

Berwickshire Coastal Geology Project

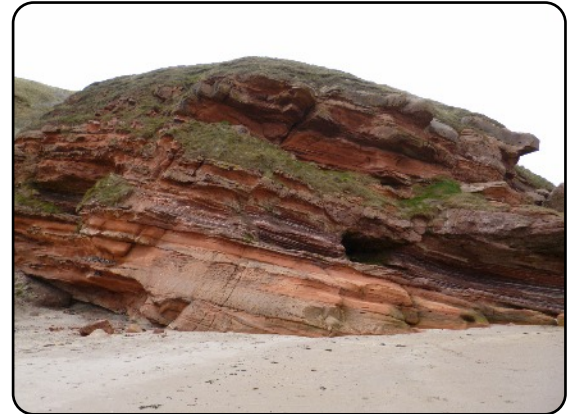
www.berwickshirerocks.org.uk

PEASE BAY and SICCAR POINT VISITING PEASE BAY

Visitors to Pease Bay should park in the car park just inside the entrance to Pease Bay Holiday Park on the right hand side [NT 794 706]. TO SEE THE ROCKS IN SAFETY, MAKE SURE YOU VISIT AT LOW TIDE.

The walk is less than a mile, through the caravan park and across the beach to look at the rocks on the headlands. Keep away from cliffs after heavy rain. Toilets are available at the caravan park.

Turn left along the beach to see the best exposures of the Devonian red rocks and walk towards the first headland, made of red sandstones. The red colour comes from iron which was washed through the cracks in the rock and deposited unevenly in the pores between the grains and shows that the rocks were deposited on a continent which lay in arid latitudes, south of the equator, about 360 million years ago, at the end of the Devonian period.

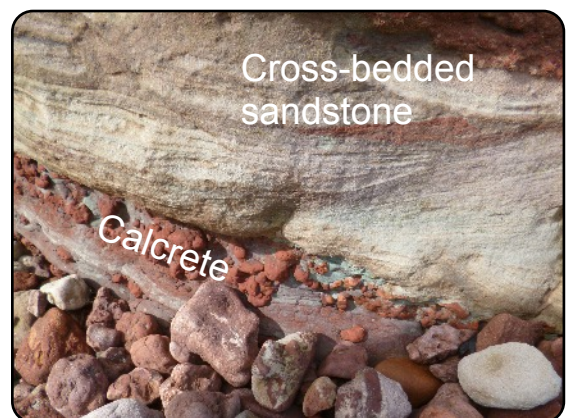


Cross bedding

A close look at the cross-bedding on the sandstones reveals that sandy sediments were laid down by flash floods as sandbanks in river channels.

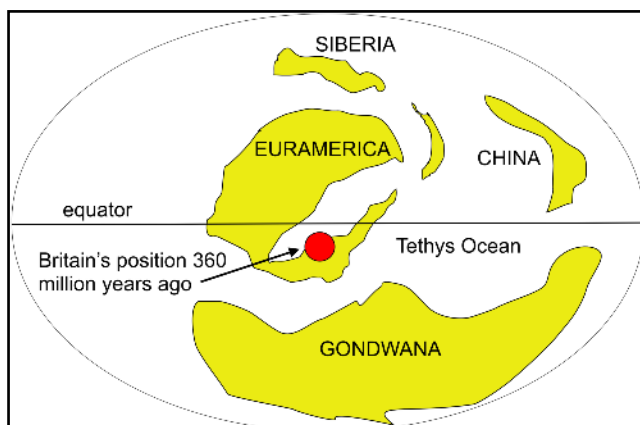
Walk around the headland to the second bay, which is only accessible at low tide. The headland on the far side has red sandstones at the base, but the younger rocks which overlie them at the top of the cliff are grey. The junction between the red and grey rocks is the boundary between the Devonian period (416-359 million years) and the Carboniferous period (359-299 million years). The climate was becoming less arid as the continent was drifting northwards into the equatorial zone where there was much greater annual rainfall.

The image on the right shows an exposure of pink and white Devonian sandstone with cross-bedding. During very arid times, layers of lumpy nodules of calcite were precipitated on the dry land surface forming beds of knobby calcrete. There are also small circular pale patches and layers in the red sandstones, which show where microbes living in wet sediment used up the oxygen in the iron minerals.



Cross-bedded sandstone

Calcrete



Drawn from Scotese Palaeomap

WHERE WAS BRITAIN AT THE END OF THE DEVONIAN PERIOD?

The global map shows the position of the continents 360 million years ago. Gondwana was close to the south pole and Britain was positioned on the southern side of the continents that became Asia, Europe and North America; we were moving slowly north towards the equator.

VISITING SICCAR POINT

You can visit this world-famous site close to Pease Bay in about half an hour walking through fields. There are no toilets. Take the A1107 coastal road from the A1 and, at the first turn, go left to Pease Bay. As the lane turns sharply left, go straight on towards Drysdale's packing plant. After about 500 m, park in a wide lay-by on the left [NT 805 705]. Study the interpretation board, then cross the stile into the field and walk uphill past the ruins of St Helen's church until you can see the view over the sea.

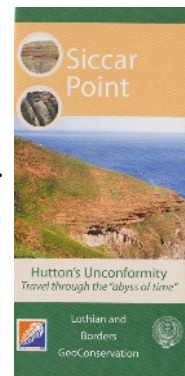
You are looking at the Devonian (Old Red Sandstones) of Pease Bay dipping gently towards the sea in the foreground and in good weather you can see the steep volcanic hills of Bass Rock (on the right) and North Berwick Law (on the left), with Torness Nuclear Power Station on Carboniferous sandstones and limestones in the mid-distance. Turn right and follow the wall through two fields until you reach the interpretation board for Siccar Point.

The Silurian greywackes were folded intensely during the Caledonian mountain-building event which lasted about 30 million years. As the mountains were weathered and eroded, flash floods carried sand downstream to fill the valleys in the Silurian landscape; these deposits became red sandstones. The time gap between the older greywackes and the younger sandstones is represented by the unconformity which so inspired James Hutton when he first visited this site and led him to the understanding that these processes took place over longer periods of time than could be imagined.



SAFETY WARNING - Visit Siccar Point at your own risk. There is a good view from the top of the slope; binoculars are useful. The grassy slope down to the shore is steep, may be slippery and there is no path, so sturdy footwear is advised. Hammering and rock collection is prohibited as the coast is a Site of Special Scientific Interest (SSSI).

Two leaflets have been produced by the Edinburgh Geological Society. They can be ordered from the EGS website.



USEFUL REFERENCE BOOKS

- Lothian Geology - An excursion guide* 1996
A.D.McAdam & E.N.K.Clarkson
- Death of an Ocean - A Geological Borders Ballad* 2010
E.N.K.Clarkson & B.Upton
- Berwickshire Coast Rocks!* 2018 Helen Page

USEFUL MAPS

- OS 1:50,000 Landranger 67 Dunbar
- OS 1:25,000 Explorer 346 Berwick-upon-Tweed
- British Geological Survey 1:50,000 Scotland Sheet 34 Eyemouth (Solid)

This leaflet is published by A Heart for Duns with the aid of a grant from the **Heritage Lottery Fund**.
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Text, images and layout: Alison Tymon

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**Funding raised by
The National Lottery**

and awarded by the Heritage Lottery Fund



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