

Building stone, geology and man, Northern England

From Earthwise

[Jump to navigation](#) [Jump to search](#)

From: Stone, P, Millward, D, Young, B, Merritt, J W, Clarke, S M, McCormac, M and Lawrence, D J D. 2010. [British regional geology: Northern England](#). Fifth edition. Keyworth, Nottingham: British Geological Survey.

□

Contents

- [1 Introduction](#)

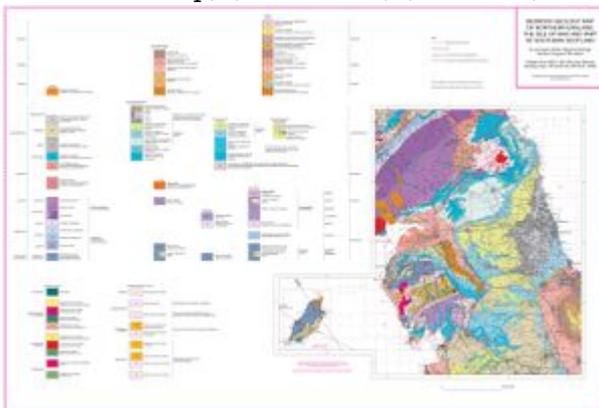
Introduction



Hadrian's Wall and the Great Whin Dolerite Sill at Housesteads Crags west of Hexham, Northumberland. (P222329).



Pets Quarry, Kirkstone [NY 392 071]. The sawn blocks of 'green slate' are derived from the volcanoclastic rocks of the Seathwaite Fell Formation (Borrowdale Volcanic Group) (MNS 5415) (P244111).



Northern England British regional geology inset map. (P916122).



Selection of Carboniferous macrofossils: a Crinoid, *Woodocrinus?* from shale at the base of the Stainmore Formation, immediately above the Great Limestone Member, at Mootlaw Quarry, Northumberland (DL4741, P589464); b *Goniatite*, *Cravenoceras cf. lineolatum* from shale at the base of the Stainmore Formation, immediately above the Great Limestone Member, at Mootlaw Quarry, Northumberland. (P587665), c Brachiopod, *Brachythyris* sp. from shale at the base of the Stainmore Formation, immediately above the Great Limestone Member, at Mootlaw Quarry, Northumberland (DL4353, P587666); d Brachiopods, large *Gigantoproductids* in the Sugar Sands Limestone, Stainmore Formation, at Sugar Sands Bay, Alnwick, Northumberland. (P643515); e Corals, a polished surface of 'Frosterley Marble' from the Great Limestone Member of the Alston Formation, showing detail of the abundant coral *Dibunophyllum bipartitum*, Weardale, County Durham. (P524822) x0.5; f Trace fossils, *Teichichnus*-type animal burrows preserved in sandstone from the upper part of the Appletree Limestone cycle of the Tyne Limestone Formation, Hindleysteel Quarry, Henshaw Common, Northumberland [NY 7496 7291]. (P222338).

Most of the region's rocks have been employed to some extent in building. Until the widespread adoption of brick, stone from small quarries was used locally in vernacular architecture, and contributes much to the variety of the landscape. It is only appropriate here to comment on particularly significant uses of building stone, or on its larger-scale extraction.

The earliest organised quarrying and shaping of building stone was probably associated with the building of Iron Age hill forts. Extraction on an 'industrial' scale commenced during the Roman occupation with the construction of Hadrian's Wall and its associated infrastructure. Despite being partially sited along the outcrop of the Whin Sill ([P222329](#)), the Wall's designers selected sandstone as the main construction material, avoiding use of the intractable dolerite. Together with limestone for making lime mortar, the sandstone was obtained from quarries along the course of the Wall, though only a few can today be identified as of Roman origin, for example those at Brampton and near Chollerford. Following the departure of the Romans, Hadrian's Wall provided a ready source of building stone for subsequent structures. The distinctive squared blocks produced by the Roman masons are today recognisable in castles, churches, farm buildings and even drystone walls.

In the Isle of Man, Ordovician sandstones from the Manx Group were used most spectacularly in the massive walls of Peel Castle. On the mainland, only a few of the varied Lower Palaeozoic rocks of the Lake District have been exploited on a large scale. Prominent amongst these, and comprising some

of the region's best-known building and roofing stones, are the Lake District 'green slates'. These cleaved, volcanoclastic lithologies occur at several stratigraphical levels within the Ordovician, Borrowdale Volcanic Group, but most of the commercial working has taken place within the Eagle Crag Member of the Birker Fell Formation, for example at Honister, and in the Seathwaite Fell and Tilberthwaite formations in the Coniston, Langdale and Kirkstone areas, where extraction continues today. The slate has been extracted in large quarries, which in some locations, for example at Honister and Coniston, have been enlarged into underground workings. Traditionally, most of the slate was used for roofing and whilst substantial amounts are still produced for this purpose, recent years have seen most green slate employed for architectural or paving stone, where its attractive, mottled appearance can be utilised to good effect ([P244111](#)).

Intensely cleaved, bluish-grey mudstone and siltstone from the Silurian part of the Windermere Supergroup have also been important sources of slate. Substantial quarries have been worked in the Brathay Formation near Windermere, but slate production today is restricted to the Wray Castle Formation at Kirkby Quarry, near Kirkby in Furness. In the Isle of Man, some inferior roofing slate was formerly obtained from cleaved Ordovician mudstone of the Barrule and Glen Rushen formations of the Manx Group.

Of the Lake District's granitic rocks, only the Shap and Eskdale intrusions have been significantly worked for building stone. The durable and distinctive, pink and porphyritic Shap Granite has an attractive texture and takes a good polish; hence it has been widely used for construction and as a monumental or ornamental stone ([P519145](#)). The grey Broad Oak Granodiorite has been quarried near Waberthwaite for use as a building and ornamental stone. Neither the Shap nor the Broad Oak stone is currently in regular production, though some is occasionally produced to meet particular requirements. The Isle of Man granites have been used as local building stone but there is no current production for that purpose.

Red, Devonian sandstone from the Isle of Man's Peel Sandstone Formation has been worked on the Creg Malin headland north of Peel, and used for many buildings in the town, most notably the cathedral. Some Carboniferous limestone was also extracted for local building use from quarries on the island's south coast, around Castletown.

Many of northern England's Carboniferous sandstones have long been major sources of good freestone ([P222553](#)) and production continues at numerous sites for building and repair work over a wide area. In Northumberland, the Fell Sandstone has a distinctive purplish-pink hue at Doddington Quarries, near Wooler, whereas pale brown sandstone is produced from another part of the Border Group at Cop Crag, near Byrness. Pale buff sandstone of the Yoredale Group is worked at a number of different localities in Northumberland: near West Woodburn-Darney, Blaxter, Cragg and High Nick; at Black Pasture near Chollerford; near Allenheads; and at Millknock Quarry (NY 880 793) near Birtley, which has recently re-opened. Elsewhere, Yoredale Group sandstone is quarried near Nenthead, Cumbria, and at several quarries in the Staindrop, Barnard Castle and Stanhope areas of County Durham. The Low Main Post sandstone from the Coal Measures, obtained from long-abandoned quarries in Durham City, was a major source of stone for the construction of Durham Cathedral ([P916121](#)), whilst Springwell Quarries, near Gateshead, have been another source of Coal Measures sandstone. A very flaggy sandstone near the base of the Coal Measures has for centuries been a source of roofing slabs and is still worked for this purpose, and for paving and walling, at Ladycross Quarry, near Slaley, though reserves are believed to be nearing exhaustion.

A distinctive feature of many Cumbrian villages is the use of reddish Permo-Triassic sandstone for building purposes. The Penrith Sandstone provides good, salmon-pink freestone for walling and paving. Numerous quarries mark its outcrop north of Penrith where it is still worked in the Plumpton and Lazonby areas. The red, St Bees Sandstone is particularly well suited to the carving of detailed

shapes and ornamentation. It has been widely used across Cumbria and formerly enjoyed a considerable export market as far afield as North America. The stone has been much quarried in the Vale of Eden, the St Bees area and near Barrow, where Furness Abbey stands as a monument to its early use for building purposes.

Except in a few areas, for example around Kendal and Kirkby Stephen, the region's Carboniferous limestones have not been widely used as building stone. However, a few have been worked for ornamental use. Best known of these is a dark grey to black lithology rich in a solitary coral, *Dibunophyllum bipartitum*, which is present within the Great Limestone of the northern Pennines. The rock takes a high polish and is known locally as the 'Frosterley Marble' since much was formerly worked at Harehope Quarry, near Frosterley in Weardale ([P222338](#)). Fine examples of the stone may be seen in churches across the region, including Durham Cathedral, and it has been widely used abroad. Blocks of Frosterley Marble are occasionally recovered today during limestone quarrying at Broadwood Quarry, Frosterley, and shipped to Italy for dressing. In the Isle of Man, flaggy, dark grey bituminous limestone from the Bowland Shale Formation at Poyllvaish was formerly worked as an ornamental stone and marketed as a 'black marble'.

Retrieved from

['http://earthwise.bgs.ac.uk/index.php?title=Building_stone,_geology_and_man,_Northern_England&oldid=28124'](http://earthwise.bgs.ac.uk/index.php?title=Building_stone,_geology_and_man,_Northern_England&oldid=28124)

Category:

- [Northern England](#)

Navigation menu

Personal tools

- Not logged in
- [Talk](#)
- [Contributions](#)
- [Log in](#)
- [Request account](#)

Namespaces

- [Page](#)
- [Discussion](#)

Variants

Views

- [Read](#)
- [Edit](#)
- [View history](#)
- [PDF Export](#)

□

More

Search

Navigation

- [Main page](#)
- [Recent changes](#)
- [Random page](#)
- [Help about MediaWiki](#)

Tools

- [What links here](#)
- [Related changes](#)
- [Special pages](#)
- [Permanent link](#)
- [Page information](#)
- [Cite this page](#)
- [Browse properties](#)

• This page was last modified on 5 May 2016, at 15:42.

- [Privacy policy](#)
- [About Earthwise](#)
- [Disclaimers](#)

