

could be cut and shaped. The outer side of the Burgess Gate is built mainly of greenish sandstone, and when it was first built the walls were smooth and unclimbable. Even during the Civil War the castle resisted attack. Later still, the town spread down the hill, and bricks were made from local clay for some houses. In the late 19th century bricks were brought by train from Ruabon and elsewhere. For special uses, such as shop fronts, those who could afford it used decorative imported rock. Most of the houses are roofed with slate, from northwest Wales, and slate is used vertically in the gutters of Broomhill Lane. The fertile soils of the Vale were formed on sands and clays deposited during the last Ice Age, and the valley is flanked by hills of much older shale and siltstone.

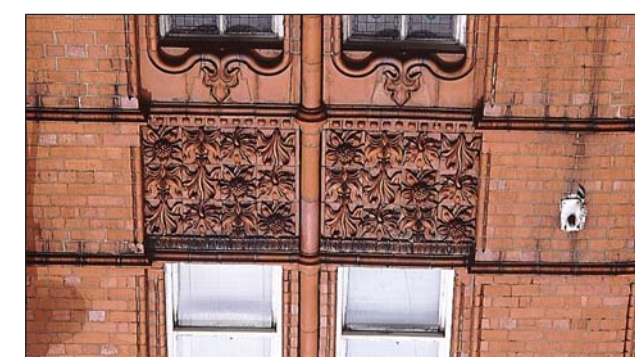
(see cross-section). faults marking the edge of the Vale of Clwyd Denbigh Fault, which is one of a set of North-South to attack from any direction. Near the castle is the a prominent block of limestone surrounded by cliffs and steep slopes which would have made it difficult



The geology of the area has had a strong influence on the building stones used in Denbigh and on the location of the castle. Denbigh Castle is perched on

The Rocks of Denbigh

Llethrau'r bryn a chodwyd thau i o friciau a wnaed o glai lleol. Yn ystod y bedwaredd ganrif ar bymtheg daethpwyd â briciau ar y trën o Riwabon a llefydd eraill. Ar gyfer dibenion arbennig, megis blaenau stopau, defnyddiai perchenogion cefnog gerrig addnol wedi'u mewnfotio. Ar doeanu'r rhan fwyaf o'r tai ceir llechi o ogledd-orllewin Cymru, a gosodwyd llechi yn fertigol yng nghafnau Lôn Brombil. Datblygodd priddedd ffurthlon Dyffryn Clwyd ar ben tywod a chlai a ddyddodwyd yn ystod yr Oes Iâ ddiwethaf. Siâl a charreg silt hyn o lawer yw sylfaen y bryniau o bopu'r dyffryn.



Lots of stone was needed to build up the walls and the men dug quarries nearby for limestone into convenient shapes and sizes, and the sandstone The limestone is naturally jointed and can be broken and sandstone.

castell mae Ffawt Dinbych, sy'n un o gyfres o ffawtiau a red o'r gogledd i'r de ac sy'n dynodi ymyl Dyffryn Clwyd (gweler y trawstoriad). Roedd angen llawer o gerrig i godi'r muriau ac agorwyd chwarielli gerllaw er mwyn sicrhau cyflenwad o galchfaen a thywodfaen. Mae craciau (bregion) naturiol yn y calchfaen ac felly gellid ei dorri yn feini hwylus o bob siâp a maint. Gallai'r thywodfaen gael ei dorri a'i naddu. Adelladwyd ochr allanol Porth y Bwrtais o dywodfaen llechwrdd yn bennaf, ac wedi iddo gael ei godi gyntaf roedd ei furiau'n llyfn ac yn amhosib i'w dringo. Hyd yn oed yn ystod y Rhyfel Cartref llwyddodd y castell i wrthsefyll pob ymosodiad.



Mae daeareg y fro wedi cael dylanwad mawr ar y ceriggau Dinbych. Mae daeareg y fro wedi cael dylanwad mawr ar y ceriggau Dinbych. Mae daeareg y fro wedi cael dylanwad mawr ar y ceriggau Dinbych. Mae daeareg y fro wedi cael dylanwad mawr ar y ceriggau Dinbych.

Y creigiau y byddwch chi'n eu gweld o gwmpas Dinbych:

The rocks you will see around Denbigh:

Creigiau gwaddod: Mae'r rhain wedi eu gwneud o dywod, silt, llaid, cerig a gweddillion planhigion ac anifeiliaid. Fe'u dyddodwyd ar wely moroedd ac afonydd neu ar ffurf twyni mewn diffeithdiroedd ac, ymhen hir a hwyr, wedi iddynt gael eu claddu dan bentwr o greigiau eraill, cawsant eu cywasgu a'u smentio gan greu'r creigiau gwaddod a welir heddiw.



Sedimentary rocks are made of sand, silt, mud, pebbles, and fragments of plants and animals. These were deposited in seas, rivers or as dunes in a desert, and, eventually, after burial beneath a pile of other rocks, are compressed and cemented into the rocks we see today.

Creigiau igneaidd: Ffurir y rhain wrth i graig dawdd (magma) grisialu. Caiff magma ei wthio ar hyd gwendidau yng nghramen y Ddaear, gan ddod i'r wyneb weithiau yn ystod echdoriadau folcanig.



Igneous rocks are crystallised from molten rock (magma) which is forced into weaknesses in the earth's crust, sometimes coming to the surface as volcanic eruptions.

Creigiau metamorffig: Mae'r rhain yn greigiau igneaidd neu waddod sydd wedi cael eu newid gan wres a/neu wasgedd. Er enghraifft, gall carreg laid newid i fod yn llechfaen, a chalchfaen yn farmor.



Metamorphic rocks are igneous or sedimentary rocks that have been changed by heat and/or pressure. For example, mudstone can be changed into slate, and limestone into marble.

'Creigiau gwneud': Mae'r rhain yn cynnwys briciau, a gynhyrchir drwy bobli clai, ac hefyd conchrit.



'Man-made rocks' include clays, which have been baked to form bricks, and also concrete.

Lluniau gan John Underwood Trawstoriad gan Ray Roberts Photography by John Underwood Cross-Section by Ray Roberts

Beth yw RIGS?

Gall Safleoedd Ddaearegol/Geomorffolegol o Bwysigrwydd Rhanbarthol (Regionally Important Geological/Geomorphological Sites) fod yn unrhyw safleoedd, ac eithrio Safleoedd o Ddiddordeb Gwyddonol Arbennig, a gaiff eu gwarchod oherwydd eu pwysigrwydd addysgol, ymchwil, hanesyddol neu esthetig.

Grwpiau RIGS

Gall unrhyw aelod o'r cyhoedd a chanddo ddiddordeb mewn cadwraeth Treftadaeth y Ddaear ymuno â grŵp RIGS. Mae'r grŵp yn dewis y safleoedd sydd wedyn yn cael eu gwarchod gan awdurdodau lleol. Gyda chydweithrediad perchenogion, datblygir rhai safleoedd at ddefnydd addysgol neu gan y cyhoedd.

What are RIGS?

Regionally Important Geological/Geomorphological Sites (RIGS) are any sites, excluding SSSI (Sites of Special Scientific Interest) that are protected for their educational, research, historical or aesthetic importance.

RIGS Groups

Any member of the public with an interest in Earth Heritage conservation can join a RIGS group. They choose sites which are then protected by local authorities. With the co-operation of the owners, some sites are developed for educational or public use.

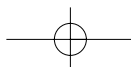
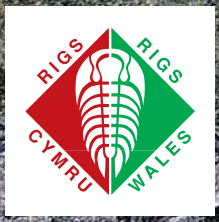
Os hoffech ymuno â grŵp RIGS yn yr ardal hon, cysyllter â:

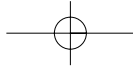
If you would like to join RIGS in this area, please contact:
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Eboast – Email: c.burek@chester.ac.uk



Mae Cyngor Cefn Gwlad Cymru yn cefnogi sefydlu Safleoedd Ddaearegol/Geomorffolegol o Bwysigrwydd Rhanbarthol.
The Countryside Council for Wales supports the establishment of Regionally Important Geological Sites.
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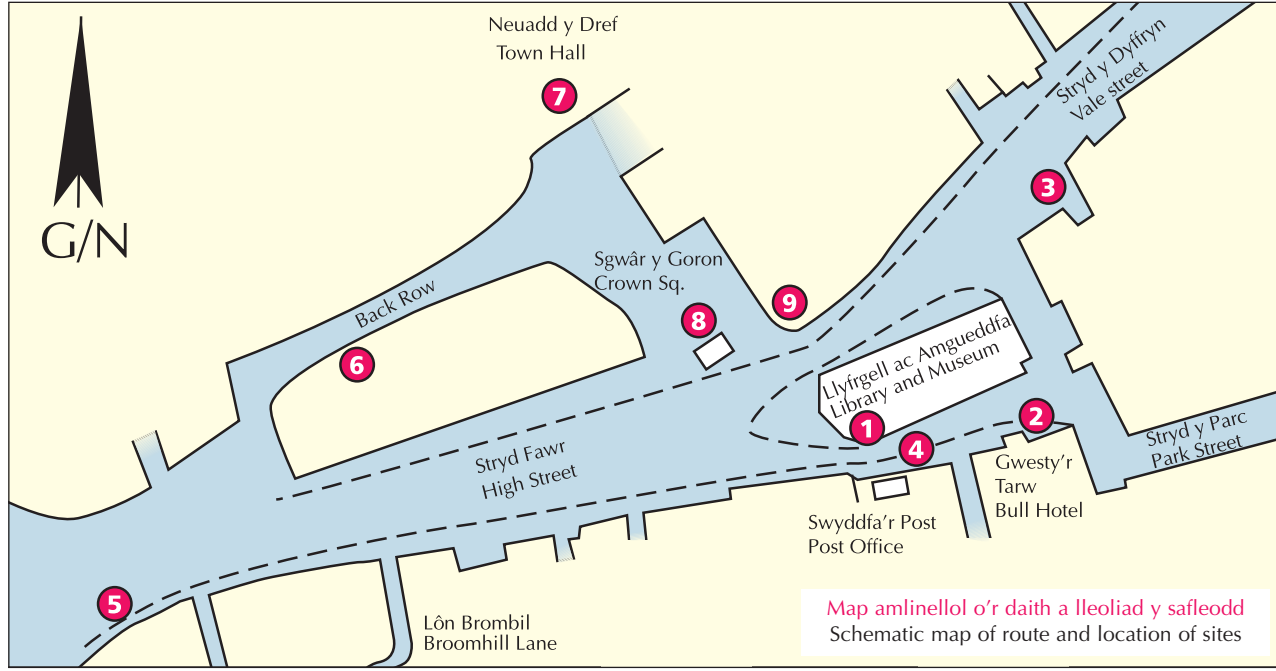
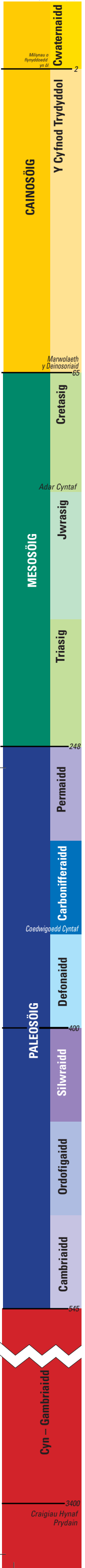
**Cerdded drwy'r gorffennol:
Taith ddaearegol o gwmpas Dinbych
Walking through the past:
A geological trail around Denbigh**





Yr Oes Iâ Diwethaf

Last Ice Age



1 Llyfrgell ac Amgueddfa

Cafodd yr adeilad hwn, megis nifer o adeiladau hynaf y dref, ei godi o galchfaen lleol. Mae rhai o'r meini yn cynnwys ffosilau a ger y ffynnon bistyll gallwch weld cwrelau. Heddiw, gellir gweld cwrelau tebyg i'r rhain mewn moroedd trofannol cynnes a chilir ac arferai'r cwrelau ffosil hyn, sy'n 340 miliwn o flynyddoedd oed, fyw dan amodau tebyg pan oedd Dinbych yn agosach i'r cyhydedd.



Library and Museum

This building is made of local limestone, like many of the older buildings in the town. Some of the blocks contain fossils, and by the drinking fountain you can see fossil corals. Corals like these can be seen today in warm, sunny, tropical seas, and these 340 million year old limestone fossils once lived in similar conditions, when Denbigh was close to the equator.



2 Gwesty'r Tarw

Gerllaw, yn Sgwâr y Neuadd, mae'r Gwesty'r Tarw. Mae rhan isaf y mur wedi'i chodi o flociau garw o galchfaen lleol sy'n cynnwys ffosilau, ond i'r chwith o'r drws mae rhai meini gwahanol eu golwg. Mae un yn graig gochwyn sy'n dywodlyd i'w chyffwrdd, ac ynddi ceir cerigos bach. Darn o dywodfaen caregog o'r Haenau Gwaelodol yw hwn a ffurfiwyd 360 miliwn o flynyddoedd yn ôl.



Bull Inn

Nearby, in Hall Square, is the Bull Inn. The lower part of the wall is made of rough blocks of local limestone with fossils, but to the left of the doorway there are some blocks which are different. One is a pale pinkish rock which feels gritty and has small pebbles in it. It is a pebbly sandstone from the Basement Beds, over 360 million years old.

3 Croes Uchel Dinbych

Os ewch yn eich blaen o amgylch y llyfrgell cechwch hyd i gyffion pren y dref a rhan o groes farchnad sy'n dyddio o'r deunawfed ganrif. Crëwyd y rhigolau yn y groes gan gigyddion a ddefnyddiai'r garreg i hogi eu cyllyll. Tywodfaen yw'r graig ac mae'n cynnwys gronynnau caled o gwards a all dreulio dur gan roi awch ar gyllell.



Denbigh High Cross

Walk on round the Library where you will discover the wooden stocks and part of the 18th century market cross. Grooves worn in this rock are where butchers sharpened their knives. The rock is sandstone, which has hard grains of quartz which can wear away steel to give a sharp cutting edge.

4 Y Swyddfa Bost

Cerddwch yn ôl i'r Swyddfa Bost. Yma, fe welwch mai blociau o wenithfaen llwyd tywyll yw rhan isaf y mur. Yn y graig galed hon mae crisialau gwydrog, llwyd o gwards, crisialau du o fica biotit, a chrisialau cochwyn o ffelsbar. Mae'r blociau wedi cael eu torri a'u caboli. Mewnforiwyd y gwenithfaen atyniadol hwn oherwydd nid oes dim byd tebyg iddo'n brigo yng Nghymru.

Post Office

Retracing your steps to the Post Office, you will see that the lowermost part of the wall is dark grey granite. This hard rock has grey glassy crystals of quartz, black crystals of biotite mica, and pinkish crystals of feldspar. These hard blocks have been brought to the area as none like it is found in Wales.

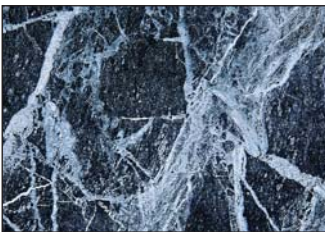


5 Wardle Travel

Ewch yn eich blaen ar hyd y Stryd Fawr ac fe sylwch ar siop ac iddi slabiau gwyrdd golau a thywyll o amgylch y drws. Enw'r graig igneaidd hon yw sarff-faen oherwydd bod ei hwyneb yn ymdebygu i groen neidr.

Wardle Travel

Continue along the High Street, and you will notice a shop with decorative dark and light green slabs framing the doorway. This igneous rock is called serpentinite because it looks like a snakeskin pattern.



6 Siop Clwyd

Cerddwch yn ôl, croeswch y ffordd a throwch i mewn i Back Row. Yn y stryd gul ganoloesol hon mae adeiladau hanner coedlog wedi'u mewnlenwi â cherrig sydd wedi'u rendro. Fodd bynnag, ym muriau Siop Clwyd, sydd wedi'i hadnewyddu, gwelir meini lledwyrdd, hindreuliedig, mawr o dywodfaen a blociau onglog o galchfaen llwydwyn sy'n cynnwys braciopodau, sef cregyn ffosil.

Siop Clwyd

Retrace your steps, cross the road and turn into Back Row. This narrow mediaeval street has half-timbered buildings with stone infillings which have been rendered over. However, Siop Clwyd, which has been renovated, shows exposed, greenish, weathered sandstone boulders and angular light grey limestone blocks with brachiopod fossils.



7 Neuadd y Dref

Os ewch yn eich blaen ar hyd y stryd fe welwch Neuadd y Dref ar y chwith. Codwyd yr adeilad lled-ddiweddar hwn o galchfaen llwydwyn lleol ynghyd â thywodfaen cochwyn y cerfiwyd yr arbais a fframiau'r drysau ohono. Ffurfiwyd y tywodfaen mewn diffeithdir pan oedd Dyffryn Clwyd ychydig i'r gogledd o'r cyhydedd yn ystod y cyfnod Triasig, 225 miliwn o flynyddoedd yn ôl. Roedd ymlusgiaid, gan gynnwys deinosoriaid, yn crwydro'r tir yn ystod y cyfnod hwn.



Town Hall

If you continue along the street you will come to the Town Hall on your left. This relatively modern building is built of light grey local limestone, with pinkish sandstone used for the carving of the coat of arms and the door frames. The sandstone was formed in a desert when the Vale of Clwyd was just north of the equator during Triassic times 225 million years ago. Reptiles, including dinosaurs, would have lived at that time.

8 Cofeb Ryfel

Ewch yn ôl i'r Stryd Fawr a chwiliwch am gregyn ffosil yn sylfaen sgwâr y gofeb, sy'n tystio i'r graig ffurfio ar lawr y môr. Daeth y calchfaen o Portland yn Dorset. Gwnaed y cerflun o efydd, sy'n gymysgedd o dun a chopor. Arferid cloddio copor ar y Gogarth, Llandudno, ond bellach caiff y ddau fetel eu mewnforio.

War Memorial

Turn back to the High Street, and examine the square base of the memorial for fossil shells, which are evidence that this rock was formed under the sea.



This limestone came from Portland in Dorset. The statue is made of bronze, which is a mixture of tin and copper. Copper used to be mined on the Great Orme at Llandudno, but both metals are now imported.

9 Worldchoice Travelsport

Mae'r siop gornel hon yn gartref i ddwy graig ddiidorol. Marmor sydd bron yn wyn yw'r rhiniog (ac arno'r gair 'Hepworths'). Craig fetamorffig yw hon a ffurfiwyd drwy bobi a chywasgu calchfaen. Caiff marmor ei fewnforio i Brydain. Yn union uwchlaw'r pafin gwelir craig igneaidd dywyll sy'n dwyn yr enw larvikit. Fe'i mewnforiwyd o dde Norwy ac mae ei golwg befrïog i'w phriodoli i'r crisialau o ffelsbar sy'n adlewyrchu'r golau.

Worldchoice Travelsport

This corner shop is home to two interesting rocks. The doorstep, (inscribed 'Hepworths') is an almost white marble.



This is a metamorphic rock formed by the action of heat and pressure on limestone. Marble is imported to Britain. At pavement level there is a dark igneous rock named larvikite. It was imported from southern Norway, and the sparkling effect is due to the feldspar crystals reflecting light.



Dyma ddiwedd y daith. Here the trail ends.

