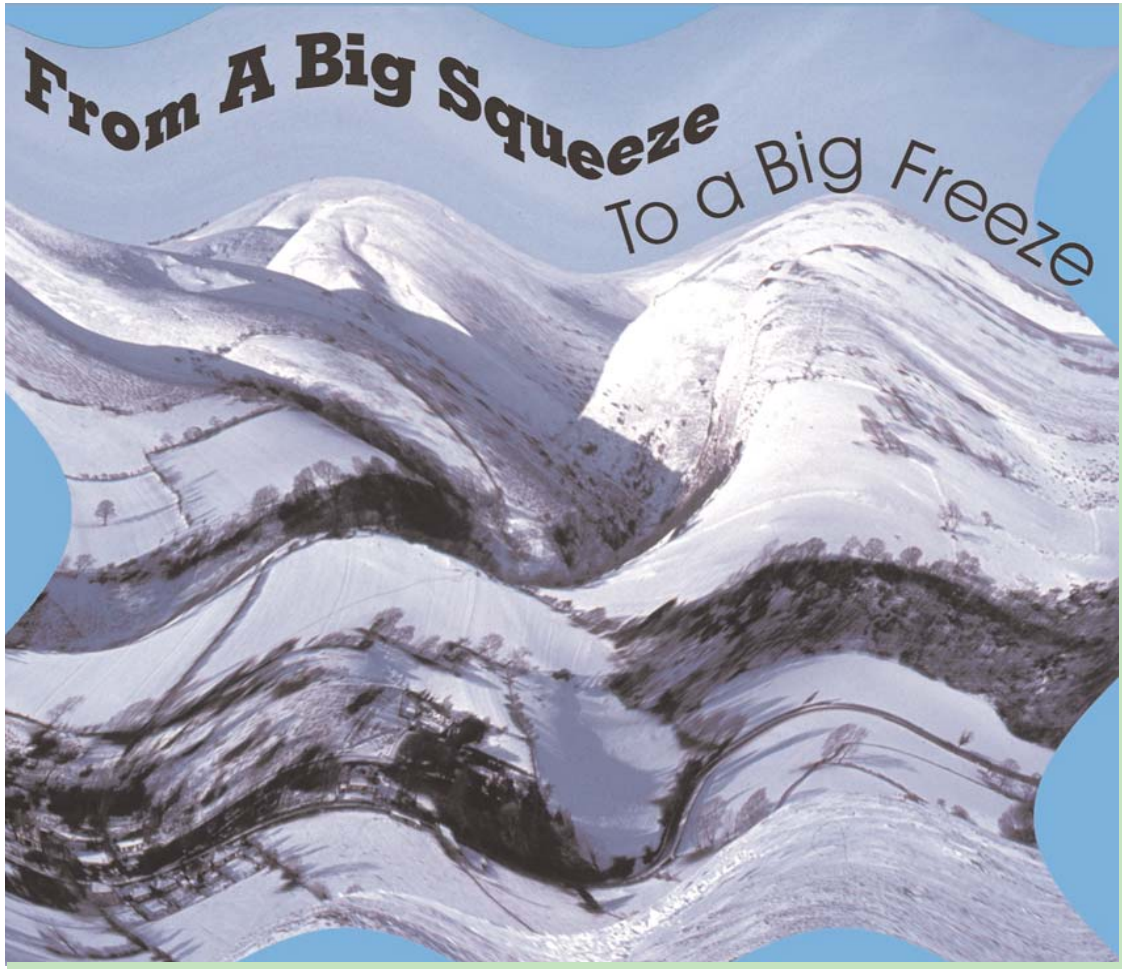


Wonder as you Wander up the Carding Mill Valley

Spot clues to the 600 million year old history of the Long Mynd.

Consider how the Earth has evolved since the rock you are walking over first formed.

Welcome to the Carding Mill Valley

Have you ever wondered why the Long Mynd is so different from the other Shropshire Hills? Or why the valleys are such a distinctive shape? Or indeed where on Earth the Long Mynd might have been 500 million years ago?

Possibly not! But this stroll on good paths of easy gradient from the Carding Mill Valley cafe shows how clues to the answers can be seen in the landscape.

1 Start outside the National Trust café. Get your bearings by looking first down-stream (east) towards the valley entrance *(photo above)*. This lower valley is relatively straight, with the view closed by the wooded slopes of Helmeth Hill to the east of the Church Stretton Valley.

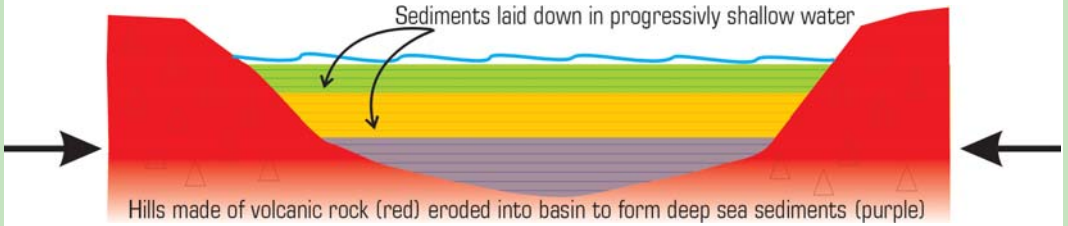
Look upstream into the hill. The valley is narrower and the spurs of the hill interlock to limit a distant view. This is well seen in the old print of about 1840 *(left)*, drawn before the Chalet Pavilion, newer houses and large trees obscured the view. The reasons for these differences come at the end of our story; but first set off upstream.

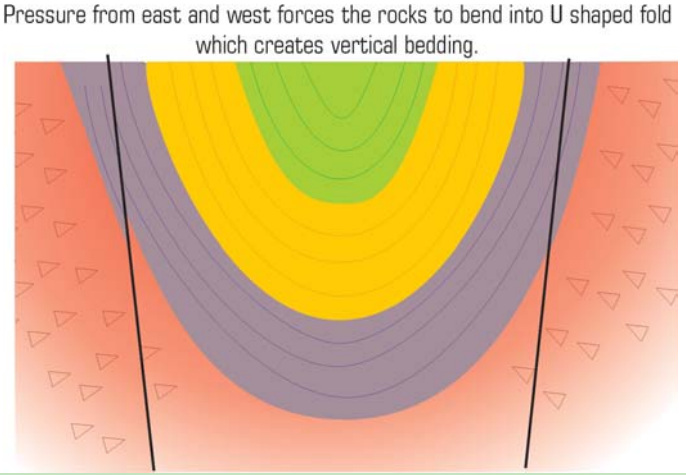
Making the Rocks

Opposite the cafe the stream is flowing directly on the solid rock. The layers (beds) of rock run across the stream and some can be followed going almost vertically up the opposite bank. This is seen even more clearly as you cross the footbridge. *(Photo right)*

2 These beds would have been laid down originally as horizontal layers of mud, silt and sand on the floor of a sea bounded by volcanoes to the east and west. Newly erupted volcanic ash erodes quickly and after only some 10 million years about 7000 metres of rock had built up on the ocean floor.

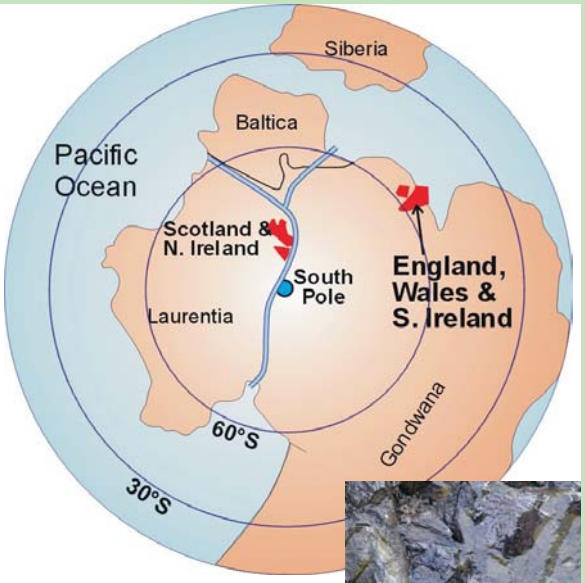
About 570 million years ago there were great upheavals in the Earth's crust. The sediments in the basin bounded by the Church Stretton Fault to the east and another fault to the west were squeezed into a giant U shaped fold as two plates of the continental crust moved towards each other.

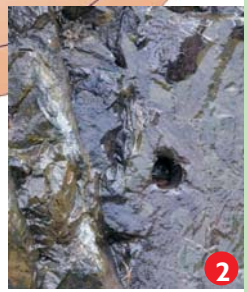




Moving Continents

The folding movement was taking place 13,000 miles away on the edge of the Antarctic Circle. How do we know? Look closely at the rock face by the footbridge. You will see some neat holes drilled in it about 3cm across and 10cm deep *(inset photo)*. Carefully recorded cores of rock were removed from these holes for magnetic analysis. The iron minerals in the rock settled on the sea floor like miniature compass needles, in line with the Earth's magnetic field at the time. When the sediments solidified those iron minerals become fixed in their original direction. This very low level of residual magnetism can be detected and used to calculate the latitude of the rocks when they formed.

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Making the Valleys

Cross the footbridge and walk on along the path.

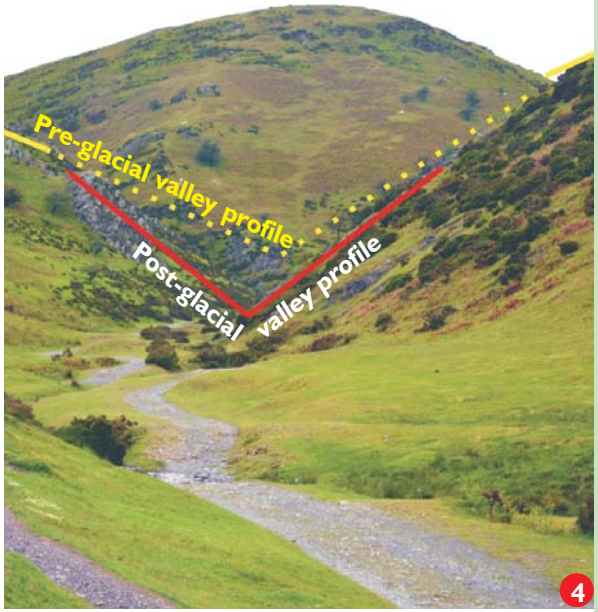
3 By the next footbridge look up the valley to your right. Where the rock is exposed the layers (beds) are dipping down towards the west (left).

This tributary valley more typically follows the alignment of the beds rather than cutting across them as the main valley does. Here a weak bed would have been eroded by the stream, undermining the bed lying above it, so a V shaped valley is formed.

3

The Ice Age - shaping today's valleys

Re-join the road above the ford. Cross the footbridge by the upper car park, and walk on up the path until you see up the valley (right).



4

4 Over the course of 30 million years before the Ice Age (which started about 500,000 years ago) the Long Mynd had slowly been eroded to its present height with the main valleys running to the Church Stretton valley.

During the Ice Age the Long Mynd was not high enough to have its own ice cap and glaciers. But a glacier did come down the Stretton valley from the north, deepening it by as much as 45m (150ft). Subsequently it was partly infilled with glacial material and large fans of sand and gravel, washed down the Long Mynd valleys, upon which the three "Strettons" now stand.

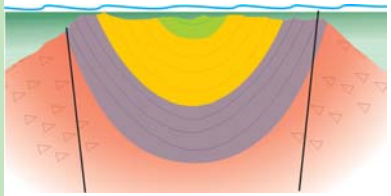
The lowering of the Stretton valley caused the streams running off the Long Mynd to "hang" where they met the Church Stretton valley. Slowly these streams have cut down to the "new" Stretton Valley level, steepening their lower valley sides and with a waterfall which has migrated upstream. So each of the valleys has a "nick point" - the position where the waterfall (as in the Lightspout valley) has now reached. This is why the hill slopes coming down into the valley get steeper rather than less steep towards the bottom *(photo above)*.


5

5 Another result, as we saw at the start, is that the lower valley has now become filled with stones and gravel to obscure its true V shaped cross section *(photo left)*. This provides a wide flat area upon which to park cars and enjoy a picnic whilst you contemplate the 600 million years that the Long Mynd has been in the making!

“As old as the hills ....” - but how old is the Long Mynd?

“As Old as the Hills” is a common saying for great antiquity, but do we mean the age of rocks that form the hill, or how long the hill has stood out in the landscape? Except for active volcanoes, the two ages are very different. The diagram below shows the main events in the history of the Long Mynd in relation to global events.

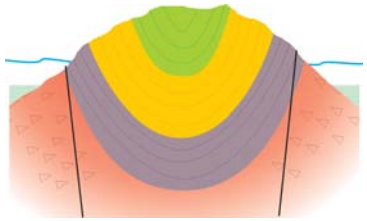


Ice Age glaciers deepen the Church Stretton valley so the tributary streams off the hill have to erode more deeply

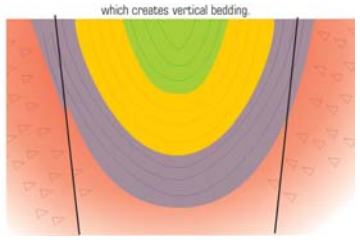
North West Britain and North Wales is uplifted giving the Long Mynd a plateau surface sloping south eastwards. Streams flow south eastwards from the top of the Long Mynd eroding a pattern of V shaped valleys.

“The Long Mynd” is heavily eroded to an almost level surface and probably covered by the chalk sea of the Cretaceous period.

“Shropshire” passing through northern Tropics



“Shropshire” crosses the Equator

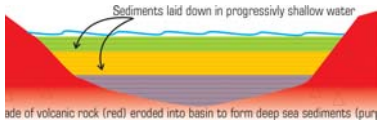


A fore-runner of the Long Mynd stands out as an island in the Silurian sea

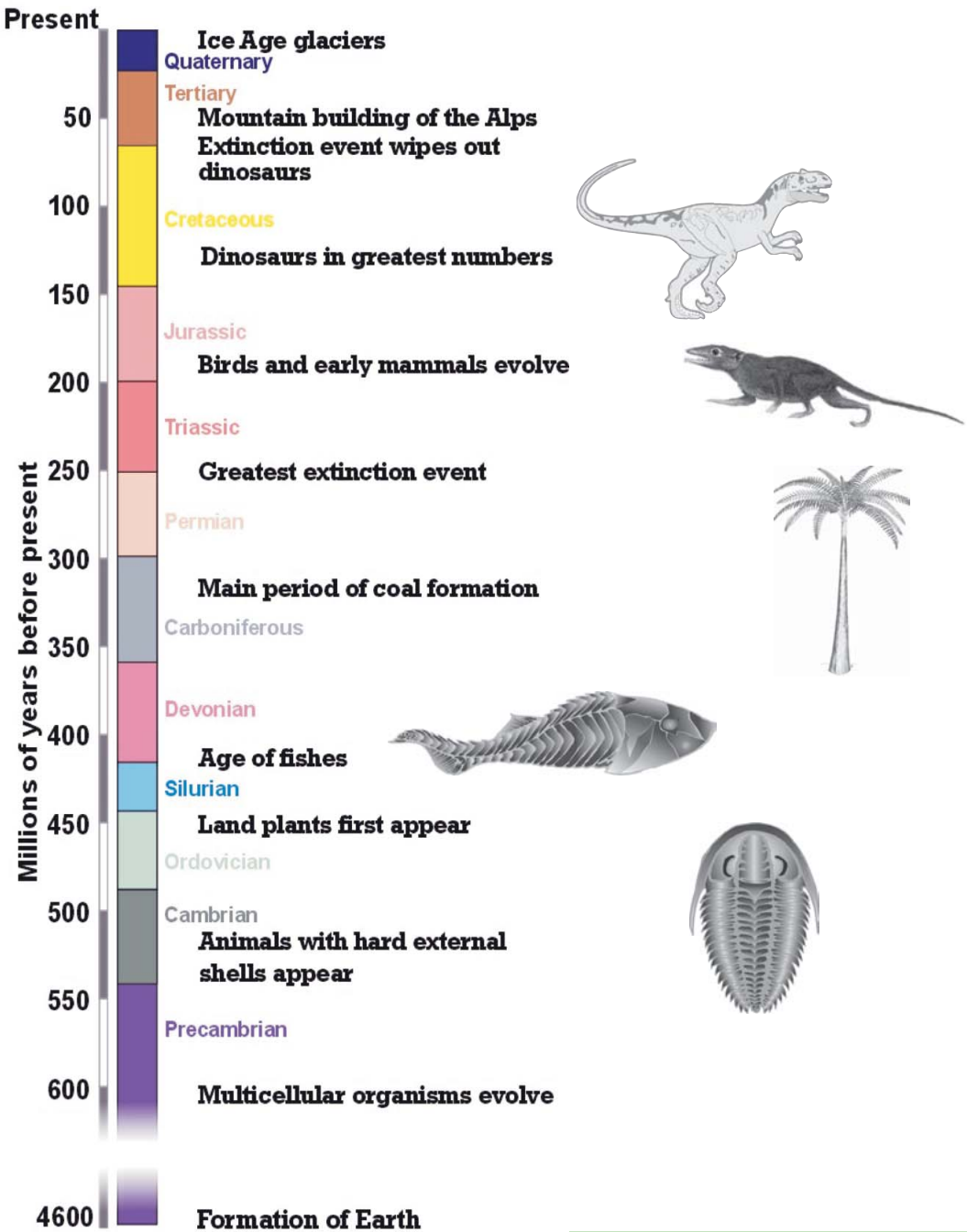
“Shropshire” passing through southern tropics

Earth movements squeeze basin sediments into a great U shaped fold, so today we see the layers running almost vertically up the hillside

“Shropshire” close to the Antarctic Circle



Sediment from erosion of volcanic mountains washed into a shallow sea and builds up in layers



Stone for building

Most Long Mynd stone is not very suitable for building. Strongly cleaved by the original folding, it breaks up too easily into small slivers of shale.

However, you may have noticed a small quarry on your right, close to the cattle grid as you entered the valley *(photo below)*. This clearly shows the steeply dipping nature of the beds, but is also strong enough to be worked as a rough building stone for field walls.

The old mill building of the 1840s, now the flats beyond the café, shows walls made out of large, rounded, water-worn, cobble stones *(above)*. These would have been collected locally but were not suitable for the corner stones. So these neatly trimmed blocks, some showing a distinctive brown and purple striping, were from Soudley - the source of much of the building stone in Church Stretton.

Further information

There are boards in the information room through the café giving more detailed information on the geology of the Long Mynd.

Local geology books include:
The Geology of Shropshire by Peter Toghill. Crowood Press 2006.

There is a wealth of local geological information on the website of the Shropshire Geological Society - **www.shropshiregeology.org.uk** including details of Society membership and publications on many other areas of the county.

The Carding Mill Valley is freely accessible throughout the year. Car parking is free to NT members. There is a modest charge for non-members. For details of opening times of the cafe and shop check out the website - **www.nationaltrust.org.uk/carding-mill-valley-and-shropshire-hills/**

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