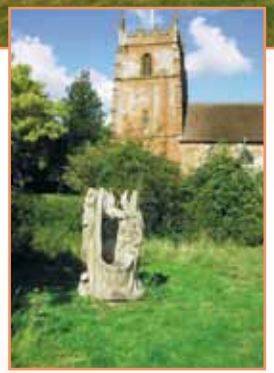
Geopark Way
circular trail

Martley



6 mile circular geology & landscape trail

Abberley and Malvern Hills Geopark

Rocks along the trail

Sedimentary rocks are made up of particles deposited in layers. They usually form on the sea floor, in lakes and rivers, or in deserts. The sediment layers are compacted and consolidated by the weight of overlying material. The particles within the layers can also be cemented together by minerals (e.g. iron) carried by water percolating through the sediments. Eventually, over millions of years, the compressed sediments become rock.

Sedimentary rocks today are being formed over much of the Earth's surface.

Limestone is composed primarily of the mineral calcite. Limestones are very variable rocks. The fossil rich limestone seen along the trail was deposited in a warm shallow sea where shell fragments from millions of dead creatures fell to the bottom of the sea and accumulated to great thicknesses.

Shale is composed of millions of tiny fragments of material. This material was deposited in thin layers on the sea floor.

Sandstone is composed of broken fragments of older rocks. The fragments of rock range between 0.05mm and 2mm in diameter. The sandstones seen along the trail were transported, as sediment, by water from their source before being deposited in rivers and later cemented together.

Mudstone is composed of particles less than 0.05mm in diameter (too small to be seen with the naked eye). The particles were deposited rapidly collecting in a jumbled fashion (unlike shales).

The Abberley and Malvern Hills Geopark ....

....is one of a new generation of landscape designations that have been created specifically for the interest of the geology and scenery within a particular area.
www.Geopark.org.uk

The Geopark Way ....

....winds its way for 109 miles through the Abberley and Malvern Hills Geopark from Bridgnorth to Gloucester. The Geopark Way passes through delightful countryside as it explores 700 million years of the Earth's history.

Geopark Way Circular Trails ...

....form a series of walking trails that each incorporate a segment of the Geopark Way linear long distance trail.

The walk has been researched and written by Herefordshire and Worcestershire Earth Heritage Trust

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Herefordshire & Worcestershire EARTH HERITAGE TRUST
www.EarthHeritageTrust.org

NATURAL ENGLAND
Supported through Defra's Aggregates Levy Sustainability Fund

This walking trail takes you through the contrasting landscapes of the rural Worcestershire parish of Martley. The trail begins on ground underlain by Triassic sandstones before passing onto Silurian aged rocks in the hamlet of Kingswood. From here the trail traverses a variety of Silurian aged rocks on its way up and over Pudford and Rodge Hill. Descending Rodge Hill and travelling east, the trail passes back onto Triassic rocks before heading on a 'Fossil Hunt' around Penny Hill. The final section of the trail follows a pleasant route back to St Peter's church.

Silurian aged rocks (444 – 416 million years old)

During Silurian times this area lay about 30° south of the equator. To the east lay a continent, to the west beyond the Welsh Borders was a deep ocean. Here stood a warm shallow ocean teeming with life. Sediments laid down in these tropical waters over time would form into limestone and siltstone. By the late Silurian, sea levels started to fall as the continents either side of the ocean converged. Gradually the ocean disappeared to be replaced by a range of high mountains comprising what is now North Wales, the Lake District and Scotland. As these mountains eroded vast quantities of materials were transported south via streams and rivers. These sediments over time formed into the rocks of the Raglan Mudstone Formation.

Artist's reconstruction of a Silurian sea

Triassic aged rocks (251 – 200 million years old)

By Triassic times this area had drifted northwards into the semi-arid regions of 31° north of the equator. The tropical seas were long gone. A vast rift valley, the Worcester Basin, was the dominating landscape of the area: a hostile environment to life in comparison to the Silurian tropical seas. Criss-crossing the vast basin floor was a powerful braided river system (the 'Budleighensis River'). The sediment from this river would have built up over millions of years. Eventually, after compaction, it would form sandstones, conglomerates and siltstones. These distinctly red sedimentary rocks can be seen along the trail.

Start Point: St Peter's Church, Martley
Grid reference: SO 756 597
Ordnance Survey map: Explorer 204
Parking: St Peter's Church car park

St Peter's Church dates from the 12th century and is built predominantly from locally quarried Triassic sandstone. Inside are several medieval wall paintings and the tower boasts a set of 6 bells dating from 1673, the oldest complete peal in the land. The church has a listening post: Switch it on to discover more about the architecture and craftsmanship of the building.

1) From St Peter's Church car park walk through the churchyard bearing left to exit onto Church Lane. Turn right up the lane to join the Worcester Road. Turn left and follow the road to a T-junction. Cross over and take the track between the Crown pub and the garage into a field.

As you walk around the edge of the field, look up to the north-west to see the ridge of Triassic red sandstone known locally as the 'Nubbins'. It is from this long ridge that building stone was quarried for local use.

2) Follow the field boundary on your left to a path cross-roads. Here turn right and follow the field boundary to a gap in the fenceline and into a copse. Go through the copse, then a gate and onto a wide track (the line of the Nubbins).

3) Turn right for 10m, then turn left up a steep bank, through a gate and into a large field. Follow the path straight ahead to reach a low waymarker post.

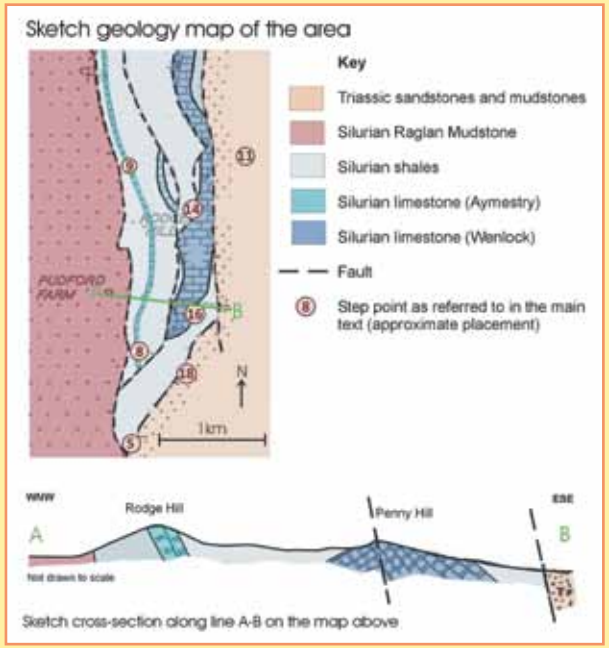
The 360° views afforded from the crest of this dome shaped hill are wonderful. To the north lies the Abberley Hills ridgeline; to the east the Worcestershire Plain; to the south lies Berrow Hill in the foreground and the Malvern Hills in the distance. To the west is the Teme Valley with the Bromyard Plateau beyond.

4) Turn left and follow the path to reach the vantage point, then continue ahead to a wide gap in a hedgeline. Through the hedge turn right and follow the field boundary to a stile. Go over the stile and turn left along the rough track, exiting through a gate onto the lane.

The East Malvern Fault

Near to where you now stand is one of the most geologically influential structures in the whole of Worcestershire. It is a deep seated and ancient line of weakness in the Earth's crust, known as the East Malvern Fault. Here, movement along the fault line has resulted in Silurian Raglan Mudstone sitting next to Triassic sandstone; an age difference of some 180 million years between the two rock types. You now stand on the Raglan Mudstone. There are many fault lines in Martley parish, but this one is by far the most important.

Around 300 million years ago major movement took place along the East Malvern Fault. The rocks that now form Rodge Hill and the other hills of the Abberley Hills ridgeline were uplifted and folded. The structure of the resulting folded layers of rock indicate that huge mountain building forces had been in action. Since their uplift, the hard limestones have withstood the ravages of erosion and now remain - standing proud - as the Abberley Hills ridge line.



5) Turn right and follow the lane downhill to a kissing gate on the right. Through the gate follow the path around the property and down into the woods. Shortly you will pass over a small stream which cuts down through the dark red Raglan Mudstone. Continue on to where the path splits. Follow the lower path.

To the right of the path, where the path is banked, notice that the colour of the rocks has changed from the dark reds of the Raglan Mudstone to grey, weathered buff, siltstones. These rocks are also Silurian in age, but are older than the Raglan Mudstone. They formed when the area was covered by a warm tropical sea. Movement along another fault line in the parish brought these two rock types in contact with each other.

Where the path splits again follow the upper path, exiting the woods over a footbridge. Veer left downhill to the bench by the edge of the River Teme.

The River Teme
This river is remarkable for its near natural form and as such is a Site of Special Scientific Interest (SSSI) throughout its length. Known as the 'Wild Daughter of the River Severn' due to its sinuous nature, it now twists its way from its source in Wales through its often steep-sided valley, to its confluence with the River Severn near Worcester. However, evidence suggests that before the Ice Age it was deflected southwards by the hills in north Herefordshire and flowed through Aymestry as a tributary of the Wye.

6) Follow the riverside path. Go over a footbridge and stile and onto the next Geopark Way signed waymarker post. Turn right across the field, over a footbridge, up a 2nd field exiting through a gate onto a road (B4204).

7) Turn right for 20m then carefully cross the fast road, over a stile and into a field. Walk diagonally right uphill heading for a stile in the field boundary (not immediately in view). Go over the stile, cross the 2nd field, another stile and into the woods. Follow the path through the woods. Go over a stile, turn left and then right onto a narrow lane.

The hill you have begun to ascend is composed of Silurian limestone (Aymestry Limestone). The hill's profile is the result of the uplift and folding along the East Malvern Fault mentioned earlier. In the road embankment you can see the almost vertical layers of limestone illustrating how the layers of limestone have been tilted from their originally horizontal position.

8) After 15m turn left up a set of steps back into woodland and onto the narrow ridge line of Pudford Hill. Follow the path for 1km until you reach a junction of several paths. Continue ahead along the ridge line onto Rodge Hill, where magnificent views open up to the west over the Teme Valley and across to the Bromyard Plateau. In the distance to the north-east are the Clee Hills. Pass a bench on your right before reaching a fingerpost.

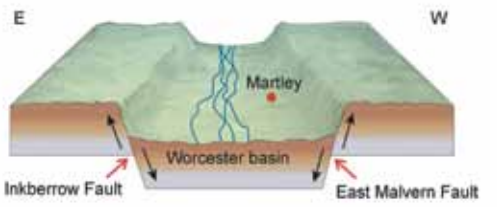
9) At the fingerpost turn right and follow the wide track downhill. To the east, fine views open up over the Worcester Basin. Continue downhill to where a metalled track joins from the left.

At the base of the hill farm buildings can now be seen behind the tree line. Here, in a roughly north-south orientation, is a relatively low lying truncated line of offset hills. These hills are composed of an older Silurian limestone than those of Rodge Hill (refer to the cross-section in the East Malvern Fault text box). This limestone (Wenlock Limestone) has been quarried locally for centuries. It has been extracted for use in limekilns, as a rough stone and commercially as an aggregate.

Continue downhill passing the site entrance on your right before veering right onto a bridleway. Follow the bridleway past the former quarry works and lime kiln remains. **Do not enter the quarry – Danger**. Go through a gate and continue ahead to join the road.

10) Cross the road, turn right for 60m, then left at a fingerpost. Go through the gate and follow the field boundary on your left to a gate.

Having left the Silurian Hills you now stand on the Triassic aged red sandstones and mudstones within the Worcester Basin. The western limit of this basin is marked by the East Malvern Fault; its eastern limit being the Inkberrow Fault (east Worcestershire). Movement along these two fault lines during Permian times (299-251 million years ago)



resulted in a landscape structure of a flat-topped prism of rock between these two fault lines. This prism slowly fell by about 3000m to form a great rift valley, the Worcester Basin. The rift valley gradually filled with erosion products. The resulting present day landscape is swathes of flat plains underlain by mudstone, occasionally interrupted by gentle hills underlain by sandstone.

11) Turn right and follow the field boundary for 350m to a footbridge and gate. Go through the gate and walk straight ahead, following the waymarker posts through the orchard (the route cuts diagonally across the rows of apple trees). When the barn is in sight, bear right at the waymarker post, passing the barn before joining a wide track.

12) Turn right and follow the wide track gently downhill to the fenceline. Turn left for 20m, then right through a gate and into a field. Walk straight ahead across the field to a fenced culvert/causeway (initially out of view). Go through the two gates and into a 2nd field. Walk straight ahead and through another gate into a 3rd field. Turn 10° to your left and walk across the field to a fingerpost. Now head westwards for 20m to a rust red coloured field gate. Go through the gate and walk along the path to exit via a gate onto the road.

13) Cross the road and follow the metalled track ahead for 330m. Immediately after reaching the brick hut on your left, turn left and follow the field boundary uphill for 80m to a gap in the hedgeline.

To your west is a vista of a classic example of a Silurian ridge and vale topography. Both Rodge Hill and Penny Hill (on which you stand) are composed of Silurian aged limestone that has fared well against the power of erosion. The land between these two hills however is underlain by softer Silurian aged shale. Over time the shale has been eroded into the soft vale seen before you.

14) Turn left down a set of steps into the woods (refer to Penny Hill text box). Follow the narrow, winding and undulating path through the woods until you reach the 'Stairway to Heaven'. Note that there are a number of yellow marks on trees to help you follow the path through the woods.

15) Ascend the stairway. Continue along the path which leads round to the eastern edge of the quarry site. Eventually you will reach a stile. Go over the stile. The path here splits in two. Take the path on the right around to a stile. Go over the stile and follow the path ahead for 450m to join a lane.

16) Turn left along the lane to a T-junction. Turn left at the junction for 50m, then right at a fingerpost and go over the stile into a field. Follow the field boundary on your right

Penny Hill

These woods skirt the northern limit of Penny Hill Quarry. Penny Hill Quarry was the largest limestone aggregate quarry in the parish. The quarry ceased operating in the 1980s, and subsequently was used as a landfill site from which electricity is now generated. There are no access points in to the former quarry works. Do not attempt to enter the site.

The path leading around the former quarry works has several gullies and exposures of limestone and siltstone.

During the Silurian period there were sporadic volcanic eruptions which produced a great deal of volcanic ash. The ash then fell to the bottom of the sea and was preserved within the sediments. Thin layers of ancient volcanic ash, called 'bentonites' can be seen in the rock face next to Stairway to Heaven. These layers of ash weather white.

Littering the path is plentiful quarry spoil, a great place to do a spot of fossil hunting. Below is a selection of fossils that can be found in the Wenlock Limestone.

Trilobite

Brachiopod

Coral

Crinoid

until you reach a stile next to a water trough. Go over the stile and follow the field boundary on your left to a stile. Go over the stile and through the wood exiting into a layby on the B4197.

17) Turn right. Staying on the right hand side of the road cross a lane, go past Hillend Sawmill and then a fingerpost on your right. After a further 80m carefully cross the road in line with a fingerpost on the left hand side of the road.

18) Go over the stile and head diagonally right across the field towards a stile (roughly in line with Martley Sport Centre with the green roof). Go over the stile and follow the clearly defined path ahead across the field. When you reach the highest point, pause to look at the surrounding landscape.

Dominating the vista to the south-west is Berrow Hill, an Iron Age hillfort. Berrow Hill is capped with Permian aged rocks (299 – 251 million years old). The lower reaches of the hill are composed of rocks that are Carboniferous in age (about 310 million years old). Records have been found stating that small scale pits were sunk for coal into these rocks in the early 19th century.

Berrow Hill

Across the parish natural resources have been extracted over the centuries for both commercial and local purposes: Limestone for aggregate, rough stone and lime burning; sandstone for building stone and sand; clay for bricks; igneous rocks for aggregate; sand and gravel deposits for aggregate; conglomerate for aggregate; and finally coal. The wide variety of rock types found within Martley parish have certainly proved useful over the years, as well as having played a fundamental role in creating such beautiful scenery.

19) Continue along the path to exit the field into the grounds of the Chantry High School. After 15m, to the right of the path, you will find the schools 'Geology Garden'.

The 'Geology Garden' displays a variety of rocks from around Worcestershire County along with local and county based geological interpretation panels. The garden is open to the public to browse and linger.

20) Continue on the path ahead, with the school on your left, exiting straight ahead onto a property lined drive. Walk down the drive to the Worcester Road. Cross over the road, into the churchyard, down past the church to reach the carpark. ***The trail ends here.***