



South Wales RIGS Group Site Record

RIGS Description

SECTION A

General	South Wales
Site Name: Blaen Onneu Quarry	File Number: Site_232_286
RIGS Number: 631	Surveyed by: Gareth Owen
Grid Reference: SO 1540 1690	Date of Visit: 4 th November 2010
RIGS Category: Scientific, educational	Date Registered:
Earth Science Category: Stratigraphy, palaeoenvironments, sedimentology	Owner: Unknown Planning Authority: Powys County Council/Brecon Beacons National Park
Site Nature: Disused (dormant) quarry within open moorland.	Documentation prepared by: Gareth Owen
Unitary Authority: Powys county Council/ Brecon Beacons National Park Authority	Documentation last revised: 14 th February 2011
OS 1:50,000 Sheet: 161	Photographic Record: Enclosed – see below
OS 1:25,000 Explorer Sheet: OL13	
BGS 1:50,000 Sheet: E232	
<p>RIGS Statement of Interest:</p> <p>Cwar Blaen Onneu is a large, currently dormant, quarry within the open moorland of Mynydd Llangynidr. It is an important site because of its world class section illustrating sedimentary processes that operated at the margin of a Carboniferous (Tournaisian to Visean) tropical sea. At the time of the rocks' deposition, the area lay on a shallow marine shelf between high land (named the Wales-Brabant Massif) to the north and the deep waters of the Culm Trough to the south. Blaen Onneu includes excellent evidence of repeated episodes of sub-aerial exposure and erosion that interrupted the prevailing shallow marine environment. Solution pipes and cavities often occur towards the top of limestone beds, topped by fossil soils and evaporate deposits. These are then overlain by the next limestone bed, representing a return of shallow marine conditions. The result is a sequence that provides a wide-range of different, sometimes unusual, rock types in response to widely varying palaeo-environments. This provides an unrivalled teaching resource and is invaluable in reconstructing changes in climate and environment during the early Carboniferous. There is also an important break in deposition seen in the quarry, a pre-Arundian unconformity, which is important stratigraphically.</p>	

Geological setting/context:

Cwar Blaen Onnen is a critical component of a network of 27 registered and proposed GCR sites representing the Dinantian Subsystem of the South Wales – Mendip Shelf. All the sites have been fully documented in the published GCR volume entitled 'British Lower Carboniferous Stratigraphy' (Cossey *et al.*, 2004). The selected sites cover the whole range of palaeogeographical environments associated with the Lower Carboniferous South Wales-Mendip Shelf; a term used by Cossey *et al.* to describe the shallow shelf sea between the Wales-Brabant Massif to the north and the Culm Trough to the south. These sites were chosen to provide coverage of key stratigraphic units and facies variations, and to illustrate specific aspects of the depositional regime and of approaches in detecting climate fluctuations. During Courcayan to Arundian times, the Blaen Onnen area lay on the northern margin of the South Wales-Mendip Shelf. It is one of a sub-network of 6 GCR sites chosen across the North Crop of the South Wales syncline, together representing the range of features that develop when limestone-producing environments are sub-aerially exposed following sea-level falls. There are marked variations in lithology and successions in each of the six sites, and the sequence at Cwar Blaen Onnen provides an excellent site to complement the other 5 localities (Llanelly Quarry, Clydach Halt Lime Works, Cwar yr Ystrad and Hendre, Baltic Quarry and Odynau Tyle'r Bont).

References:

COSSEY, P J, ADAMS, A E, PURNELL, M A, WHITELEY, M J, WHYTE, M A. and WRIGHT, V P. 2004. *British Lower Carboniferous Stratigraphy*, Geological Conservation Review Series, No. 29, Joint Nature Conservation Committee, Peterborough, 616pp

SECTION B

PRACTICAL CONSIDERATIONS:

Please score Accessibility and Safety Red Amber or Green

Accessibility:

X

Comment: This quarry is marked as being Open Access land on OS maps, but has recently been fenced off with 1.2m post and wire fencing following an application to BBNPA.

Safety:

X

Comment: This cliff faces are relatively stable, although small areas of instability may exist in areas of less competent strata (palaeokarst, palaeosols etc).

Conservation status: This site has been highlighted as a proposed GCR site, and as such will become a proposed SSSI with successful GCR registration. Designation as RIGS will provide awareness of the importance of this site until such time as SSSI status is achieved.

OWNERSHIP/PLANNING CONTROL:

Owner/tenant: Not known

Planning Authority: Brecon Beacons National Park Authority

Planning status/constraints/opportunities: Currently dormant, but with extant permission to quarry that has recently been subject to application (as yet undetermined) under the Review of Old Mineral Permissions.

CONDITION, USE & MANAGEMENT:

Present use: Disused (dormant) quarry

Site condition: Excellent

Potential threats: Renewed quarrying activity may lessen the availability of the site for study.

Site Management: No management at present. Now that the quarry is fenced off, the lack of grazing may lead to vegetation growth obscuring faces in 10 – 15 years time.

SITE DEVELOPMENT:

Potential use (general): This site is of excellent research value.

Potential use (educational): This site is described by Cossey et al (2004) as “a priceless teaching resource of national and international significance” due to the readily accessible range of lithologies present, thus providing a “world class section for understanding the sedimentary processes that operated at the margin of an ancient tropical sea and how to recognise the range of features that develop in newly formed carbonate sediments as they become subaerially exposed.”

Other comments:

Photographic Record

Plate 1: General view of Blaen Onneu Quarry from near the entrance looking south-west. Blaen Onnen Oolite (1) forms the massive lower bench.



Plate 2: Looking along middle bench eastwards: Blaen Onnen Oolite (1) forms lower face, rubbly and karstic nearing the bench level (1a). Overlying this is the yellow Cheltenham Limestone (2) including the Cwm Dyar Geosol (2a), more competent Penllwyn Oolite (3) and Gilwern Clay (4) at the upper bench level.

Plate 3: Cheltenham Limestone (2) forms the bottom half of this face. Yellow and rubbly, it is highly variable, with Cwm Dyar Geosol (2a) at its top (rubbly yellow band). Above is the more competent Penllwyn Oolite (3) with Gilwern Clay (4) overlying this.





Plate 4: The basal bed of the Cheltenham Limestone seen on the floor of the middle bench. Very rubbly, marking the unconformity with the very karstic Blaen Onnen Oolite below.



Plate 5: Re-activated palaeokarst in the upper beds of the Blaen Onnen Oolite



Plate 6: The Garn Caws Sandstone. This is contemporaneous with the Gilwern Mudstone and represents a local lateral facies change. Seen in uppermost bench following overburden strip.



Plate 7: More stereotypical exposure of the Gilwern Mudstone further west along the uppermost quarry bench. Generally poorly exposed due to incompetent nature of the mudstone.