Building stone and the built heritage

Northumberland produces particularly high quality building stones. The majority of the county's active and historically known quarries are within the district under consideration. Stone forms an integral part of the landscape, present in field boundary walls, historic structures such as Hadrian's Wall and in the numerous stone houses, farmsteads and villages which provide as strong a sense of place as anywhere in the United Kingdom. The use of geological materials in the built environment eloquently demonstrates the inseparable links between natural and human landscapes. Understanding the properties and limitations of these materials provides important insights into the importance of the Earth's resources. Buildings may offer readily accessible opportunities to see a variety of rock types, and to appreciate ways in which the use of these materials has changed over past centuries.

Building stone in the district

Northumberland, as a whole, is a county characterised by sandstone buildings. However, a number of rock types in addition to sandstone have been utilized within the district.

Erratic boulders from superficial deposits such as till, glacial sand and gravel, or river deposits, have yielded small, but locally important, sources of building material. Many have been obtained as clearance stones from fields. They may comprise a variety of rock types. Carboniferous sandstones and limestones, and Whin Sill dolerite are most abundant, though greywacke sandstones and granitic rocks from south-west Scotland and a variety of volcanic rocks from the Lake District may also be conspicuous. Walls and buildings constructed from these stones can generally be recognised from the varied, and sometimes exotic, nature of the stones and commonly their rounded shape.

Around the Cheviot fringe there are examples of buildings utilising igneous rocks often with sandstone dressings: in Akeld the bastle [NT 95635 29692], cottages and farm buildings, in Earle Parish Langlee and Langleeford farms, in Kilham Parish the forge and farm buildings and Thompson's Walls farm, and in Ingram Parish farm buildings including Hartside and Linhope. Some of these are painted and may not be immediately obvious. Over the border in Scotland, Yetholm Church [NT 82568 28085] is built of the pitchstone-andesite from Thompson's Walls Quarry. Cheviot Volcanic rocks have also been used in field boundary walls, the more flaggy varieties of andesite have been quarried for local stone walling near Fairhaugh. Elsewhere, for example near Biddlestone, the well-jointed and thus easily worked trachyte dykes have been used. In the south of the district the old quarry cottages at the entrance to Barrasford Quarry are constructed principally from dolerite.

Although limestones are abundant within the district, they have not been employed as building stones, except in some drystone walls near outcrops. The main use of limestone in the built environment appears to have been as a source of lime for making mortar. Substantial quantities of mortar would have been required in the construction of Hadrian's Wall. As well as providing mortar for building, the use of lime on fields stimulated agricultural improvements, which in turn led to greater use of stone for new buildings, walls and roads.

Sandstone suitable for building is found throughout the Carboniferous succession of the district. Thickly bedded or massive fluvial sandstone provides the ideal material for building purposes; it has a siliceous composition making it durable and resistant to weathering, yet it can be freely worked. Almost every village and town throughout the district originally had its own quarry.

Sandstones from different geological formations and in different parts of the district often have subtle variations in composition, which impart a distinctive character to the stone and result in differences in building appearance from place to place.

For example, the contrasting colours of the rich iron- flecked brownish buff sandstones of the Bellingham area compared to the paler cream-coloured stone of Glanton, or the pinky red hematite-rich sandstone of the Wooler area. These variations contribute to the local distinctiveness of the landscape and the built heritage.

Some sandstones are notably coarser grained with a gritty texture, and in places were quarried for millstones as well as building stone. Abandoned partially completed millstones can be seen in Prudham Quarry [NY 884 687].

Flagstone roofing stones once characterised some buildings. These were obtained locally from suitable thinly-bedded, mica-rich sandstone deposits wherever they were geologically available, but most notably in the south of the district, although typically as far north as Bellingham. For example, a small quarry in laminated flagstones [NY 881 785] provided roofing stone for the nearby village of Birtley. More prestigious buildings throughout the county used flagstone roofing where the cost of transportation could be afforded. However, many roofs were probably originally 'black thatched' using heather. These were replaced by Welsh slate during improvements in the 19th century. Today, the uniform purple Welsh slate is widespread, although several areas in north and mid-Northumberland display pantile roofs.

History of use of building stone and development of the building stone quarry industry in the district

The earliest structures in the region used the most easily available local stone from field boulders and small extractions from nearby crags requiring minimal transportation. The first clear evidence for the quarrying and shaping of stone in the National Park comes in the form of the massive drystone walls of the Iron Age hill forts; andesite blocks were worked locally to form the ramparts of hill forts in the Cheviots. The most well- known is the massive hill fort on Yeavering Bell where several ancient quarry faces can be seen in the interior of the fort.

In Roman times, Hadrian's Wall was built along a line of dolerite crags to provide natural defences. The hard 'whinstone' proved unsuitable for building as it could not be easily dressed, and was suitable mostly only for providing a rubble core for the wall. Sandstone was therefore worked in a series of quarries along the wall, for example at Queen's Crags near Housesteads. At Sewingshields [NY 810 699] the local sandstone is characterised by cross-bedding, and dressed stone in this section of the wall commonly displays such features. The sandstone was roughly dressed to provide coursed squared rubble to be used as a facing stone. The blocks were cut to a uniform size, particularly distinctive where the stone has been subsequently reused in later buildings. To a lesser extent, local limestone, clay and earth were also used in the construction of the wall.

Towers (also known as peles) and bastles, dating from the 13th to early 17th centuries, are a distinctive group of small, fortified structures common to the countryside of Northumberland and Scotland within about 20 miles of the border. Both types of building are typically constructed of large rubble blocks of irregular shape or roughly squared, sometimes arranged in rough courses.

The stone types are locally sourced and generally directly reflect the local geology, and some examples incorporate stone from earlier Roman works. The gaps between stones are packed with stone chippings set in mortar containing little lime content. The walls are typically over a metre thick at the ground floor level, narrowing toward their tops. Good examples of such bastles can be seen at Akeld, Woodhouses near Holystone, Low Cleughs near Bellingham and pele towers at Elsdon and Tosson. The majority of rural buildings (farmhouses, cottages, steadings) date from the first half of 19th century, reflecting a period of agricultural improvement and rebuilding throughout Northumberland, and including several notable planned settlements such as Belsay, Chillingham, Ford and Cambo. It is from this time that many quarries of a more substantial size date, as well as the associated skills of quarrying and stone masonry. The development of towns such as Rothbury, Wooler and Bellingham from this time and throughout the later 19th century created an unprecedented demand for stone and large quarries were developed on the outskirts of the towns. Stone for Rothbury was obtained from local outcrops of the Fell Sandstone at Pondicherry. A quarry at Weetwood Bridge supplied a reddish purple siliceous sandstone for nearby Wooler and the surrounding area. The quarries at Longheughshields [NY 822 848] and Reenes [NY 826 843] provided stone for Bellingham.

It was the arrival of the railways in the mid 19th century which revolutionised the production of building stone in Northumberland. This enabled the transportation of stone over greater distances, and saw the development of larger scale quarries to supply the needs of urban development throughout northern England and in Central Scotland. The earliest railway, the Newcastle to Carlisle route, was built 1834-39, necessitating the development of the Prudham

sandstone quarry, which provided freestone for many railway structures such as bridges and stations, including Newcastle Central Station.

In 1847 the Newcastle to Berwick line began the process of opening up the northern part of the county, and a number of subsidiary lines enabled railway access into the centre of the county as the system was expanded through to the 1870s. Stone was initially used for the construction of the railway itself, and in places it was specified that for railway bridges all the stone should be ashlar, the highest quality freestone dressed so precisely that no joint should require more than one eighth of an inch of mortar. Soon stone was being sent north to Scotland, south to Newcastle and west to Carlisle. This resulted in an explosion of larger scale quarries in the second half of the

19th century. Many of these quarries employed the latest technology, with steam powered cranes to hoist stone onto small gauge mineral railways which transported stone to nearby railway sidings. The associated development of skills of quarrying, splitting, blasting, cutting and dressing put the region amongst the forefront of the industry in the UK.

It was at this time that the major quarries such as those at Black Pasture, Blaxter, Cocklaw, Cragg, Deadwater, Doddington, Glanton Pike, Greenlaw, Gunnerton and West Woodburn supplied vast quantities of sandstone throughout northern England (including for stone architecture at Catcleugh Reservoir) and Central Scotland to satisfy the demands of urban growth and the expansion of cities such as Newcastle, Glasgow and Edinburgh. Records show that Prudham stone was used in

Newcastle, Blaxter stone was sent to Edinburgh and Black Pasture stone was favoured in Glasgow.

Decline and survival

A nationwide shift from the use of natural building stone towards man-made materials occurred in the early 20th century. For example at Hethpool, cottages were constructed in the ‘Arts and Crafts’ style in a mixture of brick, stone and render. This shift, coupled with economic down-turns and the effects of two world wars, led to the closure of most of the building stone quarries by the mid 20th century. Some continued in production – albeit intermittently – and mostly those which were relatively mechanised, with a proven reputation of high quality stone and which already supplied a geographically large market. In the second half of the 20th century the majority of sandstone quarries had fallen into disuse, some becoming landfill sites for domestic refuse (e.g. Broomhill Quarry, West Woodburn), effectively sterilising any remaining resources. Others were landscaped or enclosed within agricultural land or plantations (e.g. Little Ryle, Millknock and Weetwood Bridge quarries), but most were simply abandoned. Many of the former building stone quarries are still visible today, and still contain resources of stone.

By the end of the 20th century the demand for stone showed a gradual recovery, partly due to the increasing requirement for repair of historic buildings throughout the United Kingdom. In addition, a demand for natural stone for new building within Conservation Districts and for townscape improvement schemes was supported by increasing recognition of stone as a prestigious material which ‘adds value’ to new properties.

Unlike some parts of the UK where all of the original stone quarries have closed, Northumberland is fortunate in having a number of surviving stone quarries where production continues today (e.g. Black Pasture, Blaxter, Darney, Doddington). This provides a continuous link with the past which allows the use of stone which is ‘in keeping’ with the local character, as well as having similar physical and weathering properties, reducing the need for importing stone from other parts of the UK or abroad. In addition, a number of quarries have reopened in recent years, for example Millknock near Birtley, and Hazeldean and Brownieside quarries, just outside the district, north of Alnwick. These newly reopened quarries formerly supplied mostly local stone.

Others are relatively new operations or smaller quarries that have been significantly expanded in recent times. In the last few years two of these, Cop Crag and Blaxters High Nick quarries, have received planning permission to extend their workings, and most quarries are currently operating at higher levels of production than in the previous decades.

These active quarries supply stone for conservation and new-build throughout the country, but particularly in the north of England and Scotland. The operations today are relatively small-scale compared to the past, involving smaller quantities of stone. Most are owned by a limited number of national-scale companies and the stone tends to be removed as large unprocessed blocks and transported by road to central facilities for cutting and dressing. Modern planning constraints mean that these quarries are much less environmentally intrusive than in the past. Compared to aggregate quarries, building stone quarries are typically much smaller scale operations, requiring less machinery and plant, and minimal blasting.

A rich legacy

The presence of an historical stone quarrying industry has greatly contributed to Northumberland's unique landscape, not only the former quarries but also the richness of the stone built heritage, both rooted in the geology of the region. The quarries themselves represent the remains of a once thriving industry whose products have helped define the character of the county. Many of the abandoned sites now provide havens for wildlife, and sites of interest for the naturalist, archaeologist, geologist and in some cases for sporting activities such as rock climbing. Although some have been landfilled, and many used for small scale tipping, they can be viewed as a positive resource for the story of the past they tell, their part in defining the character of the region, the natural diversity they contain, and in some cases the potential stone resource still contained within them.

Building stones quarries table

Table of sandstone building stone quarries from Northumberland National Park and adjacent areas, giving location, current status and with a summary description of the stone type, quarry history and use of the stone. Examples of specific buildings are given for some quarries. Not all building stone quarries in the district are included, and most of those given represent larger scale commercial operations. Numerous smaller quarries once existed which supplied villages, farmsteads and individual buildings. The map shows that sandstone for building was obtained from a variety of geological formations throughout the district, exploited wherever suitable material was available.

Figures

(Figure 71) Barrasford cottages.

(Figure 72) Houses built from local sandstone in Front Street, Glanton.

(Figure 73) Abandoned millstones in Prudham Sandstone Quarry.

(Figure 74) Hole Bastle, near Bellingham, constructed from random rubble sandstone with roughly dressed larger blocks used for corner stones and surrounds to openings. The flagstone roof is typical of those once common in southern parts of the district.

(Figure 75) Glanton Pike Sandstone Quarry, photographed in 1928.

(Figure 76) Blocks of sandstone stockpiled in Millknock Quarry awaiting processing.

(Figure 77) The working face at Cop Crag Quarry near Byrness showing the highly distinctive yellow-orange colour of the sandstone. The massive thick sandstone beds are split by inserting a series of parallel vertical drill holes and black powder blasting, visible on the quarry face in front of the figure.

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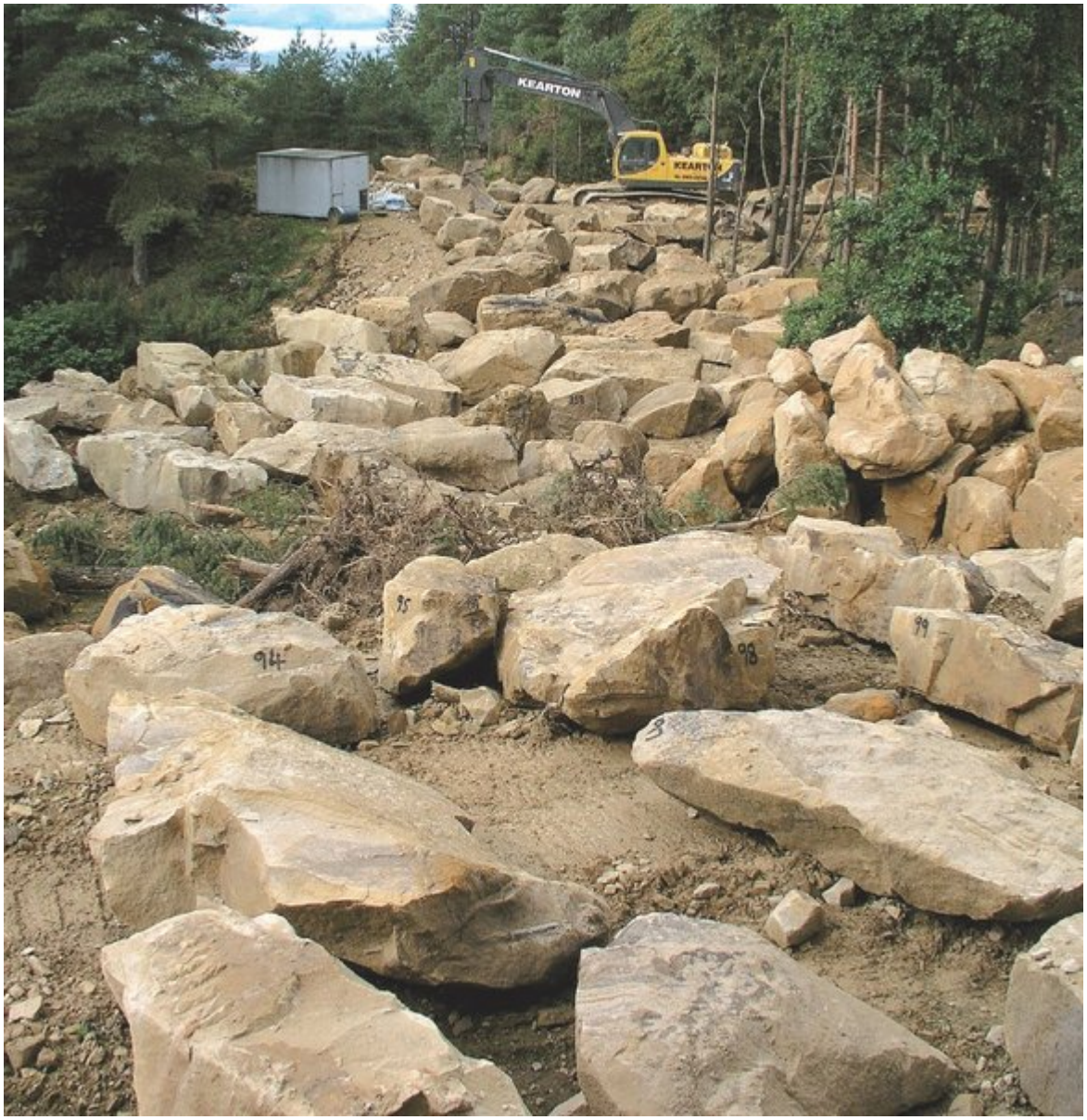

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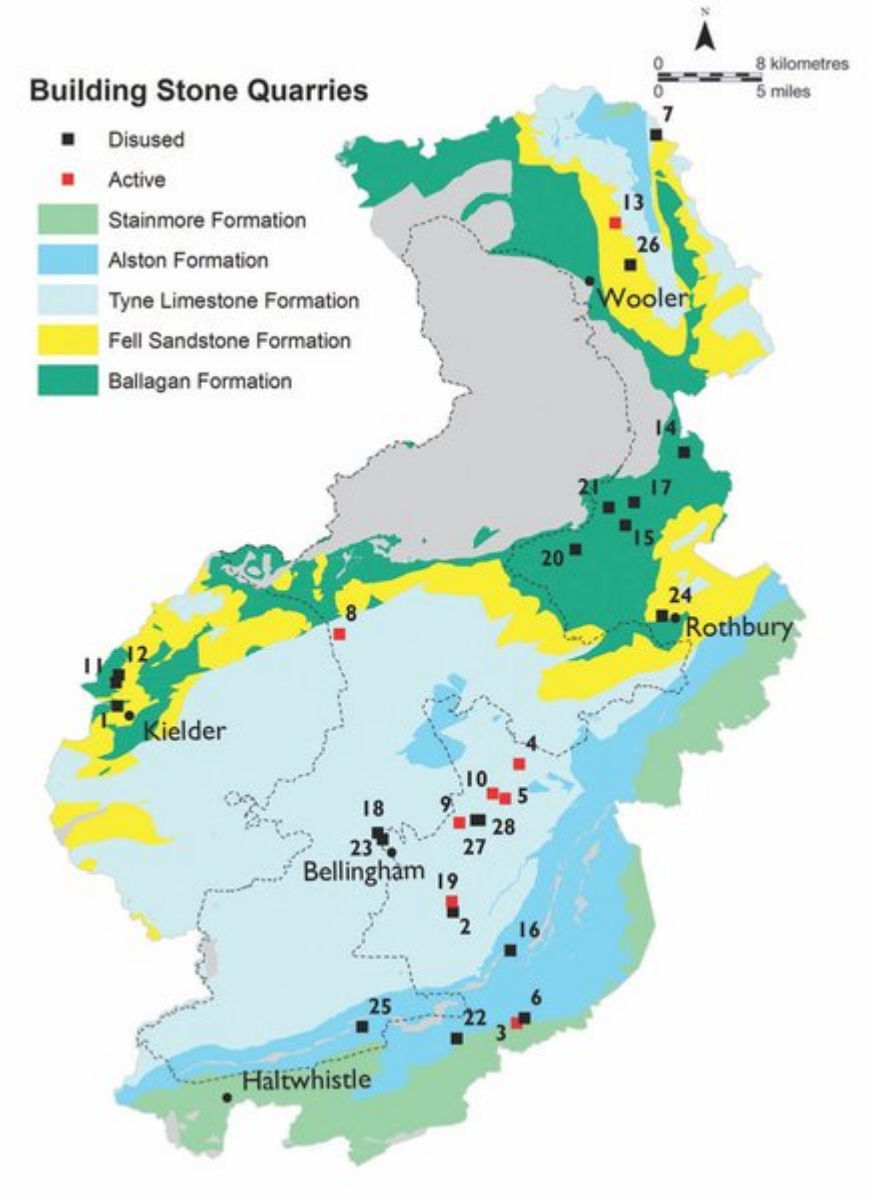

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