

A GEOLOGICAL REVIEW OF SOME HAMPSHIRE ANGLO-SAXON CHURCHES

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ABSTRACT

Using a newly discovered technique related to the orientation of the bedding in rocks, and the manner in which this orientation has been emplaced within church wall structures such as quoins, pilaster strips and arch jambs, it proves possible to identify Anglo-Saxon workmanship. This is illustrated in ten Hampshire churches. A new simple nomenclature for describing the various attitudes of the stone orientations is also described.

INTRODUCTION

Studies relating to early churches and their construction normally rely upon the examination of recognisable and dateable architectural features. Where it is available such studies are supported by historical documentation, and less frequently with archaeological excavations. Occasionally rock types occurring in ecclesiastical buildings have been reviewed in general terms (as by Jope 1964; Clifton-Taylor 1977; or Parsons 1991), but only rarely has any attempt been made to examine in detail the stone used in an individual building (e.g. Aldsworth and Harris 1988 at Sompting, W.Sussex; or Bagshaw 1988 at Leonard Stanley, Gloucestershire). Ecclesiastical geology as a subject is in its infancy (Potter 2005c); that it can, however, be employed to distinguish with greater accuracy structures erected by Anglo-Saxon church builders is illustrated in this paper.

Although it is now accepted that very many Anglo-Saxon stone churches were simple two-celled (nave and chancel) buildings of sufficient size to accommodate the needs of small

local populations (Potter 1987), it is appreciated that more complex structures involving towers, aisles, transepts, chapels, etc. were well within the skills of the Saxon mason (see Taylor and Taylor 1980). Irrespective of the size or status of these early churches, the types of stone and the manner of their employment did not vary appreciably. The Anglo-Saxon craftsman appears to have concentrated on using local stone of appropriate quality; Norman and subsequent builders using dressed, and sometimes polished, stones were more influenced by individual church affluence (Potter 2004).

A recent detailed scrutiny of the geology of the stonework of most of the Anglo-Saxon churches nationwide has revealed that Anglo-Saxon masons were carefully selective and prescriptive in their use of the stones which they employed in their ecclesiastical buildings (Potter 2005b). This observation can be applied particularly to structural features such as the quoins, arch and window jambs, and doorways. Their use of stone involved a comprehensive understanding of the strengths and characteristics, including weathering properties, of different rock types. Their techniques in the choice and employment of selected stones were, with certainty (Potter 2006), principally for the purposes of ornamentation. If present, pilaster strips illustrate the same levels of comprehension regarding their construction and use of stones.

The Anglo-Saxon craftsmen's deliberate and precise employment of stone in structures such as quoins, pilaster strips and jambs has, of course, long been recognised. Terms such as 'long and short' (Rickman 1836; Micklethwaite 1896; Brown 1903) for distinctive styles of

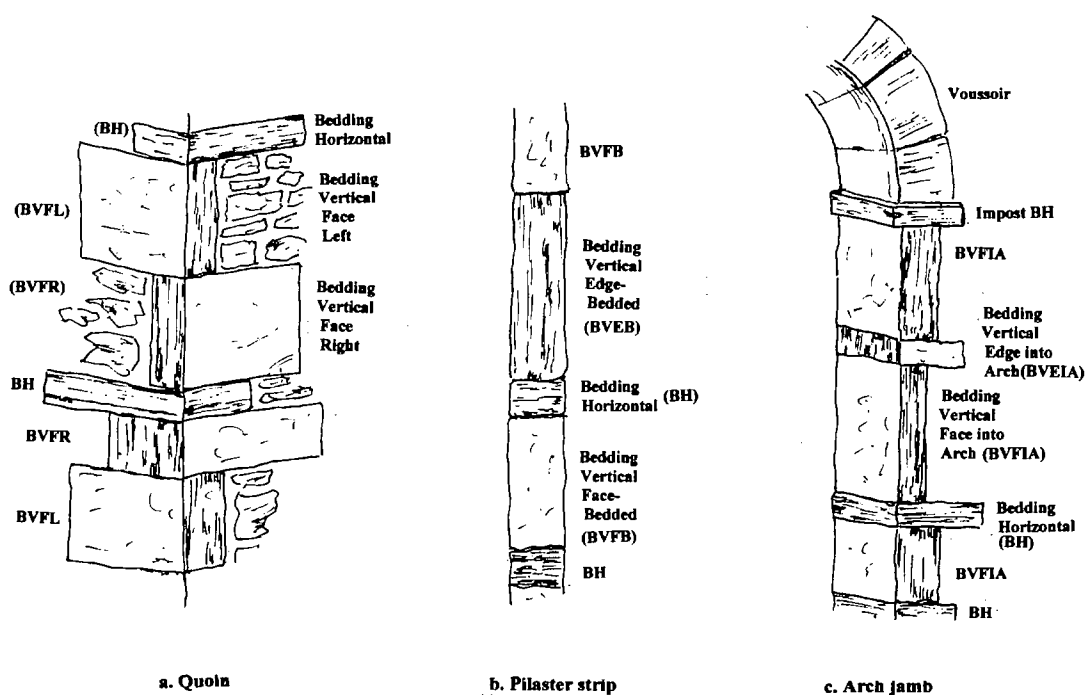


Fig. 1 Nomenclature for the recognition of stone orientation in a) quoins, b) pilaster strips and c) arch jambs. In arch jambs the 'Bedding Vertical Edge into Arch - BVEIA' option has not been observed in Anglo-Saxon structures. Normally in Saxon arches the bedding orientation in voussoirs radiates from the arch centre.

stone emplacement in quoins and pilasters; and 'Escomb style' (Brown 1925) for stones in jambs; are in regular parlance. Gilbert (1946) proposed a specific notation for the manner in which stones might be emplaced in either quoins or pilasters. Although the notation has not proved popular some of his suggested descriptive terms, such as, 'side-alternate' and 'face-alternate' are frequently used. Each of these earlier methods of description has utilised the geometrical shape of individual stones for identification purposes. The work of the present author (Potter 2005b) examines instead the geological structure of each stone. This new technique enables the Anglo-Saxon workmanship in any building to be identified with very much greater precision. The following text, therefore, examines various Hampshire Anglo-Saxon churches to illustrate the manner

in which the new practices can be applied and important additional information revealed.

THE EMPLACEMENT OF ANGLO-SAXON STONES

Sedimentary rocks (limestones, sandstones, clays, gravels, etc.), are by far the most common rocks to be exposed at the surface in the United Kingdom. Indeed, in Hampshire they are the only rocks exposed and they provide the only potential local building stones. When sedimentary rocks are first formed, the deposits tend to develop an approximately, horizontally layered or stratified structure, described as stratification or bedding. Deposits may be thickly or thinly bedded according to the quantity of sediment formed at any time. Normally, for

building purposes, reasonably thickly bedded units of a physically and chemically resistant rock are selected and placed into a wall, in advocated fashion, with their bedding planes in a horizontal attitude, that is, in the same orientation as they occurred naturally at the time of their formation. In such a position, rocks are typically stronger under the vertical compression present in a wall and generally far less susceptible to water penetration along the bedding planes, and therefore, the processes of weathering.

In rare instances it becomes necessary to place stones other than with their stratification horizontally. Such an occasion occurs where units of rock in a quarrying situation are not particularly thick. If, for instance, a sedimentary unit is only 0.5 m. thick and the requirement is for a stone 1 m. high, as in a columnar structure, the rock has to be turned through 90 degrees and placed with its bedding vertically in the wall. Stonemasons who place a stone in such a disposition, may then choose to erect the stone with the vertical bedding laminations parallel to the face of the wall, termed 'face bedded', or with them parallel to the vertical jointing in the wall, when the situation is known as 'edge bedded'.

It should be noted that the terminology of stone orientation used by the modern mason is unlike that offered by Gilbert (1946), where he referred to the stone shape and not its bedding.

Seeking to create patterns in their stonework, Anglo-Saxon craftsmen frequently chose to orientate their stones so that the bedding laminations were emplaced vertically. This involved very careful, knowledgeable and skilled collection of any ashlar stone that was to be used. Clearly, they established a comprehensive understanding of those rocks that were particularly indurated and homogeneous, and therefore, resistant to weathering and of greater durability and value when placed with their bedding laminations vertically.

Undoubtedly, the introduction of the geometrical long and short style as used in quoins and pilasters strips would have followed naturally, for stones selected to be placed in a vertically laminated orientation could be geometrically longer when cut from the rock face.

Although others (as Taylor and Taylor 1980, 6) were less dogmatic, Brown (1925, 25) placed long and short work in his most recent Anglo-Saxon period, C, or between 950 and 1100 A.D. Earlier (Brown 1903, 297), he had proposed that the style had developed over the 800 to 950 period.

Certain stones, such as flints, possess no typical bedding laminations and, for this reason, not all Anglo-Saxon quoins and similar structures will necessarily include some stones in an orientation of bedding that is vertical. The use only applies to ashlar or dimension-stones. Similarly, rock types that are susceptible to weathering, particularly in a vertical orientation, were unsuitable, as for instance the *Viviparus* limestone ('Purbeck Marble') which was employed by both Roman and Norman masons, but disregarded by the Anglo-Saxons.

Simple and clear nomenclatures and notations have been proposed by the present author (Potter 2005b) to identify the Anglo-Saxon emplacements of stones (Fig. 1). Here, they are briefly re-described. In a quoin, excluding cases such as inversion, stones may be installed with the bedding in its natural position, that is horizontally, described as 'bedding horizontal' (or BH); or vertically. In the instances of the orientation being vertical, viewed from the corner the bedding planes may face left, 'bedding vertical face left' (BVFL), or right, 'bedding vertical face right' (BVFR). Pilaster stones may be horizontally orientated (BH); vertically orientated with their bedding planes parallel to the wall face or 'bedding vertical face-bedded' (BVFB); or vertically bedded with their bedding planes parallel to the vertical wall joints, described as 'bedding vertical edge-bedded' (BVEB). Stones in the jambs to arch-structures such as doorways, arches and windows can again be set (BH). These stones can also be placed with the orientation of their laminations vertical, in which case they may be set either (BVFIA), 'bedding vertical face into the arch', or (BVEIA), 'bedding vertical edge into the arch'.

In many rocks the determination of their lamination or bedding orientation requires detailed close scrutiny often with a high-

powered hand lens. Rocks of any height in a wall have, therefore, rarely been examined, with the result that the stones in the jambs of very few windows have been scrutinised. However, to date, of those arch-jambs of accepted Anglo-Saxon age inspected, none appear to have included stones in the BVEIA orientation. The craftsmen of that period seem to have aligned their vertical arch jamb stones so as to emphasise the vertical component as seen from an external (or internal) wall, thus relating their appearance to adjoining quoins and pilasters. Norman (and later) masons, in contrast, used the BVEIA option for they were more concerned with the ornamentation on the face of their arches, as may be particularly observed in their doorways. BVEIA stones are used in the typical Norman tympanum.

In many instances it has proved as yet impossible to scrutinise crucial stone orientations. In addition to the limitations imposed by the height of many stones in walls, externally a millennium of accumulated grime plus lichen and moss cover, and internally poor lighting and lime-wash and render coverings, make many stone situations unreadable. A strong oblique natural lighting greatly assists the determination of stone orientations.

Nine early Hampshire churches, and a further church in the Isle of Wight, have been selected below to illustrate the recently identified Anglo-Saxon building techniques just described. In these descriptions the stones are numbered 1, 2, 3, 4, ..., consecutively from the lowest visible stone (generally at the present ground level), to as high in the structure as could be positively identified.

SOME ANGLO-SAXON HAMPSHIRE CHURCHES RE-EXAMINED

St Nicholas, Boarhunt: SU 604084

There was a church at Boarhunt at the time of the Domesday Survey (Page 1900, 477), and Boarhunt church was one of the earliest churches in the United Kingdom to be proposed

as being of Anglo-Saxon origin (Parker 1845). The church was described in some detail by Irvine (1877), and included within the descriptions or lists of Anglo-Saxon churches of Nisbett (1894), Micklethwaite (1896), Brown (1903, 104; 1925, 444), Page (1908), Clapham (1930, 105), Green and Green (1951), Hare (1977) and Taylor and Taylor (1980). Much of the Anglo-Saxon wall fabric has been described as remaining and this is partially confirmed in a study of the detail of the quoins. All six major external quoins display stones set in a side-alternate style and illustrating BVFL and BVFR orientations as indicated below.

Typically, because they are more lichen covered, the orientations of the N. wall quoin stones proved more difficult to decipher. An element of BVFR – BVFL patterned alternation is discernable in each quoin. The pattern tends to be broken by BH stones inserted at two or more levels in each quoin, although at Boarhunt no attempt by the Anglo-Saxon craftsmen to match pairs of quoins is apparent. All stones, apart from the replacements in the W. wall of the nave, were of ashlar Quarr Stone, a limestone packed with bivalve fragments quarried from the north coast of the Isle of Wight. This stone, extensively worked by the Anglo-Saxons (and later others) at Quarr Abbey (Anderson and Quirk 1964; Tatton-Brown 1980), is a facies development of the uppermost Eocene (Hooker *et al.*, 2004), Bembridge Limestone. It has occasionally been described as Binstead Stone (Page 1908, 146). The green sandstones present in the W. quoins of the nave appear to be early replacement stones. They are of a Lower Cretaceous, Lower Greensand, possibly extracted from a local facies of the Folkestone Formation.

Although both Page (1908) and Taylor and Taylor (1980) described the walls of the church as built of flint rubble, currently the walls of the nave of the church are almost entirely rendered or pebble-dash coated. The chancel walls and the W. wall of the nave have been rebuilt or redressed with a flint and chips of flint cover, customarily applied about 1750. A double-splayed window, now blocked, in the north wall of the chancel, and a short pilaster

SW quoin nave

Eaves

14. BH
13. Replacement stone of green sandstone, BH
12. BVFL
11. BVFR
10. BVFL
9. BH
8. BVFL
6. – 7. BH
4. – 5. BVFR
3. BH
1. – 2. BVFR

SE quoin nave

Eaves

15. Unidentified
14. Stone uncertain, BVFR
13. BH
12. BVFR
11. BVFL
10. Not identified
9. BVFL
8. BVFR
7. BH
6. BVFR
5. BVFL
4. BH, but with high dip
3. BVFL
2. BH
1. BVFL, Brick on S. face

SE quoin chancel

Eaves

16. BH
15. Orientation uncertain
14. BVFR
13. BVFL
12. BVFR
11. BVFL
10. BH
7. – 9. BVFR
6. BH
5. BVFR
4. BVFL
3. BVFR with bench mark
1. – 2. BH

NW quoin nave

11. – eaves. Unidentified
10. BH
9. Unidentified
8. BH
7. Green sandstone, orientation uncertain
6. BVFR
5. Green sandstone, orientation uncertain
4. BVFR
3. BVFL
2. Green sandstone, BVFL
1. Stone uncertain, BH

NE quoin nave

14. – eaves. Not identified
13. BVFL
8. – 12. Not identified
7. BVFR
6. BVFL
5. BH, but with high dip
4. BVFL
3. BH
2. BVFR
1. BH

NE quoin chancel

13. – eaves. Not identified
11. – 12. Possibly BH
10. BVFL
9. BH
8. BVFR
7. BVFR
6. BVFL
5. BH
4. BVFR
2. – 3. BH
1. BVFL
- Small square plinth, not identified

Stones 6. to 10. of the SE. chancel quoin are illustrated in Fig. 2.



Fig. 2 Stones 6. to 10. inclusive in the SE. chancel quoin at St Nicholas, Boarhunt. A low setting sun lights the stones obliquely so that the orientation of the bedding in the uppermost four stones can be read as BVFR, BVFR, BVFR, BH. Stone 6. is also orientated BH but cannot be read without a magnifying lens. The S. chancel wall has been redressed with a knapped flint and flint chip finish which is typical of 18th century workmanship.

in the gable of the E. wall of the chancel (with an associated string-course), both too high to examine in detail, are, apart from the quoins, almost the sole largely unaltered Anglo-Saxon features now present.

Internally, indications of a cross-wall, supposedly separating the western end from the main body of the nave, once existed (Irvine 1877; Page 1908, 147). Hare (1977), on the evidence of internal quoining, which can no longer clearly be seen, proposed that the cross-

wall was the original west wall of the church prior to the building of a western extension. He gave a probable 13th century date for the extension. Whether or not the cross-wall was at one time the western wall of the nave cannot from current data be determined, but if it existed it must have been of Anglo-Saxon construction, for the western nave quoins to the W. of its suggested position are certainly of that period.

That the chancel arch has been very extensively altered is evident from the three stone types included; the original stone appears again to be Quarr Stone, and the imposts which are the only through stones, and BH, are of this rock type. Two rocks, Chalk and Caen Stone, the latter certainly post-Conquest, make up a large proportion of the chancel arch.

Thirteenth century doors, both of which are now blocked, once opened from the N. and S. walls. Taylor and Taylor (1980, 77) correctly conjectured that these may have used 'the lower part of the Anglo-Saxon jambs'. In the better preserved N. doorway both jambs are of Quarr Stone and the stones are laid in typical Anglo-Saxon style, which had the BVFIA stones been longer, might have been referred to as 'Escomb fashion' (Brown 1925). Viewed from the north this displayed:

East jamb	West jamb
6. —	BH
5. BH	Unsure, but probably BVFIA
4. BVFIA	BH
3. BH	BVFIA
2. BVFIA	BH
1. BH	BH

The arch of the Early English style N. doorway is constructed partially of Chalk and its use, both here and elsewhere in the building, suggests that the presence of Chalk in the chancel arch may also be of this period.

The S. nave doorway is constructed entirely of Quarr Stone. Like the N. door it lacks imposts and is arched in Early English style. The jambs, viewed from the south remain in Anglo-Saxon style, and exhibited:

West jamb	East jamb
5. BVFIA	BH
4. Orientation	
uncertain	BVFLA
3. BVFIA	BH
2. BH	BH
1. BVFIA	Uncertain, mainly covered

This partial re-description of Boarhunt Church permits an Anglo-Saxon period of construction to be confirmed for large parts of the fabric. This is mainly evident from the principal quoins and the nave doorways. The chancel arch, which from its style, has been used in the past to help date the church, proves to be extensively reconstructed.

St Mary, Breamore: SU 153188

In 1898, Hill drew attention to the Anglo-Saxon character of Breamore church. Subsequently, probably because of its large size, important early rood, preserved Saxon inscription and transeptal plan, Breamore has attracted much interest. Authors including Micklethwaite (1898), Brown (1903; 1925), Page (1911, 598), Clapham (1930), Fletcher and Jackson (1945), Jackson and Fletcher (1949), Green and Green (1951), Fisher (1962), Rivoira (1975), Taylor and Taylor (1980), Fernie (1983) and Rodwell and Rouse (1984) have each

contributed to the great detail of information regarding the church which is now available.

The visible major quoins and pilaster strips in Breamore church show considerable similarity. They are rarely built proud of the walls. Both structures are broad (about 290 mm. wide) and constructed of similar rock types. The most common stone employed is, green glauconitic sandstone in which the distinctive fossil *Exogyra obliquata* is occasionally preserved. This is Cretaceous, Upper Greensand, locally quarried from either Chilmark or Hurdcott. The Hurdcott Stone, being the much closer geographically to Breamore, probably provided the source. Rodwell and Rouse (1984, 308) describe the rood as being carved in Chilmark Stone. Both quoins and pilasters include the occasional block of brown ferruginously-cemented sandstone. Rather more of this material occurs in various places in the random flint walls (as a row in the partially rebuilt east wall of the chancel), where it may be sufficiently coarser-grained, to be defined as a ferruginously-cemented gravel. Probably these iron-enriched rock types, locally known as Burley Rock (Potter 2003), were extracted by the Anglo-Saxons (Potter 2001), from geologically superficial deposits like river sands and gravels.

Of the quoins, at an easily visible level, the best preserved are the two (SW. and SE.) in the S. transept:

SW. transept quoin	SE. transept quoin
Eaves	
11. -12. Replacement stones, unidentified	15. -17. BH, probably replacements
10. BVFR	14. BVFR
9. Orientation uncertain, of ferruginous sandstone	12. -13. BH
8. BVFR	11. Orientation uncertain, replacement, tile at base
7. BH	8.-10. New replacements
6. BVFL	7. Orientation uncertain
5. BH, partially replaced at base	6. BH, in ferruginous sandstone
4. Replacement stone	5. BH
3. BVFR	4. BVFL, scratch dial on S. face
2. BH	3. BVFR
1. BVFL	2. BH, 'incipient' cut back on E. face
Pedestal	1. Orientation uncertain



Fig. 3 The remnant pilaster strip on the N. nave wall of St Mary, Breamore in which a number of the stones exhibit cut backs: these are described in the text. Stones 1. and 3. are orientated BVFB. The pilaster is 290 mm. wide.

The alterations are such that neither of these quoins illustrates typical long and short work. The western quoins of the nave are masked by modern

buttresses, but the eastern quoins in the chancel, largely rebuilt in the 14th century (Page, 1911: and note the Anglo-Saxon roof-line preserved on the E. face of the tower), still contain some stones set in Anglo-Saxon style, although approximately the upper half of each quoin (and the lowest four stones in the NE. quoin) have been replaced.

The partial pilaster strip on the N. nave wall was figured by Fletcher and Jackson (1945) and Green and Green (1951). The same pilaster was selected by Brown (1903, 88) to be illustrative of cut back 'flat slabs' ('short' stones), to meet in his belief, 'a stop for plaster'. Brown failed to note that the cut back stones also included a 'long' stone in the long and short style of the pilaster, and that on one of the two 'short' stones the 'cut back' was but a minor incision in the stone; the working of the stone probably being only decorative (Potter 2006). The Upper Greensand stones, however, exhibit Anglo-Saxon workmanship (Fig. 3):

5. 'Long' stone, cut back, E. side, orientation uncertain
4. 'Short' stone, cut back both sides, orientation uncertain
3. 'Long' stone, cut back both sides, BVFB
2. 'Short' stone, incipient cut back, W. side, orientation uncertain, cement covered
1. 'Long' stone, not cut back, determines the cut back width of higher stones, BVFB Pedestal, orientation uncertain

The pilaster strips on the S. wall of the nave similarly preserve some stones emplaced vertically:

- W. pilaster
Higher stones uncertain
9. Orientation uncertain
 - 7.-8. BVEB
 6. Ferruginously-cemented sand, orientation uncertain
 5. BH
 4. Orientation uncertain
 3. BVEB
 2. BH, incipient cut back W. side
 1. BVFB
Pedestal, orientation uncertain

- E. pilaster (SW. quoin of tower)
Higher stones uncertain
11. BH
 10. Ferruginously-cemented sand, orientation uncertain
 - 8.-9. Orientation uncertain
 7. BVEB
 - 5.-6. Orientation uncertain
 4. BVFB
 - 2.-3. BH
 1. BVFB

No pedestal

Of the tower arches only that to the S. transept/chapel preserves its Anglo-Saxon features (and a much-illustrated inscription). Unfortunately, as far as can be determined with the restricted illumination available, even within the jambs of this arch a large number of the stones have been replaced. The imposts are of Mid-Jurassic oolitic limestone rather than Upper Greensand but appear to be original. The use of this limestone, here relatively distant from its source (Jope 1964, 105), tends to suggest Anglo-Saxon workmanship undertaken in the last centuries prior to the Conquest.

Corhampton (Dedication unknown): SU 610204

The Anglo-Saxon features of Corhampton church have long been recognised and studied (Wright 1845, 34; Nisbett 1894; Brown 1903; 1925; Page 1908; Green and Green 1951; Taylor and Taylor 1980; Potter 2006), and Page (1908) made reference to the presence of a church in the Domesday records. The nave quoins, the external pilaster strips and the chancel arch and its strip-work are all completed with their stones set in Anglo-Saxon style. Each is worked in Quarr Stone, as is the Saxon sundial on the south face of the nave: although the nave and north and south chancel walls are built of quarried, and a few field, flints.

Three quoins, at the NW, SW, and SE. corners of the nave, are set in long and short style and

flush with the wall surfaces. The stones are set with fine neat joints as follows (S = short, L = long stone) and tabulated at the foot of this page.

Stone use in these quoins seems to reflect the availability of the material; the 'long' stones with BH setting in the SE. quoin for instance are relatively short (and almost side-alternate). Particularly illustrative of the same style of Anglo-Saxon stone setting are the pilaster strips in the N. nave wall E. end (A), and W. end (B), the W. nave wall centre (C), the S. nave wall W. end (D), and the S. chancel wall (E). These are tabulated at the top of the next page.

With the exception of the pilaster in the W. wall of the nave (C), each Stone 1. possesses a carved pediment, in which the ornament was described as 'three upright leaves' (Taylor and Taylor 1980, 177). A square basal plinth of Quarr Stone is present in all instances but D.

In contrast to the quoins, all the pilaster strips stand proud of the wall, the stones tend to be of approximately equal length regardless of their orientation, and occasionally stones may be cut back, generally to relate to the width of the narrower stones in the pilaster (Potter 2006).

The north door to the nave has at some stage been blocked (probably in the 13th century) but its outlining strip-work remains. These strips (at 118 mm.) are narrower than the wall pilasters

NW.	SW.	SE.
12.-13. Uncertain	Uncertain	Uncertain (Stone 12)
11. Uncertain	BVFR (L)	Uncertain
10. Uncertain	BH (S)	Uncertain
9. ? (L)	BVFR (L)	? (L)
8. ? (S)	BH (S)	BH (S)
7. BVFL (L)	BH (L)	BH (L)
6. BH (S)	BH (S)	BH (S)
5. BVFR (L)	BVFL (L)	BH (L)
4. BH (S)	BH (S)	BH (S)
3. BH (L)	BVFR (L)	BH (L)
2. BH (S)	BH (S)	BVFR (S)
1. BVFR (L)	BVFR (L)	BVFL (L)
BVFR Square Plinth	Plinth (covered)	Plinth (covered)

	A	B	C	D	E
			Higher	5 more	
8.	6 more	5 more	stones	stones	6 more
7.	stones	stones	to string	BVEB	stones
6.			course	BVFB	
5.	BVFB	BH	BH?	BVEB	BH (inclined)
4.	BVFB	BVFB	BVFB	BVFB	BVFB
3.	BH	BVFB	BVEB	BVFB	BVFB
2.	BVFB	BVEB	BVFB	BVEB	BVFB
1.	BVEB	BVEB	BVEB	BH?	BVFB

by about 38 mm. and each possesses a plinth, a bulbous carved basal stone and a distinctive impost. At least three stones in the strips on either side of the doorway exhibit stones that are orientated with their bedding vertical.

Corhampton's chancel arch displays an excellent example of the ornamental Anglo-Saxon style of stone orientation. In the jambs, as through stones or as pairs of stones, all stones are set alternately in courses, BH and BVFB, and in 'Escomb fashion'. The arch, entirely of through stones, is constructed of precisely cut voussoirs, and on the west face the partially damaged stones of the strip-work are, as far as can be determined, all set BVEB. Unusually, damage to this arch is minimal, with very little stone replacement.

The round font bowl of Anglo-Saxon style is constructed of Quarr Stone, a fabric which tends to confirm the age of its construction.

Apart from the limited later modifications, and in particular the E. chancel wall, the vestry and porch, and a requirement to remove the thin external render, Corhampton church provides one of the best examples nationally of a late Anglo-Saxon village church.

St Peter and St Paul, Fareham: (SU 582065)

The principal aspects of the 18th century and later structure of Fareham church have been described by Taylor and Taylor (1980). Others who have referred to this church include Page (1908) and Green and Green (1951), each of whom noted the Domesday record of a Fareham church, and Brown (1925, 453).

Only the eastern portion of the N. wall of the present Lady Chapel, which represents part of the early chancel, exhibits original Anglo-Saxon wall fabric. About a metre to the E. of a 13th century doorway of Cretaceous, Upper Greensand Malmstone, the lowest 2 m. of the wall is constructed partly of beach boulders of both Bembridge Limestone and a fine-grained, well-bedded sandstone (with occasional gastropod and bivalve fragments), possibly from the Oligocene, Osborne Member, both from the NE. coastline of the Isle of Wight. Flints and small blocks of Quarr Stone also occur in this portion of the wall. Higher in the wall and to the W. of the doorway the wall is constructed largely of flints. The lowest five stones of the NE. quoin of the early chancel are laid in long and short style, the three 'long' stones set BVFB and the two 'short' stones BH; higher stones being replacements. The five stones are of cut blocks of Quarr set flush with the walls.

The E. wall of the early chancel, to the E. of the quoin appears to have been entirely rebuilt. Although beach boulders of the original Anglo-Saxon material have been re-incorporated at the wall base, many more flints are also included. The Anglo-Saxon use of beach boulders in churches proximate to marine situations has been noted in other areas (Potter 2000; 2005a).

All Saints, Hannington: (SU 538555)

As at Fareham, the Anglo-Saxon style of quoin construction involving vertically orientated stones is preserved at Hannington in only

one instance – in the NE. quoin of the nave. Other quoins are of more recent age. Descriptions of the church and the quoin appear in Page (1911, 229), Green and Green (1951, 17), Taylor and Taylor (1980, 282) and Hare (1980). Certain details concerning the quoin are given in Potter (2006). A church was listed at Hannington in the Domesday records and the church preserves an Anglo-Saxon sundial on the largely rendered S. nave wall.

The quoin is fully exposed only on its N. face, and in contrast to the walls which are mainly of flints, the megalithic quoin stones are of a facies of mid-Jurassic shelly oolitic limestone. Set in a long and short style, three 'long' stones are, ascending the quoin, divided by a single and two double 'short' stones. The stones stand proud of the N. wall, and from the base may be read; BVFR, BVFL, BVFL, BVFL, BVFR, BVFR: higher stones being impossible to read from the ground. All stones are cut back to the minimum width of the face of the lowest stone, in decorative fashion, and even the lowest stone is partly trimmed. Such modification to make all stones in a quoin of an equal width must have been undertaken subsequent to the stones being built into the wall (Potter 2006).

The sundial is cut into a block of similar Middle Jurassic oolite rich in bryozoa. Anglo-Saxon use of Jurassic oolite, particularly for the construction of the quoin (and presumably others in the early church), so far to the south in England is exceptional. It would have involved overland transport over a distance of at least 60 km.

St Mary, Hartley Wintney: (SU 767558)

The redundant old church of Hartley Wintney has received little attention. Page (1911, 81) provided a limited description and stated that the nave and chancel 'have some 14th and 15th century details', although the walls were probably 'earlier'. Pevsner and Lloyd (1979, 274) gave the same component parts a late 13th to early 14th century date. The church advowson was at an early stage linked with the 12th century Wintney Priory (Page, 1911). The presence of ferruginously-cemented gravel

in the nave and chancel walls led the present author (Potter 2001) to propose that the church probably had Anglo-Saxon or Saxo-Norman origins.

The early 19th century brick transepts of Hartley Wintney church, together with the flint tower (erected in 1842), are later additions to an earlier two-celled church. The N. transept is slightly narrower than the S. so that both faces of the NE. nave quoin are visible. This quoin, the SE. nave quoin and the two eastern chancel quoins were at an early stage constructed of yellowish Hythe Beds, slightly calcareous sandstone. All four quoins possess some stones in this material where the bedding has been set with a vertical orientation. The NE. nave quoin is of especial interest. Very much reconstructed, it now contains 'modern' bricks and tiles as well as replacement blocks of Chalk. Removing these later additions from the analysis, there remain six large blocks of Hythe Beds sandstone and two (BH bedded) smaller blocks of ferruginous gravel. Each of the Hythe sandstone blocks is burnt and red on one face only, five on the E. face, and one (BH), presumably reset, on the N. face. Of the five sandstone blocks, four appear to be placed BVFL, the other BH. The ferruginous gravels seemingly not affected by fire must be replacement stones extracted from elsewhere in the walls.

It is unfortunate that in very recent years certain walls have been covered with render. This is deteriorating rapidly. Its full removal would permit an examination of the nave and chancel walls to enable the extent of Anglo-Saxon workmanship to be determined. The western nave quoins are enclosed by buttresses. In the cemetery lies a discarded, possibly Norman, Caen Stone font.

St Swithun, Headbourne Worthy: (SU 487319)

A wide range of authors, including Parker (1845), Nisbett (1894), Brown (1903; 1925), Page (1911, 426), Jackson and Fletcher (1949), Green and Green (1951) and Taylor and Taylor (1980), have described or noted particular Anglo-Saxon features at this church. The mutilated Saxon rood above the W. door of the



Fig. 4 The W. nave doorway of St Swithun, Headbourne Worthy, here viewed from the porch (from the W.), exhibits jamb stones placed 'Escomb fashion'. These Quarr Stone blocks are also orientated with their bedding either BVFIA (generally the 'long' through stones) or BH. The mutilated, but famous, rood occurs above this doorway.

nave has attracted much attention. A church is recorded at the time of the Domesday Survey and Green and Green, on historic evidence, proposed that the church was erected during the reign of Cnut (c.1017 – 1035).

Green and Green (p.18) and Taylor and Taylor (p. 290) have drawn attention to the rebuilding of the N. and S. walls of the church (1865 – 6) and the necessity for caution in their interpretation. The reconstruction, described by Slessor (1888), however, was undertaken with methodical care. The three pilaster strips on the N. nave wall and the single strip on the S. chancel wall have all been rebuilt, therefore, in Victorian times. The strips preserve their Anglo-Saxon setting and stand proud of the walls, with occasional stones requiring cut backs or trimming to obtain a regular proud face width throughout the pilaster height (Potter 2006). The W. pilaster strip on the N. nave wall is typical of the style of each and from the ground its stones read; BVFB (with carved stepped base), BVFB, BVEB, BVEB, BVFB, stones too high to determine. The lowest stones in the S. wall of the chancel pilaster similarly read; BVFB, BVFB, BVFB, BVFB, BH.

The NE. quoin to the nave, beneath the flying buttress, was also included in the Victorian repairs. The long and short disposition of the stones, although only poorly displayed, has been noted by others (as Green and Green 1951), and pronounced of Anglo-Saxon age. Not noted, have been the side-alternate stones of the same Quarr Stone which make up the lower portion of each of the eastern quoins of the chancel. Each quoin contains a number of vertically orientated stones, as follows:

NE. Nave	NE. Chancel	SE. Chancel
All higher stones more modern replacements		
8. –	–	BVFR
7. –	–	BVFL
6. BVFL (N. side cut back)	?	BH
5. BH	?	BVFL
4. BVFL	BVFR	BVFR
3. BH	?	BVFL
2. BH	BVFR	BH
1. BVFR	BVFL	BVFL
No plinth	Modern plinth	Modern plinth

The walls of Headbourne Worthy church are principally of quarried flints with occasional specific use of rocks such as Quarr Stone and later Caen Stone and Lower Chalk. Quarr Stone is used in both the Anglo-Saxon pilaster strips and quoins, but additionally in the font bowl, and in the nave W. doorway (Fig. 4), which is set 'Escomb fashion' and with the stone orientations BVFIA and BH. Nisbett (1894, 314) observed that some of the Quarr Stone blocks at this church were 'placed in an upright position', this now being recognised more than a century later as an Anglo-Saxon tradition. The jamb stones of the W. doorway illustrate this tradition further, being set only BVFIA and BH.

All Saints, Little Somborne: (SU 382386)

The structure of this small redundant church, in essence preserving only its nave, has been variously interpreted (Parker 1845; Brown 1903; 1925; Page 1911, 482; Jackson and Fletcher 1949; Green and Green 1951; Webster and Cherry 1976; Taylor and Taylor 1980). Elements of Anglo-Saxon work, constructed typically in Quarr Stone, have been recognised, and the church is probably referred to in the Domesday Survey. What remains has been extensively modified. Much of the chancel arch, now blocked, is 12th century; a time when double-splayed windows in the N. and S. nave walls were blocked. Excavations by Biddle (Webster and Cherry 1976) revealed that the W. end of the nave was shortened and rebuilt in the 14th century 'probably reusing the Anglo-Saxon quoin stones'.

The orientations of the stones in the pilaster strips to the W. end of the N. and S. walls are currently unreadable. The strip in the S. wall is covered with cement and that in the N. wall with lichen and recently applied wash. Some indication of their Anglo-Saxon origin is preserved in the cut back to the lowest stone in the northern strip (Potter 2006). The NW. quoin, preserving poor long and short structure is similarly lichen and wash covered. Remembering that it was



Fig. 5 Although the chancel arch of All Saints, Little Somborne was modified in the 12th century and subsequently blocked, it seems probable that the arch jambs and pilasters, carved together from individual blocks of Quarr Stone, represent traces of the original Anglo-Saxon structure. The S. jamb, shown here, has its stones set BVFIA in Anglo-Saxon style.

probably reconstructed, the lower part of the SW. quoin (now unfortunately wash covered) did portray stones set in Anglo-Saxon style, built upon a square plinth, as follows: first stone unreadable, BVFL, BVFL, BH, probably BVFL, probably BVFL, BH.

The jamb columns present on the west face of the chancel arch are interesting in that they have been cut out of Quarr Stone blocks (Fig. 5). These blocks all appear to be set in Anglo-Saxon BVFIA style and possibly represent

earlier Saxon strip-work, for the late Norman arch is built of Upper Chalk. Appropriately cleaned the jambs of the simple late Norman S. doorway, which also appear to be constructed of Quarr Stone, might more clearly reveal their age. The simple round font bowl is also carved in Quarr Stone. Unfortunately, although the principal walls are probably of quarried flints, much of Little Somborne church is coated either in thick plaster or lime-wash.

St Peter, Titchfield: (SU 541058)

The Anglo-Saxon W. porch of Titchfield church has attracted considerable attention (Parker

1845; Page 1908; Brown 1925; Clapham 1930; Fletcher and Jackson 1945; Green and Green 1951; Butler 1955; Jope 1958; Taylor and Taylor 1980; Fernie 1983; Hare 1975; 1984; 1992; Hinton 2002; Potter 2003). The porch, which today rises in a late 12th century tower, has customarily been dated 9th century although Hare (1975; 1992) suggests a date of late 7th or early 8th century to be more applicable.

The large quoin stones that form the western angles of the early porch were described by Hare (1975, 20), who described them as being of 'ironstone, limestone and greensand'. Worssam (in Hare, 1992, 141–2) further enlarged on these descriptions. The orientation of the stones can now be added:

NW. quoin	SW. quoin
Level of iron bracing band	–
11. BVFL, ferruginous sandstone	Uncertain
10. BVFR, Bembridge Limestone	BVFR, stone uncertain
9. BVFR, soft cream limestone	Cream limestone, orientation uncertain
8. BVFL, Bembridge Limestone with <i>Chara</i>	BVFR, cream limestone
7. BVFR? glauconitic sandstone	Cream limestone, BV direction uncertain
6. BVFL, ferruginous sandstone (Fig. 6)	BVFR, glauconitic sandstone
5. BH, Bembridge Limestone with <i>Chara</i> and <i>Galba</i>	BH, with dip, brownish sandstone
4. BH, ferruginous sandstone	BH, coarse ferruginous sandstone
3. BH, Bembridge Limestone	BH, glauconitic sandstone
2. BH, Bembridge Limestone with <i>Chara</i>	Rock type and orientation uncertain
1. BH, Quarr Stone	

The jamb stones of the W. doorway to the porch display:

N. jamb	S. jamb
Arch voussoirs all of Bembridge Limestone	
8. –	Glauconitic sandstone orientation uncertain. Small Quarr insert beneath
7. –	BH, Quarr/Bembridge Limestone
6. Glauconitic sandstone, orientation uncertain	BVFIA, Quarr/Bembridge
5. BVFIA, glauconitic sandstone	BH, Quarr/Bembridge
4. BVFIA, brownish sandstone	BH, Bembridge Limestone
3. Probably BVFIA, Bembridge Limestone	BH, Bembridge Limestone
2. BVFIA, Bembridge Limestone with <i>Chara</i>	BH, Bembridge Limestone
1. Probably BH, weathered Bembridge Limestone	Uncertain

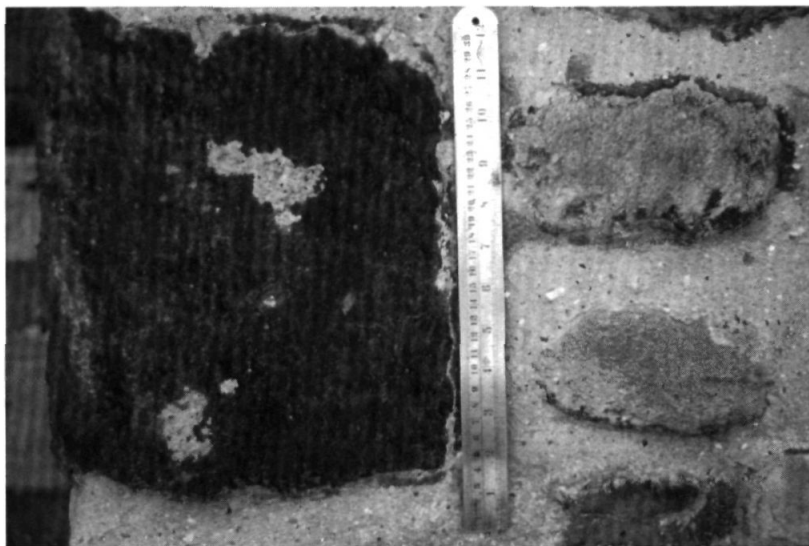


Fig. 6 Stone 6. in the NW. quoin of the tower/porch at St Peter, Titchfield. The stone is of ferruginously-cemented sandy-gravel and it is orientated with 'Bedding Vertical Face Left – BVFL'.

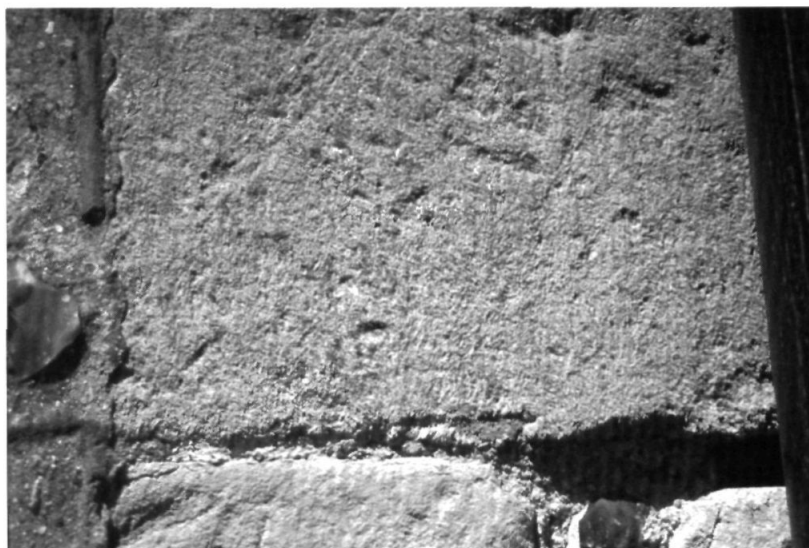


Fig. 7 Stone 6. in the reconstructed SE. chancel quoin at St Peter, Titchfield. This Quarr Stone is orientated with its bedding vertical, BVFL. Although the chancel is thought to have been rebuilt about 1220 the original Saxon quoin stones appear to have been at least in part re-used.

The complex range of stones incorporated into the four quoins and jambs described above, suggests that each has been much rebuilt. Some comment is required regarding the source of

these stones for instances countrywide of Anglo-Saxon incorporation of a variety of stones in a single structure, such as a quoin or jamb, are rare. The glauconitic sandstone is frequently bio-

turbated, possesses occasional small cherts, and the presence of included, if rare, muscovite flakes suggests that the rock originated in the Cretaceous, Upper Greensand (as proposed by Worssam, in Hare 1992), and therefore, from either the Vale of Wardour or the western Weald. Isle of Wight rock of this age tends to contain more fossils. The same glauconitic sandstone was used extensively in the church buttresses which Page (1908) referred to the 15th century. However, in one (possibly two) instances the stones are emplaced vertically, and Pearson (2003) recorded Roman use of this stone at Portchester, from where the sandstone may have been plundered. It seems likely that the varieties of Bembridge Limestone used were also quarried by the Anglo-Saxons from the walls of the Roman Portchester. Ferruginously-cemented sandstone (Fig. 6) was a popular, generally locally extracted stone, used by Anglo-Saxon builders (Potter 2001; 2003).

There remain two stone types which are difficult to relate to Anglo-Saxon workmanship. The brown and cream sandstones, Worssam (in Hare 1992) postulated as being a weathered derivative of the glauconitic Upper Greensand. These stones are noticeably coarser and although they contain glauconite, muscovite is absent, suggesting that are of Lower Greensand origin. Rocks of this type were apparently not observed in the Roman Portchester and they may have been obtained from the southern shores of the Isle of Wight. The cream limestones, Worssam, identified as 'possibly Beer Stone', a variety of Middle Chalk from the east Devon Coast which hardens on exposure. Again, this stone has not been observed in Roman Portchester, but Jope (1964) has suggested that it was worked in late Saxon times and at Titchfield it may have been used for repair work during this period.

The west wall of the nave of Titchfield church has, like the early porch, also been identified as of Anglo-Saxon age. In the exposed SW. quoin at least one stone (Stone 7, of Bembridge Limestone) has been placed with an orientation BVFR. The mix of rock types is similar to those seen in the porch quoins. The chancel is thought to have been rebuilt and enlarged about 1220 (Page, 1908), but it seems evident that the quoin stones were reused. The E. face

of the SE. quoin is still visible and its lowest stones, placed in side-alternate fashion, reveal the following orientations:

- 12.–13. Orientation uncertain, Upper Greensand
 11. BVFL, Bembridge Limestone
 10. BVFR, Beer Stone?
- 8.–9. Orientation uncertain, Beer Stone?
 7. Orientation uncertain, Upper Greensand
 6. BVFL, Quarr Stone (Fig. 7)
 5. BVFL, Upper Greensand with cherts
 4. BVFR, Beer Stone?
 3. BH, Beer Stone?
 2. BVFR, Mid-Jurassic shelly oolite
 1. Orientation and rock type uncertain

St George, Arreton, Isle of Wight: (SZ 535867)

The church at Arreton has received but limited attention. Described by Page (1912, 149) as 11th century, Brown (1925, 442) considered the earliest fabric as early 10th century, and Taylor and Taylor (1980, 80) as 'Period C'. A church is listed at Arreton in the Domesday records. The oldest portion of the fabric includes the western wall of the nave and the church is included in this paper because the original west doorway provides an excellent illustration of stone orientation in the jambs of the arch. Viewed from the nave, the stones are laid as follows (Fig. 8):

S. jamb	N. jamb
	8. Impost, BH
	7. BH
6. Impost, BH	6. BH
5. BH	5. BVFIA
4. BH	4. BH
3. BVFIA, with small repair	3. BVFIA
2. BH	2. BH
1. BVFIA	1. BVFIA

All stones are of Quarr Stone, with the repair completed in more orthodox Bembridge Limestone. Each stone is a through stone with the exception of positions 1, 3, and 7 in the N. jamb where two stones complete the width of



Fig. 8 The west nave doorway (tower arch) of St George, Arreton, viewed from the nave. The jambs built of Quar Stone are placed in 'Escomb style', with the longer upright stones inserted with their bedding planes facing into the arch (BVFLA) in Anglo-Saxon style.

the jamb. The jambs are set 'Escomb fashion' and the arch, on its W. face, consists of 12 well-constructed voussoirs.

DISCUSSION AND CONCLUSIONS

This brief analysis of the readily visible structural stonework of a small selection of ten Hampshire early churches illustrates two important features. The first, that the Anglo-Saxon stonemasons were very familiar with the physical properties of different rock-types. This enabled them to select stones to use decoratively in an unortho-

dox way, so that in quoins, pilaster-strips and arch jambs the stones were often emplaced with their bedding planes orientated vertically. To the present day, in England this practice has hardly ever been adopted by those that followed. Church historians can, as a result, identify and employ this characteristic style to more precisely determine those portions of buildings which were constructed by Anglo-Saxon craftsmen. This specific Saxon use of stones, is a feature which exists countrywide (Potter 2005).

The selection of churches in Hampshire has been illustrative and others exist. To be fully credible they should be compared with the majority of churches of more recent age that do not exhibit these features. It should be noted that there are occasions also where the Anglo-Saxon builder employed stone, such as flint, where the rock fails to possess stratification or bedding planes. The church of St Michael, Quarley (SU 273440) has nave quoins of this nature and only structures like the architectural style of blocked windows has enabled the church to be given a Saxon designation.

The Domesday records indicate that eight of the churches described stand on or near to the site of a known Anglo-Saxon church. No such written record exists for either Titchfield, which may well contain the oldest remains, or Hartley Wintney. The latter church was included in this analysis to show how the distinctive Anglo-Saxon technique of incorporating stones with vertically orientated bedding may extend our knowledge to churches otherwise not recognised as being of this age. At Titchfield, and other churches in the selection, the area of preserved Anglo-Saxon workmanship within the building has been extended. Elsewhere, it has been confirmed or shown to be absent.

In many instances, for reasons already outlined, the recognition of Anglo-Saxon vertical stone orientation can be difficult. The unfortunate and frequently inappropriate process of coating external church walls with cement or lime-based render or washes adds enormously to the difficulties of recognition. The church at Little Somborne illustrates this problem. The majority of the stones, of which flint is the commonest and a prime example,

used in the walling of Hampshire's churches are impervious to water. If water penetration is the reason for such coats they clearly serve no purpose: re-pointing, improved guttering, ground level damp-proofing, etc., would be more beneficial and leave walls free for structural interpretation.

The churches of Hampshire, like those in other parts of the United Kingdom, can exhibit a distinctive style of workmanship that, where present, can be linked to the Anglo-Saxon craftsman; it is to be hoped this

new means of identity will enable others to extend the levels of understanding of Anglo-Saxon buildings.

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