

Wales (Cymru) - Anglesey and Arfon

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Sedimentary bedrock

The youngest rocks in the area comprise the Coal Measures comprising sandstones, mudstones and coal seams that were deposited between around 360 to 300 million years ago. The Coal Measures formed from vast quantities of sediment being transported by large river deltas. Occasionally the tops of these deltas were exposed, which allowed massive swampy forests to develop. After burial the vegetation from these forests was compressed to produce layers of coal. These rocks extend as a band across from Malltraeth Bay to Red Wharf Bay and on the margins of the Menai Strait. The Coal Measures are underlain by Carboniferous Limestone, deposited in shallow tropical seas. Some of the rock layers contain enough water to be exploited for drinking water supply, such rocks being referred to as aquifers. The principal aquifer in the area is the Carboniferous Limestone, however the abstraction of small volumes of water from the older basement rocks for private supply is also widespread. In the vicinity of Lligwy Bay the oldest sedimentary bedrock comprises a sequence of red sandstones, mudstones and pebble beds that were deposited by rivers between around 415 to 400 million years ago.

Basement rocks



Contorted basement rocks (schists) at South Stack, Anglesey. P007923.

The sedimentary bedrock is underlain by older sedimentary rocks that were deposited between around 470 to 430 million years ago in layers of mudstone and sandstone in a deep sea. These are host to historically worked copper deposits at Parys Mountain on Anglesey. These basement rocks occur at surface across much of north and west Anglesey and Arfon and are thought to extend to depths of greater than 1 km throughout the area.

These basement rocks are largely underlain by a complex of rocks that were formed between around 700 to 480 million years ago. These include:

- the strong rocks which have been changed into a different form by high temperatures and pressures (metamorphic rocks) that are present across much of Anglesey (**Plate P007923**)
- the intrusions of molten rock that then cooled and solidified to form crystalline rocks such as

granites and now occur at surface in a band across Central Anglesey and around Caernarfon, and

- thick units of volcanic tuff erupted from ancient volcanoes present between Bangor and Llanberis.

Together, all of these rocks have been contorted during several phases of earth movements so that the layers are often tightly folded and steeply inclined, with individual rocks which split open readily like slate.

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