

The Churnet Valley Geotrail

INTRODUCTION

Welcome to the Churnet Valley Geotrail. This geotrail is designed to give the visitor a glimpse of the rocks, minerals, fossils and industrial heritage of the area which is intimately linked to the local geology. The whole trail is 25km long, which is probably too long to be tackled all in one go. We strongly recommend that it should be completed in sections from the access points at Froghall Wharf, Oakamoor, Rambler's Retreat, Hawksmoor Nature Reserve and Highshutt. Alternative routes to make shorter circular walks are indicated in this guide in *italics*.

The trail mainly follows public footpaths and other marked trails, including part of the Staffordshire Way, but **visitors should note that some of these have steep sections and muddy, uneven terrain and the use of suitable footwear is advised. There are also some sections along minor roads where particular care should be taken of the traffic.**

Visitors are encouraged to view all features of interest from the geotrail itself unless a permitted access route away from the trail is indicated. To fully appreciate the trail, visitors will find it useful to read the background information overleaf. The age of rock units can be found in the column at the top right of this page.

FROGHALL WHARF - WHISTON 1 - 12

From the historic Froghall Wharf 1 follow the Froghall 'Green Walk' towards Foxt. The path follows the outcrop of the Froghall Ironstone. Look out for several old mineshafts and a stream which dissects red mine spoil 2. *If the bridge is closed, return down the trail to a path on the left across a stream. Take the left fork after 100m to stops 3 and 4 and then rejoin the trail.* In Whieldon's Wood 3 the Woodhead Hill Sandstone is exposed in the stream. Upstream, look out for an ochre layer from the processing of ironstone for coloured dye. The trail passes an outfall 4 draining a mine in the overlying Crabtree Coal and then climbs out of the valley past more coal workings.



Continuing towards Foxt, a break in slope 5 marks the line of a fault, separating the Rough Rock sandstones of Namurian age from the younger Westphalian mudstones down in the valley. From this point onwards notice the use of different sandstones in buildings and walls. From Foxt, follow the road downhill and take a footpath on the left to an exposure 6 of red/orange Chatsworth Grit. Beyond the stile, head down to Shirley Brook. A short detour left leads to a tramway bridge and an exposure of the Roaches Grit 7. In the next valley 8, Namurian mudstones are exposed providing a rare glimpse of this dominant Carboniferous rock type.

The trail climbs back up to the tramway cutting 9 in Chatsworth Grit. Look out for the bleaching of the sandstone next to minor faults. *An alternative route back to Froghall Wharf follows this tramway downhill.* Return uphill and take the right fork 10. Cross Whiston Common and turn right, over the A52 and take Black Lane into Whiston village 11, 12. Try to locate buildings made of blocks of copper slag, waste from the Whiston smelter, now demolished. *From Whiston, an alternative route back to Froghall Wharf continues along the lane to the A52, before following a footpath along a former tramway back to the start of the trail.*

WHISTON - RAMBLER'S RETREAT 13 - 27

Return to the footpath crossing the golf course eastwards to the prominent block of Rough Rock 13 showing large scale cross-bedding formed by a Namurian river. **Which way do you think the river was flowing?** Try to find contortions of the bedding due to water escape as the sediment compacted and solidified. The trail follows a wall of local rock to a view 14 over Moneystone Quarry (**do not enter**). Rock Cottage 15 is built into the Rough Rock at one end.

Follow the road to the right and then immediately take the first footpath on the left, next to a wall. After 300m turn right across a field. Continue down to a farm track and turn right along a terrace. In this area (Cotton Dell), steeper slopes relate to the outcrop of resistant sandstones and grits whilst gentler slopes occur on softer mudstones. The terrace here 16 is associated with a mudstone within the Chatsworth Grit. Lower down is another terrace in mudstone on top of the Roaches Grit. River erosion has cut down through more mudstone to the Ipstones Sandstone at the valley bottom. A fault along the valley then repeats the sequence with Roaches Grit forming the ridge at Cotton College. The Ipstones Sandstone forms the ridge on the horizon with the Carboniferous Limestone outcrops at Ribden and Caldron Low lying beyond.

KEY

- GEOTRAIL
- GEOTRAIL / road shared
- River
- Canal
- Railway
- Disused railway
- Disused tramway
- View point
- Fault with direction of downthrow
- Major road
- Minor road
- Interest Point
- Car Park
- Toilets
- Information
- Telephone
- Public House
- Shop
- Café

0 1 km

RAMBLER'S RETREAT - TOOT HILL LOOP 28 - 32

From the back of the car park follow the wide path to the left. Beyond a left fork is another exposure of the Hawksmoor Sandstone 28, a red/brown cross-bedded sandstone with occasional pebbles.

On reaching the main road turn right. Follow the road and bear left onto a path up Rakes Dale 29, a dry valley. 100 metres after joining a road towards the top of the dale, take a sharp left turn back towards Toot Hill 30 for a panoramic view over the Churnet Valley (**keep away from the edge**). The Hollington Sandstone here is buffred and contains cross-bedding with small barytes crystals weathering proud. Its greater resistance to erosion than the underlying Hawksmoor Sandstone is responsible for the valley's steep sides.



Take the path downhill westwards. In an exposure on the left 31, look for the transition from the lower, pebble-rich, Hawksmoor Sandstone to the upper, paler, pebble-free Hollington Sandstone. Continue downhill to the main road where, on the corner 32, is another exposure of the Hawksmoor Sandstone. Here the cross-bedding can be seen in three dimensions. Return to the Rambler's Retreat via the path past locality 28.

RAMBLER'S RETREAT - HIGHSHUTT 33 - 40

Take the track on the northern side of the valley up Ousal Dale past the site of the smelting mill 33 and fork right along the upper path. Before a bend is an exposure 34 of the Hawksmoor Sandstone.

Follow the road to the T-junction. *An alternative route back to Oakamoor can be made by taking the road to the right.* The trail turns left at the junction and follows the road to Old Furnace 38. *Here, another alternative route returns to the Rambler's Retreat via Dimmings Dale.* Turn right up Greendale Lane, past the copper and brass workers' cottages 39, noting the date of construction, to the main road (**take care in crossing**).

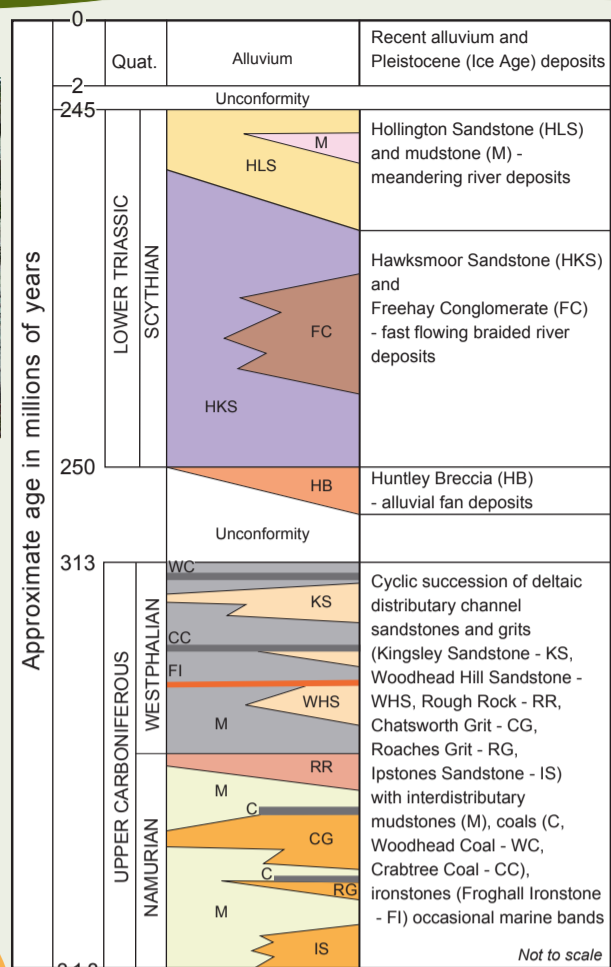
Enter Hawksmoor Nature Reserve through the stone entrance. Turn immediately left onto the 'Blue Trail' path to Highshutt along the edge of the reserve. *Alternatively continue straight on, down the 'Orange Trail' for a shortcut to East Wall Farm.* The path to Highshutt emerges from the reserve at a lay-by on a sharp bend in the road. The main entrance to Highshutt Quarry 40 is just downhill along the road on the left. Here the Freehag Conglomerate is exposed, a deposit formerly used for aggregate.

HIGHSHUTT - FROGHALL WHARF 41 - 48

Return to the nature reserve and continue along the 'Blue Trail' descending into the Churnet Valley. Turn left onto the track to East Wall Farm 41. The footpath passes to the left, above the farm. A short detour left above the pond leads to springs where the porous Hawksmoor Sandstone rests on the impermeable Westphalian mudstones. This contact is an unconformity. Return to the farm, the site of a mediaeval iron bloomery, turn left and descend to the Churnet Valley floor 42. Look out for the tramway from the Woodhead Colliery coming in from the left. Here the valley opens out with gentler slopes as it is flanked by soft Westphalian mudstones. Note the hummocky terrain at the base of the valley slopes caused by landslides. Below a small footbridge 43 the fine grained, yellow/orange Kingsley Sandstone is exposed.

The trail stays close to the Churnet, crossing the river, the Uttoxeter Canal and Churnet Valley Railway at Ross Bridge 44 where soft grey Westphalian mudstones occur. The trail rises to a fork 45 where a modern day crescentic landslip scar can be seen exposing grey mudstone. Fork left and look for a gully between the two paths which marks the position of the worked-out Crabtree Coal, and continue to a gate 46.

Here the trail crosses a fault, the same as that seen at locality 5, passing from the Woodhead Hill Sandstone to the Kingsley Sandstone. The valley now becomes gorge-like again with the resistant Kingsley Sandstone in the steep valley sides and softer mudstones in the valley floor. At Ochre Wood 47, probably a reference to the manufacture of ochre from local ironstones, re-cross the railway (**beware of trains**). Cross the Churnet via Whiston Bridge and continue to Froghall 48. Turn right along the A52 past Bolton's copper and brass works and then left along the B5053 Ipstones road. Turn right onto the canal path back to Froghall Wharf to finish the trail.



Note the thin conglomerate, a small fault and honeycomb weathering here. Further exposures with thicker conglomerates occur along this path 35, 36.

At the meeting of several tracks take the path upwards on the right to a road at the crest of the hill. A fault runs along the near side of the pond 37 and a pink mudstone unit visible on the far bank is the youngest rock seen on the trail.



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have the land plant fossil *Calamites*. Here is fossil evidence of global sea-level change in Carboniferous times. Further south 19 mudstones contain more goniatites and a thin ironstone band. Return past the bridge 20, through the poorly exposed Roaches Grit. Mudstone blocks containing fossils occur in the river 21. Further downstream, the Chatsworth Grit forms a large cliff in the opposite side of the valley 22.

This grit is accessible across the bridge 23 whilst down in the stream purple siltstones occur at the base of the unit. The trail now descends into historic Oakamoor 24. Here, *an excellent industrial archaeological trail can be followed around the village.* Our trail continues along the Oakamoor-Denstone 'Greenway' following the track bed of the former Churnet Valley Railway and line of the Uttoxeter Canal. South of Oakamoor Station 25 the Chatsworth Grit outcrops again. Beyond is a fault where Carboniferous rocks are replaced by Triassic sandstones. Close by, the River Churnet 26 is a classic example of a misfit river meandering across its wide sediment-filled valley floor.

Just before Lord's Bridge 27 the Triassic Hawksmoor Sandstone is exposed. These include red cross-bedded sandstones and conglomerates deposited by rivers. From the cross-bedding it is possible to work out which way the Triassic rivers were flowing. **How does this compare with the Carboniferous river deposits at 13 and the modern Churnet?** Cross Lord's Bridge towards the Rambler's Retreat.



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