FROM THE ARCHIVES

An archive photograph of East Midlands geology from the British Geological Survey collection

Fire, ice, flood and earthquake – One Barrow Quarry, Blackbrook Reservoir

This image was taken in 1904, and is one of a series commissioned by the Leicester Literary and Philosophical Society, that records the rock exposures and quarries created during construction of the dam, viaduct and earthworks for the Blackbrook Reservoir, near Shepshed, Leicestershire.

It shows One Barrow Quarry, which, together with other quarries nearby, preserves a series of volcaniclastic tuffs and breccias within the Blackbrook Group of the Charnian Supergroup. The volcanism was associated with a Neoproterozoic island arc complex, and the South Quarry Breccia Member exposed here is of particular interest, as it may represent a major debris flow deposit that ran down the submarine slopes of the volcanic pile, perhaps triggered by liquefaction associated with a seismic event.

By an uncanny coincidence, debris flows, gravity and seismicity have also played their part in the chequered history of Blackbrook Reservoir itself. The story of the reservoir is linked inextricably with the ill-fated Charnwood Canal. This was built in the late 18th century, at a time when 'canal mania' is often said to have gripped the nation. The canal's purpose was to carry coal from mines at Coleorton, near Ashby, to the Soar Navigation at Loughborough, avoiding tortuous transport by handcart or packhorse. After much vacillation in Parliament about the canal's feasibility and usefulness, the engineer Christopher Staveley was engaged in 1791 to survey and design the canal. His design involved a combined contour canal and tramway system, the latter to avoid the construction of locks to cope with the steep gradients at each end of the route. Completed in 1794, the canal was immediately plagued with a lack of water, so the first Blackbrook Reservoir was hurriedly constructed by 1796 to solve the problem. The reservoir's earth dam initially appeared substantial, until a rapid thaw at the end of a long, harsh winter in February 1799 brought the dam to bursting point. Despite a few days of valiant efforts to repair the cracks, the dam eventually failed like 'a clap of thunder', sending workmen running for their lives. The reservoir emptied in just 11 minutes, unleashing a torrent of water and debris that drowned hundreds of sheep, washed away farm buildings and crops, and inundated large parts of downstream Shepshed and Loughborough. Although the dam was re-built and the canal re-commissioned in 1801, it was too late to save the mines at Coleorton and Thringstone, which soon went out of business. So, by 1804, the reservoir was drained and the dam was subsequently dismantled.

The present Blackbrook Reservoir was completed in 1906, but history was nearly repeated in February 1957 when the dam was damaged by a magnitude 5.3 earthquake that shook the East Midlands area. Large coping stones were moved and cracks appeared in the dam face, but this time the dam was fortunately made of tougher stuff, and subsequent inspection proved the structure to be sound.

One Barrow Quarry provided a source of stone for construction of the dam and associated masonry, and is now recognised as a Site of Special Scientific Interest on account of its geological importance.

Andy Howard, British Geological Survey

One Barrow Quarry, near Blackbrook reservoir, photographed in 1904 (Image BAAS03791 from the geological photograph collection of the British Association for the Advancement of Science, archived at the British Geological Survey Library, Keyworth, Nottingham).

If any reader can recognise the make and model of the vintage car in the foreground, please let the editor know.