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# Sling Common, Hereford and Worcester

[SO 946 781]

## Introduction

Sling Common gravel pits expose the Lower Permian Clent Breccia overlain unconformably by the Lower Triassic Kidderminster Formation (formerly 'Bunter Pebble Beds'). The Clent Breccia is composed of abundant fragments of older volcanic rock, deposited rapidly in a marginal alluvial fan. The clasts can be identified as late Precambrian and Lower Palaeozoic rocks derived from the Welsh Uplands to the west. The Kidderminster Formation is, by contrast, a mature conglomerate deposited from braided rivers. This is a key site for the study of the Clent Breccia, and for understanding the palaeoenvironments and palaeogeography of the English Midlands in the Early Permian Epoch.

The Permian and Triassic rocks around Sling Common have been described by Eastwood *et al.* (1925), Wills (1948, 1970a), and Garrett *et al.* (1958), and the sedimentological characteristics of the Clent Breccia by King (1893), Whitehead and Pocock (1947), and Glover and Powell (1996).

## Description

Sling Common forms part of the Sling Gravel Pits Site of Special Scientific Interest (SSSI), and consists of a series of faces in three disused and partially infilled quarries. Much of the original area of the quarries has been infilled, and the remaining faces were partially obscured by talus and vegetation at the time of writing. Small patches of exposure are seen towards the top of the 5 m-high obscured sections in the south-facing part of the quarry. A second exposure, which consists of a low strip in front of Calcothill Farm (between [SO 9439 7804] and [SO 9464 7831]) and is partially covered by debris and vegetation, forms the boundaries to fields created during the landfill.

At the back of the disused pit, a fault brings the Triassic Kidderminster Formation into contact with the Clent Breccia. The Clent Breccia rests unconformably on a conglomerate of probable Stephanian (Late Carboniferous) age; it is poorly sorted and contains angular clasts ranging in diameter from 0.005 to 0.3 m. The clasts include igneous and pyroclastic rocks, quartzites, sandstones, and limestones (King, 1893); both sandstones and limestones may be fossiliferous. The matrix is a sandy mudstone or sandstone. In places the breccias show poorly defined cross-bedding.

Most of the small-scale exposures in the gravel pits also provide sections through the Lower Triassic Kidderminster Formation. This is a conglomerate that is texturally submature and consists of generally very well-rounded clasts but is commonly poorly sorted and includes both grain- and matrix-supported fabrics. The clasts range in size from 0.005 to 0.05 m and consist mainly of grey and liver-brown quartzite and vein quartz, with some weathered igneous rocks, sandstones, cherts, tourmaline (schorl), and fossiliferous Ordovician and Devonian quartzites. A few mudstone or sandstone intercalations, some with thin beds of pebbles or scattered pebbles, occur within the conglomerate (Wills, 1970a). This unit is described in more detail in Chapter 3 from its occurrence at other sites.

## Interpretation

The Clent Breccia, showing angular clasts and cross-bedding structures, was deposited on an alluvial fan located on the margins of the sedimentary basin, probably by a series of flash floods that cut wadi channels proximally, and spread out distally into the subsiding basin (cf. Glover and Powell, 1996, fig. 8D). The clasts have, for the most part, been identified as local in origin and include Lickey Quartzite, Llandovery sandstones, and late Precambrian volcanic rocks (Whitehead and Eastwood, 1927). This suggests that the breccia is composed of material eroded from the neighbouring uplands to the east and south-east.

Elsewhere in the South Staffordshire Basin, the Clent Breccia is conformably overlain by the Quartzite Breccia, the Barr Beacon Beds, and the Hopwas Breccia. These units are not known from the Sling Common area, and a substantial

period of non-deposition or erosion is represented by the unconformity between the Clent Breccia and the Kidderminster Formation.

The age of the Clent Breccia is unknown, but it is dated as earliest Permian (Smith *et al.*, 1974) on the basis of lithological similarities with other breccias in the other Midlands basins, and the evidence that the Kenilworth Sandstone Formation of the Warwickshire Basin is, from its contained tetrapod and plant remains, thought to be earliest Permian in age. In addition, breccia formations occur at the base of the succession in each of the basins in the English Midlands, and their approximate age equivalence is suggested by the likelihood that the basins all began to subside at the same time, in response to a regional extensional tectonic phase.

## **Conclusions**

The sediments exposed at Sling Common provide an important record of the changes in environmental and geomorphological conditions affecting the English Midlands during the Early Permian Epoch. Of particular interest is the Clent Breccia, deposited in large-scale alluvial fans in a subsiding basin on the margin of the Welsh uplands. This is a key site for the study of Lower Permian basinal development, red-bed facies, and the palaeogeography in central England.

## **[References](#)**