



South Wales RIGS Group Site Record RIGS Description

SECTION A

General	South Wales
Site Name: Cennen road section	File Number: Site_RAW_JRD_23
RIGS Number: 715	Surveyed by: R A Waters and J R Davies
Grid Reference: SN 6102 1898 to 6098 1914	Date of Visit: 21 st October 2010
RIGS Category: Scientific, educational	Date Registered: Owner: Carmarthenshire County Council Planning Authority: Carmarthenshire County Council
Earth Science Category: Stratigraphical, sedimentological, historical.	
Site Nature: Road cutting on the A476	Documentation prepared by: R A Waters
Unitary Authority: Carmarthenshire County Council	Documentation last revised: 8 th March 2012
OS 1:50,000 Sheet: 159	Photographic Record: Attached
OS 1:25,000 Explorer Sheet: 186	
BGS 1:50,000 Sheet: E230	

RIGS Statement of Interest:

The Cennen road section is part of a network of sites demonstrating the evolution of the south-east margin of the Lower Palaeozoic Welsh Basin during the mid to late Silurian. It has been proposed as a RIGS as it provides a very accessible, continuous section through the late Silurian succession in the south-western part of the Myddfai Steep Belt. It is a key site for those interested in the stratigraphy, sedimentology and palaeontology of this time interval.

The section shows two transitions from marine to continental (Old Red Sandstone) rocks, the first in the mid Ludlow, a second in the latest Ludlow. As such, the section has attracted the attention of geologists for over 100 years and is therefore also of historical interest. It also provides important data on the nature of the environmental changes that occurred during this time interval and is therefore a key sedimentological site. In addition, it complements and provides important additional information to the nearby GCR site in the Sawdde Gorge [SN 728 245] (Siveter 2000), that exposes rocks of the same age but in different facies. Finally it provides important data on whether a regional disconformity exists at the base of the Tilestones Formation.

The road section provides an excellent section for those interested in scientific research into the stratigraphy, palaeontology and sedimentology of the mid to late Silurian. It also provides a good section for students to study transitions from marine to continental deposits in the rock record.

Geological setting/context:

The Cennen road cutting is a very accessible, continuous section on the western side of the A476 in the Cennen valley, south west of Llandeilo. Situated within the Myddfai Steep Belt, it exposes the upper part of the early Ludlow progradation and most of the late Ludlow to early Pridoli progradation (Schofield et al. 2009). Both progradations show the transition from marine to Old Red Sandstone facies. As a result, the section has attracted the interest of geologists over the last 100 years (Strahan et al. 1907; Stamp 1923; Straw 1929 and Potter and Price 1965). During the resurvey of the Ammanford geological sheet 230 (Institute of Geological Sciences 1977) the A476 was widened, the resultant cutting being described in detail by Squirrell and White (1978). Subsequently, remapping of the adjacent Llandovery sheet (British Geological Survey, 2008; Schofield et al. 2009) and recent work by Davies et al. (2008) and Hillier et al. (in press) has seen the relogging and reinterpretation of the section and a revision of the lithostratigraphy.

The formations seen are as follows:

Temeside Mudstones Formation	6 m +
Tilestones Formation	44 m
Cae'r mynach Formation	4 m
Trichrug Formation	47 m
Mynydd Myddfai Sandstone Formation	12 m
Hafod Fawr Formation	
Gwar Glas Member	6 m +

The Cwar Glas Member of the Hafod Fawr Formation comprises soft, pale green-grey fine- to medium-grained medium bedded sandstones with scattered bivalves including *Grammysia*. Planar lamination is locally seen. The member comprises marine, middle shoreface sands.

The Mynydd Myddfai Sandstone Formation comprises better cemented, buff-weathering fine- to medium-grained sandstones with quartz pebble stringers. Planar and low angle lamination is present throughout. At the top is a metre thick bed of coarse-grained, pebbly, quartzitic sandstone. The formation represents a marine mouth bar delta.

The subaerial Trichrug Formation forms the acme of the early Ludlow progradation. The base is taken below 1.7 m of green gritty mudstone. The lower 28 m comprises grey to cream thin to thick bedded fine to coarse, locally pebbly sandstones with gritty mudstone partings. The upper part comprises 16 m of medium to thick bedded graded units of granule/pebble conglomerates and medium to coarse pebbly sandstones. The conglomerates are rich in acid volcanic clasts. Punctuating the upper part is 3m of red beds comprising bioturbated gritty muddy sandstones and interbeds of quartzitic sandstones. Drab haloes are present in the muddy sandstones. The formation represents the deposits of an alluvial fan, the conglomeratic parts

probably being more proximal. The thin red bed unit in the upper part represents the deposits of a wetland that the fan locally invaded.

The Cae'r mynach Formation sits with a sharp erosional contact on the Trichrug Formation. At the base is a medium to coarse grained sandstone with granules of acid volcanic and shelly debris. The remainder of the formation comprises thinly interbedded green grey mudstones and sandstones. Bioturbation is present and the beds contain a marine shelly fauna. The formation represents the onset of the late Ludlow progradation, the basal bed comprising a transgressive lag. The rest of the formation is offshore marine, probably in a prodelta setting.

The junction with the overlying Tilestones is gradational. Earlier authors, notably Squirrell and White (1978), have described the junction as a disconformable overstep, but there is no evidence in the section to support this. The Tilestones predominantly comprises greenish grey variably micaceous sandstones that are locally pebbly and conglomeratic. A marine fauna is only present in the lower part, while the upper part contains sandy and conglomeratic debrites with mudstone partings. The transition into the overlying Temeside Mudstones contains beds of green mudstone and calcrete. The lower part of the formation represents a mouth bar delta, while the upper part was deposited in an alluvial fan setting.

The Temeside Mudstone Formation comprises massive green mudstones with calcrete nodules and represents the deposits of an alluvial coastal plain.

References:

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STRAW, S H. (1929) The Siluro-Devonian boundary in south-central Wales. *J. Manchester Geol Assoc.*, 1, 79-102.

SECTION B

PRACTICAL CONSIDERATIONS: Please score Accessibility and Safety Red Amber or Green			
Accessibility:			X
Comment: A wide grass verge provides good access to the section.			
Safety:			X
Comment: Care is needed with passing traffic			
Conservation status: Unknown			

OWNERSHIP/PLANNING CONTROL: Owner/tenant: Carmarthenshire County Council Planning Authority: Carmarthenshire County Council Planning status/constraints/opportunities: There are no known planning constraints or opportunities

CONDITION, USE & MANAGEMENT: Present use: Steep bank/cutting/verge at side of A476 main road Site condition: Faces are locally obscured by saplings, bushes and brambles growing on the verge and cutting. Potential threats: Increasing vegetation growth Site Management: It is suggested that the vegetation is periodically cleared from the faces.
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SITE DEVELOPMENT: Potential use (general): Potential use (educational): The road section provides an excellent section for those interested in scientific research into the stratigraphy, palaeontology and sedimentology of the mid to late Silurian, It also provides a good section for students to study transitions from marine to continental deposits in the rock record.

Other comments:

Photographic Record



General view of the road section.



Upper part of Trichrug Formation with thick bedded conglomeratic debrites.



Medium bedded sandstones of the Tilestones Formation