

## **The Geology of Kensal Green Cemetery**

Dr. Eric Robinson, Department of Geological Sciences, University College London

Kensal Green Cemetery stands as a pioneer venture in the burial of the dead in urban areas. In the years following the Napoleonic War, the vigorous growth of London's population and several severe epidemic outbreaks, put considerable pressure on the parish churches and their ridiculously small burial grounds. So great was the problem that reforming pamphlets were published and Press campaigns vigorously continued demanding that something be done about the matter, which was a social and health disgrace.

In 1830, at a meeting in the Freemason's Tavern in Covent Garden, the London Cemetery Company was formed, bidding for the right to create an urban cemetery on 55 acres of open country alongside the Grand Union Canal as it passed from Willesden into Paddington. The planned design accorded with the ideas of J.C. Loudon, a Scots landscape adviser and horticulturist, who had written a treatise on the subject. Winding paths between burial plots and the judicious planting of fine trees were his scheme, avoiding the harsh formality and gridiron patterns which space economy favoured. Using the undulating top surface of the local London Clay, Loudon saw scope for the cemetery providing, at one and the same time, a green and leafy park as well as the sanitary burial ground intended.

Imposing entrance gates, suitable chapels for Church of England and Dissenting faiths opened up an architectural competition which introduced many tonnes of Portland Stone into the cemetery as we see it. By 1832, the year of the Great Reform Bill, Parliament and the Bishop of London had given blessing to the Company and the first interments were made into the consecrated ground.

### **Geology**

Geology could be said to come in two distinct ways into our visit. First, there is the underlying rocks of the 55 acres along the Harrow Road. The entire area is underlain by London Clay with small patches of pebble gravels of later Pleistocene date. During those cold climate periods, the area could be thought of as tundra and subject to deep and penetrative frosting. As a result, the London Clay can be deeply weathered to a depth of metres. As such, the clay, drab green or grey when fresh, has a top surface which is orange-brown in colour and drying out into crumb particles. When wet, however, the weathered clay becomes a sticky paste and very tenacious. It might be argued that this is hardly the best subsoil for a cemetery when compared, say, with the sands and gravels of the Thames Terraces seen in the flat open ground of Wormwood Scrubs on the other side of the Grand Union Canal and the Great Western mainline. Grave digging in the cemetery is hard work and taken to conventional depths, the space is liable to accept and retain water while open to the elements. The clay nature of the soil and subsoil is one reason for the tilting of upright gravestones. Wetting and drying with changing weather promotes ground movement in the clay which in turn disturbs the stone. Dangerous collapse is unlikely, however, as almost one third of the total height of the stone is held beneath the ground surface.

The clay and the wetness it promotes, is evidenced by the wild flowers and plant life it supports (one of the reasons why London Wildlife regards the cemetery as a nature reserve). Very wet patches of ground are marked by patches of *Equisetum*, the Horse-tail, once used as a scouring brush on account of its silica content.

The second aspect of geology available to us is much more evident and profound, and stems from the gravestones and memorials which have been erected in the last 175 years. A great diversity of stone has been brought into the cemetery by the monumental masons such as Farley, who still survive as a firm opposite the main gate. At first, it was probably the Canal which carried the bulky and heavy stone to the masons' yards.

From the London Docks there came Portland Stone from the Dorset Coast and some brown sandstones from the Yorkshire Coalfield shipped with cargoes of coal from the Humber down to the Thames. Other brown sandstones came by canal from the Midlands along with the granite setts and kerbstones from Charnwood Forest (Leicestershire).

In the early years, most graves were marked by simple upright slabs, so as you look around you can quickly identify and distinguish the white or grey stones as 'Portland' and the dark, sometimes black slabs as 'Sandstone'. Only

later, ca 1860, were other rocks added to the choice. Then there came Scottish (pink, red and dark grey) or Cornish (silver-grey) granites.

It was the growth of the railway connections that allowed this expansion, a trend which has continued to the present. Possibly the greatest change was the arrival of white Carrara Marble, which had been seen by visitors to Italy and the Mediterranean and was considered to be excellent for a new kind of gravestone involving three-dimensional sculpture or the fullest range of symbols representing grief, or belief in the life hereafter. Carrara Marble was relatively easy to carve and to polish to a smooth surface finish and so there began the importing of full-size weeping figures, anchors of Hope, rugged crosses and, a speciality, the full-winged angel.

A short walk up the main avenue towards the Anglican Chapel will bring the visitor face to face with some of the most elaborate mausolea and monuments, demonstrating the plasticity of marble. Sadly, it will also show its weakness in the face of our humid and aggressive atmosphere. It was Fate that located a very large gasworks on the south bank of the Canal. Twice a day, up to the late 1950's, they would quench the coke and large white clouds of steam would drift across the cemetery, pushed by the prevailing winds from the west. In this way, active 'acid rain' fell upon the limestone and marble gravestones, being especially aggressive towards the white marble.

A further problem which affected stones of all kinds, was an encrustation of surfaces with crystalline carbon and a sooty staining.

It is not necessary to go into the full list of names for granites and igneous rocks which occur in the cemetery. Suffice it to say that as the cutting, turning and polishing of hard stones such as granite was perfected in the stone yards of Aberdeen, any of the pillars, obelisks or flat wall surfaces of mausolea provide us with unrivalled opportunities to study the textures and mineralogy of granites. Many mausolea carry discreetly the names of Macdonald, or Macdonald and Leslie, companies in Aberdeen who between 1870 and 1914 invented and perfected the steam-driven engines which achieved the mirror polish, which many of the granites of the cemetery retain, undamaged by frost or acid rain.

### **The special magic of geology in the Cemetery**

So far, the gravestones and monuments have provided us with a range of rock types which could be said to represent the main materials of the Earth's crust. What remains to be demonstrated are the processes of weathering. Acid rain has been mentioned already as a particularly urban process linked to industry and the pollution associated with it. Frost, however, is a much more widespread attacking process. Rocks such as sandstones are characteristically porous and soak up vast quantities of moisture from the ground, drawn up into the stone by capillary action. Frost operates most aggressively close to the ground surface. Freezing and thawing effectively prise away layers of stone. Limestones and granites are less at risk from such frost damage simply because they are less able to soak up moisture.

Apart from acid rain attack, rain impelled by wind can physically erode the surfaces of stone, millimetre by millimetre, over the years. In the case of some of the gravestones, 'years' mean 150 years, time enough for the inscriptions to become fainter and fainter until they are virtually illegible. The name and the listed virtues of the deceased are not so important to us as the date of death. That date sets a finite time to the weathering that confronts us - a value never given to us in a natural outcrop. It allows us to assess by eye the qualities of different stones. We are able to construct a simple scale of weathering grading from 1 to 10 (1 crisp and sharp lettering; 2 loss of sharp outlines; 3 lettering shallow ... right down to 10 illegible, date gone). These gradations can be used with children allowing us ask for their judgement as to what would be the stone to last forever? More bluntly, we can ask them "What would you choose for your gravestone?" Of such is the National Curriculum!

### **The Future of Kensal Green Cemetery**

The London Cemetery Company is still in business and has shareholders to satisfy, but to most intents and purposes, the cemetery now fulfils the original aim of J.C. Loudon as a valued open space on the edges of Ladbroke Grove, Kensal Rise and Harlesden. Once inside the gates and behind the long wall to the Harrow Road, you enter a quiet and leafy enclosed space enriched by mature trees, many of which would now qualify as 'veteran trees' and of special interest to English Nature. Upkeep of paths and mowing regimes leave large areas rich in wildflowers

and tens of species of grasses which you would never see in flower in municipal parks. Such growth gives good cover for ground nesting birds and an impressive list of insects and snails assiduously built up by the recorders of the London Wildlife Trust. In all senses of the word, Kensal Green Cemetery is a Local Nature Reserve.

It is valued just as highly by English Heritage, who focus upon the monuments and mausolea, treating them to an assessment on the lines of their approach to buildings. There are estimated to be over 400 Listed Monuments in the cemetery, many of them illustrating the changing styles of sculptural art through the 19th century. A walk along the main avenue will quickly bring you to an awareness of this. Finally, Kensal Green Cemetery in its existence, has received many famous and outstanding scientists, artists and engineers, as well as a sprinkling of minor dukes, princes and princesses, to the extent that all manner of interest groups make exploratory visits to celebrate those who secured and ruled the Empire, invented processes which sustained the Industrial Revolution in Britain and fought our wars.

The cemetery is open to the public, it has to be if only to allow families to visit the grave plots which they acquire and retain for a period of almost 90 years duration. The gates are open from 9.30 a.m. to 5 p.m. throughout the year. The Office at the main entrance holds registers of all the burials and are in a position to make a search of those records to identify a grave plot and number, by which a grave can be located whether marked by a stone or not. There is a charge for such searches.

**Further reading:**

*Kensal Green Cemetery: a concise introductory guide & selected list of notable monuments, together with a plan.* London: Friends of Kensal Green Cemetery, 1994.

*Paths of glory, or, A select alphabetical and biographical list ... of persons of note commemorated at The Cemetery of All Souls at Kensal Green.* London: Friends of Kensal Green Cemetery, 1997.

© Eric Robinson, June 2007