

### **GLA 34: Harefield Pit, SSSI**

London Borough of Hillingdon, TQ 049 898

Ownership: Private

The Site of Special Scientific Interest (see [http://www.sssi.naturalengland.org.uk/Special/sssi/sssi\\_details.cfm?sssi\\_id=1001658](http://www.sssi.naturalengland.org.uk/Special/sssi/sssi_details.cfm?sssi_id=1001658)) at Harefield is a small conserved section of one of the large chalk quarries adjacent to the Colne River. The quarry is now landfilled but still provides a key section in the London Basin for a sequence through the top 2 m of Chalk, Lambeth Group and Thames Group (Harwich Formation and London Clay Formation). It was mainly quarried for the chalk which was used in the manufacture of cement but the Eocene deposits at the top were also utilised for brickmaking. The SSSI is described in the Geological Conservation Review<sup>1</sup> and in GA Guide 68, pp. 15-28. Further details of the section are discussed by Cooper & James (1975)<sup>2</sup> and Cooper (1976)<sup>3</sup>.

#### **Chalk**

The top of the Chalk at Harefield is particularly interesting as large burrows descend into it from the Upnor Formation above, showing clearly where the grains of [glauconite](#) within the sand give them a dark colour against the white Chalk. Current thinking on the origin of the burrows is that they were made by a shrimp-like crustacean. They are named after the site, *Glyphichnus harefieldensis*. A band of very large flints (50-60 cm long, 20-30 cm vertically) is also visible. The full extent of the Chalk cliff beside the Colne can still be seen in the adjacent Summerfield Lane quarry (GA Guide 68, Itinerary 1, Location 2) where it is dated as Seaford Chalk, laid down in a warm shallow sea c. 70 million years ago.

#### **Thanet Sand & Lambeth Group**

There is no Thanet Sand Formation as such at Harefield as it thins westward from 30 m on the east side of London to disappear altogether east of Harrow and Stanmore<sup>4</sup>. However, the unweathered glauconite-covered flints familiar at the base of the Thanet Sand, where they are known as the 'Bullhead Beds' from their appearance, can be found to a lesser extent at Harefield. The age of this horizon at Harefield has not been established but it is generally considered to be the base of the Upnor Formation. Above that, a few centimetres of pebbly white sand can be seen, at the top Upnor Formation. These normally glauconitic marine sands also thin to the west and the total depth at Harefield is less than a metre. At the type section near Chatham, close to the Medway estuary, the Upnor Formation is over 15 m thick. The Reading Formation above is predominantly sand with minor clay bands becoming clayey at the top of the visible exposure. When not disturbed by badgers the sand shows fine cross-bedding and was probably deposited in river channels. Rare plant material has been found within it. The red/green mottled clays of the Reading Formation typical at many exposures indicate a terrestrial environment of deposition. These are now obscured by vegetation at Harefield. There is no representation of the estuarine Woolwich Formation at Harefield.

#### **Thames Group**

The Harwich Formation at the base of the Group comprises a very varied set of lithologies combined into one formation as they are of approximately the same age (c. 60 million years). The exposures at Harefield are of varied lithology and represent the Tilehurst Member and the Swanscombe Member recognised by King<sup>4</sup>. The lithology alternates between sandy silts and silty sands some of which contain nodules filled with shells, often seen to be bored by the bivalve mollusc *Martesia*. It is very different to the Blackheath Member found in a number of GLA sites in east London where rounded black pebbles are the norm. The base of the London Clay Formation at Harefield is not well exposed.

The faces need constant conservation to be kept in good condition and this is not always possible, but the site provides a unique opportunity to examine [facies](#) not seen in the rest of the Greater London area.

#### **References**

<sup>1</sup> Daley, B. and Balson, P. 1999. British Tertiary Stratigraphy. *Geological Conservation Review Series*. Joint Nature Conservation Committee.

<sup>2</sup> Cooper, J. & James, J.P. 1975. Report of a field meeting to Harefield, Middlesex, July 20<sup>th</sup>, 1974. *Tertiary Times*, 2, pp. 168–172 (Reprinted 2004 in *Tertiary Research*, 22, pp. 194–196).

<sup>3</sup> Cooper, J. 1976. Report of a field meeting to Harefield, Middlesex, 14.III.1976. *Tertiary Research*, 1, pp. 31–35.

<sup>4</sup> King, C. 1981. The Stratigraphy of the London Clay and Associated Deposits. (*Tertiary Research* Special Paper No. 6). Backhuys (Rotterdam), Text-fig.5.

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**Lambeth Group in 2002, after conservation**

Source: London's foundations, page 175



Site Map

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