SOMERSET BUILDING STONE – A GUIDE

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INTRODUCTION

The purpose of this paper is to provide a quick-reference guide to the local building stones from the modern county of Somerset. The paper also includes a few that have been quarried just beyond the borders of the county. It derives from a text prepared for Somerset County Council (Prudden n.d.). Archaeologists, historians, architects, and planning officers are now showing increased interest in the nature and provenance of the various stones as for example in connection with Roman mosaics, medieval bridges, and church restoration. Local records are being studied in order to locate the sites of medieval quarries and the means of transport used to get the stones from the quarry to where it was used. Distribution maps have been produced to show the use of stone in the Taunton area (Prudden 2001).

Each entry below is divided into four groups dealing with the following aspects:

a. General distribution of quarries; most of them are no longer in work,

b. Brief explanation of the origin of each rock type,

c. Description of the character and composition of the major types of building stones,

d. Uses, and examples of where they can be seen.

There are two sets of terms used to describe rocks:

1. The nature of the rock e.g. colour, how the rock falls apart, sedimentary structures, nonclay minerals present, organic content, fossils

2. The name of the parent rock formation as shown on the geological map and its age (Period). Rock formations show variations within a formation, both bed by bed and laterally. Some rock formations have local names and, to add to the confusion, geologists have a habit of creating new names and reclassifying the strata! In addition the names may be misleading: for example the Morte Slates formation contains beds of sandstones. The Ilfracombe Slates are now named Ilfracombe *Beds* and contain slates, limestones, and sandstones. Rocks are allocated positions in a hierarchical classification based on time; here we group the rocks according to their *geological periods* starting with the oldest i.e. those formed in the Devonian Period.

The geological map (Fig. 1) is very generalised which is a necessity at this small scale. However, it does have the advantage of grouping rock formations in *Periods* i.e. the time in which rocks of a particular time were laid down. The map showing the distribution of building stones (Fig. 2) is an attempt to portray the *core areas* where local rocks have been used in a large number of the older buildings. The majority of quarries are closed. There is as yet no systematic survey of the whole county. For further information on building stones and their geological background see Bristow *et al.* 1995, 1999; Donovan and Kellaway 1984; Edmonds and Williams 1985; Edwards 1999; Green and Welch 1965; Howe 1910; Kellaway and Welch 1993; Ussher 1906; Whittaker and Green 1983.



Fig. 1 Generalised geological map of Somerset

DEVONIAN PERIOD

HANGMAN SANDSTONE

- a. A multitude of small quarries across the outcrop in north Exmoor and the northern Quantock Hills; a deep quarry at Conygar Tower near Dunster.
- b. Purple, grey, and green, fine to medium-grained sandstones: (i) channel sets with curved bedding surfaces and (ii) thin and thick beds.
- c. Deposited on the distal part of a large continental alluvial fan that spread southwards from the north. Affected by deep burial and the Variscan mountain building events.
- d. Mainly ragstone walling but some ashlar in Victorian/Edwardian houses in Minehead where it can be compared with the younger Otter Sandstone.

ILFRACOMBE BEDS

- a. Many scattered small quarries from Simonsbath via Exford, Wheddon Cross, and Luxborough, to Withycombe. Treborough was an important slate quarry.
- b. Slates, cleaved siltstones, and thin sandstones.
- c. A return to shallow marine conditions. Affected by deep burial and the Variscan mountain building events.
- d. Howe (1910) reports: 'Rough slates, strong and sound but with rather wavy cleavage surfaces and not capable of being split at all thin. As a rule, these slaty rocks are much too crinkled and folded to make good slate'. However, Treborough did produce roofing slates, slabs for doorsteps, cisterns, coffins, tombstones, and flooring. These stones can be seen in old farm buildings.

DEVONIAN LIMESTONES (Rodhuish, Roadwater, Aisholt, Holwell, and Leigh Barton limestones [Ilfracombe Beds])

a. Line of quarries across Exmoor from Exford via Wheddon Cross to Withycombe, and from Nether Stowey to Cothelstone in the Quantock Hills.



Fig. 2 Building stones of Somerset

- b. (i) Grey or pinkish-grey massive and locally recrystallised limestones; sometimes sandy and crinoidal, and (ii) calcareous siltstones and fine sandstones.
- c. Deposited in warm shallow water with reduced influx of elastic sediment. Affected by deep burial and the Variscan mountain building events.
- d. Mainly worked for production of lime but used locally for walling e.g. Cothelstone in the Quantocks.

MORTE SLATES

- a. Quarried on the south side of Exmoor and the Brendon Hills; large quarries at Oakhampton. Quarries in the southern Quantocks include Hestercombe, Coombe, and Kings Cliff.
- b. Among the slates are (i) brownish-grey and silver cleaved siltstones, and (ii) more massive blocky fine-sandstones; quartz veining common.
- c. Quiet waters of a shelf sea but sandstones mark short-lived disturbance by sand-carrying currents.
- d. Siltstones in low-grade walling with rough texture; sandstones more colourful and show smooth flat faces. Oakhampton quarries produced a wide range of slates, slabs, sills, and flooring. Can be well seen in old quarries at Kings Cliff south-west of Bridgwater, Hestercombe Gardens designed by Lutyens and old quarries in the combe, and the Municipal Hall in Taunton.

PICKWELL DOWN BEDS

- a. Quarried on south side of Exmoor, and Brendon Hills from Dulverton via Haddon Hill to Wiveliscombe; large quarry at Barlynch.
- b. Reddish-brown, purple and grey sandstones.
- c. Coastal landscape of shallow lagoons and deltas to which sands and muds were carried by rivers from the north.

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d. Colourful ragstone walling and some ashlar. Wimbleball Reservoir walls and dam, Dulverton, Upton Church.

PORTISHEAD BEDS (Old Red Sandstone)

- a. A few scattered quarries in the cores of the Mendip periclines e.g. Beacon Hill.
- b. Conglomeratic pebble beds and red, reddish-purple sandstones. Pale grey or buff when weathered.
- c. Terrigenous sediment derived from uplifted and eroded land to the north-west.
- d. Mainly used for field walls.

COCKERCOMBE TUFF

- a. A lone quarry in Cockercombe near Plainsfield.
- b. A greenish-grey tuff 18m thick.
- c. Volcanic ash deposited on the sea floor, in the area that is now the northern Quantocks, followed by deep burial, compression, and folding during the Variscan mountain building events.
- d. Rubblestone and ashlar. Can be seen around Plainsfield and in the Wyndham Galleries at the County Museum, Taunton.

CARBONIFEROUS PERIOD

CARBONIFEROUS LIMESTONE

- a. Quarried throughout the Carboniferous Limestone outcrop especially in Mendip and at Cannington.
- b. Black Rock Limestone: well-bedded, poorly sorted, dark grey to almost black crinoidal limestone with chert nodules. Clifton Down Group: calcitic and dolomitic, oolitic and bioclastic sediments. Hotwells Group: massive fine-grained, smooth-textured calcitic muddy limestone with corals, ooliths, and brachiopods.
- c. Carbonate sedimentation in generally shallow warm water dominated by remains of organic debris and chemically precipitated lime muds; corals and crinoids indicate shallow water; bioclastic debris and ooliths indicate more turbulent water; dark muds suggest deeper water.
- d. Largely dug for crushed-rock aggregate. Makes a durable building stone; the low porosity makes it suitable for external buildings as there is a low susceptibility to frost damage. Burrington Combe, Cheddar Gorge, and Cannington area.

UPPER WESTLEIGH LIMESTONE

- a. Quarries near Westleigh (active) and Holcombe Rogus (Devon).
- b. Banded well-bedded rock with (i) pale grey and dark brown, calcareous sandstones, and (ii) black, smooth, very hard cherts.
- c. Lime-rich and silica-rich muds deposited on the sea floor some of which were associated with submarine debris flows (turbidity currents). Subsequently compressed, fractured, and folded in the Variscan mountain building events.
- d. Ashlar blocks and rubblestone walling. Municipal Hall and around railway station in Taunton plus south-west of Wellington e.g. Holcombe Rogus (Devon).

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PENNANT SANDSTONE (Pennant Measures)

- a. Local quarries in the area of the former Mendip coalfield.
- b. Coarse-grained, grey, pinkish-grey, current-bedded, feldspathic sandstones.
- c. Deltaic deposits.
- d. Rubblestone walling. Used in and around Coleford in Mendip.

DODDISCOMBE BEDS (Westleigh Limestone Group)

- a. Abandoned slate quarries at Tracebridge (ST 067210).
- b. Black laminated slates.
- c. Organic-rich muds deposited in quiet water.
- d. Local slates and walling. Can be seen in the car park at the Globe Inn, Apperly.

PERMO-TRIASSIC PERIODS

HESTERCOMBE DIORITE

- a. Small quarry in the combe at Hestercombe.
- b. Red massive coarse-grained igneous rock.
- c. Formed by an intrusion of magma from depth with subsequent cooling. Thought to be a lamprophyre but now reclassified as a diorite.
- d. Ashlar and rubblestone. Used in the west face of Hestercombe House, Cheddon Fitzpaine church, and the tower of St Mary Magdalene church in Taunton.

OTTER SANDSTONE (Sherwood Sandstone Group)

- a. Quarries at Staunton and Alcombe near Minehead, Capton (in work) near Williton, Lawford, Bishop's Lydeard (used in restoration of church), High Lovelinch, Holywell Lake, Nynehead, Yarford, Nether Stowey, Spaxton, North Petherton.
- b. Red, yellow, buff and mottled, fine-grained or fine to medium-grained sandstones, locally hard and calcareous but in places soft friable sandrock. The lower beds above the conglomerates, and the beds near the edges of the basins of deposition, tend to include beds of pebbles or breccia.
- c. Sediments eroded from adjacent contemporary high ground deposited in subsiding basins by overloaded rivers with braided stream channels.
- d. The better cemented sandstones used extensively for rubble walling, ashlar, and mouldings. Holloway Street, Minehead (SS 9673 4637), Nynehead Holloway (ST 141 228), Halse Church, the old public library, Corporation Street, Taunton.

NORTH CURRY SANDSTONE (Mercia Mudstone Group)

- a. Quarries at Norton Fitzwarren, Hele, North Curry, Sutton Mallet.
- b. Greenish-grey, mudstones, and siltstones with locally thick beds of white to pale brown cross-bedded sandstones.
- c. Deposit of a deltaic or estuarine environment of mudflats traversed by channels.
- d. Rubble walling, quoins, and ashlar. Norton Fitzwarren Church and the Winchester Arms, Taunton.

DOLOMITIC CONGLOMERATE (Draycott Marble)

- a. Quarried around Draycott, Easton, north-east of Wookey Station, and East Horrington.
- b. 'A breccia or conglomerate largely composed of fragments of Carboniferous Limestone cemented in a matrix of sandy marl or fine-grained limestone debris. The rock fragments are rounded, subangular, or angular and vary in size from that of a walnut or smaller, to large boulders measuring several feet across' (Green and Welch 1965).
- c. 'The formation represents Triassic scree and outwash fans adjacent to the ancient hills of Palaeozoic rocks, and it fills 'fossil' wadis or gorges cut into these hills' (Green and Welch 1965).
- d. Rubblestone walling, gateposts and lintels. Settlements along the southern side of the Mendips.

WHITE LIAS (Langport Member of the Lilstock Formation Penarth Group)

- a. Quarries at Stoke St Mary, Beer Crocombe, Langport area, Sparkford, Radstock area.
- b. Pale grey and cream limestone with mudstone partings; rubbly in the lower part and finergrained (porcellanous), even-bedded and very hard in the upper parts.
- c. Warm, shallow water deposit with intermittent exposure of the seabed.
- d. Rubble walling and some ashlar. Langport, Huish Episcopi, Queen Camel.

WEDMORE STONE (Westbury Beds Penarth Group)

- a. Wedmore area.
- b. (i) Current-bedded, buff, ferruginous sandstone, and (ii) grey weathering to brown bioclastic limestone.
- c. Shallow, relatively high-energy environment.
- d. Ashlar and rubble walling, Wedmore Church.

JURASSIC PERIOD

BLUE LIAS (Lias Group)

- a. Quarries at Hayne south of Taunton, Thurlbear, Beer Crocombe to Curry Rivel, Langport to Keinton Mandeville (several in work), Butleigh, Polden Ridge from Dunball to Street, Ditcheat to Shepton Mallet, Radstock area.
- b. (i) Blue-grey, finely crystalline, hard and splintery, with bedding tops and bottoms either level or wavy; (ii) Laminated, very fine-grained, porcellanous texture, flat top and bottom surfaces in Somerton area; (iii) Flaggy limestone composed of finely comminuted remains of oysters and other bivalves in a limy-mud matrix (Somerton area Pre-planorbis Beds and Radstock area).
- c. Deposition in quiet warm seas (iii) above probably represents shallower, lime-rich water.
- d. Walling stone, floor slabs, and tombstones. A multitude of churches in the Blue Lias belt. Street is a blue Lias town *par excellence* including Clark's Village. Popular for new houses and extensions in conservation areas. The Blue Lias in older buildings in the Taunton/Beer Crocombe area has fared less well partly owing to the presence of iron pyrites which yields sulphuric acid when weathered thus facilitating the decay and crumbling of the stone. Unhappily many new buildings show a chequerboard of yellow weathered, and grey unweathered, faces.

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DOWNSIDE STONE (Blue Lias-Lias Group)

- a. Quarried between East Horrington and Shepton Mallet.
- b. Pale, cream-grey, massive, coarse-grained, shelly, pebbly, conglomeratic limestones.
- c. Littoral facies deposited against old Mendip shoreline.
- d. Some ashlar, mouldings, and rubblestone. Croscombe, especially the church.

MARLSTONE (Moolham Stone – mapped as part of the Junction Bed)

- a. Quarries at Moolham and other quarries near Ilminster, South Petherton, and Sutton Montis north-east of Yeovil.
- b. Ferruginous, shelly, rusty-brown, locally oolitic limestone that may pass into a calcareous, ferruginous sandstone. Often crowded with belemnites, brachiopods, and bivalves.
- c. Shallow iron-rich agitated seas.
- d. Rubblestone walling and some ashlar. Some very large quoins. Ilminster parish church, Dowlish Wake, Barrington Court garden walls and village, South Petherton, Sutton Montis, and Glastonbury.

UPPER LIAS LIMESTONE (Barrington Beds – mapped as part of the Junction Bed)

- a. Quarried in many small quarries near Barrington, South Petherton, Montacute to Trent (Dorset), and in the Batcombe area.
- b. Sparsely oolitic, whitish grey biomicrite and calcarenite with brown ferruginous inclusions. A condensed sequence is found in the Yeovil area (Yeovil Stone): (i) white calcareous earthy limestones with shell debris; (ii) conglomeratic, white limestone with shell debris including ammonites and crinoids, algal mats, and dark brown ferruginous inclusions.
- c. Shallow, warm, generally low-energy seas with reduced sediment input. Lime muds produced by calcareous organisms and possibly chemical precipitation.
- d. Rough-faced rubblestone walling. Old walls in central Yeovil and St John's church in Yeovil.

HAM HILL STONE (Lias Group)

- a. Extensive quarry workings on Ham Hill (in work) near Yeovil dating from Roman period; smaller workings on Chiselborough Hill and at North Perrott.
- b. Warm, golden, cross-bedded, bioclastic, well-cemented, medium to coarse-grained limestone with thin sandy beds; conglomerate at the base. Forms a lens within the Yeovil Sands.
- c. High-energy, shallow sea with abundant supply of shell debris.
- d. Both rubble walling and fine ashlar; widely used for mouldings, tombs, stone roof-tiles. A most versatile and attractive stone. Walls and houses in nearby villages and Montacute House. Used widely in mouldings in houses and churches in areas lacking stone that can be readily shaped.

INFERIOR OOLITE (General)

- a. Many small quarries from Crewkerne via Seavington, East Coker, Sherborne (Dorset), Mapperton, Castle Cary, Bruton, Creech Hill to Doulting.
- b. Very variable both in the single quarry and laterally along the outcrop. (i) Seavington-Crewkerne-East Coker: buff and grey-centred, shelly, nodular, sandy limestone plus massive buff, sandy, ferruginous, oolitic limestone. (ii) Castle Cary Hadspen Stone (Garantiana Beds): massive, bedded, ferruginous, warm brown colour, sparry, detrital, very fossiliferous limestone; variable thickness of beds.

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- c. Shallow water in warm seas with small input of sediment; intermittent erosion events.
- d. Rubblestone walling and some ashlar. Castle Cary owes much to the local Hadspen Stone; likewise many settlements on the outcrop e.g. Crewkerne.

INFERIOR OOLITE (Doulting Stone)

- a. Extensive areas of worked-out stone north of village; quarrying still active.
- b. Up to 9m white to yellow, massive, flaggy, cross-bedded, oolitic, commonly in fining-upwards passages separated by heavily bored hardgrounds; abundant crinoidal debris in a matrix of crystalline calcite gives regular, uniform, and sugary texture. Becomes paler and harder on exposure.
- c. Shallow warm agitated seas.
- d. Rubble walling, copings, plinths, window surrounds. Well's Cathedral; Bloor Homes, Shepton Mallet (ST 626428), where there is a pinnacle inscribed 'Doulting Stone'; Doulting village; and dressings in many churches throughout Somerset.

FULLERS EARTH ROCK (Great Oolite Group)

- a. Quarries from Milborne Wick via Maperton, Shepton Montague to Batcombe area.
- b. Interbedded, shelly micrite, grey weathering to brown and commonly earthy; nodular.
- c. Shallow, marine, low-energy environment.
- d. Rubble walling. Local use along the outcrop.

BATH STONE (Great Oolite Group)

- a. Active quarries outside Somerset at Combe Down, Odd Down (Combe Down Oolite), Westwood-Limpley Stoke, and Corsham (Bath Oolite).
- b. In ascending order (i) Combe Down Oolite: cream-coloured, cross-bedded oolitic freestone passing down into shell detrital, marly, oolitic limestones; often contains calcite stringers; (ii) Twinhoe Beds: massive, marly, shelly limestones with large orange and cream-coloured ooliths but not used for building; (iii) Bath Oolite: cream-coloured, cross-bedded, oolitic freestone. Bath Stone and Combe Down Oolite come in a number of combinations: colours range from cream to whitish; ooliths of varying size, shape, and colour; shell debris which may range from larger fragments of bivalves to smaller particles of crinoids, sponges, bryozoa, and corals; between the ooliths and shell debris there are varying amounts of brown/grey translucent, or cream earthy, matrix.
- c. The ooliths suggest shallow, agitated, warm, tropical seas whilst the cross-bedded shelly beds suggest strong bottom currents.
- d. The freestones have been, and still are, widely used as ashlar. The Bath Oolite has been extensively used for mouldings and tracery for churches and town villas including those outside the main area. Extensive use in North-east Somerset and adjoining counties e.g. Bath, Farleigh Hungerford, Beckington.

FOREST MARBLE (Great Oolite Group)

- a. Quarries at Hardington Mandeville south of Yeovil; Henstridge via Wincanton, Redlynch, Witham Friary, Upton Noble to the Frome area.
- b. Limestones vary from cross-bedded, sparsely oolitic and oyster-rich to massively bedded, very shelly, blue-hearted sparites.
- c. Shallow water, high-energy, shoals on muddy sea floor; mud clasts and large fossil wood

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fragments suggest deposition during storm-related events; brackish shallow to sub-littoral environment.

d. Extensive use for rubble walling; some ashlar, stone tiles for roofing; larger flagstones used for bridging ditches. Houses and walls along the outcrop.

CORNBRASH (Great Oolite Group)

- a. Quarries from Yenston via Templecombe, Wincanton, Stoney Stoke, Upton Noble, Wanstrow, Witham Friary to east of Frome.
- b. (i) Lower Cornbrash: pale cream, sparsely oolitic, biomicrite, locally shelly, nodular in appearance (more for lime-burning); (ii) Upper Cornbrash: sparsely sandy, biomicrite overlying fine-grained calcareous sandstone.
- c. Warm, shallow, low-energy seas.
- d. Local rough work incapable of being dressed. Upton Noble church (ST 71 39).

CUCKLINGTON OOLITE (Corallian Group)

- a. Quarries at Cucklington and Stoke Trister.
- b. Flaggy, shelly, oolitic, micritic, dark brown limestone.
- c. Shallow lower shore face.
- d. Rough rubblestone walling. Cucklington and Stoke Trister.

CRETACEOUS PERIOD

SHAFTESBURY SANDSTONE (Upper Greensand)

- a. Quarres at Penselwood (others in nearby Dorset).
- b. Green and grey, hard, shelly, calcite-cemented, fine-grained, glauconitic sandstone (Ragstone).
- c. Slow accumulation in shallow, warm seas.
- d. Ashlar and rubblestone. Formerly dug at Pen Pits for millstones and quernstones. Penselwood Church and much of Shaftesbury (Dorset).

CALCAREOUS GRIT (Upper Geeensand)

- a. Quarried at Snowdon Hill, Chard, and Northay.
- b. Hard, nodular, white/cream, calcareous sandstone with rounded quartz grains set in a matrix of fine quartz sand and shell fragments.
- c. Slowly accumulated in shallow, low-energy seas.
- d. Ashlar, quoins, dressings, and rubblestone especially in association with chert and flint walls. Used for dressings in almost every church in the eastern Blackdowns.

CHERT AND FLINT (Upper Greensand and Chalk)

- a. Quarried at Snowdon Hill (Chard), near Chaffcombe, Tatworth, and many pits on the Blackdown Hills.
- b. Irregularly shaped, very hard, splintery, siliceous nodules with brown or white patinas and brown or black cores; very variable in size.
- c. Silica, derived from the dissolution of sponge spicules, formed nodules within the Greensand and Chalk.

d. Used squared or as rubblestone for walling. Widespread use through the Blackdown area in older buildings e.g. Chard.

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GLOSSARY

Ashlar	Stone with a rectangular or square face; masonry, consisting of blocks of stone, finely
	squared to given dimensions and laid in courses not exceeding 0.3m.
Bioclastic	Limestone containing a lot of shell debris.
Biomicrite	Organic debris in a micrite matrix.
Conglomerate	A rock containing rounded or sub-rounded pebbles or boulders.
Cross-bedded	A series of inclined bedding planes having some relationship to the direction of current
Dressings	Carved stone used for door and window mouldings, tracery, dripstones.
Ferruginous	Rich in iron.
Glauconitic	A hydrated silicate of iron and potassium.
Low/	
high-energy	Refers to the current velocity.
Micrite	Matrix in a limestone consisting of micro-crystalline calcite.
Ooliths	Small carbonate grains formed of concentric layers of calcite or aragonite. Oolite is used in two very different senses: (i) a limestone containing ooliths; (ii) an historic stratigraphic term referring to certain rock formations e.g. Inferior Oolite, Great Oolite, the beds of which may on may not contain collide.
Quoins	A dressed stope at the external angle of a wall
Quoins Pag(stona)	A bard rubbly or coarse stone
Rug(sione)	A naturation of coarse stone.
Rubblestone	finished face.
Sub-littoral	Below the beach level.
Sparite	Matrix in a limestone consisting of coarse calcite forming a mineral cement.