Capel Curig and Betws-y-Coed. Description of 1:25 000 sheet SH 75

From Earthwise
Jump to navigation Jump to search


Map: Sheet SH 75 Capel Curig and Betws-y-Coed. 1:25 000 series - Classical areas of British geology

Under construction

Front cover.
Contents

1 Contents
2 Illustration credits
3 Notes
4 Preface
5 References
6 Glossary

Chapter 1 Introduction

Sedimentary rocks

Volcanic rocks

Tectonic setting

Chapter 2 Carneddau Group
Penamnen Tuffs and underlying strata

Strata between the Penamnen Tuffs and the Capel Curig Volcanic Formation

Capel Curig Volcanic Formation

Strata between the Capel Curig Volcanic Formation and the Crafnant and Snowdon Volcanic groups

Chapter 3 Crafnant and Snowdon Volcanic groups

Crafnant Volcanic Group

Snowdon Volcanic Group

Chapter 4 Llanrhychwyn Slates and Black Slates of Dolwyddelan

Llanrhychwyn Slates

Black Slates of Dolwyddelan

Chapter 5 Grinllwm Slates

Chapter 6 Dolerites

Chapter 7 Structure

Chapter 8 Mineralisation

Chapter 9 Pleistocene and Recent deposits

Excursion itineraries

Fossil localities

Illustration credits

Notes

Preface

References

Glossary

Illustration credits

All illustrations are by IGS except the following: Brian P. Elkins, cover, figures 7, 10, 11, 17, 19, 26, and the small drawings on pp. 6, 10, 11, 13, 14, 16, 23, 26, 27, 30, 31, 35, 40, 45, 48, 50, Forestry Commission, figures 9, 27, 28 Geological Society of America and University of Kansas, graptolite drawings on pp. 41, 43 from 'Treatise on Invertebrate Paleontology'. 
Notes

National Grid references are given in the form [SH 7430 5001] throughout; all lie within the 100-km square SH. Numbers preceded by E refer to thin sections in the collections of the Institute of Geological Sciences, and numbers preceded by RV or DT to specimens in the fossil collections.

Preface

The first geological survey of the district by J. B. Jukes, W. T. Aveline and A. R. C. Selwyn was on the one-inch scale, published as an Old Series Sheet (78 SE) in 1852. The survey on which the present account is based was carried out by Drs Howells, Francis, Leveridge and Evans between 1968 and 1970 on the six-inch scale, supplemented extensively by aerial photographs. The published map (SH 75) covering the Capel Curig and Betws-y-Coed district is one of a series of sheets on the 1:25 000 scale being produced by the Institute of Geological Sciences to delineate the details of the complex Lower Palaeozoic geology of North Wales. The present account is designed to be read in conjunction with the map.

A.W. Woodland Director. 3 March 1977

References


HARKER, A. 1889. The Bala Volcanic Series of Caernarvonshire. (Cambridge.)


ROBERTS, B. 1967. Succession and structure in the Llwyd Mawr Syncline, Caernarvonshire, North


Glossary

Accretionary lapilli: Pellets formed by the concentric accretion of ash and dust around nuclei of condensed water drops or rock fragments in a volcanic dust cloud.

Acid: Relating to igneous rocks containing more than 66 per cent of silica.

Agglomerate: A volcanic rock formed of pyroclastic blocks or fragments generally more than 50 mm diameter.

Albitisation: The partial or total replacement of the calcic (anorthite) component of plagioclase feldspar by sodic (albite).

Ash flow: A turbulent admixture of pyroclastic debris and hot gas which flows in directions imposed by the originating explosive eruption and by gravity.

Axial plane: The surface that connects the axes of each plane within a fold.

Basalt: A fine-grained lava or minor intrusion composed mainly of calcic plagioclase and pyroxene with or without olivine.

Basic: Relating to igneous rocks containing less than 52 per cent of silica.

Benioff Zone: The plane along which lithospheric plates sink into the upper mantle and where earthquake foci are located.

Breccia: A coarse-grained elastic rock composed of angular rock fragments set in a finer grained matrix.

Caldera: A large volcanic depression generally circular in form which may include a vent or vents.

Caledonian orogeny: Lower Palaeozoic earth movements which reached their culmination at the end of the Silurian.

Columnar jointing: Prismatic fractures in lavas, sills or dykes which result from cooling.

Convolute bedding: Complex contorted bedding laminae that are confined to a well-defined undisturbed layer.

Cwm: An armchair-like hollow generally situated high on the side of a mountain; produced by the downcutting of a glacier.

Devitrification: The replacement of glassy texture by crystalline texture in a volcanic rock during or after cooling.

Disconformity: An unconformity in which the bedding planes above and below are essentially parallel.

Dolerite: A medium-grained igneous rock generally forming minor intrusions and consisting mainly of calcic plagioclase and pyroxene, commonly with an ophitic texture, and sometimes olivine.

Epiclastic rock: A sedimentary rock formed of fragments derived by weathering and erosion of older rocks.

Eutaxitic texture: The texture in tuffs where shards and pumice are flattened and deformed around crystal and lithic fragments.

Euhedral crystal: A crystal showing its natural faces without significant modification.

Flame structure: Flame-shaped intrusions generally of mud grade that have been squeezed upwards into the overlying generally coarser layer.
Fluxoturbidite: A sediment deposited under the influence of both turbidity currents and slumping.

Gabbro: A coarse-grained intrusive igneous rock composed essentially of basic plagioclase and pyroxene with or without olivine.

Gangue: The uneconomic minerals of an orebody.

Greywacke: A poorly sorted sandstone with angular to subangular quartz and feldspar fragments and a wide range of lithic fragments set in a clayey matrix.

Hyaloclastite: A deposit composed of comminuted basaltic glass formed by the fragmentation of the glassy skins of basaltic pillows or by the violent eruption of basaltic material under submarine conditions.

Hydrothermal alteration: Alteration by or in the presence of water at high temperature.

Ignimbrite: A form of tuff composed of fragments welded together as they coalesce.

Inlier: An outcrop of rocks enclosed by younger strata.

Isocline: A fold with parallel limbs.

Lahar: A mudflow composed of volcanoclastic material.

Lapilli: Fragments in the range of 5 to 50 mm ejected by volcanic eruption.

Load cast: A sole mark composed of sediment of sand grade protruding down into finer grade material and formed as a result of unequal loading.

Lode: A mineral vein in consolidated rock.

Moraine: A mound of unsorted debris deposited by a valley glacier (in this account ground moraine is referred to as boulder clay).

Ophitic: An igneous texture where prismatic plagioclase crystals are intergrown with pyroxene crystals.

Outlier: An outcrop of rocks surrounded by older strata.

Parataxitic texture: An extreme variation of eutaxitic texture in tuffs where the shards are flattened and drawn out.

Pericline: A fold in which the dip of the beds has a central orientation.

Perlitic texture: Small-scale arcuate cracks caused by cooling in volcanic glass.

Plate tectonics: Global tectonics based on an earth model characterised by a number of large lithospheric plates which move on the underlying mantle.

Plunge: The inclination of a fold axis.

Poikiloblastic texture: The texture formed where a newer recrystallised mineral surrounds relics of earlier minerals.

Pumice: A highly vesiculated glassy lava light enough to float.

Pyroclastic: An elastic rock formed by explosion or eruption from a volcanic vent.

Rhyolite: An extrusive igneous rock of acid composition, commonly porphyritic and flow banded.

Roche moutonnee: An elongate crag scoured by glaciation with a smooth gentle upstream side and a rough steep downstream side.

Septarian fractures: Radiating fractures at the centres of concretions which intersect concentric fractures and are generally infilled with calcite or quartz.

Shard: A glass fragment typically found in pyroclastic rocks having distinctive cuspatel margins.

Sole markings: A term commonly used to describe the undersurfaces of a bed infilling underlying sedimentary structures.

Solifluction: The slow, viscous downhill flow of waterlogged soil or other surface material especially in regions underlain by frozen ground.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spilite</td>
<td>An altered basalt in which the feldspar has been albitised and the dark (mafic) minerals altered to low-temperature hydrous minerals</td>
</tr>
<tr>
<td>Thixotropy</td>
<td>The property of some colloidal substances to change viscosity when sheared; disturbed water-laden sediments may behave in an analogous way</td>
</tr>
<tr>
<td>Tuff</td>
<td>A lithified deposit of volcanic ash</td>
</tr>
<tr>
<td>Tuffite</td>
<td>An admixture of pyroclastic (&gt;25 per cent) and epiclastic (&gt;25 per cent) material</td>
</tr>
<tr>
<td>Unconformity</td>
<td>A break in the stratigraphical sequence marked by a structural discordance</td>
</tr>
<tr>
<td>Vent</td>
<td>An opening through which volcanic deposits are extruded or ejected</td>
</tr>
<tr>
<td>Vesicle</td>
<td>A small cavity in a lava formed by included gases</td>
</tr>
<tr>
<td>Vitroclastic</td>
<td>Texture of a pyroclastic rock composed mainly of cuspate glass fragments</td>
</tr>
<tr>
<td>Welded tuff</td>
<td>A pyroclastic rock in which individual particles were sufficiently plastic to agglutinate</td>
</tr>
</tbody>
</table>


Categories:
- [Capel Curig and Betws-y-Coed, classical areas of British geology](http://earthwise.bgs.ac.uk/index.php?title=Capel_Curig_and_Betws-y-Coed,_Description_of_1:25_000_sheet_SH_75&oldid=44408)
- [18. Wales](http://earthwise.bgs.ac.uk/index.php?title=Capel_Curig_and_Betws-y-Coed,_Description_of_1:25_000_sheet_SH_75&oldid=44408)