



South Wales RIGS Group Site Record RIGS Description

SECTION A

General	South Wales
Site Name: Pant Mawr Quarry Clydach	File Number: Site_RAW_JRD_ 55
RIGS Number: 628	Surveyed by: J R Davies and R A Waters
Grid Reference: SO 2200 1310	Date of Visit: 14 th October 2010
RIGS Category: Scientific, educational	Date Registered: Owner: Unknown Planning Authority: Monmouthshire County Council
Earth Science Category: Stratigraphical, sedimentological	
Site Nature: Disused quarry	Documentation prepared by: R A Waters
Unitary Authority: Monmouthshire County Council	Documentation last revised: 31 st January 2011
OS 1:50,000 Sheet: 161	Photographic Record: Attached
OS 1:25,000 Explorer Sheet: OL13	
BGS 1:50,000 Sheet: E232	
RIGS Statement of Interest:	
<p>The site is part of a network of early Carboniferous sites (RIGS and GCR) in south Wales that, collectively, allow the regional stratigraphy and carbonate sedimentology to be studied. The site forms part of the sub-network of sites for the Dinantian limestone crop that occurs north of the South Wales Coalfield, the so called 'north crop'.</p> <p>Pant Mawr Quarry has been proposed as a RIGS as it exposes an excellent section through the upper part of the Carboniferous Limestone succession in the eastern part of the north crop of the South Wales Coalfield. Although the Llanelly Quarry GCR site [SO 221 123 – 225 123] (Adams et al., 2004), situated on the other side of the Clydach valley to Pant Mawr Quarry, embraces most of the Carboniferous Limestone succession, the upper part, the Dowlais Limestone, is largely inaccessible. Pant Mawr Quarry therefore provides an alternative site to Llanelly Quarry for the study of the Dowlais Limestone.</p> <p>It shows a very accessible, continuous section through the lower part of the Dowlais Limestone, exhibiting a wide range of features attributable to the deposition of shallow water limestones. It provides an important site for scientific research on the stratigraphy and sedimentology of the Dowlais Limestone, but is also an excellent site for students to study limestones, fossils, tectonic structures and solution pipes.</p>	

Geological setting/context:

Pant Mawr Quarry exposes the upper part of the Carboniferous Limestone succession on the eastern part of the north crop of the South Wales Coalfield. The site comprises a disused quarry that exposes c. 25 m of Dowlais Limestone in a continuous section. Although the Dowlais Limestone is exposed in the Llanelly Quarry GCR site just to the south, it is largely inaccessible, being at the top of the quarry face. Pant Mawr Quarry therefore offers an accessible section through the Dowlais Limestone in the Clydach Valley area.

The quarry exposes the lower part of the Dowlais Limestone, which is of Holkerian age. The contact with the underlying Arundian Llanelly Formation lies just below the Council road, south of the quarry. The Dowlais Limestone in the quarry predominantly comprises medium to thick bedded, medium to dark grey, foetid ooid grainstones and dark grey skeletal/pelloidal packstones. Partings and thin beds of dark grey shaley bituminous mudstone are commonly developed. A few thin beds of calcite mudstone are present. Late stage secondary dolomitisation is locally manifested as brown weathering sugary dolomite. The limestones and mudstones are locally very fossiliferous with abundant brachiopods, especially *Composita ficoidea*, in coquinas. Corals include colonies of *Lithostrotion*. Oncolites are reported by Barclay (1989), who provides a log of the quarry section.

The Dowlais Limestone represents deposition in a shelf lagoon developed behind a major barrier complex situated in South Wales. The oolitic limestones, some of which exhibit tractional lamination, were probably formed on local shoals or tidal deltas in the lagoon. The packstones and mudstones represent the background offshore lagoonal sediments, while the calcite mudstones were deposited in peritidal settings at the margins of the lagoon. Wright (1982) has described the origin of the oncolites in the Dowlais Limestone, some of which are nucleated on reworked early cemented *Chondrites* burrow fills. Little is known of the regional sedimentary architecture and event stratigraphy of the Dowlais Limestone. The study of these topics would involve key sections such as Pant Mawr Quarry.

On the western side of the quarry, a solution pipe infilled with blocks of sandstone and conglomerate derived from the overlying Namurian Basal Grit can be seen. The base of the Basal Grit outcrops some 100 m to the NW of the quarry. Near the base of the western face of the quarry, a low angle thrust with an associated drag fold can be seen in the gently SW dipping strata.

References:

ADAMS, A, WRIGHT, V P and COSSEY, P J. 2004. South Wales – Mendip shelf. 393- 476 in British Lower Carboniferous Stratigraphy. COSSEY, P J, ADAMS, A E, PURNELL, M A, WHITELEY, M J, WHYTE, MA, and WRIGHT, V P. (editors). *Geological Conservation Review Series*, No 29. (Peterborough: Joint Nature Conservation Committee).

BARCLAY, W J. 1989. *Geology of the South Wales Coalfield, Part II, the country around Abergavenny* (Third edition). Memoir of the British Geological Survey, Sheet 232 (England and Wales). (London: HMSO.).

WRIGHT, V P. 1982. Omission surfaces in the Lower Carboniferous of South Wales. *Neues Jahrbuch fur geologie und Palaeonologie, Monatshefte*, Vol. 10, 619-28

SECTION B

PRACTICAL CONSIDERATIONS:

Please score Accessibility and Safety Red Amber or Green

Accessibility:



Comment: Quarry is adjacent to a Council road and on unfenced open access land. Parking is available

Safety:



Comment: The entire height of the quarry faces may be accessed via the spoil heaps. Quarry faces need to be examined for stability however.

Conservation status:

There are no known conservation designations of this RIGS

OWNERSHIP/PLANNING CONTROL:

Owner/tenant: Unknown

Planning Authority: Monmouthshire County Council

Planning status/constraints/opportunities: Not known

CONDITION, USE & MANAGEMENT:

Present use: None.

Site condition: Quarry faces and floor generally free from vegetation, apart from scattered small gorse bushes.

Potential threats: Quarry could become active again; fly tipping as adjacent to road; vegetation growth.

Site Management: No recommendations

SITE DEVELOPMENT:

Potential use (general):

Potential use (educational): Excellent site for scientific research on the sedimentology and stratigraphy of the Dowlais Limestone. Good site for students to study the geology of shallow water limestones, thrust structures and solution pipes in limestone.

Other comments:

Photographic Record



Photograph 1. General view of quarry



Photograph 2. Thrust and underlying drag fold in medium bedded Dowlais Limestone in western part of quarry.