
Red Wharf Bay Geotrail

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[Welsh version](#)

Fascinating geology and spectacular views in this geotrail walk on the East coast of Anglesey. Dr J. Conway (GeoMôn & Royal Agricultural College) & Dr Margaret Wood (GeoMôn)

Pictures: J. Conway, unless stated otherwise

Length: 2km

Time: 1-2 hours

Difficulty: easy walking and rocky scrambles. Beware of slippery rocks and overhanging cliffs. Accessible at low tides only.

Start from the car park near the Ship Inn [SH 53004 81065] or Boathouse Restaurant and walk along the foreshore towards the open sea. The scenery is dominated by the quarried hill of Castell Mawr, and the whole area is part of a large strip of rocks of Carboniferous age that extend across Anglesey to the west coast beyond Malltraeth (site of our next walk). Around 360 million years ago Anglesey lay in a clear, warm, shallow sea in the tropics, where corals and a range of sea creatures thrived. Their remains (now fossilised) together with small crystals of calcite (calcium carbonate or lime) gradually accumulated to produce the thick beds of limestone we see along the coast north to Moelfre and across the bay towards Penmon (and on to the Great Orme). This limestone has been quarried extensively and exported from various places along the coast including here at Castell Mawr where the vertical rock face is all that remains after quarrying.

As we walk along the foreshore, past Castell Mawr, what looks like a cave comes into view, above which there is a layer of yellowish rock which protrudes down into the cave as though infilling it [1] [SH 53137 81460], this is a hard sandstone — we'll see this sort of feature close up further round. The spoil around its base is covered with a riot of wild garlic, blackberries, sea pinks, yellow daisies and dwarf strawberries.

Carry on past low cliffs of grey limestone — the creamy-coloured patches are chert (a bit like flint), made of silica from skeletons of sea sponges that roamed over the ancient sea bed. If you look carefully amongst the pebbles on the shore, you will see you are walking on a dark flaky rock (careful, it can be quite slippery) called shale, originally a fine, smelly mud deposited on a very quiet sea floor. Very occasionally fossils are found in this shale.

Along on top of this low rocky cliff, a layer of rounded pebbles (below the angular quarry spoil) is a 'raised beach' [2] evidence of when sea level was higher than at present, some time during the Ice Age.

As you reach the open bay, the cliffs become much higher and the rocks are rising up at an angle. From the sand, you can climb up (carefully, these rocks can be quite slippery when wet) over a deeper weathered limestone bed onto a sandstone bed [3][SH 53223 81941] which forms a prominent slab of rock. Above this a bed of shale forms the lower part of the cliff, eroded away beneath an overhanging bed of limestone. **(This overhang is dangerous, please don't go under it).**

The sandstone bed gradually breaks up into tall cylindrical forms or 'pipes' rather like the large one you saw at Castell Mawr. These 'pipes' protrude down into hollows in the limestone, and if you walk onto to the open rocky bay below the camping field [4][SH 53216 81971] you see an array of these hollows eroded into the limestone. The amazing thing is that these solution hollows ['pot-holes'] were cut in Carboniferous times, then filled in by sand and gravel from the river flowing over them — in fact if you look very carefully you can see a strip of white quartz pebbles, all that is left of the river channel deposits.

So what happened? An ancient Ice Age caused sea level to fall, exposing the limestone to weathering and river erosion. Later on when sea level rose again, the pot-holed limestone was buried in gravel, sand and finally mud until the water was deep and clear enough for limestone to form again.

Before leaving the site, examine the limestone close to the cliff in red clay which was deposited by during the last Ice Age 18,000 years ago by glaciers from the north. The limestone has been polished smooth by the ice, but scratched by small rocks that were stuck in the bottom of the ice sheet as it passed over the rocks. Pebbles in the glacial clay may have come from Scotland, northern Ireland or northern England. The limestone beds over the entire walk are rich in fossils of coral, brachiopod shells and crinoids (sea lilies), particularly colonial corals and a complete bed can be seen in the walls of the creek as you approach St David's Bay. In the main bay, examine the single corals in the walls near the small cave. These coral species evolved rapidly so are useful for dating these rocks.

Either retrace your steps along the shore, or carry on to the coastal footpath which skirts the private caravan site and takes you back to the starting point.

Figures

[See PDF](#)

Route map. Red Wharf Bay Geotrail.

Sandstone layer and 'pipe' at Castell Mawr [1]

Rounded pebbles of raised beach [2]

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Looking across sandstone slab with pipes protruding down into pot-holed limestone [3]

View over pot-holed limestone with low boulder clay cliff [4]

Sunset, St Davids Bay

Red Wharf Bay



Route map. Red Wharf Bay Geotrail.