

South Wales RIGS Group Site Record RIGS Description

SECTION A

General	South Wales
Site Name: Drum and Monkey Quarry	File Number: Site_RAW_JRD_53
RIGS Number: 626	Surveyed by: R A Waters and J R Davies
Grid Reference: SO 2172 1278 to SO 2187 1293	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: ^{1st} February 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: The Drum and Monkey Quarry forms part of a network of sites that demonstrate the stratigraphy and geological history of the Carboniferous Limestone on the north crop of the South Wales Coalfield. It has been proposed as a RIGS as it is an easily accessible site that provides an excellent exposure in the middle part of the Carboniferous Limestone succession on the eastern part of the north crop.

It shows a continuous, partly accessible section, from the Gilwern Oolite up into the Llanelly Formation. A major fossil soil and karst is magnificently displayed at the top of the Gilwern Oolite, while features of lagoonal and tidal flat limestones are displayed in the overlying Llanelly Formation. Furthermore it provides an alternative to the Llanelly Quarry GCR site [SO 221 123 – 225 123] (Adams et al., 2004), situated on the south side of the Clydach valley.

It is an excellent locality for scientific researchers to study fossil soils/ karst and the sedimentology of the lagoonal limestones of the Llanelly Formation. For students it offers graphic evidence of sea level movements and many features typical of very shallow water limestones, fossil soils and karst.

Geological setting/context:

The Drum and Monkey quarry is a disused quarry exhibiting the middle part of the Carboniferous Limestone of the eastern part of the North crop of the South Wales Coalfield. It exposes the upper part of the Courceyan, Clydach Valley Subgroup and the Arundian, Llanelly Formation.

Only the upper part of the Clydach Valley Subgroup is present, and this comprises the Gilwern Oolite which is c. 10 m thick. The oolite is a massive to thick bedded ooid grainstone with scattered bioclasts. The top is defined by a major, very irregular palaeokarst. For a couple of metres below the palaeokarstic surface the oolite is reduced to a rubble with yellow clay infilling solution pipes and fissures (Barclay, 1989).

The overlying Llanelly Formation sits with a sharp base on the underlying palaeokarstic rubble. It is thin to medium bedded and about 10 m is exposed. The basal unit, the Clydach Halt Member, comprising fluvial deposits has not been identified. Instead, the lowest unit recognised is the Cheltenham Limestone Member. This comprises a range of thin bedded peritidal limestones with green clay interbeds. The limestones include intraclastic, biclastic and peloidal grainstones, packstones and wackestones and calcite mudstones. Scattered thin calcrete palaeosols are present as are other features of subaerial exposure including desiccation cracks and fenestral fabrics. The middle unit of the formation, the Penllwyn Oolite Member is probably represented by the uppermost inaccessible beds of the quarry, while the topmost unit, the Gilwern Clay Member probably occupies the gently sloping bench above the quarry. The Gilwern Clay is a mottled red and green mottled clay with calcrete nodules (Barclay, 1989).

The Gilwern Oolite represents a transgressive shoal facies that became progradational (regressive) and eventually emergent. The palaeokarst rubble at the top of the oolite represents a considerable period of subaerial exposure in a humid climate (Wright, 1982). This time interval probably spanned the late Courceyan to Chadian. Renewed transgression in the Arundian saw a peritidal environment established with a shallow lagoon and sabhka-like coastal flats. Periods of prolonged emergence are manifested by the calcrete palaeosols. The Penllwyn Oolite is also transgressive, sitting with an erosive contact on the underlying peritidal deposits. The erosion surface is probably a ravinement as the oolitic barrier passed northwards. Eventually the oolite prograded back southwards to be followed by the Gilwern Clay, a fluvial floodplain deposit punctuated with palaeosols (Barclay, 1989).

The quarry graphically records the transgressive/regressive events from the late Courceyan to the Arundian. The paleokarstic rubble at the top of the Gilwern Oolite is well displayed and the peritidal features of the lower part of the Llanelly Formation can be examined. A large ridge of quarry waste, the crest of which is followed by a public footpath, provides an excellent vantage point to view the inaccessible higher part of the faces.

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, M A, 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. The recognition and interpretation of paleokarsts: two examples from the Lower Carboniferous of South Wales. *Journal of Sedimentary Petrology*, Vol. 52, 83-94.

SECTION B

PRACTICAL CONSIDERATIONS:

Please score Accessibility and Safety Red Amber or Green

Accessibility:



Comment: Access via public footpath from Council Road at Black Rock, opposite Drum and Monkey Public House (on lower road).

Safety:



Comment: Quarry faces need examining for stability. Care needed on scree beneath face

Conservation status:

Unknown

OWNERSHIP/PLANNING CONTROL:

Owner/tenant: Unknown

Planning Authority: Monmouthshire

Planning status/constraints/opportunities:

Unknown. Unlikely to be reopened as a quarry.

CONDITION, USE & MANAGEMENT:

Present use: Disused quarry

Site condition: High quarry face with access to lower half via basal scree. Some bushes and saplings locally growing on scree.

Potential threats: Vegetation increasing and obscuring faces

Site Management: None needed at present.

SITE DEVELOPMENT:

Potential use (general):

Potential use (educational): Good site for scientific researchers interested in the sedimentology of fossil karst/soils and peritidal limestones in the Gilwern Oolite and Llanelly Formation. Suitable site for students to study fossil soil/karst, shallow water limestones and sea level movements.

Other comments:



View of quarry face showing massive Gilwern Oolite with oolite rubble and yellow clay at top, sharply overlain by well bedded Llanelly Formation limestones.



General view of quarry