



South Wales RIGS Group Site Record

RIGS Description

SECTION A

General	South Wales
Site Name: Craig-y-Gaer Quarry	File Number: Site_RAW_JRD_52
RIGS Number: 625	Surveyed by: R A Waters and J R Davies
Grid Reference: SO 2235 1325	Date of Visit: 14 th October 2010
RIGS Category: Scientific, educational	Date Registered:
Earth Science Category: Stratigraphical, sedimentological, palaeontological	Owner: Unknown Planning Authority: Monmouthshire County Council
Site Nature: Disused quarry	Documentation prepared by: R A Waters
Unitary Authority: Monmouthshire County Council	Documentation last revised: 1 st 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: Craig- y-Gaer 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 a very accessible site to study the sedimentology and stratigraphy of the middle part of the Carboniferous Limestone succession of the eastern part of the north crop.

The site shows the upper part of the Clydach Valley Subgroup and the overlying Llanelly Formation. The Clydach Valley Subgroup exhibits two regionally important events, an erosion surface at the base of the Gilwern Oolite and a fossil karst/soil at the top. Immediately above the erosion surface is a bed of limestone rich in fossils, especially corals and brachiopods. The quarry is the type locality for this bed, known as the Craig-yr-Gaer Coral Bed. Dating of this bed, using various fossil groups, is used to underpin the timing of geological events in the geological history of the region. Due to conflicting results to date, further work is needed on the Coral Bed.

Not only does the quarry offer a key locality for scientific research on the Gilwern Oolite and its basal Craig-yr-Gaer Coral Bed but it also provides a good section for students to study the sedimentology of oolitic limestones. The quarry also provides excellent views of the geology of the Clydach valley and Llanelly Quarry (GCR site showing similar features to this RIGS).

Geological setting/context:

Craig-y-Gaer Quarry is a disused quarry exhibiting part of the lower part of the Carboniferous Limestone on the eastern part of the North crop of the South Wales Coalfield. It exposes the uppermost part of the Courceyan, Clydach Valley Subgroup, namely the uppermost part of the Coed Ffyddlwn Formation and the overlying Gilwern Oolite. The Arundian Llanelly Formation is seen at the quarry entrance.

The contact between the Coed Ffyddlwn Formation and the Gilwern Oolite is reported to be present at the base of a stack [SO 2238 1330] on the NE side of the quarry left behind by quarrying (Barclay, 1989). Although it is not visible here anymore, it can be seen in a track cutting [SO 2240 1236] on the eastern side of the quarry. Here, the thin bedded calcite mudstones of the Darren Ddu Limestone Member of the Coed Ffyddlwn Formation are erosively overlain by the lower part of the Craig-y-Gaer Coral Bed, the basal unit of the Gilwern Oolite. The Coral Bed is a thick bedded, coarse shelly, crinoid rich grainstone. The upper part of the Coral Bed is seen again at the base of the stack referred to above, and passes gradationally up into the main part of the Gilwern Oolite. The quarry is the type locality for the Graig-yr-Gaer Coral Bed. Corals, foraminifera and conodonts from the unit, all give different dates, the ages being Arundian, Chadian and late Courceyan respectively. More work is needed to tie down the age of this important event.

The main quarry face is in the west and exposes most (c. 8 m) of the Gilwern Oolite above the Coral Bed. The oolite is pale gray and locally exhibits cross-bedding. The upper 3-4 m comprise a rubble with yellow and green clay infilling solution cavities. The top is defined by an irregular palaeokarstic surface, overlain by the calcite mudstones of the Arundian Llanelly Formation. The latter are seen poorly exposed at the entrance to the quarry.

The eastern side of the quarry provides excellent views across the Clydach valley to Llanelly Quarry, a GCR site that exhibits the Gilwern Oolite and the overlying Llanelly Formation. Each formation can be traced round the hillside by eye.

The quarry succession represents part of a late ? Courceyan transgressive/regressive couplet. The peritidal/back barrier deposits of the Coed Ffyddlwn Formation represent the first stage of the transgression and the Coral Bed and its erosion surface, a ravinement as the high energy barrier moved northwards over the back barrier deposits. Eventually the transgression ceased and the barrier prograded back southwards to leave behind the thick paleokarstic rubble at the top of the Gilwern Oolite. The latter represent prolonged subaerial emergence.

References:

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.).

PRACTICAL CONSIDERATIONS:

Please score Accessibility and Safety Red Amber or Green

Accessibility:

Comment: This quarry used to be accessed via the disused tramway below Darren Ddu, but the connecting path is now overgrown. It can now be easily accessed via the public footpath from the Council road at Ty-yn-y-coed.

Safety:

Comment: Quarry faces need to be examined for stability.

Conservation status:

There are no known conservation designations of this RIGS

OWNERSHIP/PLANNING CONTROL:

Owner/tenant: Unknown

Planning Authority: Monmouthshire CC

Planning status/constraints/opportunities:

Unknown

CONDITION, USE & MANAGEMENT:

Present use: Disused quarry where there has been some tipping in the past.

Site condition: faces and floor of the quarry generally free of vegetation but some shrubs and saplings locally growing at the base of the faces.

Potential threats: Encroaching vegetation, further tipping.

Site Management: vegetation at base of faces should be cleared periodically.

SITE DEVELOPMENT:

Potential use (general):

Potential use (educational): Good site for scientific researchers interested in the sedimentology and palaeontology of the Gilwern Oolite and it's basal Coral Bed. Suitable for students to study oolitic limestones and fossil soils/karst.

Parking available on the Council road; easy access by public footpath.

Other comments:

Photographic Record



Track section at north-eastern edge of quarry showing the contact of the Coed Ffyddlwn Formation with the Craig-yr-Gaer Coral Bed.



Stack of Gilwern Oolite left by quarrying with the Craig-yr-Gaer Coral at base.



Main face of quarry, showing the massive to thick bedded Gilwern Oolite.