Urswick Limestone Formation

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Urswick Limestone Formation (UL), Carboniferous, Northern England Province

Urswick Limestone Formation is part of the Great Scar Limestone Group

Name

The name was derived from outcrops around the villages of Great and Little Urswick, Low Furness. The Urswick Limestone of Rose and Dunham (1977^[1]) was given formational status by Johnson et al. $(2001^{[2]})$.

Lithology

The Urswick Limestone Formation is wholly dominated by rhythmically bedded, pale grey, commonly 'pseudobrecciated', biocalcarenite with stylolitic partings and palaeokarstic surfaces at cycle tops overlain by thin, bentonitic mudstone beds. It creates typical stepped karst scenery with griked surfaces throughout the south Cumbria district. A 4 m-thick bed of black mudstone with thin limestone interbeds, called the Woodbine Shale, occurs about 30 m above the base and splits the formation into informal lower and upper divisions (Horbury, 1987^[3]).

Genetic interpretation

Shallow marine carbonate (emergent at times).

Stratotype

A nearly complete type section through the formation is preserved at Trowbarrow Quarry (SD 481 758). Other reference sections include those at the Stainton Quarry complex (now partly obscured) from about (SD 245 728 to 249 728), Headhouse Quarry (SD 3990 8185), Ravensbarrow Point

Quarry (SD 3380 7749), Allithwaite Quarry (SD 391 767), and Humphrey Head Point (SD 3927 7334 to 3929 3746) (see Rose and Dunham, 1977^[1]; Johnson et al., 2001^[2]).

Lower and upper boundaries

The base of the formation is conformable, except in west Cumbria where it is disconformable. The lower boundary is at the point where the poorly bedded limestones of the Park Limestone Formation pass upwards into well-bedded 'pseudobrecciated' limestones of the Urswick Limestone Formation (Figure 9, Column 14).

The upper boundary of the formation is taken where the predominantly pale grey, thickly bedded Urswick Limestone Formation passes upward into the predominantly dark grey, thinner-bedded limestones of the Alston Formation, Yoredale Group.

Thickness

The formation is 120-160 m thick in Furness, and 40-180.m thick in west Cumbria.

Distribution and regional correlation

South and west Cumbria to north Lancashire, from the Duddon Estuary to the Carnforth area.

Age and biostratigraphical characterisation

Asbian. The formation corresponds almost exactly to the 'Lower Dibunophyllum Subzone' (uppermost Holkerian to lowest Brigantian) of Garwood (1913^[4]). Fossils are relatively prolific and include Dibunophyllum bourtonense, Lithostrotion spp., Palaeosmilia murchisoni, Siphonodendron spp., Gigantoproductus maximus, and, towards the top of the unit, Davidsonina septosa.

References

- 1. ↑ 1.0 1.1 Rose, W C C, and Dunham, K C.1977.Geology and hematite deposits of South Cumbria. Economic Memoir of the Geological Survey of Great Britain, Sheet 58, part 48 (England and Wales).
- 2. ↑ ^{2.0} 2.1 Johnson, E W, Soper, N J, and Burgess, I C.2001.Geology of the country around Ulverston. *Memoir of the British Geological Survey*, Sheet 48 (England and Wales).
- 3. <u>↑</u> Horbury, A D.1987.The sedimentology of the Urswick Limestone in south Cumbria and north Lancashire. Unpublished PhD thesis, University of Manchester.
- 4. <u>1</u> Garwood, E J.1913.The Lower Carboniferous succession in the north-west of England. *Quarterly Journal of the Geological Society*, Vol. 68, 449–596.

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