

The town of Welshpool is situated where the Welsh uplands meet the wide floodplain of the River Severn. The town is reputed to have been the site of churches founded in the 6th century by St. Cenfelyn and his brother Llywelyn. In the 13th century Welshpool was granted a borough charter and the town which then developed formed the core of what is Welshpool today.



High Street, Welshpool.

Like other towns in the area Welshpool suffered at the hands of Owain Glyndwr during his rebellion against King Henry IV in 1400. Today the national walking trail, Glyndwr's Way, runs through the town.



Powysland Museum

The woollen industry brought prosperity to Welshpool during medieval times and there are still several 15th and 16th century timber buildings in the town.

Transport links to the town increased with the opening of the Montgomeryshire canal in 1796 and the Cambrian railway in 1862. This and the growth of the flannel industry improved prosperity. The fine Georgian houses are testament to the wealth produced.

Agriculture and tourism now form the major industries around Welshpool, which also has the most modern livestock market in the UK and the largest one-day sheep sale in Europe.

Sedimentary Rocks are formed from the accumulation of material derived from weathered fragments of other rocks. These sediments accumulate under water or on dry land, often display a layered appearance, and may contain fossils.



Sandstone accumulates either in water or as a wind blown deposit in arid continental areas. Desert sandstones tend to be red, with individual sand grains often spherical and polished.

Limestone is mainly calcite and generally forms in warm shallow seas from precipitation of calcium carbonate from the sea water, or from the accumulation of shells and skeletons of calcareous marine organisms.



Metamorphic Rocks are igneous or sedimentary rocks which have been altered by a combination of heat and pressure.

Slate is a fine-grained metamorphic rock formed from mudstones subjected to relatively low temperatures and pressures. It splits easily and is ideal for roofing.



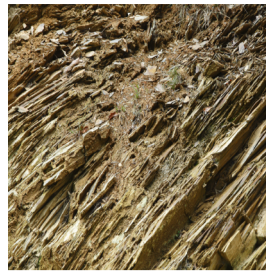
The mudstones from around Welshpool are not sufficiently metamorphosed to form slate, but are in the form of shale.

Bricks are man-made from clay or crushed shale. The colour produced depends on the minerals present and the conditions during the firing. You will see different sized and coloured bricks on the walk.



The Geology of Welshpool

The bedrock of the town was deposited between 460 and 420 million years ago, during the Ordovician and Silurian periods, though most of the town actually rests on boulder clay and glaciofluvial deposits from the last Ice Age. The sediments from which the local bedrock was formed were deposited in a large subsiding marine trough, an ancient sea which geologists call the Welsh Basin, when Wales lay south of the Equator near the edge of a small continent, Avalonia. These sediments accumulated on the edge of the Welsh Basin and were dislodged by earthquakes or fierce storms, avalanching down the basin slope. Repeated flows of this kind led to the distinct layering of mudstones and sandstones. At times the sea-level was low enough for Welshpool to become a beach. Under the influence of plate tectonics the Iapetus Ocean to the north of Avalonia gradually closed as the oceanic crust was subducted (drawn down into the earth) beneath the continental crust at the sides. In this way Avalonia moved northwards. The subducting oceanic crust caused volcanism as it passed deep into the Earth, leading to the igneous rocks of Standard Quarry, the Breidden Hills and Montgomery Castle. At the end of the Silurian period Avalonia collided with Laurentia, uniting the north and south of the British Isles. The resulting orogeny (mountain building) 410 to 380 million years ago squeezed and uplifted the district, causing folding, faulting, and metamorphism of the rocks.



Silurian Shale

Building Stones

Local stone was first used to build places of worship, whilst dwellings were usually constructed of wood. It was probably the Romans who first used sophisticated quarrying methods to obtain stone for building. In the following centuries stone was used extensively for the construction of high-status buildings like castles and churches, whilst homes continued to be constructed of wood.

As prosperity increased houses began to be built of stone, at first obtained from local quarries which often

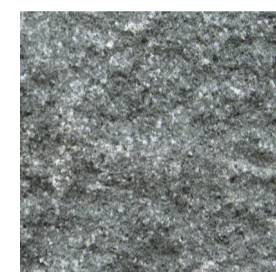
were only worked for the duration of the project. With the arrival of the canals and railways stone could be imported from a greater distance and a massive expansion in building occurred. Stone remained the principal building material until the end of the 19th century when more modern methods of brick production were introduced. Many buildings were then built from brick. During the 1960's the development of pre-cast concrete began to compete with natural materials and, more recently, imported building materials, for example from Australia and China, are competing with those quarried and manufactured at home.

Building stones to be seen around Welshpool

Igneous Rocks are formed from molten rock (magma). If the magma cooled slowly the individual crystals formed are large and can be seen with the naked eye, but if cooling occurred quickly a much finer grained rock results.

Examples to be found on the walk are:

Granite is formed slowly at depth, resulting in large crystals. Often used for building in the past, it is now usually confined to street kerbing and setts, cladding on commercial buildings, and monumental masonry.



Dolerite is medium-grained, tough and hard. It occurs in dykes and sills intruded into fissures in older rocks. The "Bluestones" of Stonehenge are dolerite.

Trachyte is fine-grained rock which is usually formed extrusively as lava, but sometimes intrusively as a dyke or sill. It comes from Standard Quarry and is much used in the town.



This leaflet was prepared by members of Mid Wales Geology Club, with guidance from Dr John Davies, formerly regional geologist with the Countryside Council for Wales. Mid Wales Geology is an amateur club with an interest in the earth sciences.

Beginners are always welcome:

contact Bill Bagley 01686 413967

or look at the website.

Evening meetings are held monthly, usually on the third Wednesday, at Plas Dolerw, Milford Road Newtown. Monthly guided field trips are held on Sundays.

Photography by Bill Bagley, Richard Becker, and members of Mid Wales Geology Club.

Mae'r fersiwn o'r daflen hon ar gael yn y Gymraeg.

Hefyd ar gael i'w llwytho i lawr fel ffeil PDF.

This leaflet is also available to download from the club website in English and Welsh.

Mid Wales Geology Club
www.midwalesgeology.org.uk

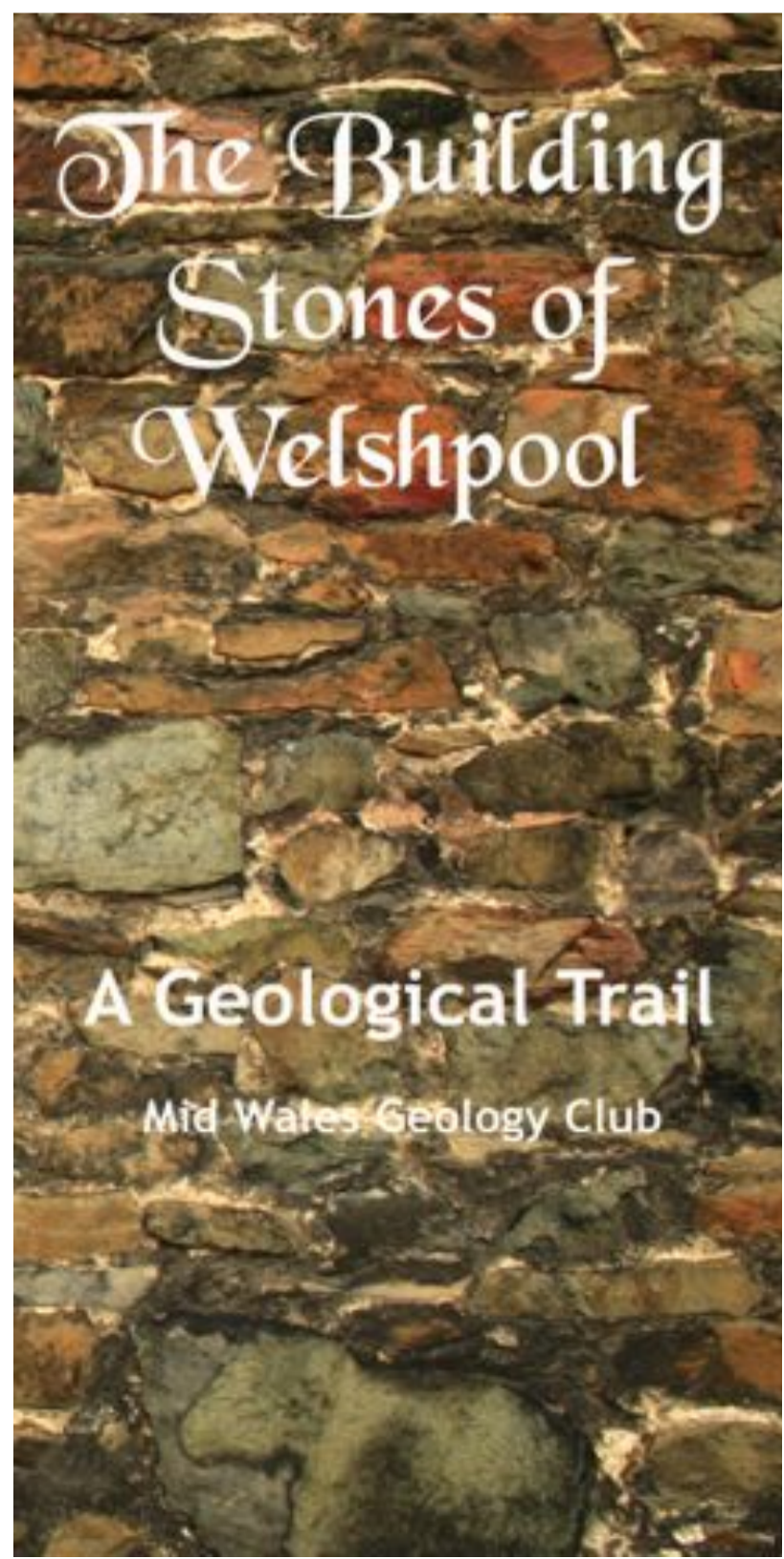


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1. The walk commences at the Powysland Museum. Founded in 1874 by the Powysland Club, the museum was re-housed on its present site in 1990. The building is a former two-storey warehouse for the Montgomeryshire canal, built of brick from the local Buttington brickworks.



The window surrounds are Cefn sandstone deposited in a deltaic environment during the Carboniferous period about 325 million years ago, and once quarried near Wrexham.

2. 18 Severn St. This house was re-modelled in 1863 in the Gothic Revival fashion by the solicitor Abraham Howell. It has a porch of Cefn Sandstone and uses three different colours of bricks in a decorative pattern. Brick is, in effect, a man-made metamorphic rock manufactured from clay. The different colours arise from a combination of the minerals present in the clay and the temperature at which the brick is fired. Red is due to the presence of iron oxide while yellow comes from the presence of lime. Firing at very high temperature with low oxygen results in a blue brick.



3. 24 Severn Street. This building is now the County Court but was originally built c1820 by the lawyer Richard Griffiths-Parry. The portico porch has coupled doric columns of Cefn sandstone, although the column bases have been replaced recently with Carboniferous age 'Pennant' sandstone from the Forest of Dean.



4A. and 4B. As you walk along the pavements

take note of the flagstones and kerbing. The flagstones are sandstone, probably imported from India. Look closely, you will see ripple marks formed by wave or current movement over the soft sediments. The kerbstones are granite, probably from China.



5. Royal Oak Hotel. This is a mid 18th century building built from brick. The bricks are irregular in size, suggesting that they were handmade using clay from local brick pits. Bricks were being manufactured in Welshpool from the 16th century, and on a large scale from 1620 by the Herbert family at Montgomery Castle, but this brickworks was destroyed during the civil war 25 years later. The Doric columns of the porch are unusual in that one is Cefn sandstone while the other is Grinshill.



6. St. Mary's Church. Founded in 6th century by St. Cynfelyn, the present church dates from the 13th century but with much recent addition and rebuilding. The south steps up from the street are Cefn sandstone. The wall buttresses and the War Memorial are Permo-Triassic sandstone probably from Shrewsbury. The new church entrance was built in 1871 with an arch and steps using white Cefn and red Grinshill sandstones.



Later replacements of the top steps are 'Pennant' sandstone. To the side of the porch is coursed rubble walling, with some stones reused from the Cistercian Abbey of Strata Marcella, which was dissolved in 1536.



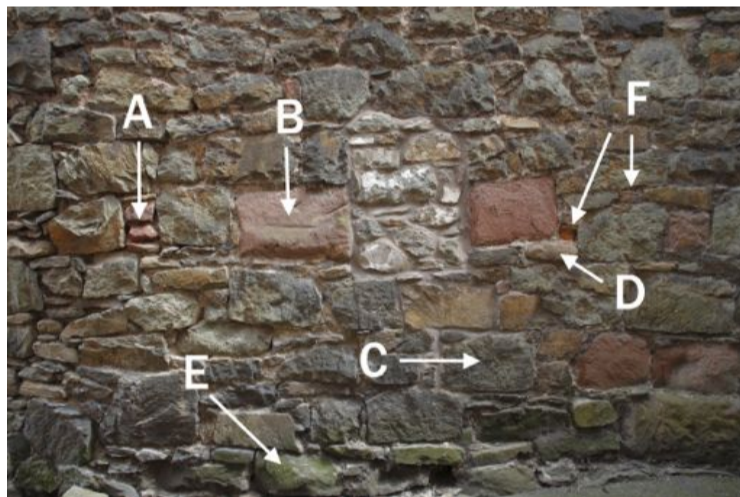
Stones for rubble walling of the church will have been collected from as near to the building site as possible. The sundial in the churchyard is red Triassic sandstone, its base coming

from part of the 1608 churchyard cross. A large rough-cut glacial boulder next to the sundial is said to have formed part of the Abbot's throne at Strata Marcella.

7. Town Hall. Built in 1874 on the site of an earlier 19th century building, it is of French neo-classical design and built of yellow Grinshill sandstone. Much of the sandstone is visibly crumbling due to weathering. Grinshill sandstone comes from Shropshire, it is Triassic in age (about 240 million years ago), and represents wind-blown dune sediments deposited when Britain lay 20° north of the equator. It comes in different colours, red due to the grains having a coating of iron oxide whilst white is the result of the oxide removal by fluids from an igneous intrusion during the Palaeocene, 60 million years ago. Yellow results from partial removal of the iron oxide.



8. 41 High Street. This shop front is granite, possibly imported from Portugal. The step is Carrara marble from Tuscany in Italy. Used since the time of ancient Rome, it is the same Jurassic marble (140 million years ago) from which Michaelangelo's David was carved. Metamorphism has caused recrystallisation of the original limestone grains. White marble comes from pure white limestone; the swirls and veins of coloured varieties are due to impurities, particularly iron oxide.

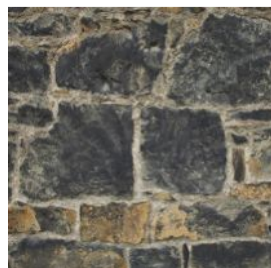


9. Bear Passage. The wall half way down Bear Passage is a good example of rubble work. Various stones have been used in its construction. **A.** Powis Castle Conglomerate. **B.** Old Red Sandstone. **C.** Trachyte from Standard Quarry. **D.** A boulder from the glacial boulder clay. **E.** local Silurian mudstone. **F.** Old bricks.

10. 1-3 Park Terrace. A terrace of three houses identically planned and built in the late 19th century of brick but with terracotta lintels and mouldings. Unglazed terracotta became fashionable in mid 19th century, the colour varied with the clay used. Ruabon clay from near Wrexham producing a bright red.



11. 41/42 Mount Street. These houses were remodelled in the 19th century using trachyte from Standard Quarry on the Western edge of Welshpool town. Look closely at this stone, you will see that the grains are much smaller than in granite, because this rock has cooled more quickly.



12. Methodist Church. Built in 1874 on land purchased from the Powis estate. It has window surrounds of Jurassic age Box Ground stone, a type of Bath Stone which shows long "snail-trails" and weathered-out shell layers. If you look closely you will see that it is composed of small spherical grains known as ooliths, formed by the precipitation and accretion of carbonate around small grains and shell fragments rolled along the sea floor. Many fossils are to be found in this stone.



13. Park Lane. On the wall to the right you will find a good example of the Powis Castle Conglomerate. This red rock is composed of sand, pebbles, and a few boulders. It originated as a beach deposit on the shores of a sea that covered most of Wales during the Silurian period, about 440 million years ago. The red colour, due to the presence of iron oxides, developed much later during the Permian period, 260 million years ago, when Wales had a hot desert type of climate.



14. New Street, The Cockpit. This 18th century hexagonal building is one of only three known brick-built cock-fighting pits in Wales. The small irregular bricks are hand-made, probably at one of the local, small-scale brickpits. The wall to the right is igneous stone from nearby Criggion quarry, a dolerite with rotting feldspar crystals.

