These low cliffs expose more coarsening-upwards mudstone-sandstone cycles in the Limestone Coal Formation. Some of the sandstone beds have ripple marks, others have parallel lamination, indicating deposition by water. Old maps show that at least two coal seams cropped out here, and seepages of iron-stained groundwater indicate mining activity.

The walkway crosses again to the north bank and passes below the disused double railway bridge. The first bridge carried a branch of the Glasgow Central Railway over the river to Maryhill, whereas the second carried the Lanark & Dunbarton Railway. Local sandstones were used extensively in these complex crossings. Follow the riverside path for 500 m to the Kelvin Drive bridge, where the Glasgow Central Railway crosses the river again before its terminus at Dawsholm station just south of the canal. There were extensive engine sheds just south of the station where St. Gregory's church now stands and rail tracks branched off to industrial sites around Dawsholm and Anniesland.

The walkway continues NE, first going under the canal, then Cowal Road and then the (modern) railway. About 100 m north of the railway bridge there is a more open area of grassland on the inside bend of the river with a stony area at the water's edge. Here there is an extensive area of rock exposure on the outside of the bend across the river.

Locality 6 [NS 5584 6958]

Dawsholm Bridge -South

The rocks exposed across the river are thick channel sandstones of the Upper Limestone Formation. The base of a channel cuts down into the older strata. This locality can be explored close-up by crossing Dawsholm Bridge and following indistinct paths alongside the river. It is overgrown but accessible for those with some agility. Just upstream of the sandstone cliff there is a horizontal slot at the base of the cliff where a coal seam was exploited (probably by hand) and to the right a sub-vertical crack filled with broken rock (some with plant remains) marking a large fault.

Easier of access is the extensive area of cliff on the east bank just a few metres upstream before Dawsholm bridge, known locally as Bell Crag.

Locality 7 [NS 5587 6967]

Dawsholm Bridge - Bell Crag

This cliff of thick beds of sandstone was quarried for building stone. Some beds have well-developed cross-bedding indicating water flow. A thin coal bed is also present at the base but is hard to find today. Just upstream of Dawsholm Bridge the shallow water runs over an unexposed outcrop of the 'Index' Limestone, so-called by the miners who used it as a marker bed to identify the various coal seams.

Produced by the Strathclyde Geoconservation Group.
A subcommittee of the Geological Society of Glasgow
More information at: www.geologyglasgow.org

A Geological Trail along the Kelvin Walkway

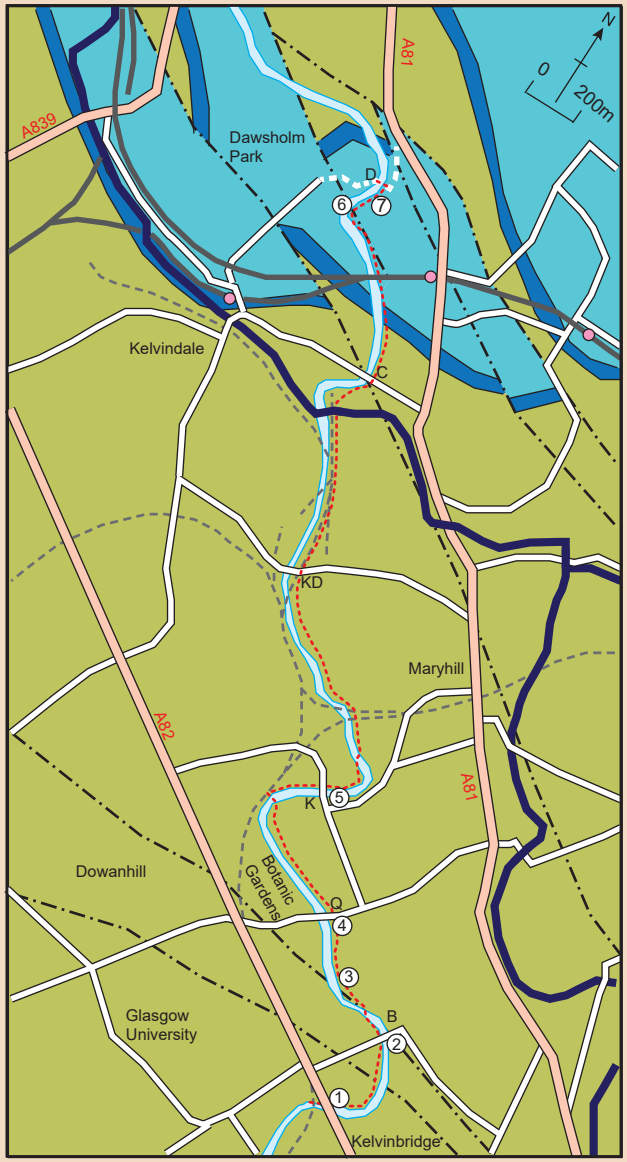
Plant fossils

Flint mill

Strathclyde Geoconservation Group

THE GEOLOGICAL SOCIETY OF GLASGOW

Trail Map



Upper Limestone Formation
Index Limestone
Limestone Coal Formation
Fault
Main Road
Other Road
Canal
Railway with station
Disused Railway

B - Belmont Street Bridge, Q - Queen Margaret Drive Bridge, K - Kirklee Bridge
KD - Kelvin Drive Bridge, C - Cowal Road Bridge, D - Dawsholm Bridge

Most of the rocks under Glasgow were formed during the Carboniferous Period from 350 to 300 million years ago. They contain coal, iron-ore, oil-shale, fireclay and limestone - all essential resources for the industrial revolution. Sandstone was an important building stone. Most of these rocks are hidden beneath the city and it is only in places such as alongside the River Kelvin where rock strata are exposed.

This trail follows the River Kelvin along the Kelvin Walkway from Kelvinbridge on Great Western Road to Dawsholm Park. Total distance is about 4 km and the paths are good. There are numerous bridges with interesting stonework, and the trail runs alongside disused railways for much of its length. The trail can be accessed at numerous points and there are many public transport options.

A convenient starting point is Kelvinbridge subway station. Exit the carpark westwards for about 100 m towards the river, crossing it on a pedestrian bridge (which used to carry the old railway) onto the opposite bank, joining the riverside walkway. Walk north under the bridge.

Locality 1 [NS 5745 6698]

Kelvin Bridge

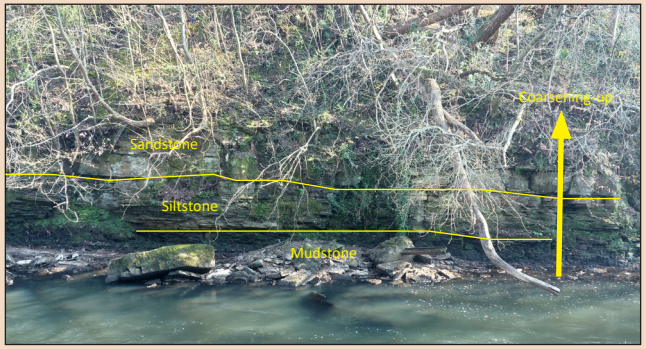
The bridge was built in 1891 replacing several older bridges. The western abutment is built over old coal workings and required 7 m long piles.

Follow the riverside path for about 400 m as it bends to the left. On the opposite bank, just before the Belmont Street Bridge (1870) are some rock exposures close to water.

Locality 2 [NS 5752 6725]

Belmont Bridge

The bridge is made of local Carboniferous sandstone. The exposed rocks in river bank are also from the Carboniferous Limestone Coal Formation, here comprising mudstones, siltstones with a thick sandstone bed above. This a typical 'coarsening-up' sequence, made by a river channel system flowing into a coastal lagoon. In places the sandstones are overlain by swamp deposits which later became coal.



Continue along the path for 100 m and cross the footbridge to the north bank to reach the ruins of the flint mill.

Locality 3 [NS 5734 6732]

North Woodside Flint Mill

The mill was originally used for grinding corn, and was rebuilt in 1846 as a flint-grinding mill. It had a central water wheel which drove rotating paddles in circular water-filled tubs which pushed blocks of chert over flint nodules which had been roasted (calcined) in a kiln, producing a milky suspension of powdered flint. This was then dried to produce a paste where it was used in pottery glazes.

About 100 m further on is the Queen Margaret Drive Bridge built in 1929 over the site of the older 'Walker's Bridge'.

Locality 4 [NS 5712 6751]

Queen Margaret Drive Bridge

The bridge is not solid stone but made of concrete with a facing of red 'Corncockle' sandstone of Permian age (about 280 million years) from Templand Quarry near Dumfries. The cornices and parapets are made of granite from Peterhead.

Follow the river upstream, crossing the 'Ha-penny' bridge (adjacent to the old Kirklee station of the Glasgow Central Railway). Some 100 m further upstream is the 1901 Kirklee Bridge - one of Glasgow's finest.

Locality 5 [NS 5685 6788]

Kirklee Bridge

The bridge is made of red sandstone (probably from Dumfries), with impressive double pillars of Peterhead granite.

Some bedrock is exposed immediately after the bridge on the opposite bank (which is accessible from the path on that bank) but it is a bit unstable and is best observed from across the river.