

National Trail National Trail approved but not yet open National Park and equivalent area outh Downs Wo



For more information contact:

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Cover Image: Malham Cove

Once in a Lifetime

The Mountain Code

- Know how to use a map and compass.
- Know the weather signs and local forecast; plan within your capabilities.
- Know simple first aid and the symptoms of exposure.
- Take windproofs and fleece.
- Ensure someone knows your plans.
- Keep alert all day!

Interested?

In partnership with Aurum Press the Countryside Agency has published an official guide for the Pennine Way National Trail which has been written by local expert Tony Hopkins and comes in two parts – South ISBN 1854 106 724 and North ISBN 1854 108 514.

To help you plan your walk, comprehensive public transport and accommodation leaflets are also available from www.nationaltrail.co.uk

The Pennine Way Association produces an Accommodation and Information Guide and further information can be found by contacting them via:

John Needham, 23 Woodland Crescent, Hilton Park, Prestwich, Manchester, M25 9WQ, UK.





Desert Sands

The youngest rocks you will encounter on the Pennine Way are in the Eden Valley. Here Permian and Triassic Strata abut against the Carboniferous Strata. These beds of New Red Sandstone accumulated in desert conditions. It is commonly seen in the building stone used to build the houses and farms of Duton.



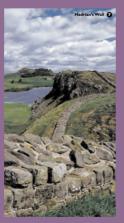
Volcanic Activity

In contrast to all the steady deposition further south, further north in Northumberland there was a large volcano pouring out ash and lava into which the granite of the Cheviot itself was later intruded.









The Deposition

There are three main bands of rock that make up the Pennines: Carboniferous Limestone, The Yoredale Serie and Millstone Grit

CARBONIFEROUS LIMESTONE

Some 400 million years ago the current location of the Pennine Wgy was covered by a shallow clear sea of a constant temperature in which corals grew. As corals died their hard spikey exteriors sank along with the shells of dead sea creatures. Over the years these layers of crushed coral and shells came together to form a huge layer of limestone up to 150 metres thick.

Imestone up to 130 metres mick. These are exposed at Castleton to the south of Edale near the start of the Pennine Way but are not actually seen on the Pennine Way until around Skipton.

YOREDALE SERIES

Above the limestone are the Yoredale Rocks consist beds of less pure limestone, shales and sandstones.

bed6 of less pure limiteone, shales and sandtoones. The calm clear conditions of the carboniferous seas that lead to the formation of limiteone changed with the spread of a large river delta from the north. The river that formed this delta carried mut and shand into the areas where limiteone had been accumulating. During this time the riverbod was slowly sinking at an irregular rate. Sometimes the deposition of river-borne material was sufficient to create shallow water conditions and form sand fats: When the rate of subuidence was quicker only fine mud rached the sea, the coarser materials being deposited fartier north. At other times even the mud dift make it so far south and so limitsome would again accumulate. In this way the bands of limitsome, shale and statome that make up the Yoredals Series were formed.

MILLSTONE GRIT

Overlying the Yoredale Rocks and capping the hillogs of the Pennines is the Millstone Grit. Created in a time when rivers flowing from a continent including Greenland, Scottand and Scandanavis spread deposits of and and mud over an extensive delta to form the Millstone Grit.

extensive delta to form the Millstone Grit. From Kinder Scott to Cross Fell these grits form edges (Standedge, Blackstone Edge) and sometimes top the hills with flat tops (Cross Fell, Great Shunner Fell).



Intrusions

Towards the end of the Carboniferous period a sheet of Dolerite was intruded into the strata over a wide area. This is called the Whin Sil which is responsible for the high waterfalls at High Force and Cauldron Snout, the Columnar Crago of High Cup Nick and the heights followed by Hadran's Wall.

Erosion

All depoints described above formed a level plateau. From this plateau the Pennines we use today were formed. From this plateau the plateau start band was uplifted Then in more necent geological times by the lee Age which covered all but the togs of the Pennines under which covered all but the togs of the Pennines under accured the julley, and as they retreated, platered the low grounds with moraines and layers of clay and boulders.

"To look at the scenery without trying to understand the rock is like listening to poetry in an unknown language. You hear the beauty, but you miss the meaning"

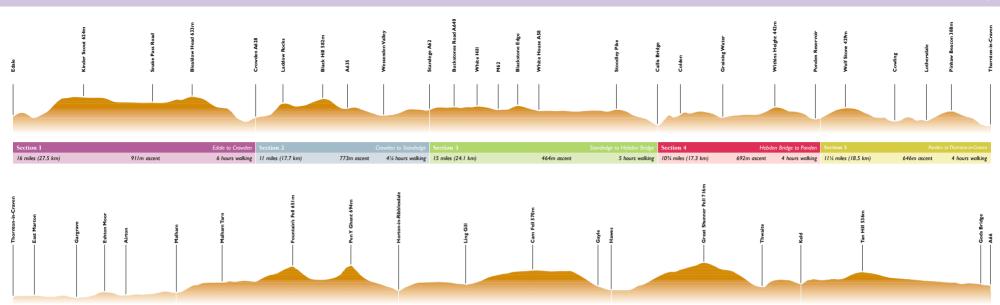


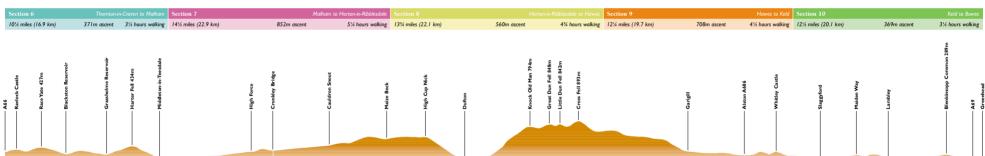
This leaflet is intended to help walkers plan their walk along the Pennine Way National

The map to the left shows the geology of

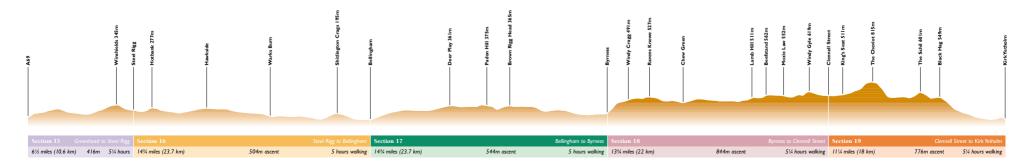


PENNINE WAY ROUTE IN PROFILE





Section 11	11 Bowes to Forest-in-Teesdale		Section 12 Forest-in-Teesdale to Dufton				Section 14		Alston to Greenhead		
18¾ miles (30.2 km)	651m ascent	5% hours walking	13½ miles (21.7 km)	461m ascent	4½ hours walking	19½ miles (31.4 km)	1069m ascent	7¼ hours walking	16½ miles (26.6 km)	577m ascent	5½ hours walking



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