Historic England

Shropshire

Building Stones of England

The Building Stones of England

England's rich architectural heritage owes much to the great variety of stones used in buildings and other structures. The building stones commonly reflect the local geology, imparting local distinctiveness to historic towns, villages and rural landscapes.

Historic England and the British Geological Survey (BGS), working with local geologists and historic buildings experts, have compiled the Building Stones Database for England to identify important building stones, where they came from and potential alternative sources for repairs and new construction.

Drawing on this research, plus BGS publications and fieldwork, guides like this one have been produced for each English county. The guides are aimed at mineral planners, building conservation advisers, architects and surveyors, and those assessing townscapes and countryside character. The guides will also be of interest if you want to find out more about local buildings, natural history, and landscapes.

This guide is based on original research and text by Andrew Jenkinson (Shropshire Geological Society).

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Front cover: Castle and Dinham Bridge, Ludlow. Siltstone, Whitcliffe Stone, Holdgate Sandstone. © Richard Bowden / Alamy Stock Photo.

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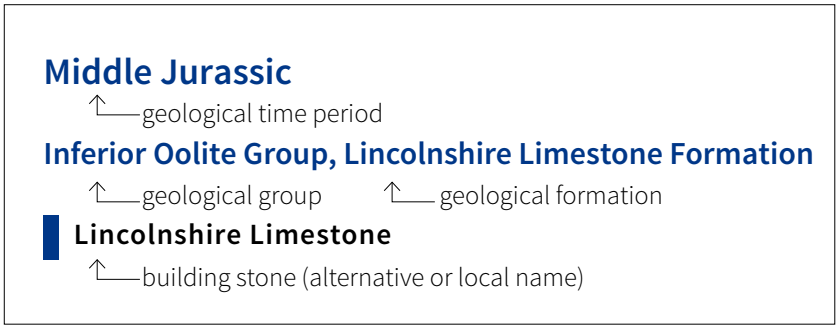
HistoricEngland.org.uk/advice/technical-advice/

How to Use this Guide

Each guide describes the local building stones in their geological timescale order, starting with the oldest layers through to the youngest. The guide ends with examples of other notable building stones from other parts of England and further afield.

Geological time periods, groups, formations and building stones

Each building stone is listed under the relevant geological timescale, group and formation. A formation may be divided into members and where relevant these are referenced in individual building stone sections.



Bedrock geology map and stratigraphic table

To help you with the geology of the area, there is a bedrock geology map and a stratigraphic table which shows the layers of rocks and the associated building stones in this geological timescale, group, formation order.

Page numbers for each building stone are included in the stratigraphic table for ease of reference. The page numbers are inverted to correspond with the geological age order.

Contents list

If you click on the page number for a building stone in the Contents list, you will go straight to the relevant section in the guide.

Building stone sources and building examples

A companion spreadsheet to this guide provides:

- More examples of buildings. Information is included on building type, date, architectural style, building stone source, and listed/ scheduled status
- A list of known (active and ceased) building stone sources such as quarries, mines, pits and delphs
- Additional information on building stones including lithology, grain size, sedimentary structures, key identification features, and notes on failure/weathering, and use.

The Building Stone GIS map allows you to search the Building Stones Database for England for:

- A building stone type in an area
- Details on individual mapped buildings or stone sources
- Potential sources of building stone sources within a given proximity of a stone building or area
- Buildings or stone sources in individual mineral planning authority area.

Further Reading, Online Resources and Contacts

The guide includes geological and building stone references for the area. A separate guide is provided on general Further Reading, Online Resources and Contacts.

Glossary

The guides include many geological terms. A separate Glossary explaining these terms is provided to be used alongside the guides.

The guides use the BGS lexicon of named rock units.

Mineral and local planning authorities

This guide covers the Shropshire Council and Telford & Wrekin Council mineral and local planning authority areas.

Contents

1 Introduction

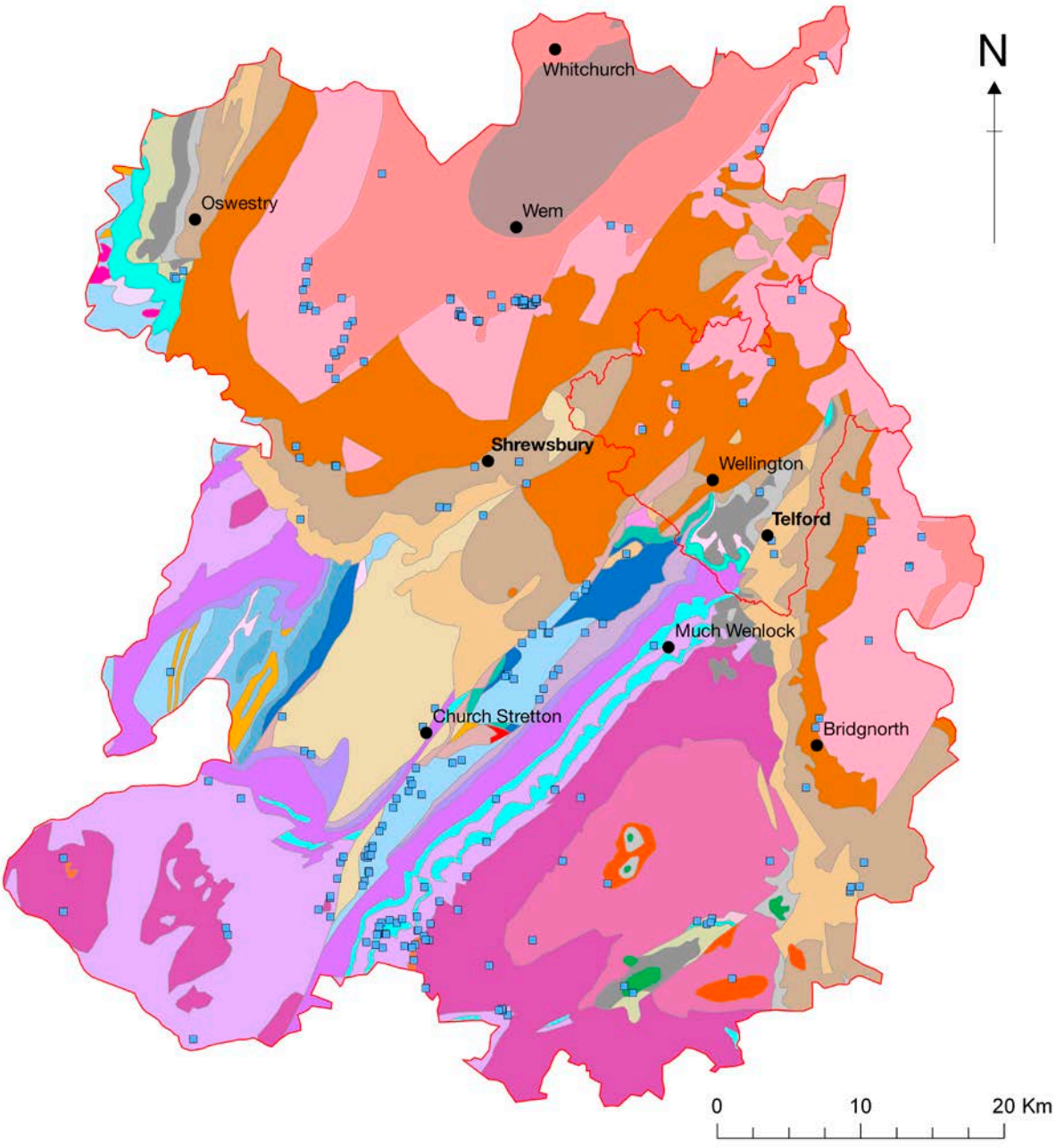
A vernacular architecture map of the UK will typically show Shropshire (along with Cheshire and Herefordshire) as 'black and white' or timber-framed country. However, for pre-mid-19th-century buildings, stone constructions are more common than timber-framed ones in several parts of the county. This is not the general perception because there is no single characteristic stone. Instead, there has been extensive use of local stone mirroring the considerable variety of different rock types cropping out across the county. Shropshire contains rocks belonging to nine out of the 11 periods of geological time, and also sedimentary and igneous rocks of Precambrian age.

The sheer diversity of rock types present within Shropshire shows in the topographical pattern of the county. Throughout its geological history, the less resistant rocks have been 'etched out' by the forces of erosion, leaving the more resistant rocks standing proud as uplands and ridges. These upland areas have commonly provided some of the best building stones which were used locally in the county's buildings. This pattern did not change until the coming of the railways during the 19th century. Prior to this, stone rarely travelled more than a couple of villages from its point of origin. Stone suitable for building thus became a valuable resource, and particular areas consequently assumed local importance. The best-known examples are Alberbury Breccia and Acton Scott Limestone.

The presence of a wide range of lithologies within an area also meant that several different stone types were liable to occur in a single building. Nowhere is this better exemplified than in the Stretton Valley, where a number of different lithologies are brought into close proximity along the Church Stretton Fault Zone. St Laurence's Church at Church Stretton is a case in point.

The building stone heritage can be summarised in chronological order (from oldest to youngest) of the county's stratigraphical sequence. Broadly speaking, south of Shrewsbury and west of the River Severn, a core of the oldest Precambrian rocks runs through the hills on a north-east to south-west axis. To the north of Shrewsbury and east of the River Severn below Ironbridge, the geology is dominated by the younger Permian and Triassic rocks, with a very small area of Jurassic strata around Prees. Much of north Shropshire is covered by glacial till, through which protrude the hills formed by outcrops of the Sherwood Sandstone Group (including Grinshill and its neighbours). These white sandstones provide the only example of a Shropshire building stone type that has been used county-wide and beyond.

Bedrock Geology Map



Derived from BGS digital geological mapping at 1:625,000 scale, British Geological Survey © UKRI. All rights reserved

Key

Building stone sources

Bedrock geology

Lias Group — mudstone, siltstone, limestone and sandstone

Triassic Rocks — mudstone, siltstone and sandstone

Triassic Rocks — sandstone and conglomerate, interbedded

Permian Rocks — sandstone and conglomerate, interbedded

Warwickshire Group — mudstone, siltstone, sandstone, coal, ironstone and ferricrete

Warwickshire Group — silstone and sandstone with subordinate mudstone

Pennine Middle Coal Measures Formation and South Wales Middle Coal Measures Formation — mudstone, siltstone, sandstone, coal, ironstone and ferricrete

Pennine Lower Coal Measures Formation and South Wales Lower Coal Measures Formation — mudstone, siltstone, sandstone, coal, ironstone and ferricrete

Unnamed Igneous Intrusion, Westphalian — microgabbro

Millstone Grit Group — mudstone, siltstone and sandstone

Dinantian Rocks — limestone with subordinate sandstone and argillaceous rocks

Dinantian Rocks — sandstone, limestone and argillaceous rocks

Carboniferous Extrusive Rocks — mafic lava

Upper Devonian Rocks — sandstone and conglomerate, interbedded

Lower Devonian Rocks — mudstone, siltstone and sandstone

Lower Devonian Rocks — sandstone and conglomerate, interbedded

Pridoli Rocks — mudstone, siltstone and sandstone

Pridoli Rocks — sandstone and conglomerate, interbedded

Ludlow Rocks — mudstone, siltstone and sandstone

Wenlock Rocks — mudstone, siltstone and sandstone

Llandovery Rocks — mudstone, siltstone and sandstone

Llandovery Rocks — sandstone and conglomerate, interbedded

Silurian Rocks — limestone, mudstone and calcareous mudstone

Ashgill Rocks — mudstone, siltstone and sandstone

Caradoc Rocks — mudstone, siltstone and sandstone

Llanvirn Rocks — mudstone, siltstone and sandstone

Ordovician Extrusive Rocks — felsic tuff

Ordovician Extrusive Rocks — mafic tuff

Arenig Rocks — mudstone, siltstone and sandstone

Tremadoc Rocks — mudstone, siltstone and sandstone

Unnamed Igneous Intrusion, Ordovician to Silurian — felsic rock

Lower Cambrian Rocks — mudstone, siltstone and sandstone

Neoproterozoic Extrusive Rocks — felsic lava

Neoproterozoic Extrusive Rocks — mafic lava and mafic tuff

Neoproterozoic Extrusive Rocks — lava and tuff

Unnamed Igneous Intrusion Neoproterozoic — felsic rock

Neoproterozoic Metasedimentary Rocks — mudstone, sandstone and conglomerate

Neoproterozoic Metamorphic Rocks — metalimestone

Stratigraphic Table

Geological timescale	Group		Formation	Building stone	Page
Quaternary	various		various	Tufa Quaternary boulders and pebbles	44 44
Jurassic	Lias Group		various		
Triassic	Penarth Group and Mercia Mudstone Group		various		
	Sherwood Sandstone Group		Helsby Sandstone Formation	Helsby Sandstone (Keuper Sandstone) Grinshill Stone Shelvock Stone, Nesscliffe Stone	44 42 40
			Wilmslow Sandstone Formation	Wilmslow Sandstone	39
			Chester Formation (formerly Kidderminster Formation)	Kidderminster Conglomerate	38
Permian	New Red Sandstone Supergroup		Bridgnorth Sandstone Formation	Bridgnorth Sandstone	38
			Alberbury Breccia Formation	Alberbury Breccia (Cardeston Stone)	36
Upper Carboniferous	not defined		unnamed microgabbro sill	Dhustone (Dolerite)	34
	Warwickshire Group		Salop Formation	Alveley Sandstone Keele Beds	34 33
			Halesowen Formation	Coed-yr-Allt Sandstone Highley Sandstone	32 31
			Etruria Formation		
	Pennine Coal Measures Group		Pennine Middle Formation Lower Coal Measures Formation	Big Flint Rock, Coal Measures Sandstone	30
	Millstone Grit Group		Cefn-y-Fedw Formation, Cornbrook Sandstone Formation	Cornbrook Sandstone, Cefn-y-Fedw Sandstone	29
Lower Carboniferous	Clwyd Limestone Group		various	Carboniferous Limestone Oreton Limestone	29 28
	Peak Limestone Group				
	Pembroke Limestone Group		Oreton Limestone Formation		
Devonian	Old Red Sandstone Supergroup including Downton and Ditton subgroups and Farlow Sandstone Group sub groups		Farlow Sandstone Formation	Farlow Sandstone	28
			St Maughans Formation	Cornstone, St Maughans Sandstone	27
Silurian			Raglan Mudstone Formation	Holdgate Sandstone	27
			Downton Castle Sandstone Formation	Downton Castle Sandstone	26
	Western Outcrop	Ludlow Series	Cefn Einion Formation	Cefn Einion Sandstone	25
			Bailey Hill Formation	Bailey Hill Sandstone	25
		Wenlock Series	Aston Mudstone Formation	Egdton Limestone	25
			Bromsleymill Shale Formation		
	Eastern Outcrop (Midland Shelf Platform)	Ludlow Series	Whitcliffe Formation	Upper Ludlow Shales, Whitcliffe Stone (Whitcliffe Rock)	24
			Aymestry Limestone Formation	Aymestry Limestone	23
		Wenlock Series	Much Wenlock Limestone Formation	Wenlock Limestone	22
		Llandovery Series	Pentamerus Sandstone Formation	Kenley Grit Pentamerus Sandstone (Government Rock)	22 20

Geological timescale		Group	Formation	Building stone	Page
Ordovician	Type Caradoc area (Eastern outcrop)	Caradoc	Onny Shales Formation		
			Acton Scott Formation	Cardington Stone Acton Scott Limestone	19 18
			Cheney Longville Formation	Cheney Longville Flags	18
			Alternata Limestone Formation	Alternata Limestone	17
			Chatwall Sandstone Formation	Horderley Sandstone Soudley Sandstone Chatwall Flags, Chatwall Sandstone	17 16 15
			Hoar Edge Grit Formation	Harnage Stone slates Coston Grit Hoar Edge Grit	14 14 13
	Shelve Inlier area (Western outcrop)		Pontesford Shales Formation		
		Llanvirn	various (including the Stapeley Volcanic and Weston Flags formations)	Whittery Volcanics, Weston Flags, Spy Wood Sandstone, Meadtown Beds, Stapeley Volcanics	11
		Arenig	Mytton Flags Formation	Mytton Flags	11
			Stiperstones Quartzite Formation	Stiperstones Quartzite	10
		Tremadoc	Shineton Shale Formation		
Cambrian		not defined	Upper and Lower Comley Sandstone formations	Comley Sandstone	9
			Wrekin Quartzite Formation	Wrekin Quartzite	9
Precambrian		Wentnor Group	Bayston-Oakswood Formation	Haughmond Stone, Bayston Stone, Darnford Conglomerate, Stanbatch Conglomerate	9
		Stretton Group	Burway Formation	Buxton Rock	8
		Uriconian Group	various	Ragleth Tuff, Uriconian Volcanic Rocks	6

Building stones in geological order from the oldest through to the youngest layers

Note: the stratigraphic sequence has been simplified to include only the formations that yield building stones.

2 Local Building Stones

Precambrian

Uriconian Group, various formations

Ragleth Tuff, Uriconian Volcanic Rocks

The Uriconian volcanic rocks of Precambrian age underlie some of the county's most conspicuous (if not the highest) hills. They form a broken line running south-westwards from The Ercall and The Wrekin through the hills defining the east of the Stretton valley (The Lawley, Caer Caradoc, and on to Ragleth Hill), and then sporadically to Wart Hill. These steep hogback hills are sparsely populated, however, and although the rock has been occasionally quarried for walls (Ragleth Tuffs are seen in Church Stretton and Little Stretton, for example) and even less often for buildings, the Uriconian has very little impact on the built landscape.

Figure 1: Village buildings and walls, Little Stretton. Ragleth Tuffs and Stretton Shale.

Longmyndian Supergroup

The Longmyndian sedimentary rocks underlie the hill from which they take their name: Long Mynd. Their outcrop continues north-eastwards from here and gives rise to an intermittent line of hills, Cothercott Hill to Lyth Hill and Bayston Hill, reappearing north of the Severn at Haughmond Hill.

The supergroup includes building stones in the Burway and Bayston-Oakswood formations.

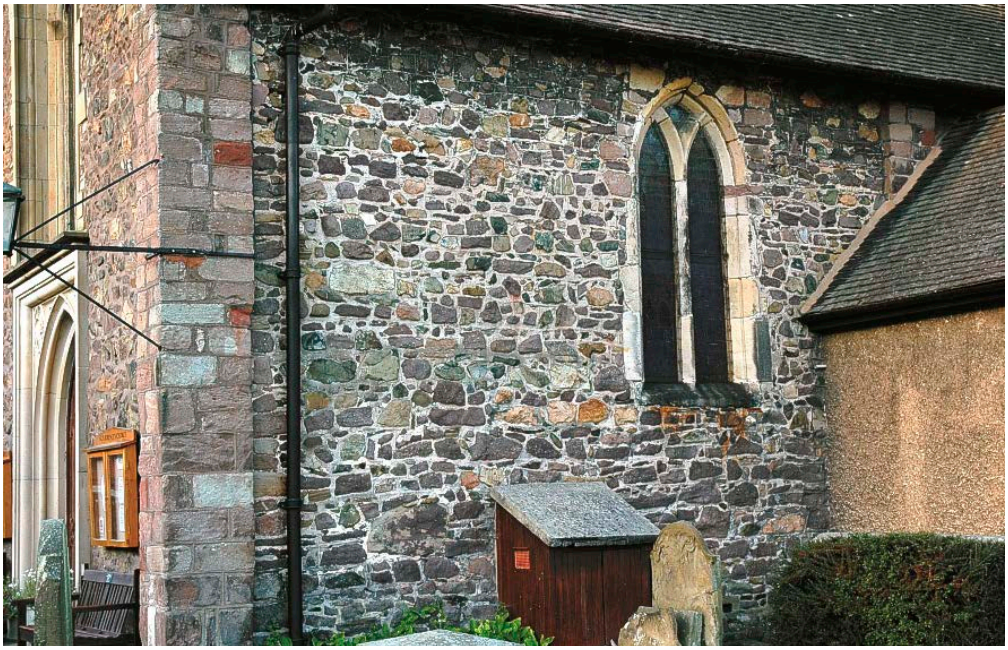


Figure 2: St Laurence's Church, Church Stretton. Longmyndian stones, with quoins of Carboniferous and Permo-Triassic sandstone. North transept is Soudley Sandstone.

Figure 3: North door, St Laurence's Church, Church Stretton. Longmydian stones above the arch. The arch is Carboniferous and/or Permo-Triassic Sandstone.

Figure 4: Wall of St Laurence's Church, Church Stretton. Longmyndian stones including fissile mudstones, blocks of Buxton Rock and a boulder of veined dolerite.

Figure 5: Wall of St Laurence's Church, Church Stretton. Longmyndian conglomerate.

Stretton Group, Burway Formation

Buxton Rock

Of the eastern Longmyndian, only the distinctive beds of volcanic tuff known as Buxton Rock have been quarried for building, specifically at All Stretton and to a lesser extent in the lower parts of Carding Mill Valley and at Ashes Hollow. Buxton Rock is a fine-grained, greenish-grey, silicified tuff, naturally jointed such that blocks tend to break into a roughly tetrahedral shape. Joint planes are characteristically stained black. Its use is restricted to the Stretton valley area, where it is incorporated into walls and a few buildings, especially near the quarry at All Stretton. The latest recorded building employing Buxton Rock, dating to 1926, is a house adjacent to this quarry.

Figure 6: Cottages, Church Street, Church Stretton. Buxton Rock

Wentnor Group, Bayston-Oakwood Formation

Haughmond Stone, Bayston Stone, Darnford Conglomerate, Stanbatch Conglomerate

The coarser beds of the western Longmyndian, their outcrop running just west of the summit axis of the Long Mynd from Asterton through Bayston Hill to Haughmond Hill, are frequently used as a building stone. The coarse, sometimes conglomeratic, purple sandstone is used in all settlements located close to its outcrop, notably in the cluster of houses in the hamlet of Bridges, in Cothercott and Lyth Hill, and between Bayston Hill and Haughmond Abbey (at the foot of Haughmond Hill). It also features in St Laurence's Church at Church Stretton. This is, perhaps, the result of ownership issues during medieval times when Haughmond Abbey had land at Cothercott, although the more readily accessible source of building stone from the Bayston-Oakswood Formation may have been Lyth Hill or Haughmond itself, via the Roman road (Watling Street).

Cambrian

Group not defined, Wrekin Quartzite Formation

Wrekin Quartzite, Comley Sandstone

Although very narrow outcrops of Wrekin Quartzite and Comley Sandstone occur to the east of The Wrekin and The Ercall, east of The Lawley, and at Comley beneath Caer Caradoc, there is only a handful of properties in the immediate vicinity of these outcrops, and neither stone has been used for building to any significant extent. As is typical of Shropshire, however, an isolated outcrop of Wrekin Quartzite near Stone Acton, east of Cardington, has been exploited for field walls and farm buildings, as seen at Stone Acton.

Figure 7: Farm buildings, Stone Acton. Wrekin Quartzite.

Ordovician (Shelve inilier area, western outcrop)

Arenig Group, Stiperstones Quartzite Formation

Stiperstones Quartzite

The pure white quartzitic sandstones of the Stiperstones Quartzite form the craggy ridge of the Stiperstones. The location of these very hard sandstones, far removed from most settlements, restricted their use as building stone, however. Exceptions include the Victorian school (now The Bog Visitor Centre), a few mine buildings and scattered cottages at The Bog.

Figure 8: The Bog Visitor Centre, Stiperstones. Stiperstones Quarzite.

Arenig Group, Mytton Flags Formation

Mytton Flags

Most settlements on the western flank of the Stiperstones, from The Bog to Snailbeach, used the well-laminated, dark grey Mytton Flags, which were more easily worked than Stiperstones Quartzite. The stone often weathers to a ferruginous brown colour.

Llanvirn Group, various formations including the Stapeley Volcanic Formation, Weston Flags Formation

Whittery Volcanics, Weston Flags, Spy Wood Sandstone, Meadtown Beds, Stapeley Volcanics

Further west, in the Shelve inlier (a semicircular outcrop of Ordovician rocks, with its base along the Stiperstones ridge), is a sequence of mudstones, sandstones and volcanic rocks (all now folded) that were deposited under deepening marine conditions.

The Stapeley Volcanics, Meadowtown Beds, Spy Wood Sandstone, Weston Flags and Whittery Volcanics were all put to use in the construction of local vernacular buildings and mine structures along their north-east to south-west trending outcrops. In appearance, all of these grey, medium to fine-grained rocks are superficially similar and, consequently, the likely stone source is assumed to be the closest quarry.

The Whittery Volcanics are blockier than the others and have a more distinctive pale grey-green colour. They are used extensively in the village of Chirbury, in most buildings from the church to farm outbuildings and in field walls. Most of the stones came from a large quarry on the edge of Marrington Dingle (now infilled), owned and operated by the Powis Castle estate.

Figure 9: St Michael's Church, Chirbury. Whittery Volcanics.

Figure 10: Wall, Chirbury. Whittery Volcanics.

Figure 11: Cottage, Chirbury. Whittery Volcanics.

Weston Flags were used particularly at the southern end of the Shelve inlier around Priest Weston, where one of the largest quarries in the district was once worked. The medieval village of Shelve employed a dark grey crystalline intrusive rock in the construction of its surviving church and a few farm buildings.

Figure 12: Miners Arms, Priest Westone. Weston Flags.

Ordovician (Type Caradoc area, eastern outcrop)

South and east of the Long Mynd, the Ordovician sea did not transgress over the land until much later in the Ordovician. When it did, a series of alternating shallow water sands and muds were laid down. The resulting sandstones, which are suitable for building, form narrow ridges, separated by vales underlain by the less resistant mudstones.

Caradoc Group, Hoar Edge Grit Formation

Hoar Edge Grit

The basal bed of the Caradocian is the Hoar Edge Grit, which forms a prominent ridge east of The Lawley. Although coarse grained, this sandstone was a good workable freestone that travelled north along the Roman road to Wroxeter (the Roman city of Viroconium) and south to Church Stretton, where it was used in St Laurence's Church tower. It also served the immediate surrounding area and can be seen in Langley Chapel near Acton Burnell, for example. For architectural quality and strength, Hoar Edge Grit was sometimes preferred to the nearby Chatwall Sandstone, as seen in Chatwall Hall.

Figure 13: Tower, St Laurence Church, Church Stretton. Hoar Edge Grit.

Figure 14: Langley Chapel, near Acton Burnell. Hoar Edge Grit roof slates.

Figure 15: Chatwall Hall, Cardington. Hoar Edge Grit.

Coston Grit

The Coston Grit, at the southern extremity of the Hoar Edge Grit outcrop, varies in nature between a conglomerate and a medium-grained sandstone, often showing ferruginous weathering. It has been quarried and used locally, giving a remarkable uniformity to the buildings of the compact hamlet of Coston. It also forms much of the older part of Aston-on-Clun.

Harnage Stone slates

The uppermost beds of the Hoar Edge Grit are, in places, rendered fissile enough (by virtue of the presence of concentrations of a compacted brachiopod shell, Orthis subquadrata) to serve as a roofing material. Evidence of the use of these Harnage Stone slates (equivalents of the Subquadrata Limestone) has been found from Stokesay Castle to the Abbot's House at Much Wenlock, and in medieval Shrewsbury. The main quarries are in the summit of the ridge running through Lodge Hill and Bull Wood above Acton Burnell. Harnage Stone slates were most recently quarried from this area for the re-roofing of the Church of St Michael and All Angels at Pitchford Hall.

Figure 16: Church of St Michael and All Angels, Pitchford. Harnage Stone slate roof.

Caradoc Group, Chatwall Sandstone Formation

Chatwall Flags, Chatwall Sandstone

Overlying the Hoar Edge Grit are the Harnage Shales (developing a shallow vale), which are, in turn, succeeded by the Chatwall Flags. These yellowish-brown, medium-grained sandstones with prominent bedding planes were used in the past for roofing and flooring. They grade upwards into the Chatwall Sandstone, which forms another pronounced ridge. Chatwall Sandstone (and its more southerly equivalents described below) is the most widespread of the south Shropshire building stones, and one of the few that has been used beyond the area immediately surrounding its quarries. Its main and unmistakable characteristic is its striped appearance, arising from the alternation of purple and brown to olive green layers. These stripes are thought to be the result of diagenetic alteration, and generally follow the bedding. This colour-related striping is also evident in cross-bedded sandstones and makes it easy to detect when a block of the stone has been face-bedded. This usually leads to early spalling of the block face. Sometimes the striping is concentric, creating curved patterns.

Strictly, the Chatwall Sandstone is used for the stone originating from the more northerly part of the outcrop, which forms the narrow ridge running from the hamlet of Chatwall, south and terminating abruptly against the Hill End fault west of Cardington. It is noticeably banded here but tends to have green and brown as opposed to purple stripes. Use of Chatwall Sandstone from this northern outcrop is largely restricted to the few farms sitting on the Chatwall ridge itself, but the stone also sees mixed use in an easterly direction towards Wenlock Edge.

Slabs of Chatwall Sandstone are commonly used as grave stones, but the characteristics of the stone almost inevitably led to any engravings being erased over time.

Soudley Sandstone

The Chatwall Sandstone appears again in a much faulted outcrop on the southern flank of Hope Bowdler Hill, where it is known as Soudley Sandstone. The proportion of green to purple stripes tends to be more equal in Soudley Sandstone, although they are not particularly even. The old quarries at Soudley are extensive, but long since abandoned. They supplied stone to most of the hamlets and small villages to the east (on the edge of Apedale), including Wall-under-Heywood, Ticklerton and Soudley itself, and just to the north at Hope Bowdler.

The sandstone was also taken west to Church Stretton, where it is noticeable in many buildings, from St Laurence's Church (14th and 19th-century parts) to 18th and 19th-century cottages (particularly as quoins and other dressing stones) and the original station house of *c* 1865.

Figure 17: Station house, Church Stretton. Soudley Sandstone.

Figure 18: St Laurence's Church, Church Stretton. Soudley Sandstone.

Horderley Sandstone

To the south-west of the Church Stretton Fault, the Chatwall Sandstone is picked up among the tumble of hills flanking the south-eastern end of the Long Mynd and running down through Glenburrell to Sibdon Carwood. Here, it is called Horderley Sandstone, and sometimes it has a higher proportion of purple stripes, although it is still characteristically well banded. The main quarries in this southern section were near Glenburrell (the probable source for the linear village of Wistanstow) and at Long Lane. The latter was the likely source for the hamlets of Halford and Newton, which pre-date the 19th-century new town of Craven Arms. Craven Arms itself has a few terraced houses of stone and, until recently, an extensive complex of railway warehouse buildings constructed, in part, of stone. Wistanstow village is estimated to be about 85 per cent Horderley Sandstone for the pre-1900 buildings, including the cottages, farms and walls that spread out along the Roman road.

Figure 19: Wistanstow village. Horderley Sandstone.

Caradoc Group, Alternata Limestone Formation

Alternata Limestone

In the vicinity of Soudley and along the Wilderness ridge, the Chatwall Sandstone passes upwards into a distinctively fossiliferous limestone called the Alternata Limestone. This is packed with flattened shells of the brachiopod Heterorthis alternata. Like the Subquadrata Limestone (Harnage Stone Slates) of the Hoar Edge Grit, the Alternata Limestone was one of the few locally produced stones used for roofing. This was due to its strength and ease of splitting along the fossil-encrusted bedding planes.

Caradoc Group, Cheney Longville Formation

Cheney Longville Flags

Elsewhere, the beds above the Chatwall Sandstone are yellowish-brown siltstones and fine-grained sandstones, sometimes with micaceous partings. They are known as the Cheney Longville Flags. As their name suggests, these were used as flooring flagstones and, less frequently, as roofing flags. Across the outcrop, they were occasionally used in farm buildings, most noticeably in the hamlet of Cheney Longville itself. However, in general, the better quality Chatwall sandstones were close at hand and were the preferred stone.

Caradoc Group, Acton Scott Formation

Generally, deeper water depositional conditions are indicated by the grey, silty mudstones of the Acton Scott Formation. There are principally two lithological variants within this formation, both of which are of interest as building stones: Acton Scott Limestone and Cardington Stone.

Acton Scott Limestone

This is a development of hard, calcareous siltstone and sandstone, sufficiently resistant to form a small plateau of no more than 3km^2, which projects out into Apedale. This plateau is the site of a Roman estate, as indicated by the discovery of a Roman villa at its centre. The 18th-century Acton Scott estate originally dominated the area of the outcrop, and many structures in the widely spread village, from the church to farm walls, make use of this locally quarried stone. The Church of St Margaret at Acton Scott exhibits all of the variants of Acton Scott Limestone, from the brownish calcareous siltstone of the nave to squared blocks of purer limestone in the tower.

Figure 20: Stables, Acton Scott estate. Acton Scott Limestone.

Figure 21: St Margaret's Church, Acton Scott. Acton Scott Limestone.

Cardington Stone

The Acton Scott Formation includes soft, fine-grained sandstones, which are restricted to the vicinity of Cardington. Evidence of their use comes from several buildings in Cardington itself and the adjacent hamlet of Gretton. There is, however, no sign on the ground today of the quarry source of Cardington Stone.

Figure 22: Former estate cottage, Clun Road, Aston on Clun. Siltstone.

Silurian

The Silurian formations outcrop in two distinct series of groups: the Eastern Outcrop or Midland Shelf Platform and the Western Outcrop.

Silurian Eastern Outcrop

The eastern outcrop of Silurian strata is characterised by an undulating set of ridges and vales, representing very narrow outcrops of rock comprising the coarse basal Llandovery beds of Pentamerus Sandstone and Kenley Grit, which pass upwards through the Wenlock Shales into the very distinctive Wenlock Limestone. Above this were deposited various formations of Ludlow age. Topographically, the most conspicuous of these is the Aymestry Limestone Formation, with the Lower Ludlow Shales Group below and the Upper Ludlow Shales Group above.

Llandovery Series, Pentamerus Sandstone Formation

Pentamerus Sandstone (Government Rock)

Pentamerus Sandstone is a distinctive, highly fossiliferous, grey-brown sandstone containing Pentamerus brachiopods. When broken, the shells reveal a broad arrow mark-like profile on the surface, which is reminiscent of the old government benchmark symbol, hence its local name of Government Rock. In terms of building stones, this formation is the most important and distinctive of those found at the south-west end of the Long Mynd.

The outcrop on the flanks of the Long Mynd was easily accessible, and the stone itself was found to be highly suitable for building in the villages of Norbury, Wentnor and More. The line of shallow pits marking the overgrown quarries is still noticeable, especially to the south of Norbury, and the walls are so much a feature of the landscape that they prompted a restoration project supported by the Shropshire Hills Area of Outstanding Natural Beauty.

Pentamerus Sandstone can also be found in a few isolated outcrops on the Ordovician rocks located west of the Stiperstones, notably close to the hamlet known as The Bog and further north near Minsterley. Both sources, although very small, have been preferentially quarried for the stone.

At The Bog, the stone was used for many cottages around the school, most of which are now demolished, although Welsh Row remains. East of the Long Mynd, in Apedale, the Pentamerus Sandstone overlies the Ordovician rocks, but it is very poorly exposed today. It has been identified in a few older buildings, such as the Church of St Peter at Rushbury. However, like the sandy Cardington Stone of the Acton Scott Formation, its quarry provenance remains a mystery. Cottages, farm buildings, churches and field walls are commonly constructed of Pentamerus Sandstone in Wentnor, Norbury and More.

Figure 23: Cottages, Wentnor. Pentamerus Sandstone.

Figure 24: Field walls, Wentnor. Pentamerus Sandstone.

Figure 25: Brachiopod shells. Pentamerus Sandstone.

Kenley Grit

The advancing Silurian sea firstly deposited a mixture of conglomerates, grits and sandstones, collectively referred to as the Kenley Grit Member. Both colour and texture are very variable. The appearance of the conglomerate depends partly on the nature of the contained pebbles, which vary from white quartz to purple Precambrian clasts. The grits and coarse sandstones weather to a deep orange or brown in some walls. They are used for buildings of all types, and frequently for boundary walls, in the settlements located on or close to their narrow outcrop, from Plaish to Harley.

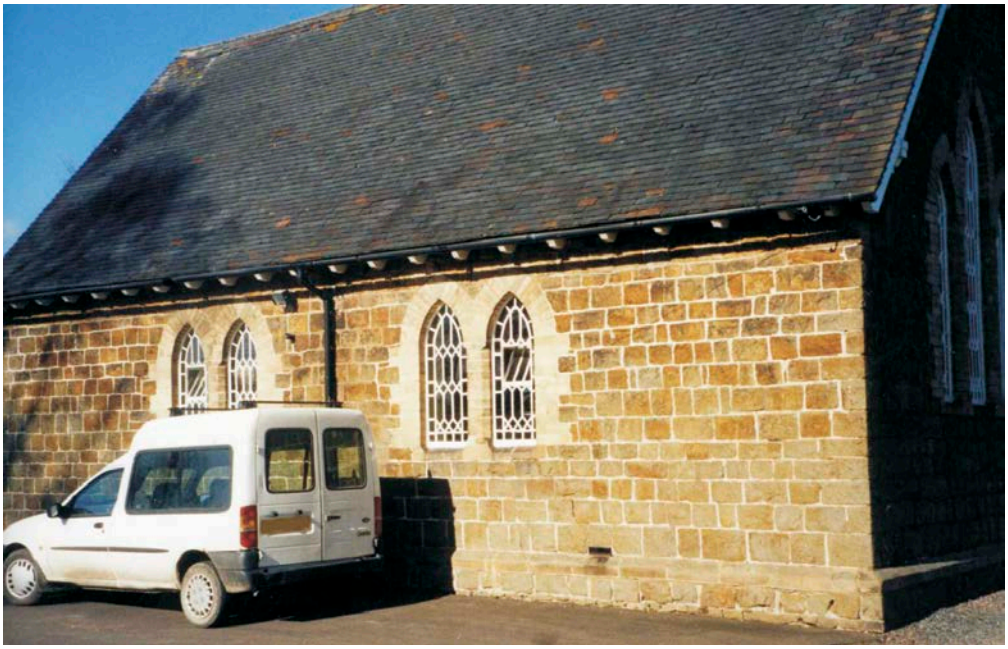


Figure 26: Harley Village Hall. Kenley Grit.

Wenlock Series, Much Wenlock Limestone Formation

Wenlock Limestone

One of the best-known features of the south Shropshire Hills is Wenlock Edge, a clearly defined escarpment marking the gently dipping outcrop of the Wenlock Limestone. This highly fossiliferous limestone, pale grey in colour, crops out just north of the Severn at Ironbridge, on Lincoln Hill. It appears south of the river on Benthall Edge, then runs south-westwards for 24km to Craven Arms as an almost unbroken escarpment.

As a building stone, Wenlock Limestone stamps its character most firmly on the town of Much Wenlock, where it is used conspicuously for buildings ranging from the church and parts of the priory to the humble shops and cottages. The tower and south wall of the nave of Holy Trinity Church at Much Wenlock are constructed mainly of Wenlock Limestone, but the large south porch and the north and east walls are predominantly of Pennine Coal Measures sandstones. Buildings in the town centre are also constructed of Wenlock Limestone.

Wenlock Limestone itself is a hard and rough stone, rarely used as anything other than coursed rubble. However, it is well bedded, so can be split into

Figure 27: Holy Trinity Church, Much Wenlock. Wenlock Limestone.

relatively thin blocks. It nearly always requires either brick or sandstone to be used for quoins, sills and dressings. There are few settlements south-west of Much Wenlock on Wenlock Edge itself, although those that there are, such as Easthope and Wilderhope Manor, use the Wenlock Limestone.

Figure 28: Cottages, Much Wenlock. Wenlock Limestone.

Ludlow Series, Aymestry Limestone Formation

Aymestry Limestone

The outcrop of Wenlock Limestone is rarely more than 0.8km wide. It dips gently beneath the Lower Ludlow Shales, and these in turn beneath a parallel ridge of the Aymestry Limestone. Generally an impure limestone, the rock from this ridge and the overlying siltstones of the Upper Ludlow Shales (Group) have been quarried intermittently for buildings all the way from the outskirts of Much Wenlock, through Craven Arms and into north Herefordshire near Leintwardine; the outcrop can then be traced back northwards to Ludlow. The Aymestry Limestone is characterised by the large, almost spherical brachiopod known as Kirkidium knightii, which occasionally occurs as solid banks of shells, as at the View Edge outcrop above Stokesay. The quarries here more likely provided stone for lime burning than for building.

Ludlow Series, Whitcliffe Formation

Upper Ludlow Shales, Whitcliffe Stone (Whitcliffe Rock)

As the Aymestry Limestone outcrop is traced south-westwards, it becomes increasingly sandy and silty, passing upwards into the calcareous siltstones of the Whitcliffe Formation. The latter have been extensively quarried around Whitcliffe itself, on the banks of the River Teme facing Ludlow. Many of Ludlow's older buildings (dating from the time of the castle onwards) are built of Whitcliffe Stone. Much of it is rather soft, but well-laminated, and grey to light brown in colour.

Lenses of highly fossiliferous rock, representing local accumulations of small brachiopod shells, are often present and many of these are decalcified. The rock is fairly easily eroded. However, it was readily available and split easily along bedding planes to provide roughly rectangular blocks that, with appropriate selection, could be coursed.

These calcareous, pale brown siltstones also crop out on the north flank of Corvedale (the dip slope of the Aymestry Limestone), giving a remarkable consistency to the appearance of villages from Diddlebury, through Munslow, Shipton and Brockton, to Bourton. Cottages within these villages often have a quarry in their back gardens.

Figure 29: Chapel House, Dinham, Ludlow. Whitcliffe Stone.

Silurian Western Outcrop

West of the Long Mynd, deeper marine depositional conditions saw the steady accumulation of fine-grained sediments. These are interspersed with coarser turbidites and, occasionally, more calcareous strata and thin sandstones. In south-west Shropshire and on the Long Mountain west of the Shelve inlier, the buildings reflect the local geology, but they tend to be composed of indistinguishable grey mudstones and calcareous siltstones, which are often well laminated. These lithologies are, nonetheless, suitable for all types of vernacular building.

It can be assumed that most vernacular stone was quarried only a very short distance from its place of use. This sparsely populated area is dotted with isolated stone farmhouses and very small villages or hamlets, and quarries in the hillsides can be seen close to most of these buildings/settlements.

Wenlock Series, Bromleysmill Shale Formation, Aston Mudstone Formation

Egdton Limestone

West of the Church Stretton Fault and south of the Long Mynd, the deep water equivalents of the Wenlock Shales and Wenlock Limestone (which are such a feature to the east of the fault) are poorly exposed shales and mudstones and rather silty limestones. With this area being close to the superior Horderley Sandstone quarries near Glenburrell, the Edgton Limestone has been very little exploited for building purposes. More useful for their availability, rather than for their intrinsic qualities, are the Ludlow Formation strata, which occur on the eastern side of the fault and extend westwards across the Clun Forest to the county boundary.

Ludlow Series, Bailey Hill Formation, Cefn Einion Formation

Bailey Hill Sandstone, Cefn Einion Sandstone

As the Silurian sea deepened, so the shallow water deposits were succeeded to the west of the Church Stretton Fault by considerable thicknesses of assorted sediments: dark grey mudstones, coarser grained sandstones and layers of volcanic ash. This ultimately gave rise to a sequence of hard but well-laminated mudstones and siltstones, with occasional sandstones and ash bands: the Bailey Hill Formation and Cefn Einion Formation.

These formations provided the building stone for farm buildings and cottages located on the Shropshire side of the Long Mountain syncline, between the ridge of the Long Mountain and the Shelve inlier, and into the westward bulge of the county referred to as the Clun Forest. This has resulted in a high proportion of grey stone buildings in the small hamlets and isolated farmhouses of this area, and in the older parts of Clun. Here, the castle ruins stand guard over a time-warped village in which about 85 per cent of the pre-1900 houses are stone built. The source of this stone can be traced to large quarries, such as those around the Rock of Woolbury.

Figure 30: Cottages, Clun. Siltstone frontages.

Old Red Sandstone Supergroup

The ‘traditional’ local stratigraphy recognised the Ludlow Bone Bed at the top of the Upper Ludlow Shales as the boundary between Silurian and Devonian periods. However, advancements in our knowledge have resulted in the reassignment of a considerable thickness of rock above the Bone Bed that was previously regarded as the Devonian. The Old Red Sandstone is now known to include significant thicknesses of Silurian strata.

Old Red Sandstone Supergroup, Downton Castle Sandstone Formation

Downton Castle Sandstone

The Downton Castle Sandstone Formation, comprising mainly yellow, fine-grained, cross-bedded sandstones, is succeeded in Shropshire by the Raglan Mudstone Formation, which is represented rather more by red marls, with only intermittent sandstones and cornstones (nodular limestones). These beds crop out around Brown Clee Hill and extend up to the level of the first conspicuous platform, representing the Bishop’s Frome Limestone Member in the next formation, the Raglan Mudtone Formation.

Cottages at Corfton in Corvedale are constructed of Downton Castle Sandstone, with garden walling of Aymestry Limestone.

Figure 31: Cottages, Corfton. Downtown Castle Sandstone.

Old Red Sandstone Supergroup, Raglan Mudstone Formation

Holdgate Sandstone

Around the Clee Hills, local low topographical ridges of Old Red Sandstone have been exploited. These include the Holdgate Sandstone, which forms a ridge between Holdgate and Stanton Long. The sandstones are medium grained and vary in colour from purple to red to green, depending on the extent of oxidation or the oxidation state of the iron present. The remaining 14th-century tower at Holdgate Castle is incorporated into the back of Holdgate Hall, and is constructed of red and green Holdgate Sandstone.

Figure 32: Holdgate Hall. Holdgate Sandstone.

Devonian

Two formations in the Old Red Sandstone Supergroup are early Devonian.

Old Red Sandstone Supergroup, St Maughans Formation

Cornstone, St Maughans Sandstone

Overlying the Raglan Mudstone Formation is the St Maughans Formation, a mixture of red marls and bands of red and green sandstones. Other lithologies present include thin limestone and cornstone bands. Surrounding Brown Clee Hill and Titterstone Clee Hill is a broad swathe of villages, hamlets and isolated farms. Sometimes, the buildings of red to green, strongly laminated, fine-grained sandstones include a high proportion of the limestone or cornstone. Cornstones can weather badly, but have, nonetheless, been used around Brown Clee Hill at places such as Clee St Margaret and Neenton.

Old Red Sandstone Aupergroup, Farlow Sandstone Formation

Farlow Sandstone

Higher in the Old Red Sandstone succession, the sandstones became coarser and strongly cross-bedded. Most, however, were so far removed from habitation that they were not used for building, except possibly to some extent to the east of Titterstone Clee where the Brownstones crop out. The Farlow Sandstone Group has an extremely restricted outcrop at the north-east end of Titterstone Clee, and it is used in the village of Farlow and its immediate vicinity.

Figure 33: School and cottage, Farlow. Sandstone and Oreton Limestone.

Carboniferous

Diminished relief and rising sea levels led to a change of depositional environment during Carboniferous times.

Pembroke Limestone Group, Oreton Limestone Formation

Oreton Limestone

The southern outcrop of Carboniferous Limestone, known as the Oreton Limestone, is found in very narrow bands at the north-east and south-west ends of Titterstone Clee Hill. Some of the Oreton Limestone is ooidal and it was occasionally used for ornamental purposes as Oreton Marble. Farlow village buildings reflect their position close to the boundary between Farlow Sandstone and Oreton Limestone by using both.

Peak Limestone Group, Clywd Limestone Group, various formations

Carboniferous Limestone

There has been very localised use of the typical white or pale grey, massive, fossiliferous Carboniferous Limestone in the area west of Oswestry, and also around Lilleshall in east Shropshire. Llanymynech village uses Carboniferous Limestone from the adjacent quarries to build in both ashlar and rubblestone.

Figure 34: Llanymynech village. Carboniferous Limestone.

Millstone Grit Group, Cefn-y-Fedw Formation, Cornbrook Sandstone Formation

Cornbrook Sandstone, Cefn-y-Fedw Sandstone

Sandstones broadly equivalent to those of the Millstone Grit Group succeed the Carboniferous limestones. Around Oswestry, the Carboniferous Limestone of the Llanymynech area is overlain by the Cefn-y-Fedw Sandstone of Sweeney Mountain, whereas around Titterstone Clee, the Oreton Limestone is overlain by developments of Cornbrook Sandstone. Although the outcrops are small, they have been exploited for the local vernacular architecture. They comprise pale grey to light brown coarse sandstones, sometimes weathering to a darker brown colour with ferruginous staining.

Figure 35: Llanyblodwel Bridge. Cefn-Y-Fedw Sandstone.

Pennine Coal Measures Group, Pennine Middle Formation, Lower Coal Measures Formation

Big Flint Rock, Coal Measures Sandstone

The Coal Measures sequence in Shropshire includes a number of beds of sandstone, which thin towards St George's, Telford. Their use as building stone, therefore, is intermittent and localised.

In the East Shropshire Coalfield, the Pennine Middle Coal Measures Formation includes the Big Flint Rock. This medium-grained sandstone has been used for buildings such as Buildwas Abbey near Ironbridge, and it is thought to be the facing stone of much of Wenlock Priory. The Anglo-Saxon chancel of St Giles' Church at Barrow church is constructed of Coal Measures Sandstone, probably also Big Flint Rock. It crops out in the Ironbridge Gorge, and in medieval times was quarried for building stone and transported along the River Severn.

As industry developed in the gorge, this and similar sandstones were used for many of the substantial industrial structures of the area, such as the Bedlam Furnaces at Ironbridge. In general, however, the coalfields show few surviving vernacular buildings in stone. The occurrence of suitable mudstones and clays within the Coal Measures sequence meant that brick making was always an industry linked to such coalfield areas. East Shropshire is no exception, with distinctive, locally produced, variably coloured bricks that date back to the earliest development of the larger industrial settlements in the coalfield.

Figure 36: Buildwas Abbey. Big Flint Rock.

Figure 37: St Giles' Church, Barrow. Coal Measures Sandstone.

Warwickshire Group, Halesowen Formation

Highley Sandstone

The Warwickshire Group succession extends along the Severn Valley from Bridgnorth to Highley, and at the latter locality includes the outcrop of the Highley Sandstone. This greenish-grey Halesowen Formation sandstone, generally medium grained and often cross-bedded, has been used extensively for building since the Middle Ages. Bridgnorth Bridge, rebuilt by Thomas Telford in 1796, is constructed of the green or slightly purple-tinged Highley Sandstone. The main quarry, Stanley Quarry, was close to the river and, eventually, the railway. This enabled distribution along the Severn Valley, for example to Worcester Cathedral in Worcestershire.

Figure 38: Bridgenorth Bridge. Highley Sandstone.

Figure 39: Tower, St George's Church, Pontesbury. Halesowen Formation Sandstone.

Figure 40: Westbury village. Halesowen Formation Sandstone.

Coed-yr-Allt Sandstone

The southerly extension of the North Wales Coalfield into the area north and west of Oswestry brings in the greenish-white Coed-yr-Allt beds of the Warwickshire Group. These are also present in the Hanwood area, extending from Westbury in the west, through Pontesbury and Hanwood to Shrewsbury. The sandstones have a variable iron content, which has led to marked colour variations from greenish-white to dark brown.

The 19th-century tower at St George's Church at Pontesbury is constructed of variegated Halesowen Formation sandstone from the Shrewsbury Coalfield. Westbury village shows a number of distinctively rusty brown sandstone buildings constructed of stone produced from the nearby quarries, which worked the Halesowen Formation strata.

Warwickshire Group, Salop Formation

Keele Beds

Keele Beds is the traditional name given to the Upper Carboniferous sandstones showing transitional characteristics between the grey sandstones of Coed-yr-Allt type and the fully continental sandstones of the Permian and Triassic. These predominantly red, sometimes tending to purple, medium to coarse-grained, well-laminated sandstones were the preferred stone for medieval Shrewsbury. They are seen in the older religious buildings, such as Shrewsbury Abbey and the Churches of St Mary, St Giles and St Julian.

Figure 41: St Julian's Church, Shrewsbury. Keele Beds sandstone and Grinshill Stone.

These sandstones were quarried just outside Shrewsbury town walls, which were used at The Quarry and also above the banks of the Severn at Belvidere and Preston Boats. Other quarries were located south-west of the town on the Longden Road at Redhill. The stone saw a resurgence of interest during the 19th century because its red colour was popular for neo-Gothic architecture, as seen in the chapel at Shrewsbury School, for example. Like St Julian's Church at Shrewsbury, St George's Church at Pontesbury shows a complete change in stone type from its 13th-century red sandstone chancel to its 19th-century grey Coed-yr-Allt type nave and tower. A similar pattern of use is seen in relation to the development of the Keele Beds south-east of the Bayston Hill ridge. Quarried in the vicinity of Pitchford and Acton Burnell, they were used for the 13th-century Acton Burnell Hall and the Church of St Mary, and also for the even older Church of St Michael and All angels at Pitchford. They were employed once again for the Victorian estate cottages at Acton Burnell.

Figure 42: Castle wall, Acton Burnell. Keele Beds sandstone.

Alveley Sandstone

The Salop Formation is characterised by a change to arid, 'red bed' sedimentation. The beds of this formation form a ridge down the east side of the River Severn, centred on the village of Alveley. The Alveley Sandstone is mainly bright red in colour and varies in grain size from fine to coarse. Some calcareous mudstone beds are present, as are some fairly micaceous, well-laminated sandstones. The most coherent beds of coarse-grained sandstone were exploited in the past for grinding stones. The Alveley Sandstone was also employed in the vicinity of the village of that name, and for building the core of the old settlement from the 17th century onwards.

Group not defined, unnamed microgabbro sill

Dhustone (Dolerite)

Late Carboniferous times saw the onset of another mountain building phase, the Variscan Orogeny. Although the epicentre was well south of Shropshire it had an important effect that has a bearing on the building stones of the Clee Hills. During the associated regional igneous activity, a dolerite sill was intruded into the Coal Measures succession. The dark blue-black-coloured

dolerite became known locally as the Dhustone. Due to its relative resistance to erosion, the Dhustone now caps the summits of the high level synclinal structures that form the Clee Hills at Brown Clee and Titterstone Clee.

Dhustone has the useful property of splitting both vertically and horizontally along the joints. These natural joint systems were of particular value in the production of roadstone setts (a major late 19th and early 20th-century industry), but also supported a localised building stone industry using the same roughly squared stone blocks. These distinctive, squared, dark stones, commonly weathering greenish-grey, are found in many buildings around the Clee Hills. However, their hard, crystalline structure makes the stones very cold and prone to condensation, so much so that locals say a Dhustone block in a sandstone wall can be detected by its dampness through plaster and wallpaper.

The use of Dhustone and Carboniferous sandstone in the area shows subtle local variations, dependent largely on geographical and other economic factors. Around the north end of Brown Clee, villages such as Ditton Priors and Cleobury North show extensive use of Dhustone. Around Titterstone Clee, it is far less conspicuous for building, and Farlow and Cornbrook sandstones were preferred, where available. This was despite the proximity of a far more extensive and more accessible Dhustone quarrying industry.

Figure 43: Houses, Cleobury North. Dhustone.

Figure 44: House wall, Cleobury North. Dhustone.

Permo-Triassic

The Permo-Triassic strata of Shropshire accumulated under desert and semi-arid conditions. The former gave rise to Shropshire's best building sandstone, Grinshill Stone, and, elsewhere, other suitable sandstones in the belt of low hills now protruding through the glacial overburden of the north Shropshire plain.

New Red Sandstone Supergroup, Alberbury Breccia Formation

Alberbury Breccia (Cardeston Stone)

The outcrop of this very distinctive rock forms a roughly crescentic topographic feature, about 5km long by a little more than 1km wide, which runs from Wattlesborough Heath, through Alberbury, to Cardeston. It comprises reworked angular to sub-rounded fragments of Carboniferous Limestone set within a red sandstone matrix. The overall effect, when seen in a building wall, is one of a striking, salmon pink-coloured rock.

The oldest known example of Alberbury Breccia use is the medieval castle, said to have been derelict by 1226. Thereafter, the stone seems to have been employed for all local vernacular building and boundary wall construction prior to about 1900. It was used in 2001 for the outer skin of the Alberbury village hall.

Alberbury Breccia can be regarded as an 'estate' stone, quarried and used predominantly on the Loton Park estate of the Leighton family, near Alberbury. However, Triassic New Red Sandstone was used for the repairs of St Michael's Church at Alberbury in 1845 and 1902.

Figure 45: Cottages, Loton Park Estate. Alberbury Breccia.

Figure 46: St Michael's Church, Alberbury. Alberbury Breccia and New Red Sandstone.

Figure 47: St Michael's Church, Alberbury. Alderbury Breccia.

New Red Sandstone Supergroup, Bridgnorth Sandstone Formation

Bridgnorth Sandstone

The Bridgnorth Sandstone, best seen in the area from which it takes its name, is an aeolian sandstone of strong red colour. It crops out along a corridor extending along the River Severn almost to Alveley and in a swathe east of Shrewsbury, running north-eastwards between High Ercall and Telford, with occasional outcrops as far north as Market Drayton. The outcrop overall is characterised by the man-made caves cut into it. Bridgnorth Sandstone was commonly used for buildings constructed in a Gothic architectural style. Blocks of the sandstone are often affected by miner bee borings.

Figure 48: Dudmaston Gate Lodge. Bridgnorth Sandstone.

Sherwood Sandstone Group, Chester Formation (formerly Kidderminster Formation)

Kidderminster Conglomerate

Unconformably overlying the Bridgnorth Sandstone, the Chester Formation (formerly Kidderminster Formation) continues the red bed succession. The Kidderminster Conglomerate, however, is a much coarser grained rock, representing flash flood deposition within a semi-arid sandy desert. It varies considerably in its make-up, depending on the exact conditions of deposition. Although it forms a conspicuous ridge east of the Severn Valley, downstream of Bridgnorth, the availability of other local stones limited its use here. North of Telford, however, its patchy outcrop is marked by small quarries at places such as Waters Upton and Edgmond, and towards Market Drayton at Hinstock and Goldstone. In the vicinity of these outcrops, Kidderminster Conglomerate has been used for churches, local walling and some cottages.

Sherwood Sandstone Group, Wilmslow Sandstone Formation

Wilmslow Sandstone

This is a bright red to dull red-brown, cross-bedded sandstone that has been quarried around the villages of Harmer Hill, Myddle, Nesscliffe and Grinshill. Wilmslow Sandstone did not travel very far from its source, but it features significantly within the aforementioned villages. It is not always easy to distinguish, when seen in buildings, from the overlying red sandstones of Grinshill and Ryton, which are now referred to as the Helsby Sandstone Formation.

Figure 49: Cottage, Myddle. Wilmslow Sandstone.

Figure 50: All Saints Church, Grinshill. Wilmslow Sandstone Formation.

Sherwood Sandstone Group, Helsby Sandstone Formation

There is a certain irony in the fact that central north Shropshire, containing the best of the Permo-Triassic building stones, is not 'stone building country'. The reason for this is easy to understand when looking at the geological drift map of the area. More than 70 per cent of the map shows a glacial covering of boulder clay, sand and gravel. Breaking through this superficial cover, however, in a broken line of hills from Nesscliffe and Ruyton-XI-Towns in the west, through Clive and Grinshill, to Hawkstone and Hodnet in the east are discontinuous and faulted outcrops of the Helsby Sandstone Formation.

Shelvock Stone, Nesscliffe Stone

Moving west away from Grinshill, towards Nesscliffe and Ruyton-XI-Towns, the sandstones become distinctly red.

A sandstone from the same stratigraphic interval at the significant Shelvock Quarry (north of Nesscliffe and west of Ruyton) is more variable in colour, being sometimes red and sometimes white. This quarry was the source for much of the pink and red stone in Shrewsbury Abbey and a number of north Shropshire country houses. It was also popular with Victorian church restorers for new Gothic windows.

Nesscliffe Stone was used by Thomas Telford to restore Shrewsbury Castle in the 1790s, but it is clearly less resistant to erosion than either the original red sandstones of the Salop Formation or the hard white Grinshill Stone. A wall of Shrewsbury Castle contains purple-red sandstones lower down (probably Salop Formation sandstones from The Quarry), grey/white sandstone blocks (more likely Coed-yr-Allt type than Grinshill Stone) and badly decayed red Nesscliffe Stone on the 18th-century battlements.

Figure 51: Shrewsbury Castle. Nesscliffe Stone and Coed-yr-Allt Sandstone.

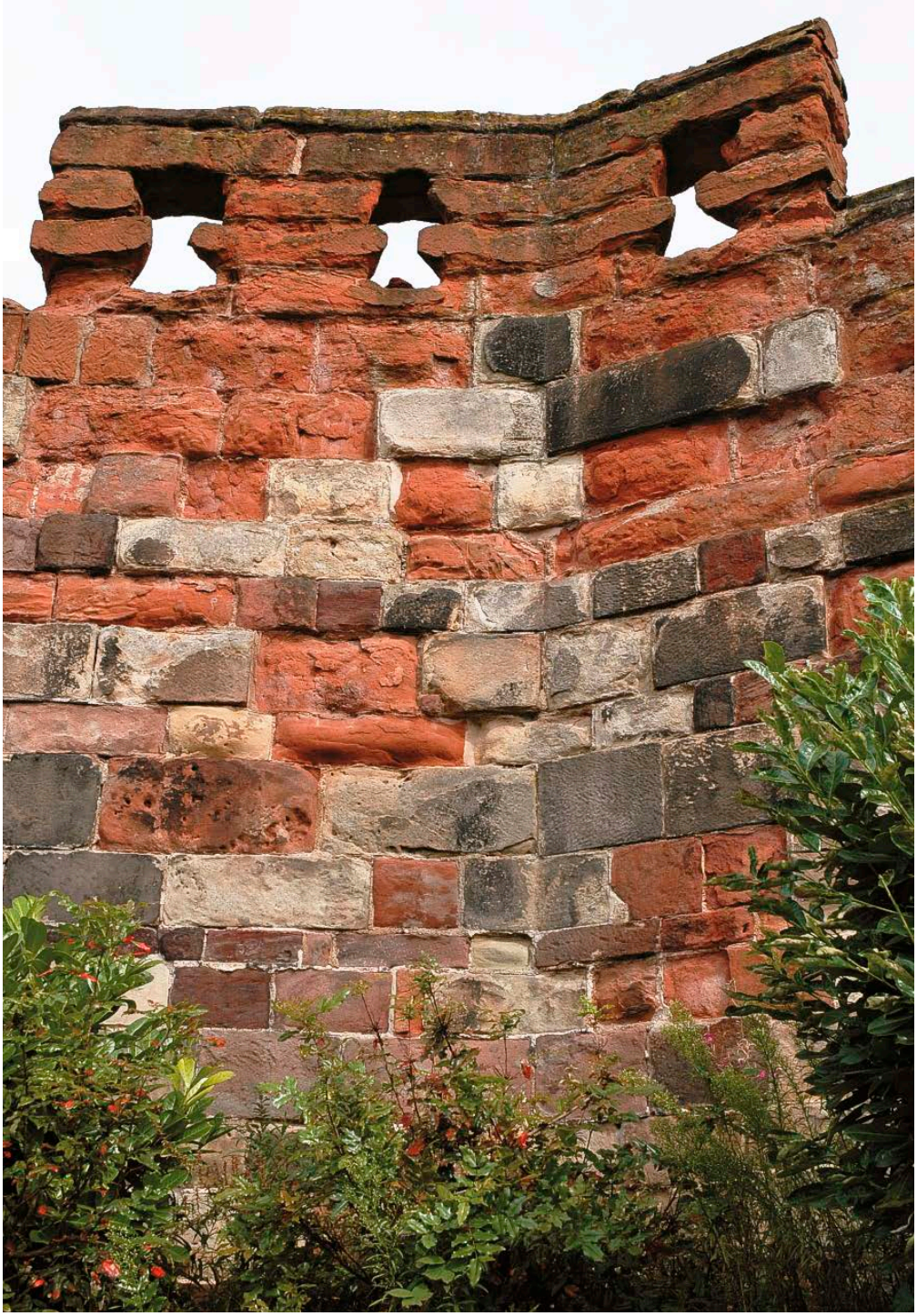


Figure 52: Wall of Shrewsbury Castle. Nesscliffe Stone and Coed-yr-Allt Sandstone.

Similar colour variability is seen eastwards along the broken line of hills to Hawkstone and Hodnet. The grounds of Hawkstone Park include high, white and pale pink cliffs of sandstone, but they were little quarried for building. Nearby Weston-under-Redcastle, however, boasts some buildings of very red, locally produced sandstone. In the field, it has proved very difficult to distinguish with certainty between all the various red and grey sandstones worked from the Upper Carboniferous and Permo-Triassic successions.

The most reliable guide remains the location of the nearest likely source quarry. However, it has been shown that land ownership played a considerable part in determining the source of stone for the medieval abbeys in the Shrewsbury area.

Grinshill Stone

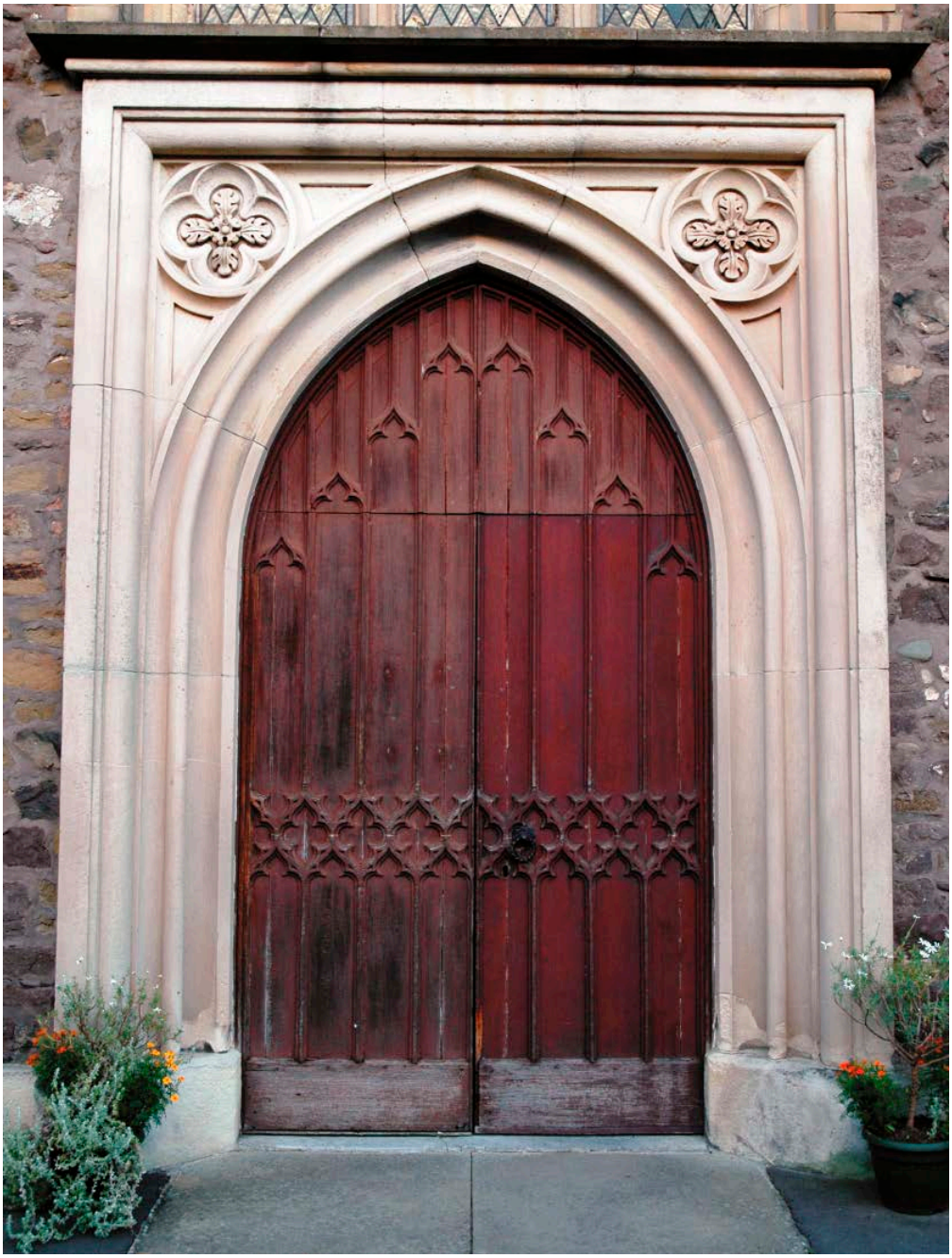
Probably the best known and most thoroughly researched of the 'white sandstones' are those quarried at Grinshill and Clive. Grinshill Stone is a fine to medium-grained, massive sandstone, well cemented with quartz, and virtually iron-free. From medieval times onwards, it has been the preferred material for high-status buildings and has gained a national reputation. Large column sections could be carved from its thick beds for architecture with classical pretensions, as seen at Attingham Hall near Atcham and the Lord Hill's Column in Shrewsbury. Earlier, in the late 16th century, it was brought into the county town for Shrewsbury School (now the library) and the Old Market Hall, and subsequently for the railway station. Despite repeated references to the contrary, the Romans did not, in fact, use Grinshill Stone at Wroxeter, but it was employed extensively in medieval Haughmond Abbey. Its heyday, however, was from the mid-19th to the early 20th century. Rail transport put Grinshill Stone firmly on the county and national map, and sidings were specifically built for the sandstone trade at Yorton. Most 19th-century church restorations in the county include Grinshill Stone door and window mouldings.

Grinshill Stone is perhaps the only Shropshire building stone that has been quarried commercially over a period of several hundred years, and the trade continues to the present day. Not all of the Grinshill sandstones are 'white'.

Figure 53: Old Market Hall, Shrewsbury. Grinshill Stone.

Figure 54: Shrewsbury railway station. Grinshill Stone.

Figure 55: West door, St Laurence Church, Church Stretton. Grinshill Stone.



Helsby Sandstone (Keuper Sandstone)

Always used in the immediate vicinity of its many quarries, Helsby Sandstone gives a distinctive character to the villages mentioned above. Elsewhere, the area was well enough served by brick production (from the boulder clay) and too far removed from the sandstone sources to make its use economic.

Jurassic

Lias Group, various formations

A small outcrop of Lower Jurassic (Middle Lias) mudstones and thin limestones is found around Prees. These were the basis of an important brick-making industry centred on the middle of the north Shropshire basin, but there is no evidence of these sediments having been used as building stone.

Quaternary

Various groups, various formations

Quaternary boulders and pebbles

In southern Shropshire, many of the early settlement sites were on river terraces or areas covered with glacial boulder clay (till). Much of the apparently random variation in stone type seen in some older churches, and also in field walls, results from the gathering up of the largest boulders from the river or boulder clay deposits.

Tufa

Deposits of limestone developed in the vicinity of springs carrying lime-rich water are known as tufa. The tufa is formed as the lime-laden water evaporates, often encapsulating plant material and other debris. It produces a very hard, but porous, lightweight stone, and these properties were the key to its use as it was ideal for the vaulting of church roofs and other early stone buildings. In Shropshire, its use is known for certain at Wroxeter and, in later times, in the walls of churches in the Severn Valley around Quatford. The Church of St Mary Magdalene at Quatford has a Norman chancel constructed of tufa blocks. The 18th-century nave and tower are probably Alveley Sandstone. The source of the tufa is unknown, but the concentration of use in that area suggests that there was a local tufa deposit that is now obscured or was totally worked out. Alternatively, as all known use of tufa is close to the River Severn, it could have travelled up the river from known sources in the Teme Valley, or even Gloucestershire.

Figure 56: Church of St Mary Magdalene, Quatford. Tufa.

Figure 57: Wall of Church of St Mary Magdalene, Quatford. Tufa.

3 Further Reading

The Further Reading, Online Resources and Contacts guide provides general references on:

- Geology, building stones and mineral planning
- Historic building conservation, architecture and landscape.

There is also a separate glossary of geological terms.

Shropshire references

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