Highlands Farm Pit

[SU 744 813]

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Highlights

This is the best-known site in the deposits forming the floor of the 'Ancient Channel' of the Thames (now correlated with the Black Park Gravel) in the Caversham–Henley area. Highlands Farm Pit provides important evidence for the Palaeolithic occupation of Britain prior to the Hoxnian Stage.

Introduction

Highlands Farm Pit, Oxfordshire, exposes gravel that is assigned to the Black Park Gravel Formation of the River Thames. In this district the Black Park Gravel forms the floor of an abandoned section of an early valley of the Thames, generally known as the 'Ancient Channel' (Treacher *et al.,* 1948; Wymer, 1956, 1961, 1968). This old valley, now much dissected by later erosion, runs from Caversham (Mapledurham) to Henley (Figure 3.1). It lies to the north of the modern valley, which takes a more circuitous route between those towns (via Sonning). As the Black Park Gravel was the last formation to be deposited before the Thames abandoned the 'Ancient Channel', this gravel is preserved in this area as a dissected valley-floor rather than the more usual north-bank terrace. The particular importance of Highlands Farm Pit lies in the occurrence in the gravel there of abundant Palaeolithic artefacts, as first reported by White (1895). Since it is derived from the Anglian Stage Black Park Formation, this assemblage is one of the oldest from the Thames system. Extensive collections of Palaeolithic material from Highlands Farm have been described (Smith, 1917; Treacher *et al.,* 1948; Wymer, 1956, 1961, 1968). They have been central to the continuing controversy during recent decades over the timing of Palaeolithic man's earliest occupation of Britain.

The attribution of the gravel forming the floor of the 'Ancient Channel' to the Black Park Formation was established relatively recently (Clarke and Dixon, 1981; Gibbard, 1983, 1985). It had previously been included in the Winter Hill Terrace (Wooldridge, 1938; Treacher *et al.,* 1948; Wymer, 1961, 1968) or in the Lower Winter Hill terrace (Sealy and Sealy, 1956). The occurrence of well-made Palaeolithic artefacts in so high a terrace within the Thames sequence (Arkell and Oakley, 1948), with the implication of an Anglian age (Table 1.1), was until recently considered problematic, since many authorities believed that only crude implements, if any, were made in Britain prior to the Hoxnian Stage. This problem has been resolved following recent discoveries at Boxgrove, West Sussex (Roberts, 1986), which have demonstrated that flint tools of high quality were made in pre-Hoxnian times (see Chapter 1).

Description

All the published descriptions of exposures at Highlands Farm Pit post-date the reopening of the workings in the 1950s. This extension of the pit enabled a rich assemblage of palaeoliths to be obtained from sections specially cleared for the purpose (Wymer, 1956, 1961, 1968; Gibbard and Wymer, 1983; Gibbard, 1985). Wymer recorded *c.* 4 m of gravel at the site, aggraded to 76 m O.D. The gravel is much disturbed by solution of the underlying Chalk, which has caused the overlying deposits to collapse into pipes of varying size. The lowest 3 m comprise coarser gravel, but throughout the sequence lenses of current-bedded sand occur (Gibbard and Wymer, 1983). The upper levels are disturbed by cryoturbation and are overlain by 0.3 m of silt (brickearth). The gravel is dominated by flint, quartz and quartzites, with subordinate crystalline rocks, cherts and sandstones (Walder, 1967; Gibbard and Wymer, 1983; (Table 3.2)), a composition confirming deposition by the Thames.

Wymer's work at Highlands Farm Pit led to the discovery that Clactonian flakes and cores accompanied the (Acheulian) hand-axes that had already been found there in great numbers. The absence of Clactonian artefacts in the earlier

collections from the site probably reflects both the inability of the gravel diggers to recognize the cores and flakes of this industry and the preference of the collectors for hand-axes. There are other reports of artefacts collected from Highlands Farm, by Case and Kirk (1952, 1955) and Wymer (1958, 1959, 1960, 1962, 1964a); detailed summaries of the material have been provided by Roe (1968a, 1981) and Wymer (1968). The only faunal remains to come from the pit, or from any site in the Black Park Gravel of the 'Ancient Channel', are a horse tooth from a few centimetres above the Chalk and a piece of elephant tooth from an unspecified location (Wymer, 1964a).

Interpretation

In order to demonstrate the significance of Highlands Farm Pit, it is necessary to outline the research history both of the site and of the 'Ancient Channel' in some detail. The various gravel deposits to the west of Henley, including that at Highlands Farm, appeared as 'Glacial Gravel' on the Old Series geological map of the area (Sheet 13, 1860: Hull and Whitaker, 1861), but were later designated 'Plateau Gravel' (New Series, Sheet 254, 1905: White, 1908b). Following their reinterpretation by Wooldridge (1938), however, the gravels of this district have been recognized as early Thames terrace deposits and have recently been shown as such on new Geological Survey maps (Squirrell, 1978; New Series, Sheet 254, 1980 revision).

The earliest reference to the GCR site was by White (1895, p. 20), who noted that no distinction could be made between the 'glacial' and river gravels of the district and that Palaeolithic artefacts had been found there by L. Treacher and G.W. Smith 'so far distant from the river as Highlands Farm' (outside the area mapped as river gravels). At that time the site consisted merely of one or more shallow pits, presumably for farm use, and the gravel had not been commercially exploited. The Treacher collection contains specimens from this site (then called Helen's Farm) labelled 1889 and 1892 (Arkell and Oakley, 1948). Highlands Farm was also noted by Smith (1917) as a locality where implements could be obtained from high-level deposits. Thus the site was established as unusual, in that it appeared to lie above the general level of the terrace gravels, yet it yielded palaeoliths, which are usually confined to the latter deposits.

White again referred to Highlands Farm in the Henley memoir (Jukes-Browne and White, 1908, p. 88), in which he described terraces within the plateau gravel of the area, including: 'southwest of Henley, a clearly defined terrace between 255 and 260 ft above sea level (160 ft above the Thames)'. He associated the Highlands Farm site with this feature and suggested a correlation with the 'Silchester stage' of the Kennet and Lodden (White, 1902, 1907, 1908b). However, as has already been noted, the Highlands Farm deposits are not part of a simple north-bank terrace of the Thames. They lie at the eastern end of an abandoned section of valley cut through the Chalk (Figure 3.1). Treacher (1926) first recognized the significance of this feature, from the fact that higher-level gravel at Shiplake, on the interfluve between the 'Ancient Channel' and the present river, contains up to 60% of Lower Greensand chert, implying deposition by a south-bank Thames tributary on the north side of the present valley. The deposit at Shiplake is thought to represent the early Blackwater-Loddon River, which at that time drained a large area of Lower Greensand outcrop that now falls within the Wey catchment (Walder, 1967). Saner and Wooldridge (1929) and Ross (1932) attributed the gravels of the area south-west of Henley to a terrace that could be traced downstream to Winter Hill, Maidenhead and beyond, which they called the Winter Hill Terrace. Wooldridge (1938) ascribed the gravels of the 'Ancient Channel' (which he termed the 'Crowsley Park Trench') to this Winter Hill Terrace. He differentiated the Winter Hill Terrace deposits flooring the channel from older gravels to the north and south on the basis of composition and elevation and, from an exposure 2–3 km south-west of Highlands Farm, was able to demonstrate their fluvial origin.

The definitive description of the 'Ancient Channel', and of the Treacher collection of Palaeolithic implements, was by Treacher *et al.* (1948). Although Highlands Farm was mentioned, the main sites listed were commercial pits exploiting the 'Ancient Channel' gravel; these provided the bulk of the palaeoliths discovered prior to the reopening of Highlands Farm Pit. Arkell and Oakley (1948) concluded that these collections represented an 'Abbevillian' or 'Early Acheulian' culture, which they regarded as typologically older than assemblages from the Boyn Hill Terrace of the Middle Thames. They suggested a correlation with similar industries from gravels at Fordwich (Kent) and Farnham (Surrey) that are thought to pre-date the Boyn Hill Formation. They noted that Hare (1947) had associated the Winter Hill Terrace with the glaciation of the London area, which suggested that the implements from the 'Ancient Channel' were made before this glaciation, thought to be of Mindel (Anglian) age.

Following the extension of Highlands Farm Pit in 1954, Wymer (1956, 1961, 1968) made the important discovery that Clactonian artefacts were also present. This material, mainly crude flakes and cores in a rolled condition, was in fact dominant in the new Highlands Farm assemblage, despite being barely represented in the Treacher collection. Wymer also found well-made hand-axes to be more common at Highlands Farm than the crude types that had been ascribed to the Early Acheulian. The archaeological record is, however, without stratification; all the artefacts are in an abraded condition, although the well-made hand-axes are generally less rolled (Wymer, 1961, 1968, 1977a). Wymer's conclusions were broadly confirmed by Roe (1964, 1968a), following statistical analyses in which he compared the Highlands Farm material with that from the Treacher collection. Roe (1968a, p. 59) concluded that the assemblage from Highlands Farm was 'heavily dominated by the only slightly disturbed output of a single nearby working site'.

The Clactonian Industry had been shown to be stratigraphically earlier than the Acheulian hand-axe industry at Swanscombe (see Chapter 4) where, as at the Clacton type site (Chapter 5), it is overlain by or incorporated in the lower part of a Hoxnian aggradation. Both the Clactonian and Acheulian industries were held to have appeared during the Hoxnian, but the Clactonian seemed, on the basis of the Swanscombe sequence, to have been present earlier and to represent the earliest Palaeolithic occupation of Britain (see Chapter 1). Thus it was thought that humans did not reach Britain until the late Anglian or early Hoxnian, certainly after the glaciation of the London district (Wymer, 1961). Because a correlation had been established between this terrace and the glaciation of the Vale of St Albans (see Part 2 of this chapter), the attribution of the 'Ancient Channel gravel' to the Winter Hill Terrace was difficult to reconcile with the occurrence, at sites such as Highlands Farm, of Palaeolithic artefacts. This was particularly the case since many of the artefacts from the 'Ancient Channel' show refined workmanship, whereas the only other assemblages from Britain that were widely believed to be pre-Hoxnian comprise crude stone-struck material (Wymer, 1961, 1977a). This conflict in views led to suggestions that the artefact-bearing gravels in the 'Ancient Channel' post-date the occupation by the Thames of this section of valley. One alternative interpretation of such deposits suggested emplacement by colluvial processes, at some time after the Anglian Stage, mixing reworked Thames gravels with later material, the latter containing the artefacts (Wymer, 1961, 1976, 1977a). A similar alternative interpretation attributed the deposits yielding palaeoliths to reworking by a later tributary stream flowing through this abandoned section of the valley formerly occupied by the main Thames (Gibbard and Wymer, 1983).

Because of the controversy that had arisen over the age and origin of the 'Ancient Channel gravel', the workers who sought to extend Hare's (1947) scheme to the Reading area and beyond (Sealy and Sealy, 1956; Thomas, 1961; Walder, 1967) paid particular attention to its correlation with the terrace sequence and to its abandonment by the Thames. White (in Arkell and Oakley (1948)) suggested that during aggradation of the '150 ft' (Winter Hill) gravel the Thames parted into two 'arms', one flowing through the 'Ancient Channel' and the other via the modern course further to the south, the latter receiving the (Greensand) chert-bearing waters of the Loddon. This view was further developed by Sealy and Sealy (1956), who considered that their 'Lower Winter Hill Terrace', to which they assigned the 'Ancient Channel gravel', converged with the (lower) Black Park Terrace in the Reading area. This resulted, according to the Sealys, from the unusually steep gradient of the Black Park Terrace and the shallow gradient of the 'Lower Winter Hill Terrace'. Sealy and Sealy postulated that in 'Lower Winter Hill' times the Thames flowed in two separate channels between Caversham and Henley (as suggested by White) and that rejuvenation prior to the formation of the Black Park Terrace incised the southern (modern) course more effectively, because of softer Tertiary bedrock in that area, causing the Thames to abandon the more northerly ('Ancient Channel') route through the Chalk. Thomas (1961) agreed with the terrace correlations proposed by the Sealys, but considered that the new route was likely to have been established before the pre-Black Park rejuvenation occurred in the Reading area, perhaps in response to the enhanced erosive capacity of the Kennet and Blackwater-Loddon tributaries in comparison with the main Thames.

Walder (1967), in a pioneering study based on the analysis of their clast-lithological content, showed that gravels forming the floor of the 'Ancient Channel' contain significantly more flint than earlier formations. She noted, however, that the 'Lower Winter Hill' and Black Park Terraces could not easily be separated in the area upstream from Henley. Clarke and Dixon (1981) went further, proposing, on the basis of altitude, that the 'Ancient Channel gravel' represents the Black Park and not the Winter Hill Terrace. This view was confirmed by Gibbard (in Gibbard and Wymer, 1983; Gibbard, 1985), who included the deposits between Caversham and Henley (previously designated as Lower Winter Hill Terrace) in his Black Park Gravel. Gibbard verified Walder's observation that this formation contains significantly more flint than the Winter Hill

Gravel and other earlier Thames deposits (Table 3.2). The gravels previously ascribed to the Black Park Terrace in the modern Thames valley through Reading are attributed, according to this reinterpretation, to the tributary Kennet and Blackwater-Loddon streams, which, in Black Park times, united to join the 'Ancient Channel' Thames at Henley. Gibbard and Wymer (1983, fig. 36) reclassified these tributary deposits as Silchester Gravel (a name that implies a Kennet origin; see below, Hamstead Marshall). The above-mentioned tributaries appear to have established, in Black Park times, a substantial valley between Reading and Henley, subparallel to (and south of) that of the Thames. At some time between the aggradation of the Black Park and the later Boyn Hill gravels, the Thames itself adopted this more southerly route, possibly in response to its capture, in the Mapledurham area, by a tributary of the Kennet. The fact that the new Thames course was established in soft Palaeogene strata instead of Chalk may, as suggested by Sealy and Sealy (1956), have facilitated this minor diversion.

The correlation of the 'Ancient Channel gravel' with the Black Park Formation, instead of with the Winter Hill Formation, still implies an Anglian age, as ice sheets are believed to have continued to occupy parts of Hertfordshire and western Essex during Black Park times (see above, Westmill). Human occupation of the Middle Thames valley during or before this glaciation is therefore still indicated by the occurrence of artefacts at sites such as Highlands Farm Pit.

Reports of artefacts from the Black Park Gravel elsewhere in the Thames catchment are uncommon, but several instances are worthy of consideration. In the Thames they occur at Hillingdon (Town Pits, [TQ 072 824]; Wymer, 1968). Palaeoliths from tributary-valley terraces thought to pre-date the Boyn Hill Gravel of the main river have been reported at Farnham in the Wey valley (Oakley, 1939; Arkell and Oakley, 1948), Fordwich in the valley of the Kentish Stour (Smith, 1933; Arkell and Oakley, 1948; Roe, 1977) and in the Silchester Gravel of the Kennet (Wymer, 1968, 1977b; see below, Hamstead Marshall). Only the last of these tributary sites has been firmly established as the equivalent of the Black Park Formation (Gibbard, 1983, 1985), but a similar age for the others seems likely. Few of these sites have produced well-made hand-axes of the type recovered by Wymer (1956, 1961) from Highlands Farm Pit. This typological evidence led Wymer (1961, p. 25) to state that: 'the final filling of the ancient channel of the Thames cannot be earlier than the Hoxnian interglacial', a view to which he still adhered over two decades later (Gibbard and Wymer, 1983).

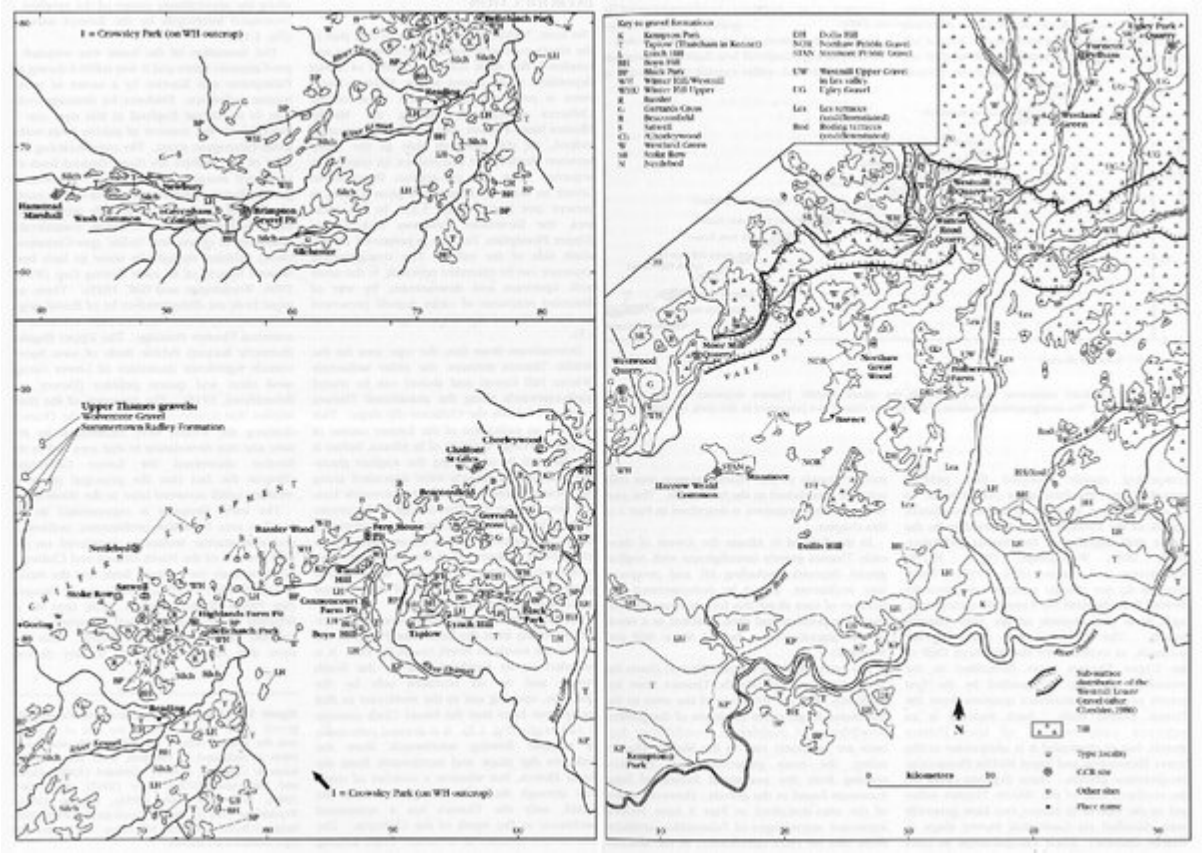
Recently, evidence from sites such as Boxgrove (Roberts, 1986) and High Lodge has forced most workers to accept that well-made artefacts occur in pre-Hoxnian contexts, so the occurrence of such artefacts in gravels of Anglian age is no longer problematic. The Boxgrove site in particular, having yielded well-made implements in association with a 'late Cromerian' fauna, has undermined the use of hand-axe typology as a basis for the relative dating of Middle Pleistocene deposits (Chapter 1), which leaves no reason why the assemblage from Highlands Farm Pit cannot be derived from *in situ* Black Park Gravel, deposited during the Anglian Stage.

Conclusions

The gravels at Highlands Farm Pit do not lie in the main Thames valley, which lies further to the south, but in an abandoned section of an older Thames course between Caversham and Henley, which has been called the 'Ancient Channel'. This course was abandoned in favour of the modern route through Reading soon after the 'Ancient Channel' deposits were laid down. This was a minor rerouting in comparison with the earlier major diversion brought about by the Anglian ice sheets, when the Thames was deflected into its route through London.

The 'Ancient Channel' deposits (recently equated with the Black Park Gravel of the Slough area) are famous for the profusion of stone tools they have yielded. The occurrence of these man-made implements in such ancient river deposits has been important in showing that Man's earliest arrival in Britain was probably before the Anglian glaciation. The occurrence of well-made flint tools at 'early' sites such as Highlands Farm Pit has helped to dispel the belief that the quality of Palaeolithic workmanship is a reliable indication of age.

References

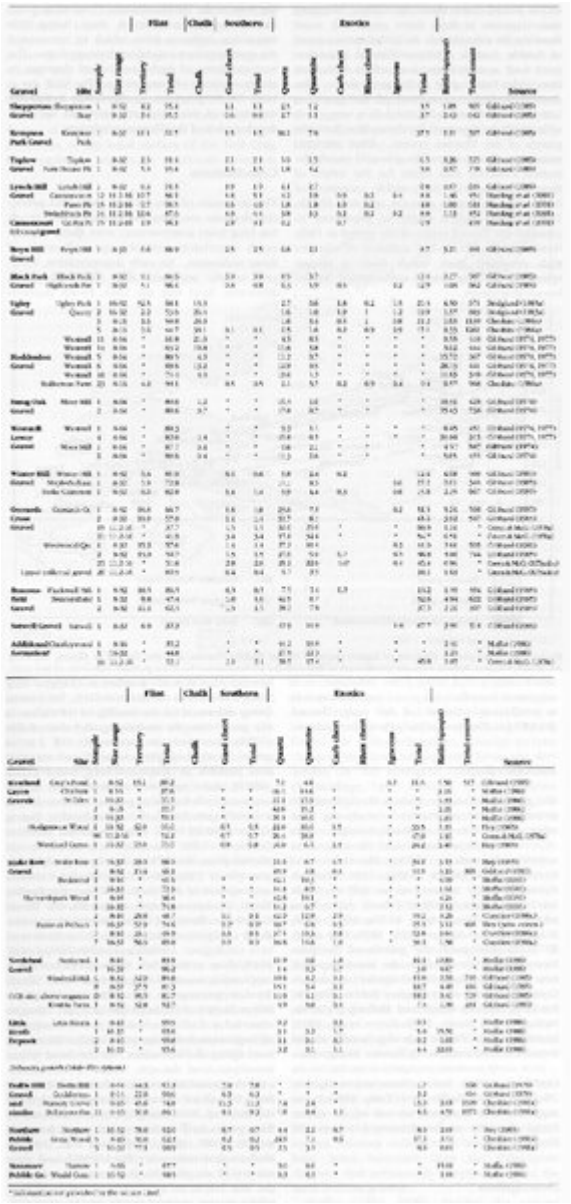


(Figure 3.1) (Following two pages) Map showing the gravels of the Middle Thames, the Vale of St Albans and the Kennet valley. Compiled, with reinterpretation as indicated in the text, from the following sources: Cheshire (1986a), Gibbard (1985), Green and McGregor (1978a), Hare (1947), Hey (1965, 1980), Sealy and Sealy (1956), Thomas (1961), Wooldridge (1927a) and the Geological Survey's New Series 1:50,000 and 1:63,360 maps. GCR sites and type localities are shown.

Age (in thousands of years)	Upper Thames	Middle Thames	Lower Thames	Essex	Stage	^{18}O
	Recent floodplain and channel deposits: Holocene alluvium of floodplain and coast				Holocene	1
10	Northmoor Gravel	Shepperton Gravel	Submerged	Submerged	late Devensian	2-4
	Rejuvenation event					
71		Temperate climate deposits at South Kensington (Imperial centre), Isleworth and Kempton Park	Submerged	Submerged	early/mid-Devensian? interstadial(s)	5a & /or 5c?
?		**Reading area**	**Slough area**			
	Cold climate gravels above Tyrrhenian Gravel	U. levels of Taplow Gravel	Kempton Park Gravel	East Tilbury Marshes Gravel	Submerged	early-mid-Devensian	5d-2
122	Tyrrhenian Gravel	Within Taplow Formation	Trafalgar Square and Brentford deposits	Below floodplain	Submerged	Ipswichian (across Trafalgar Square)	5e
128	Stanton Harcourt Gravel	Taplow Gravel	Basal Kempton Pk Gravel - incl. Spring Gardens Gravel of Gibbard (1985)	Basal East Tilbury Marshes Gravel	Submerged	late Saalian	6
			Rejuvenation event			
186		Taplow Gravel	Hucking Gravel			
	Stanton Harcourt Channel Deposits, interglacial Magdalen Grove, Summertown etc.	Interglacial deposits at Redlands Pit, Reading	Interglacial deposits at Arches, Ilford (Uphall Pit), West Thurrock, Grayford and Northfleet	Submerged	Intra-Saalian temperate episode	7
245	Basal Summertown-Radley Formation at some sites?	Basal Taplow Gravel?	Basal Hucking Gravel	Submerged		
		Rejuvenation event			mid-Saalian	8
	Wolvercote Gravel at some sites?	Lynch Hill Gravel	Corbets Tey Gravel	Barling Gravel		
303	Wolvercote Channel Deposits		Interglacial deposits at Ilford (Cauliflower Pit), Belhus Park, Purfleet and Grays	Shoeburyness Channel interglacial deposits	Intra-Saalian temperate episode	9
330	Basal Wolvercote Gravel	Basal Lynch Hill Gravel?	Basal Corbets Tey Gravel	Shoeburyness Channel - basal gravel		
		Rejuvenation event			early Saalian	10
	* Moreton Drift (Ashell, 1947a)					
	Hanborough Gravel	Boyn Hill Gravel	Orsett Heath Gravel	Southchurch/Asheldham/ Mersea Island/Wigborough Gravel		
?	Reworked mammalian fauna in Hanborough Gravel		Swanscombe deposits	Southend/Asheldham/ Cudmore Grove/Clacton Channel Deposits	Hoxnian (across Swanscombe)	11
423	Basal Hanborough Gravel?	Basal Boyn Hill Gravel?	Basal Orsett Heath Gravel (incl. Basal Gravel at Swanscombe)	Southend/Asheldham/ Cudmore Grove/Clacton Channel - basal gravel		
	Rejuvenation event					
	Pyrford Formation	Black Park gravel			Anglian	12
	Moreton Drift?	Anglian glacial deposits	Hornchurch Till	U.St Osyth/U. Holland Gravel		
	Pyrford Formation	Winter Hill/Westmill Gravel	Valley did not exist as a Thames course prior to this	St Osyth/Holland Formation		
478		Bunker Gravel?		Wivenhoe/Crooke Green Pit		
	Sugworth Channel Deposits			Ardleigh/St Osyth Formation Wickham Gravel	Cromerian Complex	13-15
?	Combe Formation	Germans Cross Gravel		Burnt Gravel*	Early Pleistocene	pre-13
	Higher divisions of the Northern Drift Group	Beaconsfield Gravel Satwell Gravel Gravel at Goodleywood Westland Green Gravels Stoke Row Gravel Nettlebed Gravel Nettlebed interglacial deposits		Moreton Gravel* Stubbing Gravel*		

* Nomenclature for High-level Kesgrave Subgroup in Essex follows Whiteman (1990).

(Table 1.1) Correlation of Quaternary deposits within the Thames system. Rejuvenations that have occurred since the Anglian glaciation are indicated.



(Table 3.2) Clast-lithological data (in percentage of total count) from the Middle Thames and Vale of St Albans (compiled from various sources). The data concentrates on key sites, GCR sites and localities mentioned in the text. Note that many different size ranges are included and that these yield strikingly different data (this can be observed where results from different fractions from the same deposits have been analysed). As in (Table 4.2), (Table 5.1) and (Table 5.3), the igneous category includes metamorphic rocks (very rarely encountered) and the quartzite category includes durable sandstones. The Tertiary flint category comprises rounded pebbles (sometimes subsequently broken) reworked from the Palaeogene (see glossary with (Table 4.2)).