Chapter 3 The Middle Thames

Introduction

The term 'Middle Thames' refers to that part of the river's course between the Goring Gap and London. The most complete record of fluvial deposition to be found in the Thames catchment is preserved on the dip slope of the Chilterns escarpment, making the Middle Thames basin a classic area for Thames research. Indeed, on the northern side of the valley between Maidenhead and Staines, an impressive sequence from the pre-Anglian Beaconsfield Gravel to the post-Hoxnian Taplow Gravel is present (see (Figure 3.1) and (Figure 3.2)). In this same area, the Devensian Kempton Park Gravel (Upper Floodplain Terrace) is preserved on the south side of the valley. The stratigraphical sequence can be extended upwards, in the areas both upstream and downstream, by way of dissected remnants of older gravels preserved on the Chilterns dip slope (Figure 3.1), (Figure 3.2) and (Figure 3.3).

Downstream from this, the type area for the Middle Thames terraces, the older sediments (Winter Hill Gravel and above) can be traced north-eastwards along the abandoned Thames route that follows the Chilterns dip slope. This provides an indication of the former course of the river through the Vale of St Albans, before it was blocked by ice during the Anglian glaciation. Thereafter gravels were deposited along the present route of the Thames towards London (see Chapter 1). This change in the course of the Thames was the direct consequence of the glacial blocking of the St Albans valley, but is set against a background of slow but progressive southward migration by the river since its first appearance as the main agent of west to east drainage in the London Basin.

The London Basin is a large synclinal structure stretching from the Savemake Forest in the west to the southern North Sea in the east. It is bounded on its southern side by the North Downs and on its northern side by the Chilterns, opening out to the north-east as that escarpment fades into the broad Chalk outcrop of East Anglia (Figure 1.1). It is drained principally by streams flowing southwards from the Chilterns dip slope and northwards from the North Downs, but whereas a number of rivers flow through the latter escarpment from the Weald, only the Thames has a substantial catchment to the north of the Chilterns. The role of the Thames as a 'strike' river, flowing along the approximate centre of the syncline, is continued westwards by the Kennet tributary (Figure 1.1).

The formation of the basin was initiated in pre-Cenozoic times and it was infilled during the Palaeocene and Eocene by a series of mostly marine sediments. Evidence for drainage evolution in south-east England at this time can be gained from the content of pebble beds within these Palaeogene strata. The overwhelming majority of the pebbles are flints, derived from the up-folded margins of the basin. However, a gravelly facies of the Reading Beds on the northern side of the basin, particularly around Lane End, Buckinghamshire, contains considerable quantities of quartz and 'lydite' (pre-Cretaceous chert) pebbles, thought by some to have been derived by way of an early Goring Gap (White, 1906; Wooldridge and Gill, 1925). These unusual beds are considered to be of fluvial origin and may represent the earliest evidence of ancestral Thames drainage. The Upper Bagshot (formerly Barton) Pebble Beds of west Surrey contain significant quantities of Lower Greensand chert and quartz pebbles (Dewey and Bromehead, 1915). The presence of the chert implies that southern tributaries of the Thames, draining the Weald, were established by this time and that denudation in that area had by the Eocene uncovered the Lower Greensand (despite the fact that the principal phase of wealden uplift occurred later, in the Miocene).

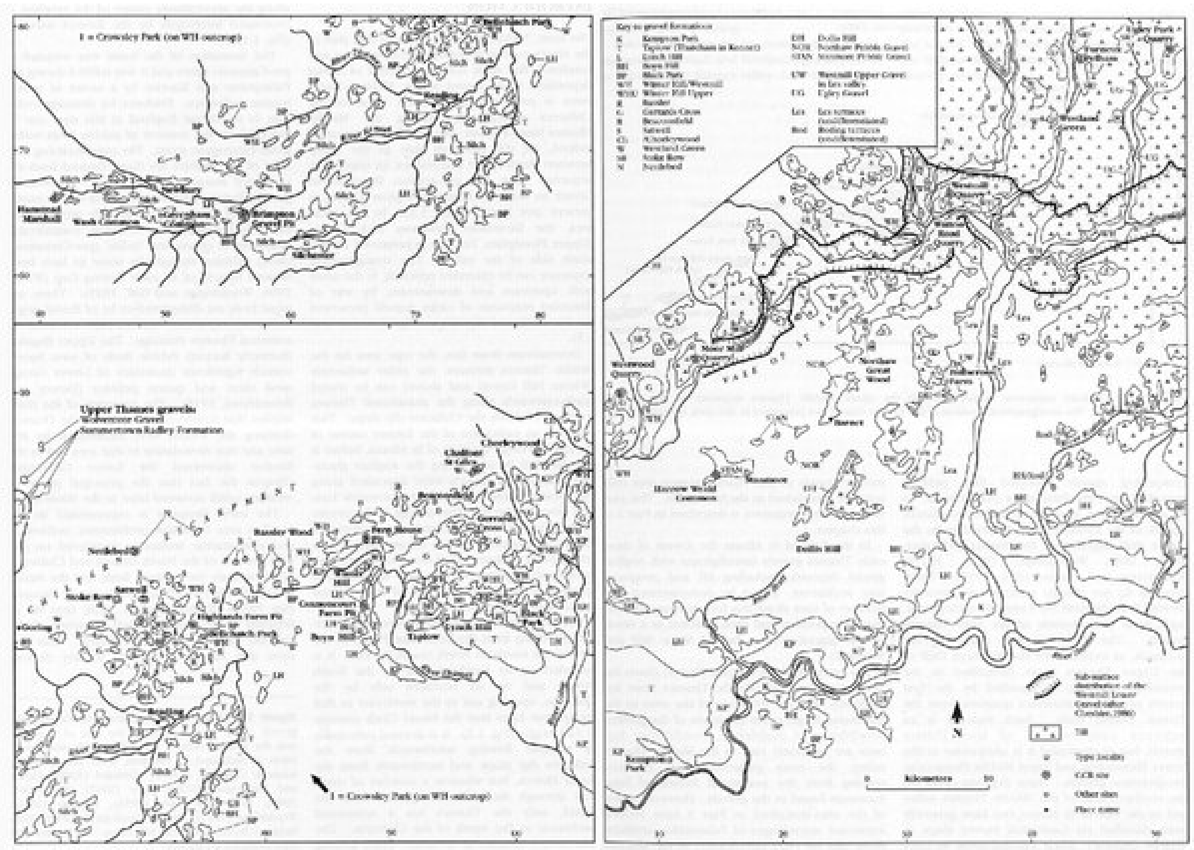
The early Neogene is represented in the London area by a few problematic outliers of probable marine sediments preserved on the high ground of the North Downs and Chilterns. These include the Lenham Beds and the Netley Heath, Headley Heath and Little Heath deposits (see Part 1 of this chapter). The next set of deposits in the stratigraphical sequence of the London Basin is the Pebble Gravel. This is a term that has been applied to any deposit comprising mainly rounded flint pebbles reworked from the Palaeogene pebble beds. In its stricter sense it refers to high-level plateau gravels in the London Basin, believed to be the oldest drift deposits of the district (Whitaker, 1864, 1889; Wooldridge, 1927a, 1927b; Wooldridge and Linton, 1939, 1955). These deposits do not contain material unequivocally derived from beyond the Cotswold escarpment, such as is characteristic of the later Thames gravels. The initiation of a link with the Midlands, as indicated by the Northern Drift of the Upper Thames basin (described in the preceding chapter), is signalled by the first gravels containing abundant quartzite from the Triassic pebble beds. Such material is an important component of all later Thames gravels, but in particular it is ubiquitous in the Lower Pleistocene and lower Middle Pleistocene pre-diversion gravels. These deposits occur on the northern side of the Middle Thames valley and in the Vale of St Albans, but have generally been classified on Geological Survey maps as 'Glacial Gravels'. Their interpretation as early terrace gravels of the Thames system was only securely established in the late 1930s. This part of the Thames sequence is described in Part 2 of this chapter.

In the Vale of St Albans the lowest of these early Thames gravels interdigitates with Anglian glacial deposits, including till and proglacial lake sediments. It can be demonstrated at a number of sites along this former route that the river was ponded and then diverted as a result of this glaciation (see below, Moor Mill and Westmill).

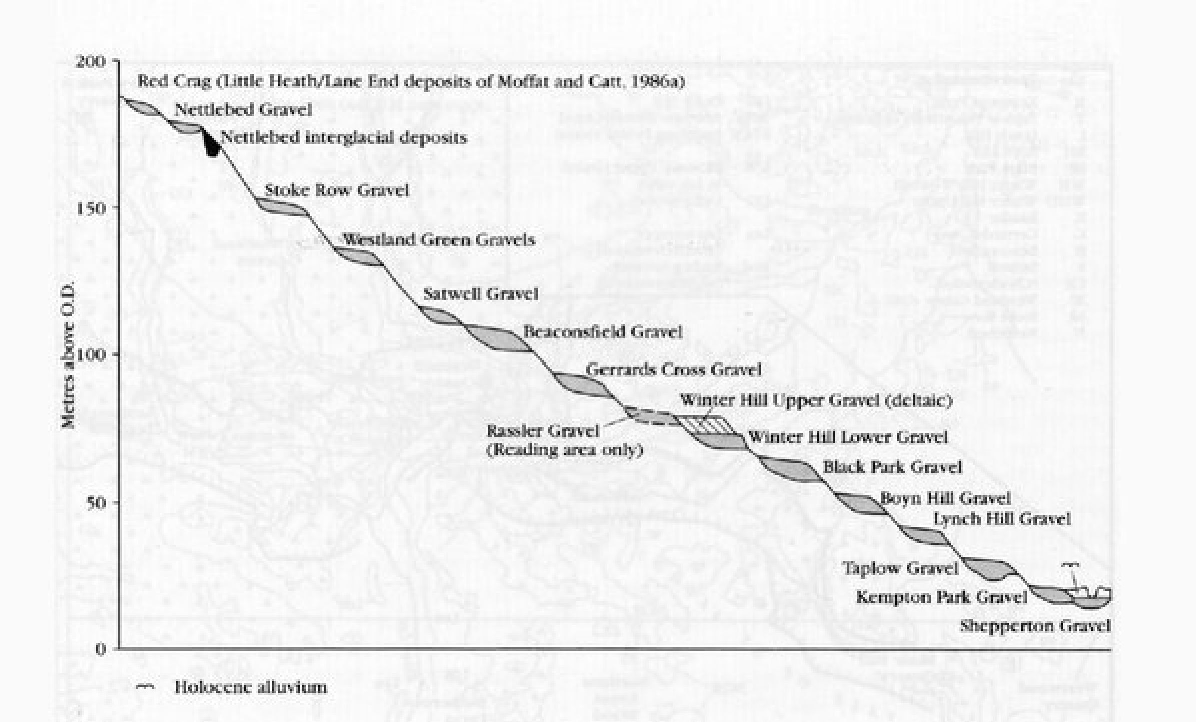
The last part of this chapter (Part 3) charts the development of the Middle Thames from immediately after the diversion of the river to the Devensian Stage, when the limits of the present floodplain were established. Fossiliferous deposits are extremely rare in the Middle Thames valley, the main palaeontological evidence coming from the occasional bones of large mammals found in the gravels. However, many of the sites described in Part 3 have yielded important assemblages of Palaeolithic artefacts; these take on extra significance, in the absence of biostratigraphical evidence, as a potential means of relative dating.

Two of the sites to be described in Part 3., Hamstead Marshall and Brimpton gravel pits, lie in the tributary Kennet valley. Information from these localities can be readily assimilated into the story of the Thames since, as noted above, the Kennet is essentially a westward extension of the Middle Thames valley along the centre of the London syncline.

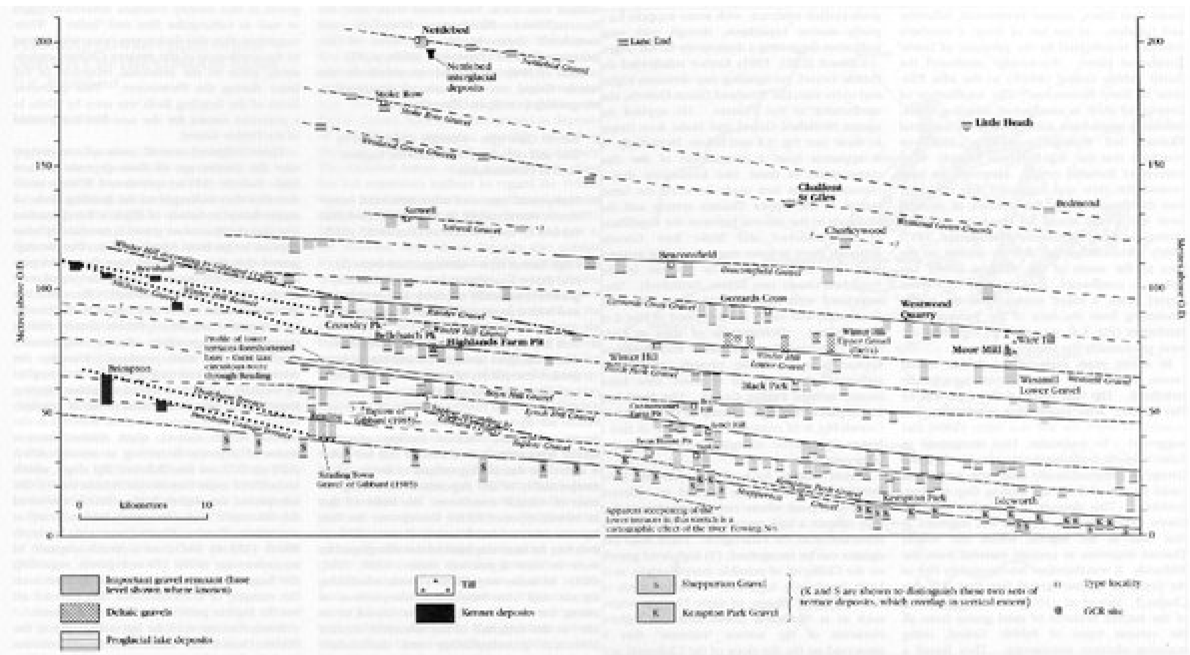
References



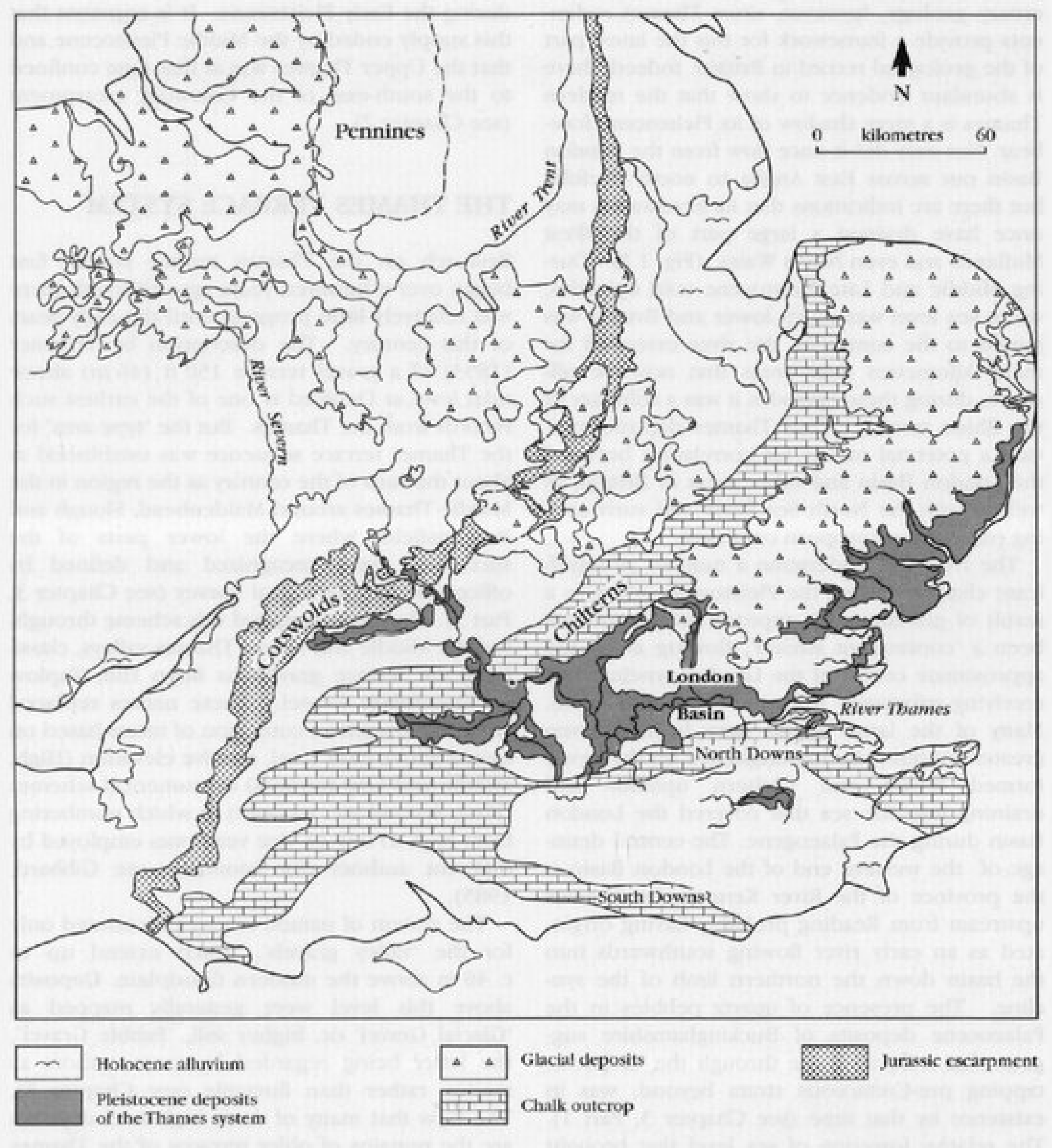
(Figure 3.1) (Following two pages) Map showing the gravels of the Middle Thames, the Vale of St Albans and the Kennet valley. Compiled, with reinterpretation as indicated in the text, from the following sources: Cheshire (1986a), Gibbard (1985), Green and McGregor (1978a), Hare (1947), Hey (1965, 1980), 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.



(Figure 3.2) Idealized transverse section through the classic Middle Thames sequence of the Slough-Beaconsfield area. The stratigraphical position of the Rassler Gravel, not preserved in this area, is shown.



(Figure 3.3) Long-profiles of terrace formations in the Middle Thames. Compiled predominantly from data provided by Gibbard (1985), with subordinate information from Sealy and Sealy (1956) and Thomas (1961). Modifications to the source information are described in the text.



(Figure 1.1) Map of southern and central England, showing the division into the catchments of the modern Thames, Severn and Trent rivers. As is described in the text, the area to the north-west of the Cotswolds escarpment was probably drained by the Thames in the Early Pleistocene. In the early Middle Pleistocene it was drained by the Trent system (the proto-Soar of Shotton, 1953).