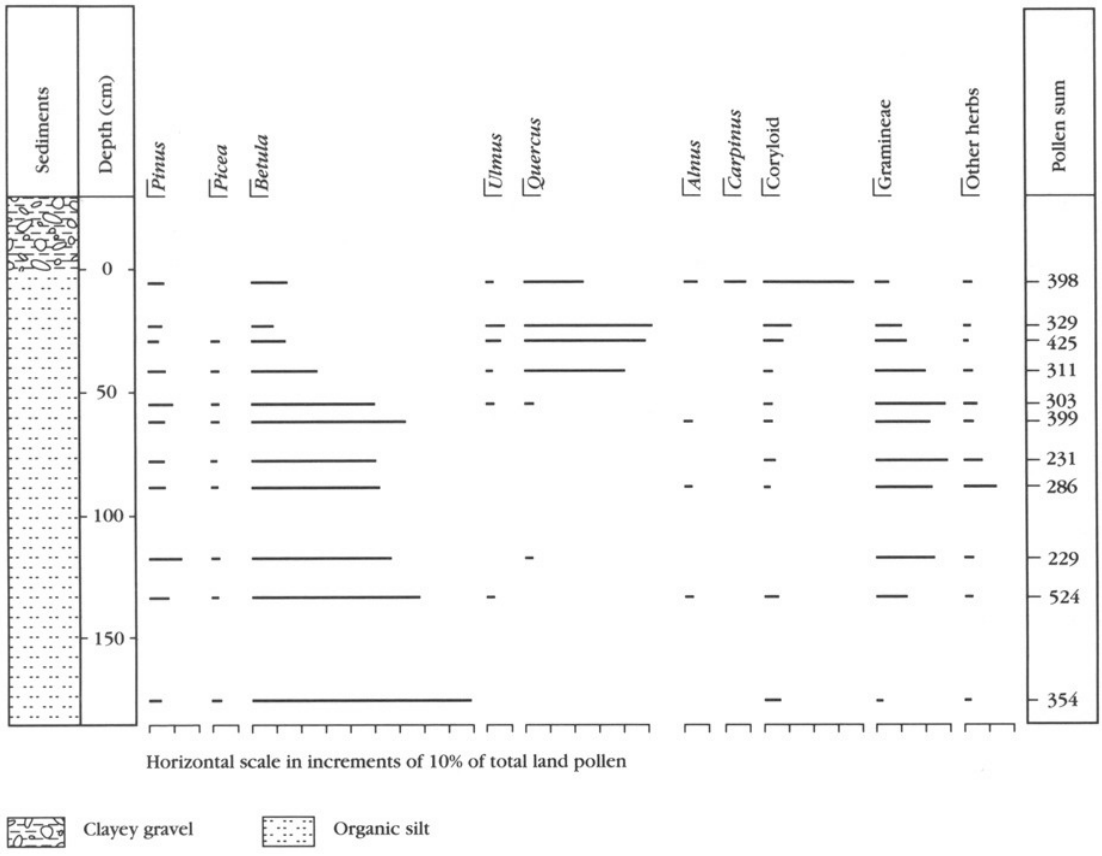
Priest Hill SSSI

Nettlebed Common

A Site of Special Scientific Interest

Natural England designated this small area (1 hectare) of Nettlebed Common as a Site of Special Scientific Interest because its geology is very important in understanding the history of the River Thames. There are deposits here that may date back to the earliest Pleistocene Ice Ages.

Diggings have shown the presence of organic silts and clays, which, from pollen analysis, represent deposits formed during an early inter-glacial period, possibly the oldest to be preserved in the Thames catchment area. The pollen profile revealed a transition from a cool climate, with birch trees dominant, to a warmer climate with oak, elm, hornbeam and hazel.

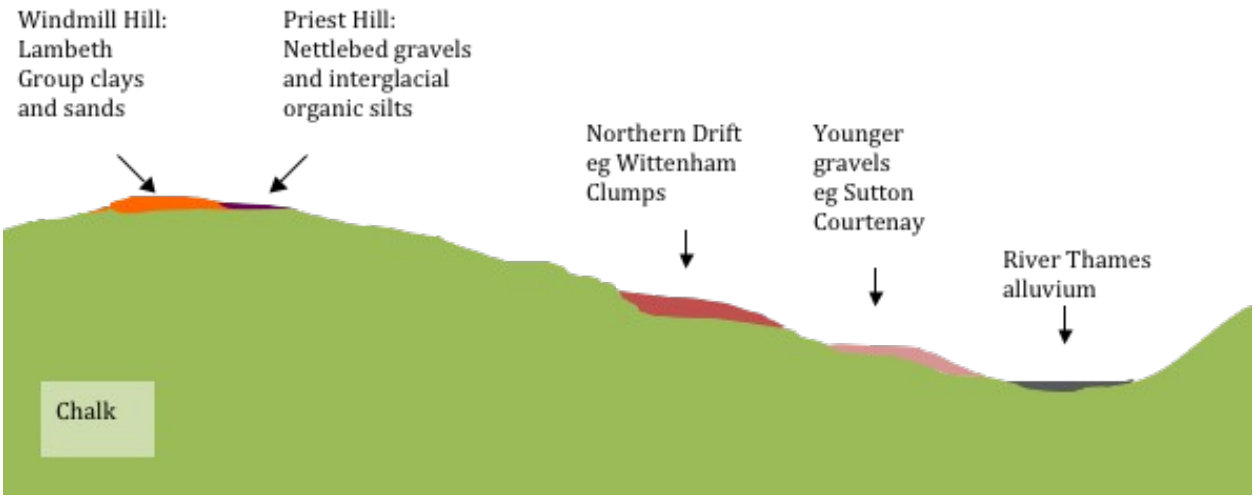


Pollen Profile at Priest Hill (from Bridgland, 1994)

On the surface, one can also see associated deposits, known as the "Nettlebed Gravels" with rounded flints, and some white quartz and quartzite pebbles. Deposited by a river, they now lie some 150m higher than the Thames valley floor. They are the highest and oldest known river deposits of the Thames Valley, perhaps 2 million years old, and represent the start of a process of the river eroding its valley, as regional forces lifted the land upwards (Maddy et al., 2001). The average rate of uplift has been around 0.075 millimetres per year, and it may still be continuing.

Nettlebed Gravels (with trowel for scale)

The Nettlebed Gravels show a different pebble content to the lower and younger deposits, which can tell us about the former extent of the Thames drainage basin. The rounded flints suggest the early river drained and eroded mainly the local outcrops of chalk with their contained layers of flint. In contrast, lower (and younger) gravels of the Thames valley, referred to as the Northern Drift or Plateau Gravels, contain distinctive dark-coloured quartzites known to be derived from the Triassic Bunter Pebble Beds of the Midlands, suggesting a much larger drainage basin. The very lowest (Younger) gravels again contain a high proportion of local material, such as Jurassic limestone from the Cotswolds and angular flint from the Chalk. Thus these suggest a drainage basin of reduced extent not too different to that of the present-day Thames.



Schematic cross-section through the Thames valley. Priest Hill deposits are the highest (and oldest) known Thames river sediments. Lower river deposits (shown) are progressively younger.

Another geological feature of the Nettlebed area is the local presence of brown to grey clays and sands of the Lambeth Group (around 60 million years old) overlying the chalk but beneath the Pleistocene deposits. These provided the raw materials for the brick and pottery industry for which Nettlebed was once famous. As early as Roman times they were used to make bricks, roof tiles, land drainage pipes and pottery.

Numerous ponds around Nettlebed Common have formed in former clay diggings because the impermeable clay prevents the water from draining into the chalk below. At Priest Hill you can also see bracken, heather, gorse and holly, which thrive on the acid soil over the clays and sands.

Clays and sands of the Lambeth Group (orange), once a continuous layer overlying the Chalk, remain as an outlier at Nettlebed

Further Reading

Maddy, D., Bridgland, D.R., and Westaway, R., 2001. Uplift-driven valley incision and climate-controlled river terrace development in the Thames Valley, UK. Quaternary International, 79, 23-36

Bridgland, D.R. 1994, Quaternary of the Thames. Geological Conservation Review Series No. 7 Chapman & Hall, London, 441 pp
See also http://www.thegcr.org.uk/ImageBank.cfm

Gibbard, P.L., 1985. The Pleistocene History of the Middle Thames Valley. Cambridge University Press, Cambridge, 155 pp.

Horton, A., and Turner, C., 1983. Nettlebed. In Rose, J, editor *Diversion of the Thames*, Cambridge: Quaternary Research Association, 63-68.

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