the sandy soils of the Greensand Ridge.

The two chisel arrowheads from pits at White Horse Stone and the single example from Pilgrim's Way were all securely dated by associated Grooved Ware pottery. Green (1980, Fig 40) indicated that Kent and the Weald, extending into Sussex were virtually devoid of *petit tranchet*, chisel and oblique arrowheads. While this may relate in some respects to the difficulty of recognising these types of arrowheads, he also showed that leaf shaped arrowheads and barbed and tanged arrowheads are similarly rare in these areas. In his assessment of the context from which chisel arrowheads have been found he was able to demonstrate that settlement sites provided the largest number of locations for chisel arrowheads (p113). However it is likely that as at King Barrow Ridge (Riley 1990, Table 130) by far the greatest numbers of chisel arrowheads have been found as stray surface finds and cannot be related to any specific site type.

6.3.4 Late Neolithic flint in Kent

The material from the CTRL, especially from White Horse Stone and Pilgrim's Way, has added significantly to the interpretation of late Neolithic settlement and activity of Kent (Figure 16). Clarke (1982) noted that Grooved Ware pottery had previously only been recorded at East Malling, Snodland (Wainwright and Longworth 1971, 278), where sherds from one vessel were found in a shallow pit. This material was associated with an early Bronze Age barbed and tanged arrowhead a form normally associated with the introduction of bronze using communities and Beaker pottery. The combination of Grooved Ware pottery with barbed and tanged arrowheads is not unique although Wainwright and Longworth (1971) were able to list only three instances where it occurred: East Malling, Durrington Walls and Woodhenge, of which only East Malling provided a secure relationship. They concluded that this record was atypical and assigned it the fact that late Neolithic and early Bronze Age communities coexisted. Subsequent discoveries of Grooved Ware pottery from Kent, catalogued by Longworth and Cleal (1999) have increased the corpus to thirteen locations, which are primarily

distributed around the coast at the east end of the North Downs. Sherd counts from individual sites remain small, averaging three or four pieces per location. The catalogue lists five instances of pottery from redeposited contexts, four from pit features and three from occupation surfaces. References to associated worked flint is restricted to an abundant assemblage from a pit at Deal (Longworth and Cleal 1999, catalogue ref. 179), including utilised material and a microdenticulate, two pieces of struck flint from another pit at Deal (Longworth and Cleal 1999, catalogue ref. 180) and material from a 'flint floor' buried beneath colluvium at Worth, near Deal (Longworth and Cleal 1999, catalogue ref. 191).

Results at White Horse Stone, Pilgrim's Way and South East of Eyhorne Street, in the area of the Medway Gap and close to the Medway Megaliths complement the record of the pit at East Malling, which lies immediately to the south on the edge of the Weald. It suggests that Grooved Ware and early Bronze Age occupation may have been concentrated in this area at the end of the third millennium BC and extend the recorded distribution of late Neolithic occupation inland from the coast. The concentrations of pits and worked flint at White Horse Stone and Pilgrim's Way form the largest density of late Neolithic features yet recorded from a single site in Kent. Quantities of worked flint, although relatively small, tool composition and location are in accord with other records from the county.

6.3.5 The Bronze Age

The introduction of metal working in Britain is primarily documented nationally from discoveries of Beaker pottery, barbed and tanged arrowheads, thumb nail scrapers, some with pressure flaked retouch, associated burials and some settlement sites. Although the late Neolithic period included some use of the 'Levallois' technique and the production of a specific suite of retouched tools it is frequently difficult to separate the general technology from that of the early Bronze Age. There is in any case a strong case to be made for thinking that that these two periods coexisted for a considerable time during the transition to metal working.

There are very few records of diagnostic flint tools from the Bronze Age held in the Sites and Monuments Record. Entries listed as Bronze Age, covering the period 2,350-701BC, record 66 find spots including 24 arrowheads, probably but not certainly barbed and tanged specimens, 12 flints, 15 implements and 15 scrapers. These objects, when plotted, show a spread of material across the Weald with virtually nothing from the Downs or Thames margins. Material listed as specifically early, middle and late Bronze Age contains 105 entries, of which approximately six refer to 'flints', the remainder reflect the introduction of metal working and record bronze artefacts. However the distribution of material, not necessarily flint, catalogued as late Bronze Age indicates occupation of the Thames coastal strip with distinct concentrations around the mouth of the Medway and at Thanet. Recent field work at Holywell Coombe (Bennett *et al*. 1998) has demonstrated that traces of a complex Beaker landscape were preserved at the base of the North Downs escarpment buried beneath

colluvium. The excavation produced traces not only of occupation but also a hollow way which they suggested connected to adjoining settlements, field systems and funerary monuments.

The results of the surface collection (Figures 2 and 3) preceding the construction of the CTRL produced one barbed and tanged arrowhead from Little Stock Farm; however waste flake assemblages which are not generally included in the SMR data, indicated that settlement was prevalent across much of Kent by the Bronze Age. These surface collections of later prehistoric material are likely to include residual material from earlier periods; however some elements of Bronze Age technology are sufficiently identifiable to ensure that at least some part of an assemblage can be recognised. Excavations at Coldharbour Lane, Gravesham (OAU No. 1435), approximately 200 m from three flint scatters (OAU 1802-4) found on the rail line, produced Beaker and Bronze Age pottery with a series of ditched enclosures and track-ways. This may reflect the likelihood that much of the landscape had been brought into cultivation by the middle Bronze Age.

Broad and squat flakes were recovered with sherds of Food Vessel from two tree throws at White Horse Stone, indicating thin, but continuous, use of the site into the early Bronze Age. Apart from chips, which accounted for 52% of the assemblage, the material comprised flakes and twelve pieces of retouched material including three microdenticulates, an end scraper and an oblique arrowhead, a retouched tool inventory that normally accompanies Grooved Ware pottery (Wainwright and Longworth 1971). Oblique arrowheads are rarely found with Food Vessels; Green (1980, 115) located only one possible association of an oblique arrowhead with Food Vessels at Haugh Head, Yorkshire. Given that Grooved Ware pottery is represented at White Horse Stone there is no reason to consider that this arrowhead is particularly anomalous; a radio carbon determination for a sample from a tree throw adjacent to that containing the Food Vessel produced a date of 2890-2630 cal BC (NZA-21831). An oblique arrowhead was found from the area of the burial chamber of the Chestnuts megalithic chambered tomb, Addington (Alexander 1961), one of the Medway Megaliths east of the Medway with barbed and tanged arrowheads and late Neolithic-early Bronze Age pottery; however this area had been 'thoroughly turned over by (earlier) robbers' (Alexander 1961, 9) and very little remained *in situ*.

Beaker pottery was recovered from a grave west of Northumberland Bottom, two pits South East of Eyhorne Street and two others from Beechbrook Wood. These locations indicate areas of occupation in Kent that may have coexisted with late Neolithic communities towards the end of the third millennium BC. The grave contained no associated flint grave goods or debitage; however the two pits South East of Eyhorne Street produced 99 pieces of flint, including 88 from the primary fill and five scrapers. Pairs of refitting flakes indicated that the material, which probably represents dumped flaking waste, was contemporary with the Beaker pottery.

A more diverse assemblage of material, distributed across large parts of the site, was found at Beechbrook Wood and was thought may represent domestic, ritual and funerary activity. The largest assemblage comprised 676 worked flints, including 272 chips, twelve flake cores (Figure 19.107),

fourteen flake scrapers (Figure 19.108-11) and a barbed and tanged arrowhead (Figure 19.98) from an early Beaker pit (1374). A radio carbon date of 2,470-2,200 cal. BC (NZA-21170) from hazelnut shells is contemporary with ring ditch 851 on the site and with late Neolithic Grooved Ware occupation in the area. Some of the flint could be refitted, indicating tool manufacture, although the large number of scrapers suggested that the assemblage was more characteristic of domestic activity, possibly incorporating aspects of feasting. The waste flakes were sufficiently characteristic to reflect the morphological changes characteristic of late 3rd millennium BC flint working to squat or broad flakes and also the technological changes, including hard hammer percussion and the virtual absence of platform abrasion.

The contents of an adjacent pit, containing a relatively high proportion of burnt material, included a backed knife, 204 pieces of struck flint and 94 chips, with fragments of sheep/pig bone, were thought to be of the same date. Much of the flint from both pits was also burnt.

The domestic nature of activity in the area was enhanced by the discovery of a ring ditch, 6 m in diameter, which contained Beaker pottery but no flint and which it was thought may represent a structure. However two additional less well-dated ring ditches were found 70 m to the east, which were considered likely to be funerary monuments. Flint assemblages were undiagnostic but were associated with a leaf shaped arrowhead, which was thought to be residual.

Residual early Bronze Age material represented by a thumb nail scraper and plano-convex knife (Figure 19.114) were found from South of Snarkhurst Wood.

The use of ditches, to define barrows, settlements or land divisions became increasingly more significant features of the landscape from the early Bronze Age (Figure 16). Apart from the ring ditches at Beechbrook Wood, five others were excavated at Saltwood Tunnel with four more at Tutt Hill. These monuments are considered to have formed part of ploughed linear barrow cemeteries on the Lower Greensand. A barrow site was also examined at Whitehill Road at the extreme west end of Contract 1. An isolated penannular ring ditch, also considered to be an early Bronze Age burial mound (Davis 2005), was excavated on the Chalk at Cobham Golf Course; however this monument also has parallels with the North Ring, Mucking, Essex (Bond 1988), a late Bronze Age ring ditch enclosure. Overall quantities of worked flint at all these sites were relatively small, especially that from Tutt Hill, when compared to those from pits. The barrow at Whitehill Road produced only four pieces of worked flint, which were assessed but not considered worthy of additional description. The ring ditches at Saltwood Tunnel contained 76 pieces of worked flint from all contexts. The primary fill of the ring ditch at Cobham Golf Course contained only 26 pieces of worked flint, including four scrapers (Figure 19.102-4; Figure 20.115) and a denticulate (Figure 19.106). Traces of platform abrasion were present although the cores were predominantly multi-platform with little evidence of systematic flaking. One hundred and thirty two pieces of flint were present in the secondary fills, which included eleven flake cores and four tested nodules. The limited numbers of pieces may to some extent reflect archaeological excavation strategy, where pits were totally or half excavated but

ditches were sampled at strategic positions along their length; none of the ring ditches were totally excavated. Two ring ditches at Saltwood Tunnel were sampled in eight segments, one to two metres wide, around the circumference, while the excavation methodology for the other three ring ditches was not recorded. Approximately 50% of the Cobham ring ditch was emptied.

The comparisons in flint assemblages between the monuments on the Chalk and the Lower Greensand show that worked flint was more plentiful on the Chalk, where flint occurs naturally, than on the Lower Greensand. The distribution of flint throughout the deposits suggests that relatively small quantities of material were located in the primary fills, which represent use of the site as a burial monument, with increasing quantities in the upper secondary fills. This picture is consistent with that seen elsewhere on Bronze Age barrows that have been excavated on the Chalk, where assemblages have not necessarily been large. A similar sequence of activity was charted at Amesbury G70 (Saville 1980) where 48 flints were recovered from the primary ditch fill with 107 from the upper deposits.

These increased totals in the upper fills, are likely to include derived material but may also have been enhanced in cases where the barrow mound contained a flint cairn that was cannibalised in the late Bronze Age as a source of raw material. At Micheldever Wood, Hampshire (Fasham and Ross 1978) the primary fills contained 631 pieces of worked flint with 10,539 pieces dumped in the upper fills that resulted from exploiting the central cairn for raw material once the barrow had ceased to be, and possibly respected as, a funerary monument. Industrial dumping may to some degree explain the increased number of cores and tested nodules that were recorded from the upper fills of the ring ditch at Cobham. The distribution of flint also showed that the upper ditch fills contained considerably more material, possibly of middle or late Bronze Age date, than other sections cut through the ditch. At Twyford Down, Hampshire (Walker and Farwell 2000) a ring ditch 17 m in diameter, with a causeway, was totally excavated. It produced only seven pieces of flint from the primary and secondary fills, 23 pieces from the secondary silts and over 200 pieces with associated burnt flint from a phase of subsequent middle and late Bronze Age inhumation and cremation burials, most of which were cut into the tail of the barrow mound and upper silts of the ditch near the entrance terminals. It is unclear whether worked flint was more concentrated near the entrance of the Cobham ring ditch.

Elsewhere eighty middle Bronze Age flints were recovered from a pit, three ditches and numerous postholes at White Horse Stone and Pilgrim's Way. A thin spread of worked flint was present from stratified late Bronze Age deposits, which accounted for 104 artefacts from 14 pits, a feature, two hollows and two ditches at Tollgate, Cobham Golf Course (Figure 20.115), West of Northumberland Bottom and Saltwood Tunnel (Figure 20.116). There were also 133 pieces from five pits, two ditches and three ring ditches of unspecified Bronze Age date at Cobham Golf Course, Tollgate and Saltwood Tunnel. Features of Bronze Age date were also identified at Sandway Road although there were no identifiable contemporary flint artefacts and at Beechbrook Wood where a denticulate scraper (Figure 20.117) was found in a late Bronze Age ditch. The relative scarcity of material from these contexts may be offset by the quantity of flints that are represented in surface

assemblages, which may have been thrown out on the fields with manure. The flint technology from these sites is consistent with late Bronze Age industries being characterised by unsystematic flakes that were removed using hard hammer percussion, with no attempt at core preparation techniques. Retouched tools are also rare, indicating the relative importance with which flint was regarded by the late Bronze Age.

Evidence for the final use of flint in this part of Kent is difficult to demonstrate. Young and Humphrey (1999) argued that although flint working appears to have been in serious decline in Britain by the end of the late Bronze Age there was nothing to show that it had ceased completely. Studies (Ford *et al.* 1984) have defined a number of technological attributes, including hard hammer mode, a low level of technological ability and a restricted tool kit, to characterise the flint technology of the late Bronze Age/early Iron Age. Robust material of this type is frequently recovered by fieldwalking and assigned to a late Bronze Age date. Few excavated sites have produced demonstrably undisturbed flint assemblages of the type found at Battlesbury Bowl, Warminster, Wilts (Harding, in prep) where nine flakes in mint condition including three refitting pieces were found in an early Iron Age pit. Excavations with late Bronze Age and early Iron Age features, as on the line of the CTRL, are frequently of several phases with flint from a range of periods. Individual specialist reports from the project, where most of the flint assemblages were relatively small, stress that there is consistently a strong probability that stratified assemblages of late Bronze Age and early Iron Age date were invariably contaminated with residual material. In some cases, as at Saltwood Tunnel, late Bronze Age and early Iron Age pits and linear ditches included flint with post depositional edge damage and abraded striking platforms which demonstrated that it was residual. Similarly during work West of Northumberland Bottom a late Bronze Age/early Iron Age furnace feature was associated with flakes that had been removed systematically from their cores and were probably residual. However three late Bronze Age/early Iron Age pits at the site were found that contained flint that was irregular, of poor workmanship and consistent with that expected of late Bronze Age flint working. A number of pits with middle and late Iron Age pottery were also excavated with flint of a similar character.

7 CONCLUSIONS

Kent is a county with an extremely rich archaeological past. At various times through the Pleistocene and for most of the time following the retreat of the Last Devensian Ice Sheet, it formed the part of Britain connected to or in closest proximity to the European Continental land mass. This would have placed it at the frontier of many sea-borne cross Channel migrations. Yet despite this many aspects of the county's prehistory have remained poorly studied; Clarke (1982) especially highlighted the paucity of Neolithic research in Kent, citing a preference for antiquarians to concentrate their attentions on the study of Roman, Saxon and medieval antiquities. This regret was typical of many

prehistorians, however since that time great progress has been made in filling the gap in our knowledge of the prehistory of Kent. The results of both large scale projects like the CTRL and smaller developer-funded programmes have provided data, unaffected by research bias, that has increased our understanding of human occupation of the east end of the Weald. This ever increasing database can now be used to compare the prehistory of Kent with more extensively studied counties to the west. The results have helped to show that trends seen in the west can be extended throughout the Weald. Continued work of this nature will help to further breach the gap in comprehending the development and use of the landscape in this crucial area of South East England, its relations with the remainder of Britain and its links with mainland Europe.

8 DIGITAL ARCHIVE

Principal site name	Filename root	Principal authors and organisation
Schemewide specialist report		
Lithics Schemewide Report	FLI_SSR	Harding P (OWA JV)
Specialist research reports		
04 Northumberland Bottom	FLI_WNB	Devaney R (OWA JV)
05 Tollgate	FLI_TLG	Devaney R (OWA JV)
06 Cobham Golf Course	FLI_CGC	Devaney R (OWA JV)
09 White Horse Stone	FLI_WHS	Cramp K (OWA JV)
13 Snarkhurst Wood	FLI_SNK	Devaney R (OWA JV)
14 Eyhorne Street	FLI_EYH	Devaney R (OWA JV)
16 Sandway Road	FLI_SWR	Harding P (OWA JV)
18 Leda Cottages	FLI_LED	Devaney R (OWA JV)
21 Beechbrook Wood	FLI_BBW	Cramp K (OWA JV)
27 Little Stock Farm	FLI_LSF	Devaney R (OWA JV)
30 Saltwood Tunnel	FLI_SLT	Devaney R (OWA JV)
Specialist research datasets		
04 Northumberland Bottom	FLI_WNB	Devaney R (OWA JV)
05 Tollgate	FLI_TLG	Devaney R (OWA JV)
06 Cobham Golf Course	FLI_CGC	Devaney R (OWA JV)
09 White Horse Stone	FLI_WHS	Cramp K (OWA JV)
13 Snarkhurst Wood	FLI_SNK	Devaney R (OWA JV)
14 Eyhorne Street	FLI_EYH	Devaney R (OWA JV)
16 Sandway Road	FLI_SWR	Harding P (OWA JV)
18 Leda Cottages	FLI_LED	Devaney R (OWA JV)
21 Beechbrook Wood	FLI_BBW	Cramp K (OWA JV)
27 Little Stock Farm	FLI_LSF	Devaney R (OWA JV)
30 Saltwood Tunnel	FLI_SLT	Devaney R (OWA JV)

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Table 1: Totals of worked and burnt flint from field walked surveys, showing broad date range, drainage and geology

FLINT SCATTER	DATE	DRAINAGE	GEOLOGY	WORKED FLINT	BURNT FLINT
Ebbsfleet OAU 1467	(Neolithic) –Bronze Age	Thames	Chalk	504	167
Ebbsfleet OAU 1828	(Neolithic) – Bronze Age	Thames	Chalk	41	12
Ebbsfleet OAU 1801	(Neolithic) – Bronze Age	Thames	Chalk	22	33
Ebbsfleet OAU 1830	(Neolithic) – Bronze Age	Thames	Chalk	14	54
Northfleet OAU 1802	(Neolithic) – Bronze Age	Thames	Chalk	17	49
Northfleet OAU 1803	(Neolithic) – Bronze Age	Thames	Chalk	34	22
Northfleet OAU 1804	(Neolithic) – Bronze Age	Thames	Chalk	34	47
Riding school OAU 1803	(Neolithic) – Bronze Age	Thames	Chalk	119	794
Riding School OAU 3103	Bronze Age	Thames	Chalk	60	150
Singlewell OAU 1805	Undated	Thames	Chalk	14	4
Singlewell OAU 1806	Undated	Thames	Chalk	19	10
Nashenden Farm OAU 1807	Undated	Medway	Chalk	34	20
Nashenden Valley OAU 1824	Neolithic – Bronze Age	Medway	Chalk	48	11
White Horse Stone OAU 3100	Neolithic	Medway	Chalk	24	38
Boarley Lane/Farm OAU 1337	Undated	Medway	Gault Clay	28	63
Boarley Lane OAU 1813	Neolithic – Bronze Age	Medway	Gault Clay	28	67
Boxley Road OAU 1339	Undated	Medway	Gault Clay	38	29
Detling OAU 3101	(?) Neolithic	Len	Gault Clay	17	18
Woodcut Farm OAU 1342	Neolithic – Bronze Age	Len	Lower Greensand	31	63
Woodcut Farm OAU 1343	Neolithic – Bronze Age	Len	Lower Greensand	58	128
Sandway OAU1346	Neolithic	Len	Lower Greensand	134	31
Sandway OAU 1347	(?Palaeolithic) Neolithic	Len	Lower Greensand	60	37
Hurst Wood OAU 1815	Undated	Great Stour	Lower Greensand	9	25
Newlands Road OAU 1816	Mesolithic	Great Stour	Lower Greensand	39	50
E of Pluckley Road OAU 1817	Neolithic – Early Bronze Age	Great Stour	Lower Greensand	45	3
E of Pluckley Road OAU 1818	Neolithic – Early Bronze Age	Great Stour	Lower Greensand	25	55
Westwell Leacon OAU---	Undated	Great Stour	Lower Greensand	18	3

Table 1 (cont): Totals of worked and burnt flint from field walked surveys, showing broad date range, drainage and geology.

SITE	DATE	DRAINAGE	GEOLOGY	WORKED FLINT	BURNT FLINT
Station Road, Westwell OAU 1352	Undated	Great Stour	Lower Greensand	31	54
Seavington Church Lane OAU 1820	Early Neolithic	East Stour	Lower Greensand	51	12
Seavington Church Lane OAU 1353	Undated	East Stour	Lower Greensand	30	-
Little Stock Farm Field OAU 1355	?Bronze Age	East Stour	Lower Greensand	31	29
Sellindge Convertor OAU 1822	Undated	East Stour	Lower Greensand	12	14
Sellindge Convertor OAU 1823	Undated	East Stour	Lower Greensand	30	42
Sellindge Convertor OAU 1356	Undated	East Stour	Lower Greensand	97	89
Sellindge Sewage works OAU 1361	Neolithic – Bronze Age	East Stour	Lower Greensand	42	19
Harringe Court OAU 1361	Early Neolithic (?)	East Stour	Lower Greensand	108	51
Westenhanger OAU 1366-7	Neolithic – Bronze Age	East Stour	Lower Greensand	59	28
Saltwood Tunnel OAU 1368	Undated	English Channel	Lower Greensand	18	9

Table 2: Principal excavated sites with flint showing dated assemblages (——) and probable evidence of activity (·····), assemblage totals, drainage and geology

Site	Meso	Early Neo	Middle Neo	Late Neo	EBA	MBA	LBA	Residual	Total pieces	Drainage	Geology
Northumberland Bottom					——			———	432	Thames	Chalk
Tollgate		·····	·····	·····	·····	·····	——	———	620	Thames	Clay with Flints
Cobham Golf Course	·····	·····	·····		——	——	——		439	Thames	Chalk
White Horse Stone		——		——	——	——		———	6839	Medway	Chalk
Pilgrim's Way			·····	——		——		———			
Boarley Lane		·····						———			
S of Snarrkhurst Wood		·····	·····	·····	·····	·····	·····	———	141	Len	Lower Greensand
SE of Eyhorne Street		——	———	——	——			———	396	Len	Lower Greensand
Sandway Road	——	·····	·····					———	11014	Len	Lower Greensand
Leda Cottages								———	105	Great Stour	Lower Greensand
Beechbrook Wood	——	——			——			———	4535	Great Stour	Lower Greensand
Little Stock Farm			··—·					———	118	East Stour	Lower Greensand
Saltwood Tunnel	——	——			——	——	——	———	1781	English Channel	Lower Greensand

Key to column numeration listed in Tables 3 and 4

1 Flakes	4 Rejuvenation flakes	7 Blade cores	10 Knife	13 Notch	16 Pick	19 Microlith	22 Microburins
2 Blades	5 Ground tools	8 End/side scraper	11 Plano convex knife	14 Retouched	17 PTD	20 Arrowhead (leaf)	23 Other tools
3 Chips	6 Flake cores	9 Thumbnail scraper	12 Piercer	15 Microdenticulate	18 Other material	21 Arrowhead (b&t)	

Table 3: Excavated Assemblage Composition by site and period (see separate list for key to column numeration)

SITE		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Northumberland Botttom	Unstrat	341	7	2	4	1	13		7		1				17				38			1		
Tollgate	Pit 734	37	1												1				2					
Tollgate	LBA pit	4					1								1				1					
Tollgate	LBA natural	4																						
Tollgate	LBA ditch	1																						
Tollgate	I A & unstrat	489	7		2		13		5				1	2	11	1			33					2
Cobham Golf Course	BA ring ditch	16					5		4		1													
Cobham Golf Course	BA ring ditch	97	3		1		11		3		1		2		3				11					
Cobham Golf Course	BA pits etc	12					2												2					
Cobham Golf Course	MBA ditch	7					3		1		1								6					
Cobham Golf Course	LBA pits etc	13											2						2					
Cobham Golf Course	Unstrat	188	11	1	1		7		1		2		2	1	7				9					
White Horse Stone	Pre-E Neo	3		20															6					
White Horse Stone	Neo house	57	1	670							1				2				19					
White Horse Stone	E Neo spread	24		4					1						1				5					1
White Horse Stone	G W pits	227	7	540			9		2					2	9	6		2	22					1
White Horse Stone	Other Late Neo	57		70			3		1					1	4				2					
White Horse Stone	EBA tree throw	97	2	131			1		1		1			1	5	3		1	8					
White Horse Stone	MBA/BA ditch	26		157															12					
White Horse Stone	MBA pit	9		16			1								3				2					
White Horse Stone	Post BA	857	11	2618			34		16				2	3	35	4			144					12
Pilgrim's Way	M Neo house	7		9														1	2					1
Pilgrim's Way	L N tree throws	94	3	37			2		2				1		8	5			9					
Pilgrim's Way	Late Neo pits	159	4	93			3		8				2		13	2		1	7					2
Pilgrim's Way	MBA	19		26															13					
Pilgrim's Way	Post BA	102	4	155			2		5		1				4				17	1				1
E of Boarley Farm	All material	5	1																		1			
W of Boarley Farm	All material	5		9																				

Table 3: Excavated Assemblage Composition (cont)

SITE		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
S of Snarkshurst Wood	ARC 420 66	4					1												-					
S of Snarkshurst Wood	ARC 420 67																1		-					
S of Snarkshurst Wood	ARC SNK 99	86	4	17	1	1	4	1	4	1	1	1	1	1	8	1			3					
SE of Eyhorne St	E-M Neo	23	2	6	1		3												2	1				
SE of Eyhorne St	Neo tree throws	16	6	89	1														1					
SE of Eyhorne St	Late Neo pits	10	1	1					1										9					
SE of Eyhorne St	Beaker	50	7	30			3		5										4					
SE of Eyhorne St	Unstrat	85	6	12	4		4		2						7				2	1	1			
Sandway Road	Meso spreads	3480	1650	4264	32	1	11	38	5				5	5	48	6		1	164	206	1		223	19
Sandway Road	Tree throws	134	54	50			1	3	2				1						12	4				
Sandway Road	Ditches etc	290	110	120	2		10	9	7						7	1			19	13			5	1
Leda Cottages		50	1	32			2	1	2						2	1			14					
Beechbrook Wood	Meso pit 1623	349	87	1007	2		4	5	1				3		8				24	30			58	1
Beechbrook Wood	E Neo pit 1910	162	41	417	5		5	1	1					1	5	3			22	2			6	
Beechbrook Wood	EBA pit 1374	212	2	989	1		11		11	3					23				115			21		1
Beechbrook Wood	Pit 562	87	5	94			1				1								16					
Beechbrook Wood	Ring ditch 851	23	1	81					1						2				1		1			
Little Stock Farm	Neo post hole	8		1														1						
Little Stock Farm	Neo pit 2214								1										1					
Little Stock Farm	Unstrat	74	1	5	1		4		5	2			2		7	1			4					
Saltwood Tunnel	Meso pit 6677																			8				
Saltwood Tunnel	EN pit 136, 175	63	13	3					5						3	3								
Saltwood Tunnel	E/MBA barrows	59	1				4		6						1				4					1
Saltwood Tunnel	LBA/EIA pits	46	1	6			1												1					
Saltwood Tunnel	BA/EIA ditches	64	5	2			4	1	3										5					2
Saltwood Tunnel	Unsrtat	1090	80	44			63		61	1	1		2	1	45	1			53	3	1	4		16

Table 4: Excavated Assemblage Composition by period and site (cont'd on next page; see separate list for key to column numeration)

SITE		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Saltwood Tunnel	Meso pit 6677																			8				
Sandway Road	Meso spreads	3480	1650	4264	32	1	11	38	5				5	5	48	6		1	164	206	1		223	19
Beechbrook Wood	Meso pit 1623	349	87	1007	2		4	5	1				3		8				24	30			58	1
Total		**3829**	**1737**	**5271**	**34**	**1**	**15**	**43**	**6**				**8**	**5**	**56**	**6**		**1**	**188**	**244**	**1**		**281**	**20**
White Horse Stone	Pre-E Neo	3		20															6					
White Horse Stone	Neo house	57	1	670							1				2				19					
White Horse Stone	E Neo spread	24		4					1						1				5					1
Beechbrook Wood	E Neo pit 1910	162	41	417	5		5	1	1					1	5	3			22	2			6	
Saltwood Tunnel	EN pit 136, 175	63	13	3					5						3	3								
SE of Eyhorne St	E-M Neo	37	8	94	2		3												3	1				
Total		**346**	**63**	**1208**	**7**		**8**	**1**	**7**		**1**			**1**	**11**	**6**			**55**	**3**			**6**	**1**
Pilgrim's Way	M Neo house	7		9														1	2					1
Little Stock Farm	Neo post hole	8		1														1						
Little Stock Farm	Neo pit 2214								1										1					
Total		**15**		**10**					**1**									**2**	**3**					**1**
White Horse Stone	G W pits	227	7	540			9		2					2	9	6		2	22					1
White Horse Stone	Other Late Neo	57		70			3		1					1	4				2					
SE of Eyhorne St	Late Neo pits	10	1	1					1										9					
Pilgrim's Way	L N tree throws	94	3	37			2		2				1		8	5			9					
Pilgrim's Way	Late Neo pits	159	4	93			3		8				2		13	2		1	7					2
Total		**547**	**15**	**741**			**17**		**14**				**3**	**3**	**34**	**13**		**3**	**49**					**3**
SE of Eyhorne St	Neo tree throws	16	6	89	1														1					
Total		**16**	**6**	**89**	**1**														**1**					
SE of Eyhorne St	Beaker	50	7	30			3		5										4					
Cobham Golf Course	BA ring ditch	16					5		4		1													
Cobham Golf Course	BA ring ditch	97	3		1		11		3		1		2		3				11					
White Horse Stone	EBA tree throw	97	2	131			1		1		1			1	5	3		1	8					
Beechbrook Wood	EBA pit 1374	212	2	989	1		11		11	3					23				115			21		1
Total		**472**	**14**	**1150**	**2**		**31**		**24**	**3**	**3**		**2**	**1**	**31**	**3**		**1**	**134**			**21**		**1**

Table 4: Excavated Assemblage Composition by period and site (cont)

SITE		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
Saltwood Tunnel	E/MBA barrows	59	1				4		6						1				4					1
Cobham Golf Course	MBA ditch	7					3		1		1								6					
White Horse Stone	MBA/BA ditch	26		157															12					
White Horse Stone	MBA pit	9		16			1								3				2					
Pilgrim's Way	MBA	19		26															13					
Total		**120**	**1**	**199**			**8**		**7**		**1**				**4**				**37**					**1**
Tollgate	LBA pit	4					1								1				1					
Tollgate	LBA natural	4																						
Tollgate	LBA ditch	1																						
Cobham Golf Course	LBA pits etc	13											2						2					
Saltwood Tunnel	LBA/EIA pits	46	1	6			1												1					
Saltwood Tunnel	BA/EIA ditches	64	5	2			4	1	3										5					2
Cobham Golf Course	BA pits etc	12					2												2					
Tollgate	I A & unstrat	489	7		2		13		5				1	2	11	1			33					2
White Horse Stone	Post BA	857	11	2618			34		16				2	3	35	4			144					12
Pilgrim's Way	Post BA	102	4	155			2		5		1				4				17	1				1
Total		**1592**	**28**	**2781**	**2**		**57**	**1**	**29**		**1**		**5**	**5**	**51**	**5**			**205**	**1**				**17**
Sandway Road	Tree throws	134	54	50			1	3	2				1						12	4				
Sandway Road	Ditches etc	290	110	120	2		10	9	7						7	1			19	13			5	1
Tollgate	Pit 734	37	1												1				2					
Beechbrook Wood	Pit 562	87	5	94			1				1								16					
Beechbrook Wood	Ring ditch 851	23	1	81					1						2				1		1			
Total		**571**	**171**	**354**	**2**		**12**	**12**	**10**		**1**		**1**		**10**	**1**			**50**	**17**	**1**		**5**	**1**
SE of Eyhorne St	Unstrat	85	6	12	4		4		2						7				2	1	1			
Little Stock Farm	Unstrat	74	1	5	1		4		5	2			2		7	1			4					
Saltwood Tunnel	Unsrtat	1090	80	44			63		61	1	1		2	1	45	1			53	3	1	4		16
Northumberland Botttom	Unstrat	341	7	2	4	1	13		7		1				17				38			1		
Cobham Golf Course	Unstrat	188	11	1	1		7		1		2		2	1	7				9					
E of Boarley Farm	Unstrat	5	1																		1			
W of Boarley Farm	Unstrat	5		9																				
S of Snarkshurst Wood		90	4	17	1	1	5	1	4	1	1	1	1	1	8	1	1		3					
Leda Cottages	Unstrat	50	1	32			2	1	2						2	1			14					
Total		**1928**	**111**	**122**	**11**	**2**	**98**	**2**	**82**	**4**	**5**	**1**	**7**	**3**	**93**	**4**	**1**		**123**	**4**	**3**	**5**		**16**

Table 5: Provenance of flint assemblages by feature type and site

SITE	Geology		1	2	3	4	5	6	7	8	9
Sandway Road	LG	Meso spreads			8					3	
Saltwood Tunnel	LG	Meso	1								
Beechbrook Wood	LG	Meso			1						
Beechbrook Wood	LG	E Neo	1								
Saltwood Tunnel	LG	Early Neo	2								
Pilgrim's Way	Ch	Middle Neo							2	1	
Little Stock Farm	LG	Neo	1						1		
SE of Eyhorne St	LG	Neo	1	1	4			1			
White Horse Stone	Ch	Grooved Ware	11		1						
SE of Eyhorne St	LG	Late Neo							3		
Pilgrim's Way	Ch	Late Neo	9		2						
Northumberland Bottom	Ch	Late Neo/Beaker				1					
SE of Eyhorne St	LG	Beaker	2								
Beechbrook Wood	LG	EBA	2	2							
Cobham Golf Course	Ch	BA ring ditch		1							
Pilgrim's Way	Ch	MBA	?	?	?	?	?	?	?	?	?
Tollgate	C-w-F	LBA	1	1						1	
Cobham Golf Course	Ch	LBA	2	1						1	
Saltwood Tunnel	LG	LBA/EIA	8	24							
Northumberland Bottom	Ch	LBA/EIA	3								
Cobham Golf Course	Ch	BA	4						1		
Saltwood Tunnel	LG	BA		5							
Tollgate	Ch	IA and unstrat									147
Leda Cottages	LG	LIA – Roman									35
Sandway Road				13							
Sandway Road		Other	3				1	3		1	1
Pilgrim's Way			?	?	?	?	?	?	?	?	?
West of Boarley Farm		Residual	4								
East of Boarley Farm		All material		1						3	
S of Snarkshurst Wood		Non prehistoric									25
Cobham Golf Course		Unstrat									8
Northumberland Bottom		Unstrat									104
SE of Eyhorne St		Unstrat									22
Cobham Golf Course				1							
Tollgate		?prehistoric	1								
Little Stock Farm											53

Key top column numeration

1	Pits	4	Burials	7	Post holes
2	Ditches	5	Gully	8	Layer
3	Tree throws	6	Feature	9	Other