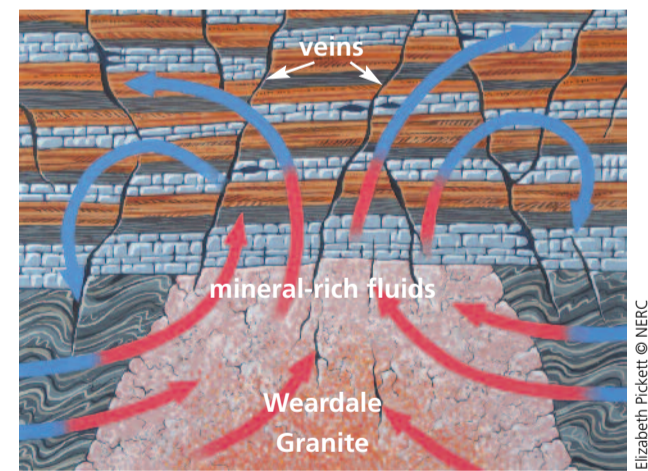




© Elizabeth Pickett

Evidence of the area's mining past can be seen all over the landscape – as you'll see on this walk. Look out for mine shafts, miners' cottages, chimneys and spoil heaps.



© Elizabeth Pickett © NERC

### Hot water and minerals

In the rocks beneath your feet there is a network of mineral veins. These formed about 290 million years ago, from warm, mineral-rich fluids which flowed through cracks in the rocks deep underground. These solutions were heated by a buried granite known as the Weardale Granite. As the fluids cooled, their dissolved minerals crystallized on the walls of the cracks, gradually building up the mineral veins and deposits for which the North Pennines is world-famous.

**Find out more about North Pennine geology**  
This leaflet is one of a series of geological publications about the North Pennines. These are part of the North Pennines AONB Partnership's work to make the most of our special geological heritage. This work includes children's geology clubs, evening classes, education resources, events, publications and much more...

Please contact the North Pennines AONB Partnership Staff Unit (01388 528801 or [info@northpenninesaonb.org.uk](mailto:info@northpenninesaonb.org.uk)) for more details.



Blanchland

Front cover: Shildon Engine House

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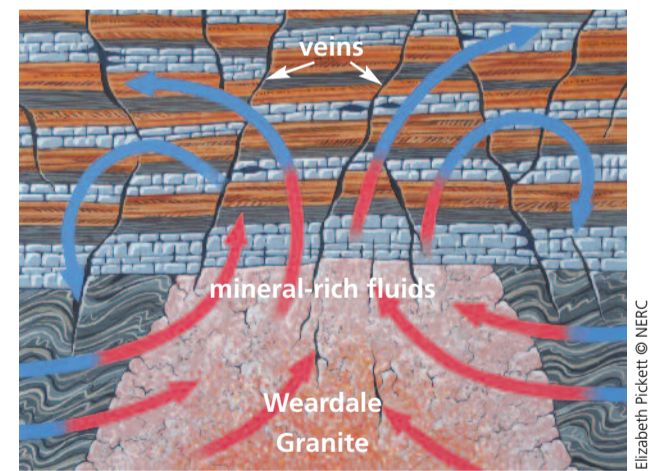
Durham County Council, LA 10049055, 2010.

06/10/2000



© Elizabeth Pickett

These mineral deposits were the foundation of the North Pennine economy for many centuries. Lead mining was the most important industry, but many other minerals were also mined at different times.



© Elizabeth Pickett © NERC

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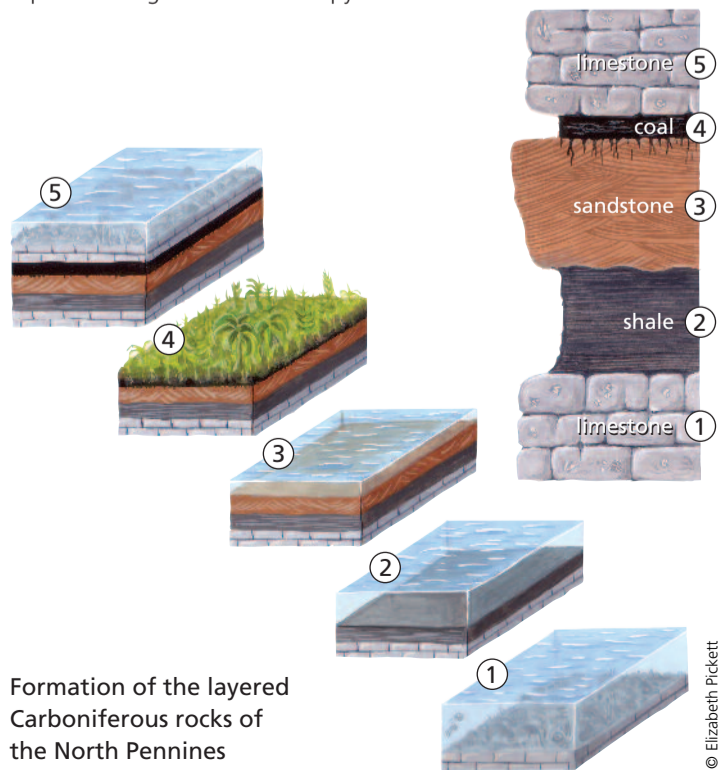
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### Formation of the layered Carboniferous rocks of the North Pennines



© Elizabeth Pickett

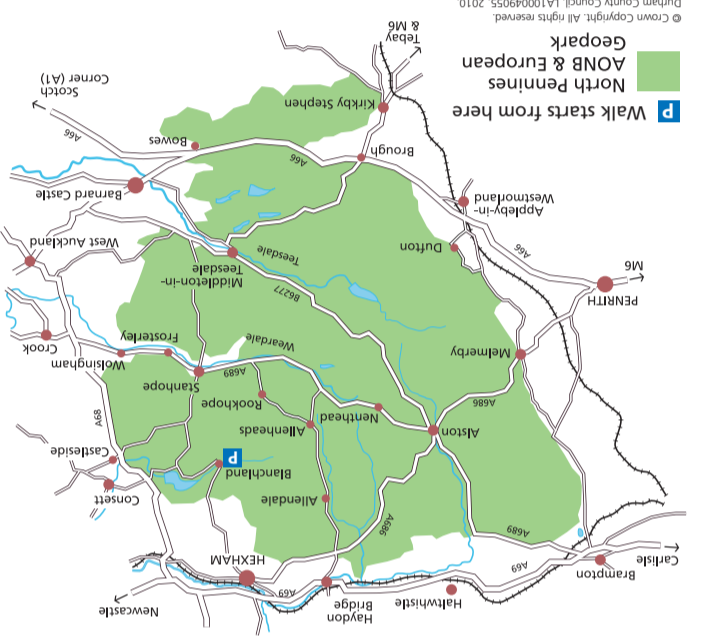
### Tropical North Pennines

The rocks you'll see in and around Blanchland formed between 360 and 300 million years ago – in the Carboniferous Period of Earth history.

Back in those distant times, the North Pennines lay near the equator and was periodically covered by shallow tropical seas. Skeletons of sea creatures accumulated as limy ooze on the sea floor ①. Rivers washed mud and sand into the sea, building up vast deltas on which swampy forests grew ②-④. In time, the limy ooze hardened to limestone, the mud and sand became shale and sandstone, and the forests turned to coal. Periodically, the sea rose, drowning the deltas and depositing limestone again ⑤.

This cycle happened many times, building up repeating layers of limestone, shale, sandstone and coal. The contrast in hardness of these different rocks has influenced the shape of the North Pennine hills. Layers of hard rock such as sandstone and limestone stand out as terraces, whereas the softer, easily eroded shales form the gentler slopes between the terraces.

On this walk you'll see sandstone, shale, terraced hillsides, evidence of ancient river currents, and fossils of some of the plants that grew in the swampy forests.



© Durham County Council, LA 10049055, 2010.

This is one of a series of leaflets on walks around Blanchland. For more information and copies of the leaflets please contact: North Pennines AONB Partnership, Weardale Business Centre, The Old Co-op Building, 1 Martin Street, Stanhope, Co. Durham DL13 2UY +44 (0)1388 528801 [info@northpenninesaonb.org.uk](mailto:info@northpenninesaonb.org.uk) [www.northpennines.org.uk](http://www.northpennines.org.uk)

We can provide a summary of the information contained in this leaflet in large print, different formats and other languages on request. Please call 01388 528801 for details.

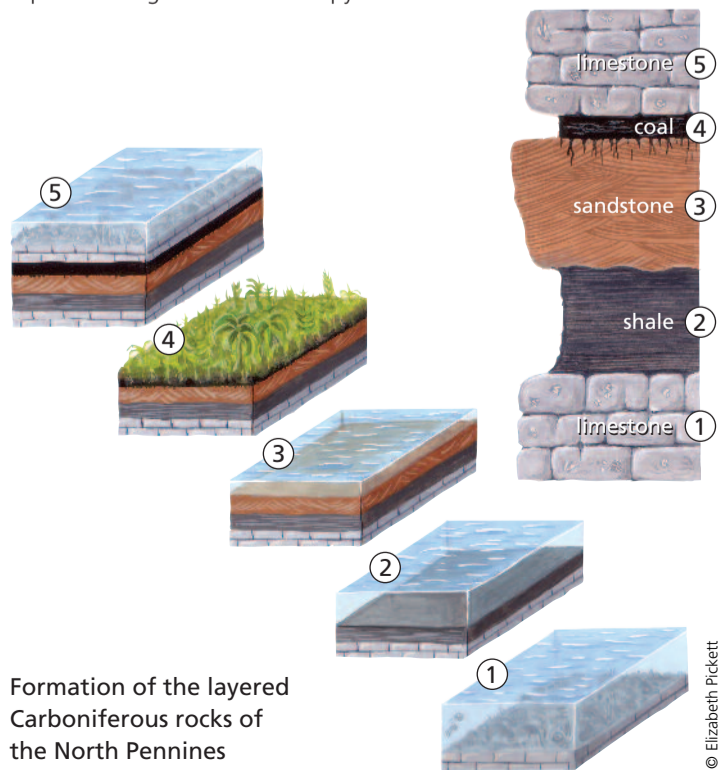
The North Pennines AONB Partnership holds a Gold GTBS Award for its corporate office and tourism activities.

Printed on 130gsm Greencoat 80% recycled: please re-use and recycle.

Thanks to Brian Young for information about the route and to those who kindly provided comments. This route is on land which has been owned and managed by Lord Crewe's Charity for almost 300 years.

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NORTH PENNINES AONB PARTNERSHIP  
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Supported by  
LOTTERY FUNDED  
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NORTH PENNINES AONB PARTNERSHIP

### Formation of the layered Carboniferous rocks of the North Pennines



© Elizabeth Pickett

# Blanchland

Geology and landscape around

A 3½-mile walk exploring rocks, fossils, minerals and mines



NORTH PENNINES  
Area of Outstanding Natural Beauty



### Welcome to a special landscape...

...shaped by millions of years of natural processes and thousands of years of human activity.

The landscape around Blanchland has been over 300 million years in the making. From tropical seas and deltas to glaciers, minerals and miners – all have played their part in shaping this beautiful landscape.

This circular walk will introduce you to some of the special features of the landscape around Blanchland. By spotting clues in the moors, fields and buildings you'll find out how to 'read' the landscape and discover more about its fascinating past.

The sections opposite give some background information about how the local rocks and minerals formed, and tell you a bit about the area's mining heritage.

Look out for the **START** on the map overleaf and follow the footsteps...



**Walk distance:** 5.6 km (3½ miles) with 120 m of ascent, taking about 1½ – 2 hours

**Start/finish:** Blanchland car park (donations welcome)  
Grid Reference NY 964 504

**Terrain:** This route follows well-made tracks, minor roads and a public footpath, through farmland, across moorland and beside the River Derwent. There is a sustained but gentle climb to start and a moderately steep descent near the end. Wear strong shoes or boots. Please keep dogs under close control (on a lead across the moor) and leave gates as you find them. Keep well clear of old mine workings.

**Public transport:** For timetable information call Traveline on 0871 200 2233

**Facilities:** Blanchland Shop and Post Office, Blanchland Deli, The White Monk Tearoom, The Lord Crewe Arms Hotel, Gallery Upstairs, a playground and public toilets

**Useful maps:**

**Ordnance Survey**

1:50 000 Landranger 87 Hexham & Haltwhistle

1:25 000 Explorer OL43 Hadrian's Wall

1:25 000 Explorer 307 Consett & Derwent Reservoir

**British Geological Survey**

1:50 000 Geological Sheet 19 Hexham



## 6 Terraced hillsides

The hillside to the right of the track rises to a flat-topped terrace. The track gradually climbs up to this and you reach its top at a wide field entrance on the right, about 500 m further along the track. Terrace features like these are characteristic of the North Pennines and are the result of the weathering of alternate layers of hard sandstone and soft shale.

## 7 Pennypie House

The name of Pennypie House is thought to have originated at a time when pies were sold here to passing drovers and lead miners – for a penny!

**Go through the gate on to the moor and turn left. Follow the track along the moor edge.**



## 8 Heather moor

When the local sandstones weather, they produce acid soils which, at these altitudes, support heather moorland. The best times to be here are in the late spring, when the moors are alive with the calls of lapwing and curlew, or around mid-August, when the heather is at its purple best.

## 9 Old quarry

This small quarry to the right of the track was once worked to supply sandstone for dry stone walls. Look for sloping layers in the rock in the old quarry face (see picture). Known as 'cross-bedding', these were formed when sand was deposited in underwater dunes in ancient river deltas.



## 5 Barn and dry stone walls

The barn beside the track shows the nature and variety of the local sandstones. The barn is mainly built of gritty sandstone containing small quartz pebbles. A similar variety of sandstones can be seen in the dry stone walls along the route. The barn roof is made of thin sandstone slabs.

## 4 Old shaft

A fenced-off area on the left of the track marks the site of one of many deep shafts that provided access and ventilation to the underground workings. These long-abandoned shafts, some over 200 m deep, are in a dangerous condition – please keep well clear!

## 3 Shale

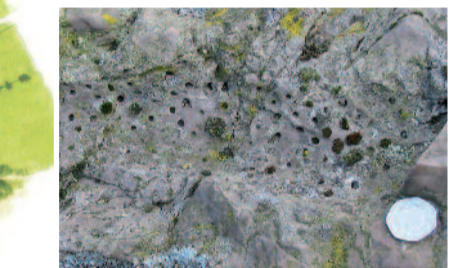
Soft and flaky grey shale, much burrowed by rabbits, is exposed on the right side of the track.



## 1 Shildon Lead Mine

Just beyond a wooden shed, look through a gateway on the right. A few overgrown stone walls above the stream are the remains of the ore treatment areas of the once-important Shildon Lead Mine. A horizontal tunnel, or adit, from the side of the stream here gave access to a complex of underground workings. Lead ore was worked here until the late 19th century.

**START** Turn left out of the car park and follow the road.



## 15 Fossil plants

Several large blocks of fine-grained sandstone in front of the tearoom contain fossil tree roots. This type of sandstone is known as 'ganister' and is fossilised soil upon which lush tropical forests of giant ferns, horsetails and clubmosses grew during Carboniferous times.

## 14 Blanchland

The buildings of this historic village are made of local sandstone and most of their roofs are made of thin sandstone slabs. Many of these slabs came from Ladycross Quarry in Slaley Forest, about 4 km (2½ miles) to the north, where such sandstone has been quarried for at least 300 years and is still worked today.

## 13 Bedded sandstone

Sandstone forms small cliffs in the riverbank opposite the playground. These show roughly flat-lying layering, known as 'bedding', a feature which formed when the rocks were deposited as layers of sand in ancient river deltas.



## 10 Old shafts

In the field on the left side of the track, a line of grassed-over mounds of mine waste marks the line of the Fellgrove Vein, one of those worked for lead at Shildon Mine.

## 11 Smelt mill chimney

As you walk along the track, look ahead to the hillside on the other side of the Derwent Valley. The chimney on the skyline was at the end of a long flue system which carried fumes away from a lead smelt mill in the valley.

**Go through the gate and follow the road downhill to Baybridge. Follow the footpath along the north side of the river.**

## 12 Minerals from the mines

This shingle bank is a good place to spot minerals brought down from mine spoil heaps by the river. Look out for bits of galena (lead ore). When fresh, galena is a bright metallic grey, but when exposed to air it becomes a dull lead-grey. You can also find small rounded pebbles of purple fluorite.



## 2 Shildon

Shildon was once a bustling mining village. It is hard to imagine now but in the 1850s over 150 people lived here! The surviving cottages are built of local sandstone and roofed with thin sandstone slabs. The area of bare ground above the cottages is a mix of old lead workings and quarries.

To your left is Shildon Engine House (see front cover). This housed a steam-driven engine built in 1806 to pump water from a 200 m-deep shaft that connects with the workings accessed by the adit at Stop 1. The venture was not wholly successful and steam power was eventually replaced by water power. The engine house was then used as accommodation for lead mining families and came to be known as 'Shildon Castle'.

