South Wales RIGS Group Site Record
RIGS Description

SECTION A

General	South Wales
Site Name: Garth Hill	**File Number:** AH_49
RIGS Number: 741	**Surveyed by:** AJ Humpage/R Kendall
Grid Reference: ST 09674 83440	**Date of Visit:** 11 July 2011
RIGS Category: Scientific	**Date Registered:**
Earth Science Category: Geomorphological, Structural Historical	
Site Nature: Farmland and open moorland	**Documentation prepared by:** AJH
Unitary Authority: Monmouthshire CC	**Documentation last revised:** 19 August 2011
OS 1:50,000 Sheet: 171	**Photographic Record:** See images attached to this report
OS 1:25,000 Explorer Sheet: 151	
BGS 1:50,000 Sheet: 249 (Newport)	

RIGS Statement of Interest:

Garth Hill is an excellent example in South Wales illustrating the lower planation surfaces as originally described by E.H. Brown (1960).

Three distinct surfaces are visible around Garth Hill being best developed on the south and western side of the hill. The top of Garth Hill, at c.301 - 303 m OD reflects the 1000 feet level of the ‘Low Peneplain’ of Brown (1960) which covered the altitudinal range of 850 – 1000 feet.

The lower surfaces Brown attributed as a series of wave-cut platforms the highest of which occurs at 600 feet. The road around the south side of Garth Hill runs along the supposed 600 ft surface, but Brown acknowledges it is not a distinct surface, and suggests there may be two elements to it to create a double platform at respectively 587 – 690 feet and 490 – 550 feet, separated by an intermediate slope the base of which is at c.550 feet (c. 167m), all of which are defined on Garth Hill

The eastern end of Garth Hill, falling away towards the Taff valley shows several breaks of slope which may be structurally controlled and thus controlling the form of the slope.

Geological setting/context:

From 1947 and throughout the 1950's Eric Brown undertook a major systematic mapping survey across the whole of Wales to attempt to identify the remnants of a series of Tertiary erosion surfaces, which he considered recorded the denudation history of the Welsh landscape and the evolution of its relief and drainage.

In his extensive reconnaissance, he identified a series of surfaces which he successively assigned to:

1. the 'Monadnock Group' (over 2,100 feet) which incorporated a 'Summit Plain (2500 – 3,500) and 'Lower Summit Plain' identifiable in the mountains of North Wales and the Brecon Beacons;
2. the 'High Plateau'; (1,700 – 2,000 feet)
3. the 'Middle Peneplain' (1,200 – 1,600 feet) and;
4. the 'Low Peneplain' (800-1,000 feet).

The complex interpenetrating of these surfaces with each showing lowered remanants of the successively higher surfaces led Brown to the conclusion that they were sub-aerial peneplains rather than wave-cut platforms. As none of these peneplains showed any sign of warping it was postulated that they post-dated the mid-Tertiary earth movements and were of Miocene and Pliocene age.

Below 700 feet, Brown (1960) identified a series of step-like features around the coast of Wales which he interpreted as wave-cut platforms. Two platforms were identified between 500-700 feet (the Upper and Lower 600 feet platform) whilst the most extensive was the 400 feet platform, which stretched almost continuously from Cardiff to North Pembrokeshire and around the coast of Caernarfonshire and Anglesey. A well-developed 200 feet platform was described in South Wales (Driscoll 1958). These surfaces were all much narrower than the peneplains and Brown suggested that there was evidence of wave trimming of the Low Peneplain surface by the Upper 600 feet platform.

Much of this work was cast into doubt during the 1970's and 1980's as new techniques of assessing the landsurface developed, and as new work identified the influences of post-glacial isostatic rebound and neotectonic movement.

Recent DEM analysis (e.g Rowberry 2008) have further cast doubt on Brown's suite of defined planation surfaces, although surfaces were identified that may correlate with the Middle Peneplain. Five sub-horizontal denudation surfaces were recognized within the Welsh region by Rowberry (2008) some of which may fit to the lower platforms of Brown (1960), these being at between:
40-90 m asl (131 – 295 feet) (? 200 feet platform of Brown1960);
118-132 m asl (387 – 433 feet) (? 400 feet platform of Brown 1960);
173-187 m asl (567 – 613 feet) (? Upper 600 feet platform of Brown 1960);
219-229 m asl (718 – 751 feet), and;
385-520 m asl (1,263 – 1706) (Middle Peneplain of Brown 1960)

It has therefore been suggested that although surfaces are present across Wales, the enduring tripartite division of the Welsh landscape envisaged by Brown (1960) must now be rejected, both in terms of the number of surfaces that may be recognized and

their altitudinal range.

Notwithstanding this recent work, Garth Hill represents an excellent example of how the landscape of Wales was used to define its recent geological evolution.

References:

British Geological Survey (1969). *Newport. England and Wales Sheet 249.Solid and Drift Geology. 1:50,000.* British Geological Survey, Keyworth, Nottingham.

Brown, E.H. (1960). *The Relief and Drainage of Wales*. Cardiff University Press.

Driscoll, E.M. (1958). The Denudation Chronology of the Vale of Glamorgan. *Transactions and Papers of the Institute of British Geographers*. **25**. 45-57.

RCAHMW – COFLEIN
http://www.coflein.gov.uk/en/site/93060/details/GARTH+HILL,+BARROW+I/

Rowberry, M D. (2008). Constraining the Altitudinal Range of Sub-horizontal Denudation Surfaces in Wales, UK, using the Elevation Relief Ratio. *Rev. Geogr. Acadêmica*. **2**. 26-40.

SECTION B

PRACTICAL CONSIDERATIONS:
Please score Accessibility and Safety Red Amber or Green

Accessibility:			X
Comment: Accessible where crossed by public rights of way allowing features to be viewed. Hilltop is Access Land Otherwise, permission will be required.			
Safety:			X
Comment: Farmland and open moorland			

Conservation status:

There are no known conservation designations on this RIGS.

OWNERSHIP/PLANNING CONTROL:

Owner/tenant: Unknown / various

Planning Authority: Cardiff County Borough/ Rhondda Cynon Taff

Planning status/constraints/opportunities: There are no known planning constraints or opportunities

CONDITION, USE & MANAGEMENT:

Present use: Farmland

Site condition: Good

Potential threats: None known at present

Site Management:

SITE DEVELOPMENT:

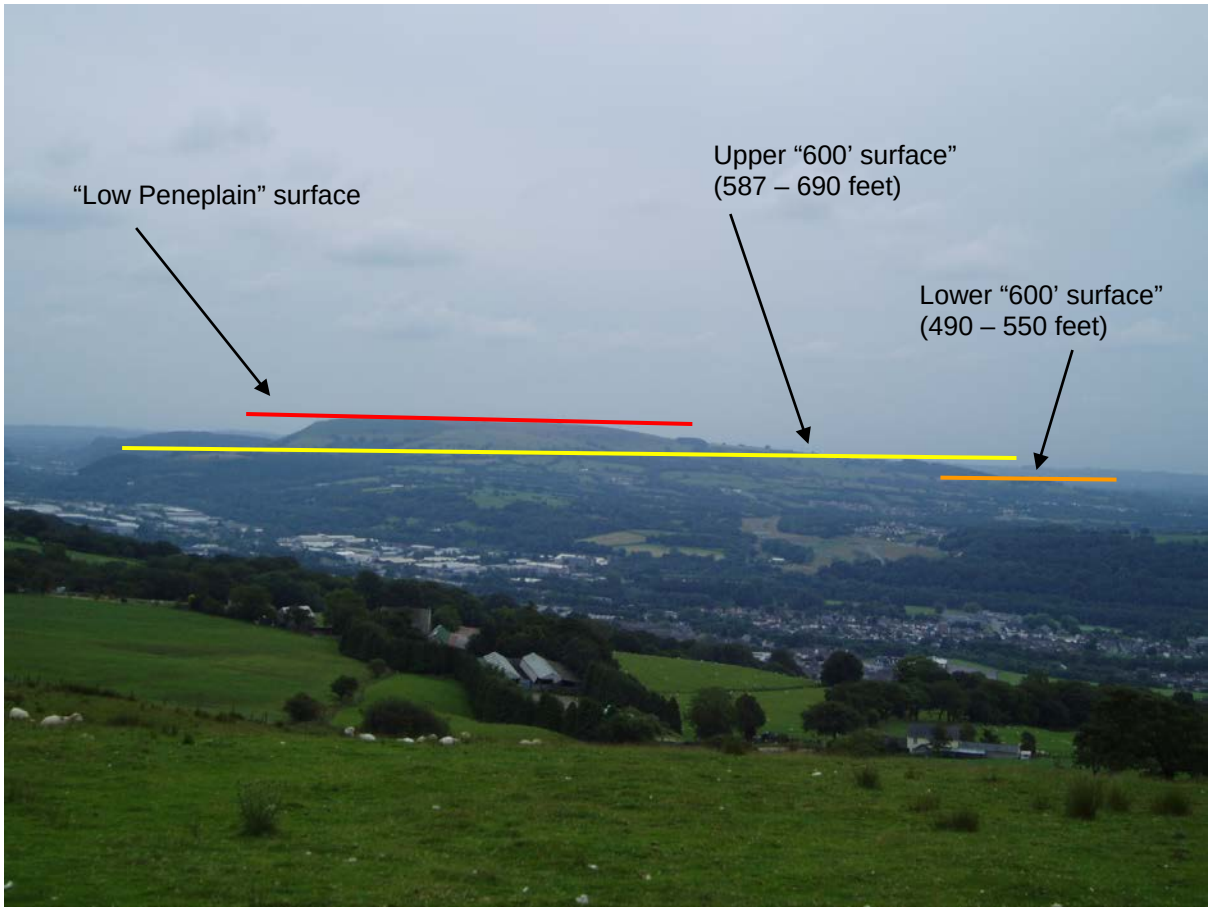
Potential use (general): Detailed geomorphological mapping would benefit this site

Potential use (educational): Good accessible site to consider the concept of planation surfaces

Other comments:

On the top of Garth Hill are five probable Bronze Age round barrows the largest of which (Barrow II – COFLEIN) is 35m diameter and 4.3m in height and which forms a distinct “pimple” on the hill top. It is this feature which formed the basis for the fictional book entitled “The Englishman who went up a hill and came down a mountain” by Christopher Monger, which was based around the village of *Ffynnon Garw*, a combination of two real villages adjacent to Garth Hill in the Taff valley– Ffynnon Taf (Taffs Well) and Nantgarw.

Photographic Record



View looking south-west from Eglwysilian Common [ST 309620 190240] across the Taff valley towards Garth Hill. Coloured lines denote the late Tertiary planation surfaces described by Brown (1960).