Bar Locks and Early Church Security in the British Isles

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6th July 1932 – 27th November 2019

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Archaeopress Publishing Ltd
Summertown Pavilion
18-24 Middle Way
Summertown
Oxford OX2 7LG

www.archaeopress.com

ISBN 978-1-78969-398-0
ISBN 978-1-78969-399-7 (e-Pdf)

Cover: The north aisle door at Stragglethorpe, Lincolnshire (SK 913 524) which is retained in position by a bar lock. Whilst this Monograph largely describes and pictures holes in church walls, these helped to provide security to churches in the past. To remind ourselves that behind those holes are attractive church buildings, the back cover picture provides a view of the south side of Meldreth church in Cambridgeshire; a church kindly brought to the author's attention by Peter Draper.

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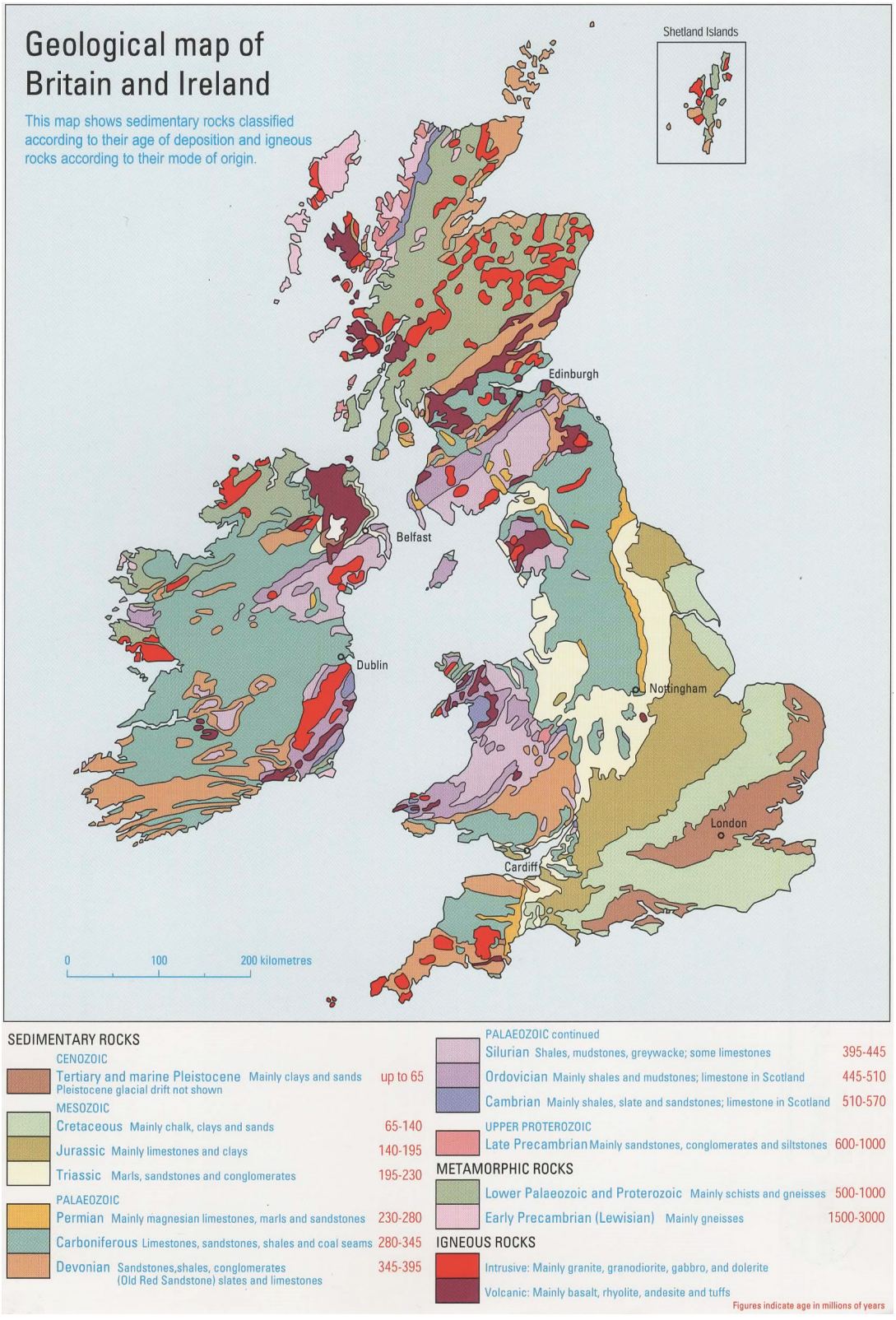

Frontispiece: A simplified geological map of Britain and Ireland after the British Geological Survey. Published here by kind permission of the Natural Environment Research Council.

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Acknowledgements

This work covers assimilated knowledge and associated studies accumulated over a period of 43 years. It is perhaps appropriate to acknowledge those, who now, to my memory, are nameless persons from the British Geological Survey who at that time telephoned the present author to enquire if he was aware of the building stones used in the chancel of the Ripley church, Surrey (TQ 052 566)? This was to be the first of very many thousands of churches to be examined by the author, for the walls at Ripley proved to be constructed unusually of iron- bound (ferruginously-cemented) blocks of gravel. These studies, and the numerous publications which resulted from them, were often dependent in part upon both professional support, and assistance generously offered in the field, particularly in the provision of help in determining the location of some of the more remote, ruined and overgrown churches. All must remain anonymous, for a substantial number of their names can no longer be recalled. However, just one of the many persons from the author's early formative years must be acknowledged, for the late Dr Harold Taylor, who kindly offered friendship, encouragement and understanding, should not go unrecorded.

Indirectly supporting this study, the extensive field work in the past which was undertaken across the British Isles received financial assistance to alleviate some of the costs from both the British Academy, and for work in Scotland, the Council of British Archaeology. Certain libraries have over the years provided helpful and cooperative assistance which enabled the author to gain access more readily to some of the more obscure publications cited in this work. In particular, I wish to recall the kind help received from staff of the following libraries: Fleet Library, Hampshire; University of Reading Library and the Bodleian Library, University of Oxford. The author is also indebted to both the Ordnance and the Geological Surveys: for the quality and availability of their maps as always proved invaluable. The geological map that provides a frontispiece to this volume is published here by kind permission of the Natural Environmental Research Council.

Encouragement and assistance has always been forthcoming from the Publishers, Archaeopress of Oxford. In particular, as author, I am extremely indebted to the Director, Dr David Davison, for he has provided both interest and very extensive help, while in addition his staff have offered much support which has helped to simplify and ease the final production of this work. Apart from the many persons encountered on visits to ecclesiastical sites who were keen to learn more and to also provide useful information about their building, three important individuals must also be profusely thanked. These are: Dr L. Siss, who kindly proof read early manuscripts and gave enormous useful help and guidance; Dr Raine Borg, whose expertise following his PhD on churches and bar locks in southern Sweden in 2002, and his knowledge of early keys and locking systems, greatly assisted the early stages of this study. Finally, Dr Christopher Brookes, whose profound and wide-ranging knowledge on all subjects related to the defensibility of churches, following his truly excellent study of the ecclesiastical sites of the Scottish Borderlands, was always freely imparted.

Never to be forgotten is the support kindly provided by my loved ones; my always patient wife, my children and grandchildren, together with my friends. It is they that have suffered my long periods of absence and lack of attention during the protracted periods of researching and compiling this work.

ALWAYS IN MY THOUGHTS

Chapter One
Keys and Bar Locks

1.1 The evolution of this study

Forty plus years of detailed study of the fabrics and structures of early Christian ecclesiastical sites and buildings, throughout the British Isles (as, in more recent years, Potter, 2005b, 2009c, 2013a, 2015, 2016b), have led the author to some unexpected discoveries. One, in particular, has been that very little examination, discussion or observation has been made as to how the earlier of these buildings were made secure when they were first built. That castles should possess defensive features such as the moat, drawbridge, portcullis and thick walls, all constructed to provide defence and security, has never been questioned. In 2004, Harrison in a description of many of the larger, predominantly monastic, religious structures in the northern hemisphere described them as 'Castles of God'. Indeed, he states (page 4), that paramount to inclusion in his excellent study, *'architecturally, the ecclesiastical edifice is subservient to the military'*. Early churches, perhaps erected at much the same time and on occasions presumably in the possession of valuables, would often appear to remain lacking in any similar level of protection.

The populace at large today, and most persons associated with churches, including those whose work or study embraces these churches, in response to comment or the question as to how the early protection of the buildings was accomplished, may well answer *'with doors and keys, of course'* (Manning, 2010). A very limited number of persons have used, or are aware of instances of, a means of locking a church door without a key. Scrutiny of some older doorways does, however, certainly reveal evidence in the jambs of what might be termed 'wooden sliding cross bar security systems', or briefly, 'bar locks' (Figure 1.1). Figure 1.1 In the British Isles, as far as the present author originally believed, no attempt had been made to fully describe the function, distribution, or use and implications of this means of security. In the earliest years of the second millennium the present author identified and recognised the importance of bar locks which he had observed in Wales for the first time. At that time, bar locks, had been recently reported in churches in Southern Sweden and described in the PhD thesis of Dr Raine Borg (2002). Possibly without intention, Dr Borg intimated, in correspondence, that this occurrence was the first to be recorded in Europe. More recently, the present author was to discover the large amount of study (as that of Brooke, 2000) undertaken in recent years on the subject of the defence of churches and like buildings. An earlier study in France (Bonde, 1994) also refers to the defensive aspects of large churches.

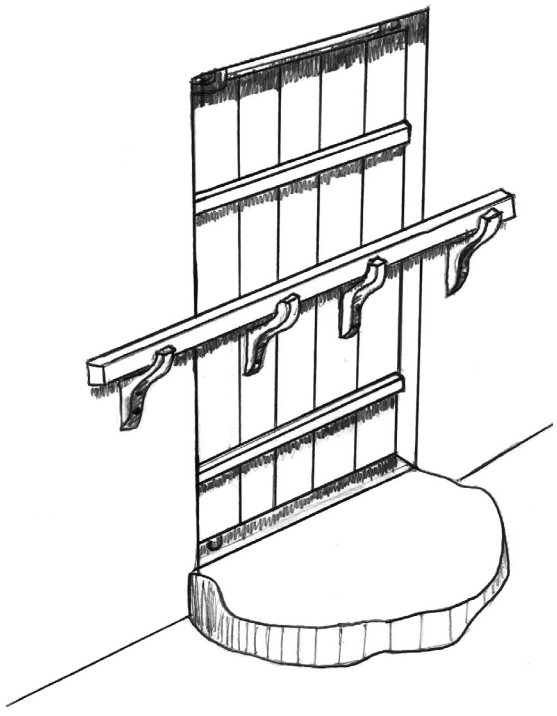

Figure 1.1. Simple bar lock as figured by Dr R. Borg in his 'Lexicon of locks and keys'. The bar locks in churches are typically held within holes in the wall. As illustrated here the principle of operation can be more easily observed.

1.2 Church security

In past times, just as today, it has always been necessary for buildings to provide security. This has been sought in order to protect various possessions, and to offer personal refuge and safety within the building. Before the invention of the locking devices with which we are familiar today, and in particular, the innovation of keys, the requirement must have created major and significant problems. For those with money and power, the ultimate protective structure in the past was provided by the sanctuary of the castle. At that time, in contrast to the castle, the early churches and the smaller monastic properties of the period were established to provide religious services and leadership, as well as the facility for personal private prayer. These were offered by invitation, and as today, they were dependent upon the buildings involved being open for attendance. Unless permanently supervised and controlled, the churches and their valuable contents could have, therefore, been subject to substantial damage and possible loss.

The historical records disclose that Viking, Norse and Danish marauding visitors found churches especially, relatively easy picking. Some of these raids have been documented by the current author (Potter, 2009c, 168-169, and Figure 6.5) and certain periods of Viking and Danish activity are referred to in Table 1.1 of the present work. These particular accounts highlight the need for church security in fraught circumstances, but it is easy to imagine the routine need for church security in much less difficult 'everyday' circumstances, both in earlier and later periods. At the simplest level there would be a need to keep undesirables, animals and the weather out of churches. (The special circumstances of the churches in the Border country between England and Scotland in the early medieval period are examined below).

The relatively recent recognition that some early churches, in the absence of keys, were kept secure from the inside of the church, by means of thick wooden bars (bar locks), confirms the requirement that often permanent occupation by a person or persons must have become a necessity. Only from within the church was the positioning of bar locks possible.

The capability to lock a strong church door from the inside would have been the first fundamental step in securing the building and possibly providing some sanctuary for temporary occupants who had fled from their more fragile dwellings. The shuttering and provision of bar locks for windows is analogous. Instances are evident where the original church may have needed supplementary structural protection beyond that provided by the installed door bar locks, and these measures could have major implications for structural change and design in the buildings. These supplementary protective requirements and methods for achieving them are many and various and are considered below. The recognition of the role of bar locks in securing churches led the present author to consider the further measures introduced to enhance church security, but the starting point of this study is an examination of the evidence for bar locks which takes up the first half of this work. The more varied measures taken to enhance more general church security provide the basis for the second half of this work.

1.3 What is a bar lock?

Typically constructed of metal such as iron or steel, a modern bar lock might be described as a long bolt which may be attached to the inside or outside of a door, so that the shaft of the bolt may be slid into a housing either built into, or attached to, the door jamb on the opposite side of the door to the door's hinge. Commonly, in current modern systems, the bolt may be additionally secured, or prevented from further movement, by some form of locking system involving a key. An enormous range of modern bar locks exists and modified forms of this type of security range from the standard 'push-bar' emergency

Table 1.1. Itemising, for the period 800 to 1350, some of the more critical periods of unrest throughout the British Isles. These would no doubt require religious buildings to require maximum security. Brooke (2000) effectively describes the extent to which both the English and the Scottish actively pursued the destruction of both churches and other property in the Border country over the period 1290 to 1590.

Period	Events/Activity	Area particularly involved
9th C	Viking raids began (790). In Mercia, Offa and Wat dykes built. Mercia, partially Christian, conquered by Wessex (829). Alfred, King of Wessex, (886)	Initially north and east. Presumably to subdue those to the west. North and central England. Captured London and halted Danish advances (Edlington, 878)
10th C	Wessex defeats - Edgar, first King of England (973). Danish (Viking) raids intensify (980-1016).	Scots, Welsh, Irish and Vikings (937)
11th C	Cnut, King of England (1016-1035). King Harold and the Norman Conquest (1066); King William (1066-1087). Stone castle building commenced.	British defeated (at Ashingdon). Battle of Hastings First from the south, raids into Wales, Scotland and Ireland (with eventual infiltration and dominance).
12th C	Civil war on King Henry I (1100-1135) death and anarchy of King Stephen (1135-1154), and Matilda Becket murder (1170), King Richard I (1189-1199) absent at crusades.	Widespread upheaval. Unsettled conditions
13th C	King John (1199-1216) and Magna Carta (1215). Barons' wars (1260s). De Montfort (defeated 1265). King Edward I (1272) Scots Wars of Independence (1290-1320s) – William Wallace and Robert the Bruce (1300)	Widespread disagreements with Barons. Evesham. Subdued Wales (Castles). Scotland and North England (Bannockburn, 1314 and Halidon Hill, 1333).
14th C	Black Death (1348-1351)	Population reduced to possibly quarter size (perhaps to 1-2 million persons)

exit, to other instances of longer bars across a full door width, such as where a central key withdraws a catch from the housings on both door jambs.

If security is required only from one side, as in the home, it is more common to separate the mechanical functions of the bolt from those of the lock and key. Simple effective door bolts may be applied manually. Outside the scope of this discussion there are the many non-mechanical means of modern origin (such as electronic and electrical methods), which can provide safe-keeping.

The term 'draw bar' has been used by certain authors (as Brooke, 2000) as an alternative term for bar lock, placing the emphasis on the unlocking rather than the locking process.

1.4 Keys and locks

The security of buildings today may be optimised both inside and outside by using a locking system which typically involves one or more keys. For a single key to access both sides of a door locking system, a key-hole is necessary. The simplicity of this form of security poses the question as to

how long locks and keys have been available, and in particular, for how long have they been used in churches? Both locks and keys vary enormously in their structure. Raine Borg has defined keys as being instruments that are programmed or coded through the shape of the bit, which matches the pins and wards of the lock (See Figure 1.2). The turning of the key typically closes or opens the lock. The bit is that part of the key which acts directly on the locking mechanism.

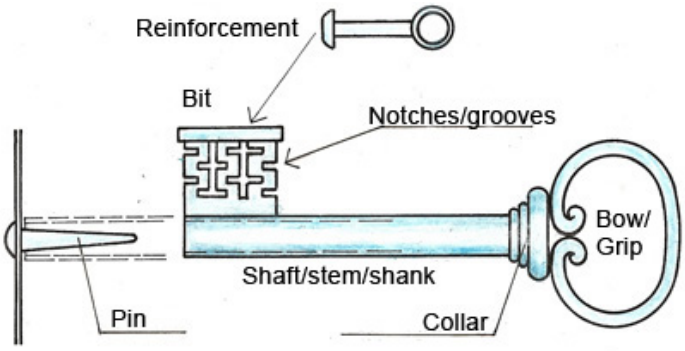

Figure 1.2. The essential parts of a key from Borg's 'Lexicon of locks and keys'.

It is possible that the earliest locks and keys were constructed five or six thousand years ago and wooden keys and locks are recorded from ancient Egypt. Such a wooden device was recorded in Assyria in the city of Nineveh at the palace of Khorsabad (in Iraqi, Kurdistan) and said to date from 704BC (de Vries, *et al.*, 1992, 32). It is probable that originally gravity-controlled pins fell into position to control the movement of a security bolt. The bolt was then freed by inserting a large and cumbersome wooden key which was used to manually lift and free the pins. The ancient Greeks may have invented and certainly used the keyhole and metal (typically bronze or iron) locks and keys. Homer's Odyssey (Book 21) recounts how Penelope, wife of Odysseus, '*... quickly undid the thong attached to the hook, passed the key through the hole, and with an accurate thrust shot back the bolt*.' Elsewhere, Penelope is said to use a '*well-made bronze key with an ivory handle*' and the '*bolting and barring*' of the courtyard gate is requested. Metallic bronze and iron keys were widely used by the Romans. Raine Borg suggests that the Romans could manufacture sufficiently suitable iron to create springs to enable padlocks to be created. The craft indeed was so sophisticated to allow the creation of somewhat similar so-called small 'puzzle padlocks' bearing a face or 'mask' in Celtic style. The padlocks were designed to secure small bags or money pouches and their distribution extended across Europe (Slocum and Sonneveld, 2017)

Keys are collected widely but dating them and determining where, or for what purpose, they were used is difficult to ascertain. A useful 'lexicon of locks and keys' can be found on the web site www.historicallocks.com/en/site/h/historicallocks/dictionary/. This site gives details of the many varied locks and keys which may be found and their possible functions. Figure 1.3, again from a sketch by Raine Borg, illustrates several iron keys with claws, each long

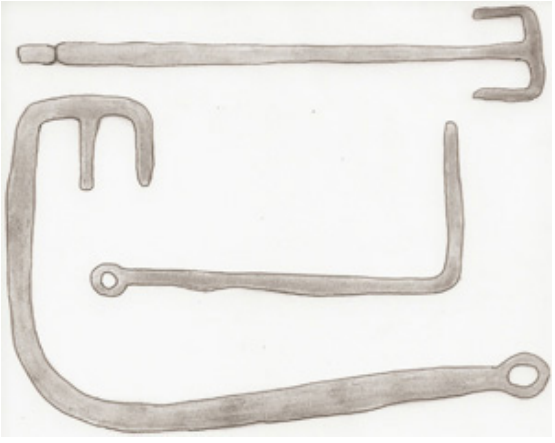

Figure 1.3. Borg's sketches of Celtic Viking long iron keys from the Värnamo area of Sweden.

Figure 1.4. A bronze key with a clawed blade probably of Viking origin dated to about AD 300.

Figure 1.5. A further clawed key thought to be of Anglo-Viking origin and dated to about AD 900.

Figure 1.6. A pull-ring lock Swedish key (dated to 1312-1313) photographed by Dr R. Borg. The mechanism requires two hands operate – one to draw the bolt, the other to turn the key.

key, used to manually release different locking systems. They were probably of Viking (Celtic) age and were found in the Värnamo area of Sweden. They were in all probability used in much the same manner as described by Homer. Figure 1.4 illustrates a bronze key identified as of Viking source with a clawed blade (*Historia om nycklar 3 liten*) which is believed to have been used about AD 300; while Figure 1.5, which is a similar clawed key, has been described as of Anglo-Viking origin and dated to about AD 900 (author J. F. Smith). Dr Raine Borg holds a large personal collection of keys, and he has produced a drawing of one of his keys from southern Sweden which is thought to date from the early 1100s. It is believed to have been operated as a metallic (iron) mechanism within a block of wood and, as the key is more than 150mm long, it is possible to presume that locking could be achieved from either side (of a door) by means of a keyhole. In many locking mechanisms little of the action can be readily viewed and the workings may be encased. The pull-ring lock from Sweden (shown in Figure 1.6) required two hands to operate, one for pulling the ring whilst the other turned the key. It is dated to 1312-13 and is photographed here by Raine Borg.

1.5 Early bar locks

Figure 1.1, taken from the above-mentioned web site, shows the very simplest of bar locking systems created in timber. It has no key. Critically, it would protect only those people or objects on the side of the door bar lock. Such a locking system has not been observed by the present author in an ecclesiastical site. However, on occasions somewhat modified examples exist. Typically they are strengthened with metal parts and padlocks, to be used on rarely-used doorways in small churches, in order to secure the building. Such an example may be observed at Stragglethorpe church (SK 913 524), in Lincolnshire (Figure 1.7). The door illustrated must be of relatively modern construction. In other churches, bar locks of no great age and without supportive padlocks may provide security to a minor entrance, where the church has keys with locks to control principal entrances to the building.

There is ample evidence that bar locking systems were used in many churches of much greater age. In the oldest examples it is possible to attribute their origin to the Anglo-Saxon period. Typically, thick wooden doors were barricaded by an interior bar locking system. This amounted to a long, bulky

Figure 1.7. The north aisle door at Stragglethorpe, Lincolnshire (SK 913 524) which is retained in position by a bar lock.

length of solid wood about 0.08 to 0.12m in cross section, which ran across the back of the door and was held in position by a hole in the wall on either side of the door. On occasions there were two bars of this nature, one towards the top of the door, the other towards the bottom. This (or these) left the door immovable between the door rebate and the bar. To open the door the bar was slid into a cavity in the wall which was deep enough to accommodate the full length of the bar. The cross bars were typically at least 1.5m long, more than sufficient to cover the full width of the doorway aperture. Full evidence of the door (or the cross bar) involved is observed only rarely in the British Isles, but it is possible that, for ease of use, the weight of the bar was supported by appropriate attachments on the back of the door.

In his studies in Southern Sweden, Borg (2002) discovered three instances where remains of the cross bar were still present (all in Gotland County), and in all, 16 instances of churches with cross bar holes or 'grooves'. Twelve of these were in Gotland County. In many examples in Southern Sweden, two, three or even four doorways (but generally all the doorways in an individual church) carried evidence of cross-bar locking. The churches involved, were given building dates mainly within the early 13th C., but in the range of 1086 (Lärbro, Gotland) to 1400 (Sjösås, Kronoberg County). Dr Borg has advised that the work is to be published in the www.historicallocks.com web site (of which he is the author).

In the British Isles, with the invention of simple, cheap and effective mechanical key locking systems, the bar locks tended to fall into disuse and the holes for the bars were often filled and forgotten. In many instances the presence of a bar lock hole is difficult to ascertain for it may have been infilled with stone or wood when it was no longer required. It must be accepted that if all entry points to a church possessed a bar locking system those persons involved in locking the church (or other building) would have to remain inside the premises.

In the majority of churches where bar locking systems of the type just described occur, it is evident that the buildings were secured, therefore, for the defence of both people and property. This involved both the clergy and, if necessary, local inhabitants. According to the number of doors, each door would have been similarly protected in times of potential danger or need for security. It is clear that those involved in security by this means remained within the church until any imminent danger had disappeared. Occasionally these bars would have been of such a size and weight as to require more than one person to be able easily to fit them into position, rather than individuals.

What regrettably cannot be determined is the date from which each church acquired a key locking system to permit both exit and entry. That keys were readily available to the wealthy is clear from carvings on gravestones, typically those dated to about the 15th C.. Keys were certainly known much earlier but they were uncommon. King Henry VIII is known to have been accompanied always by a door key locking system which was fitted for his privacy, wherever his geographical locality. The British Museum holds three keys, described as padlock keys, tentatively dated to the period 9th to 11th C.. Although they might possibly have been used in a church, they have not been related to any specific church by locality: neither has their precise function been suggested.

1.6 Dating bar locks

The earliest bar locks go back to the earliest days of the church and the security system lasted for many centuries. Other than obviously modern structures (which may in their fabric include metals or plastics), bar locks appear rarely to have been created later than the 16th C. From about that date (or a century or so before), church doors appear to have generally been secured with door locks and keys, enabling a means of protection which could be offered and operated from both inside and outside the church. However, because they remained effective, and were simple and easy to use, the bar locks in many instances, continued to provide a service until overcome by their dereliction. Even today, there are rare instances of their use, as for example, in the west front doors of Exeter Cathedral (see Table 2.1, Figures 2.6 to 2.9).

Preserved bar locks, or their past evidence as seen through the bar lock holes, are clearly not all of the same age. This may be particularly evident in certain instances; especially where the door-frame into which the holes of the bar lock is constructed can be dated. It is very difficult to prove, without demolishing the wall, but there are occasions where the holes for bar locks appear to have been built at the same time as the wall containing them. In these circumstances it is vital to be able to date the door construction.

In some instances, features such as the shape of a door or window arch, have been thought to be sufficiently distinctive to be datable. The terms in Table 1.2 are widely applied in standard architectural literature, each recognisable by features which are distinguishable in the period. Typically the features involved are related to arch shapes (with variants such as triangular, round or pointed), window shape and the varieties of window elaboration, and to ornamentation. For *Anglo-Saxon,* the current author has suggested that *'Patterned'* should be used, because of the distinctive stonework (Potter, 2008d, and see below). This provides a term which enables use in areas beyond England and that of Anglo-Saxon dominance. It is used until the Norman Conquest.

Table 1.2. Architectural Styles c. AD 800–1530

Anglo-Saxon	(better referred to as *'Patterned'*). About 800 to the Norman Conquest.
Norman	(often described as '*Romanesque*'). Typically post 1066, and 11th or 12th C. In the south of England may sometimes be slightly earlier.
Transitional.	About 1175 to 1200. Introduces the *Gothic* pointed arch. From this period quoin stones are laid with bedding horizontal in all structures.
Early English.	1190 to 1250. A popular name for a division of this period of *Gothic* architecture.
Decorated.	About 1290 to 1350, the name derived from the type of window tracery.
Perpendicular.	Approximately 1335-1350 to 1530. The main time interval referred to in the period collectively known as the *Gothic*. This commences with Transitional architecture and is increasingly typified by tracery windows with vertical panels, etc..

Table 1.2 Provides the customarily-recognised intervals of time in architectural fashion and literature over the approximate time interval of AD 800 to 1530. It is clear that it is likely to be very difficult to date bar locks accurately, indeed their earlier existence may well be obscured by the infilling of cavities related to the bar locks in later centuries and the reconstruction or partial re-building of the church doorways and associated structures. The identification of the presence of early bar locks is often only likely to be possible by the very careful 'excavation' of the remaining structures which opportunity is only likely to occur in the rarest circumstances. In any event, it will be very important to consider the detailed construction methods of the associated doorways which may be able to confirm the contemporaneity of any bar lock holes present, or indeed their filling in at a later date, while also providing a guide to the general dating of the construction beyond that provided simply by architectural styles. The analysis of church doorways, in particular, in the light of the methodology presented below, will be essential to help to determine the possible presence and date of bar locks and associated structures.

Until recently, the distinctions between the architectural styles listed in Table 1.2 were determined by viewing the differences in the detail of items such as window tracery and features such as the shape of arches. The present author has in recent years been able to illustrate that it is possible to determine differences between the main periods of architecture (Anglo-Saxon, Norman and Gothic) by different and perhaps simpler means. This involved examining the structure of the building blocks of stone which make up important elements of the buildings, such as those which create the quoins between walls and in arch and window jambs (Potter, 2003b; 2005a; 2005b, 2006a, 2006b, 2009c, 2009d).

For those who are unfamiliar with the articles by the present author (as referred to above), a limited explanation is provided immediately below. Certain distinctive patterns in the use of stone were archaeologically originally recognised more than a century ago, as for instance one in which the stones used in wall quoins were thought to be of Anglo-Saxon age (Rickman, 1836). The identified pattern, described as 'long and short', was related to the stone shapes. This author wrote:

> '*....there is a peculiar sort of quoining... consisting of a long stone set at the corner and short one laying on it...*'
> Rickman (1836, 28-29)

Other authors have contributed to the gradually-increasing understanding of the stonework and masonry detail which is typical of the earliest periods of English ecclesiastical architecture. The works of Micklethwaite (1896; 1898); Brown (1903; 1925) and Clapham (1930; 1934) each assisted extensively in determining characteristic features of Anglo-Saxon architecture and distinguishing it (in the British Isles) from Norman and later Post-Conquest work. Ultimately, Taylor and Taylor (1965) and Taylor (1978) produced a work in three volumes detailing all the then recognised features which were distinctive of Anglo-Saxon architecture, relating these to almost all the recognised churches of that period in England.

The present author, a geologist by training, has examined the stones used in the church construction in rather more detail. Often this has involved using a powerful hand lens to enable close examination of the stone used. The rock magnification enables any layering or lines of weakness within the rock (and, therefore, directions of strength) to be more readily identified.

Those first working and using stone for building purposes, must have acquired the knowledge that most rock types varied in strength in different directions. This would have been noted particularly as the rocks were hewn or worked into shape (Figure 1.8.). Any planar layering would have been used to help break or split the rock, and provide evidence that the rock was stronger in a direction normal to (perpendicular to) any layering. When stone was used for building purposes, the stones would be laid normally to carry the weight of the building, that is, the planar surfaces would be placed horizontally.

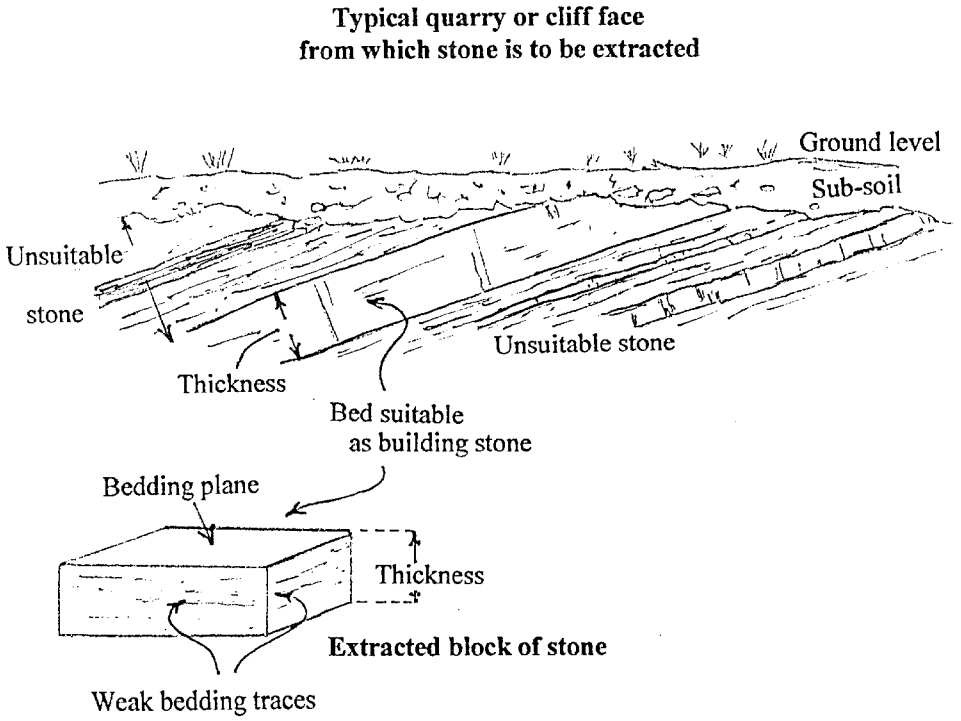

Figure 1.8. Bedding stratification in sedimentary rocks and the resulting typical shape of hewn rocks (after Potter 2005b).

Thus, in walls built by the Romans, stones were always placed in this situation. It was also recognised that stonework was less susceptible to water penetration and weathering when the planar surfaces were set horizontally. Most rock built structures, both today and over time, have been built, therefore, to this attitude. If wall features show evidence of having been built with their rock planar surfaces vertical, it is possible to assume that this was not without reason.

Most people possess sufficient geological knowledge to be aware that the commonest rock types that can be extracted in the British Isles are collectively described as 'sedimentary'(involving rocks such as sandstones, limestones and mudstones); and that these rocks develop this planar structure, which is generally spoken of as bedding, and developed naturally in the processes of deposition. The two additional collective terms used to describe rocks are 'igneous' (rocks cooled from a molten state) and 'metamorphic' (rocks altered by heat and/or pressure). These rocks may also show planes of weakness: in igneous rocks possibly due to the crystallisation processes or flow in the molten state and, in metamorphic rocks due especially to pressures (as may be well seen in slates).

In 2005, the present author published the results of his examination of the stonework of those churches in England previously described by Taylor and Taylor, 1965, as of Anglo-Saxon age. Most of these churches were built to display structural stones which possessed vertical planar surfaces or lineation, and it was realised that this orientation was adopted for a reason. This practice of inserting critical stones with vertical orientation could be found in wall quoins, pilasters, and window and arch jambs, as recorded in Potter, 2005b. Where the local rock failed to provide a suitable stone with a lineation, as in the flint or septarian nodule areas of south-east England, lineated rock was in some instances imported from elsewhere to provide the patterning. Indeed, in order to use rock types which remained strong and resilient when used with their bedding in a vertical situation, the Anglo-Saxons, presumably based on experience, were very selective. In south-east England, for instance, they found the compacted shelly rock types, such as Quarr Stone from the Isle of Wight and Barnack Stone from near Peterborough, particularly suitable. Both these

important quarrying sites became monastically controlled and the rocks, thanks to their included fossil shells, provided an easily visible lineation. Elsewhere in the British Isles, other rock types were chosen selectively in order to meet the requirements of visible lineation and strength.

The Anglo-Saxon use of stones with clear patterning for decorative purposes affords a means of identifying their churches. To enable their rock patterns to be described and individual rocks distinguished the present author then proposed a simple nomenclature (Potter, 2005b). Stones placed in their orthodox attitude, with bedding or lineation horizontal were to be simply described as BH, Bedding Horizontal. Those stones placed with their lineation vertically, however, could for instance in a quoin, have the face of the plane (the bedding plane) directed to the left or to the right. They could be Bedding Vertical Face Left, BVFL, or Bedding Vertical Face Right, BVFR. This terminology is illustrated in Figure 1.8. and an example of such work in rocks which display the structures clearly is shown in Figure 1.9. In 1946, Gilbert had recognised that Anglo-Saxon stonework in certain churches displayed patterns but he related this to stone shape and for this reason his classification could not be used universally. The BVFR-BH-BVFL classification may be used for rocks regardless of their shape.

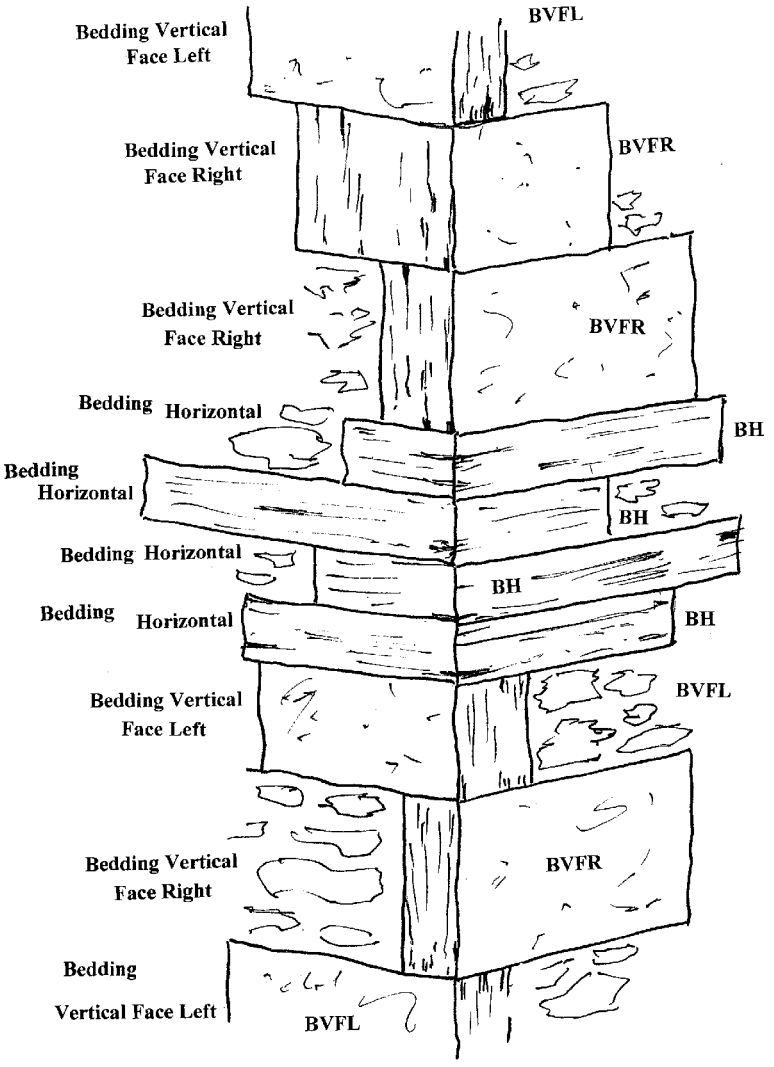

Figure 1.9. The Anglo-Saxon quoin illustrated displays all possible orientations in which a stone may be positioned within the structure and the annotation first proposed (Potter, 2005b) to describe them. The notation (BVFR-BH-BVFL) refers to the bedding orientation in each stone and not to the stone shape.

The author's study in England revealed that Anglo-Saxon workmanship with vertical stone emplacement was not confined just to wall junction quoins. Vertically bedded stones played an important role in the construction of their doorways, arches and windows and in decorative pilasters. In such instances the descriptive nomenclature required an element of modification. Horizontally layered stones (BH) helped to tie all these structures into the adjoining walls, functioning just as BH stones in wall quoins.

Some of the significant differences between the stonework of Anglo-Saxon and Norman doorways and windows are shown in Figures 1.10 and 1.11. There are further differences between the stylistic details of the two periods of building - evident in the structure of features such as pilasters and walls – or

the presence of Anglo-Saxon cut backs. These, however, have been described elsewhere as in Potter, 2009c and Potter 2009d. It has been shown that the differences between Anglo-Saxon and Norman stonework relates to the manner in which the stone was used. In both periods, the smoothest faces of the stones were decorated with carvings and the masonry was appropriately orientated. The Norman doorway typically displays these carvings being best illustrated as the doorway is approached; the mason preferred to work on the BVEIA stones to utilise the flattest outward facing rock surface available (Figure 1.12). Anglo-Saxon masons selected the smooth BVFIA stonework to carve and their resulting carvings may be observed where they face into the arch (as at Monkwearmouth church, NZ 402 577, in Durham; Figure 1.13).

Although both Anglo-Saxon and Norman structures and church walls included bedded vertical stones in their creation, by about 1200, vertically emplaced stones ceased to be used and in Gothic work all masonry was with bedding set horizontally, BH. Gothic influences, therefore, tended to stabilise wall thicknesses.

Figure 1.10. Detail of the lowest three stones (in the long and short Anglo-Saxon style) in the south-west nave quoin at Strethall church (TL 484 398) in Essex (after Potter, 2009c). From the lowest stone upwards, the bedding orientations are BVFR, BH, BVFL. The rock type used is Barnack Stone, imported into the region.

1.7 Limitations of this study

The identification and dating method outlined above have been applied to the material which the author has been able to consider in each of the principal countries of the British Isles and the results are set out below. However, these studies as they may have been applied to early ecclesiastical buildings are far from complete. To achieve a fully comprehensive cover, every church of any age would have to be examined, for instance, for traces of any past or present bar locks. For such an analysis all churches would of necessity have to be open, and all doors unlocked (the whole task whose requirement would extend beyond the length of a normal lifetime).

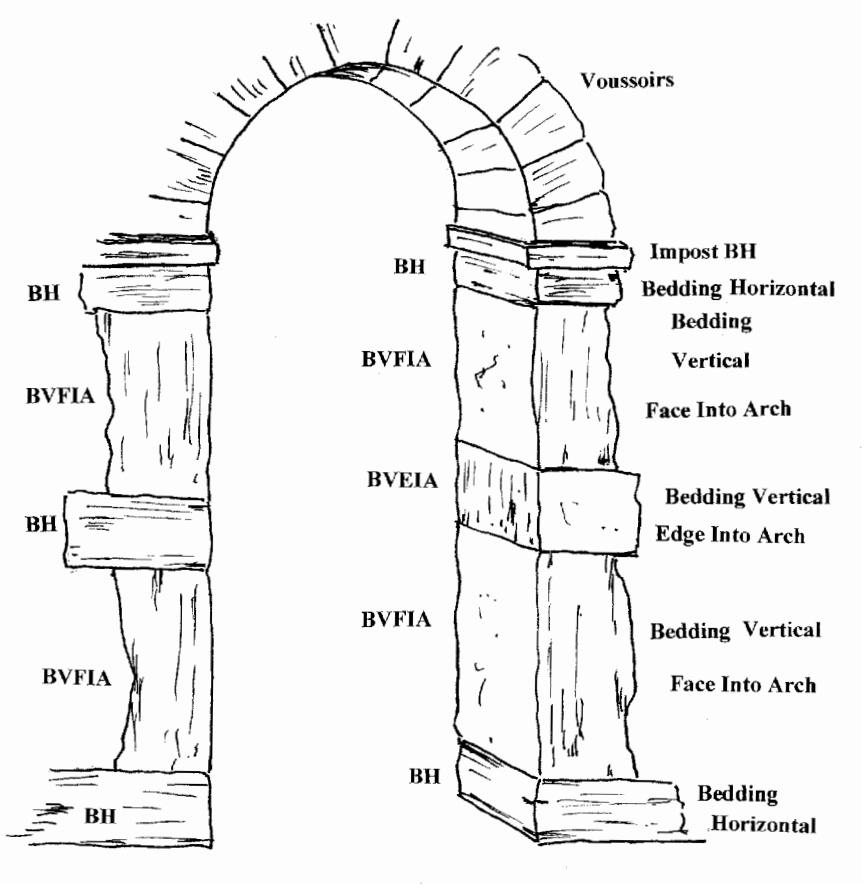

Figure 1.11. A slightly modified Anglo-Saxon arch to illustrate the disposition of its possible stonework. The stone notation, first proposed in Potter, 2005b, permits the bedding orientations to be distinguished. Anglo-Saxon masons appear to have used only BH (Bedding Horizontal) and BVFIA (Bedding Vertical Face Into Arch). The figure, however, shows one stone (on the right) set BVEIA (Bedding Vertical Edge Into Arch) an attitude which together with BH stones would indicate the work of Norman masons.

Figure 1.12. The Norman north nave door at Hales Church, Norfolk (TM 383 960). Note all stone carving occurs on the relatively smooth bedding plane surfaces of stones which face to the north (or BVEIA).

Figure 1.13. At Monkwearmouth, Durham (NZ 402 577) the Anglo-Saxon sea-bird carvings related to the west doorway can be seen on the relatively smooth bedding plane surfaces in the north jamb, and therefore on stones orientated BVFIA.

Chapter Two
Church Bar Locks in England

2.1 The extent of bar lock studies in England

The earliest ecclesiastical studies by the current author were in England (Potter, 1987), and these commenced with geological fabric studies in the churches of the London Basin. Ultimately, this led to 'all' churches in this extensive area being described by the fabric content of their walls. Significant in this number were the churches largely constructed of silcretes (Potter, 1998), Palaeogene rocks (Potter, 1999), travertine (Potter, 2000a), London Clay septaria (Potter, 2000b), ferruginously-cemented gravel (Potter, 2001; 2003a) and Bunter quartzites (Potter, 2002). Following a meeting with the Anglo-Saxon expert Harold Taylor, the current author agreed to study the geological fabrics of the churches described by that author (Taylor and Taylor, 1965). This description was published in Potter (2005b). In England, studies of more regional and extensive depth: such as, within Romney Marsh (Pearson and Potter, 2002 and Potter, 2005c), Essex (Potter, 2003b), Suffolk (Potter, 2004a), Essex (Potter, 2005a), the Welsh Borderland (Potter, 2005d), Hampshire (Potter, 2006a), Kent (Potter, 2006b), West Surrey (Potter, 2007a) and West Sussex (Potter, 2007b) were also pursued.

Subsequent to all the above-mentioned studies, the author came to believe that churches secured by bar locks had not been observed or identified in English literature. In some instances, unbeknown to the present author, they may have existed in those churches examined above, but simply not perceived. Indeed, there is, therefore, the possibility that renewed examination of the sites visited could possibly reveal bar lock presence. Of greater significance, was the discovery that Dr Christopher Brooke (2000) had published a book entitled '*Safe Sanctuaries: security and defence in Anglo-Scottish Border Churches (1290-1690)*'. Although his important work did not refer to bar locks, it described 'draw bars' with the clear inference that they were intended to perform an identical function.

In regions of the British Isles where there was significant unrest, such as the English-Scottish Borders (see Brooke, 2000), or at the time of the Civil War, churches still suffered damage.

Brooke studied only the churches of the Borderlands of England and Scotland and his work covered the period of existence of the churches from 1290 to 1690. This can now be supplemented by the details resulting from the work of the present author and his examination of a selection of early churches, which in particular were thought to be of pre-Conquest age, covering the whole of England and Scotland.

With the churches of much of Northern England most in need of a full fabric study, the most recent discoveries by the present author relating to church security and bar locks are to be found in Potter (2015, 2016b). Credit for the analyses of many of those churches close to the Scottish Border, however, must go to the full and extremely comprehensive studies of Dr Brooke (2000).

Table 2.1 summarises those churches in England surveyed by the author which appear to preserve evidence for having had a door bar lock in their past history. Despite an appeal through the means of the pages of various archaeological journals (Figure 2.1), in which those persons possessing a possible interest in church security or an awareness of existing bar locks, were asked to divulge this information in return for a full published acknowledgement, little additional detail was forthcoming. The information which was received is acknowledged.

Have you really examined your Church – and looked behind the doors!? You may be in for a surprise

If the church wall containing an original external doorway was built before about 1450 the church was probably locked by means other than keys. Locking involved using a bar lock (a wooden bar across the back of the door which slotted into holes in the door jambs). Evidence today may be seen by holes (or perhaps one remaining hole) about 4inches square (often today plugged with wood) into which the bar lock fitted. If you are lucky, one hole may be perhaps 2metres deep (I dare you to feel inside!), this to take the bar when the church was open. I have researched these structures over much of the country but to date less so in the south of England. There is much more information which will relate to your church history on which I can advise if you invite me, Prof. John Potter, to view and confirm your bar lock holes. If lucky, please advise me at jfpotter@btinternet.com or 01252 850532

Figure 2.1. Advertisement in search of bar locks.

In response to this notice, the still-functioning bar locks installed at the west front of Exeter Cathedral were kindly brought to the attention of the present author by Diane A. Walker who is an independent researcher and volunteer at the cathedral. The design of the central west front of the cathedral is generally attributed to Thomas Witney (master mason at the cathedral 1316 to1342).

Certain particulars of the doors as recorded by Diane Walker are as follows:

Central West Front Door:	Width of doorway	273cm.
	Depth of north bar hole	318cm.
	Depth of south bar hole	24cm.
South West Front Door:	Width of doorway	157cm.
	Depth of north bar hole	36cm.
	Depth of south bar hole	209cm.
North West Front Door:	Width of doorway	157cm.
	Depth of north bar hole	184cm.
	Depth of south bar hole	17cm.

The central doorway is of two doors covered by one bar lock and the doors (to north and south) are also constructed of two leaves. The doors are associated with additional ironwork trappings which are difficult to date, mainly because they have not been seen elsewhere. Only four figures are included here, each requiring interpretation (See Table 2.1, Figures 2.6 to 2.9; see appropriate captions).

Table 2.1. Churches in England with

Ecclesiastical Site	County	Grid reference	Position
Meldreth [A]	Cambs	TL 375 466	South aisle, south doorway
Astbury	Cheshire	SJ 846 615	North aisle doorway, north door
Repton	Derbys	SK 303 272	South aisle doorway, west jamb
Exeter Cathedral [B]	Devon	SX 921 925	Three main doors - centre, south and north, West Front
Aycliffe	Durham	NZ 283 221	South aisle doorway
Haughton-le-Skerne	Durham	NZ 307 158	a) South aisle doorway b) West tower doorway, north jamb
Pittington	Durham	NZ 328 436	South nave doorway (Hole *c*.0.5 m deep on east side)
Barton-upon-Humber	Lincs	TA 035 219	South aisle doorway, west jamb
Coleby	Lincs	SK 975 606	South aisle doorway
Colsterworth	Lincs	SK 930 241	North aisle doorway
Little Bytham	Lincs	TF 013 180	Chancel south door
South Kyme	Lincs	TF 168 497	Nave to early modified church south door. Original doorway no longer present
Stow-in-Lindsey	Lincs	SK 882 819	Nave door to north vestry
Stragglethorpe	Lincs	SK 913 524	a) North aisle doorway north door b) South nave
Thurlby	Lincs	TF 105 167	Traces of bar lock holes at south and north aisle entrances
Acle	Norfolk	TG 401 103	South door bar lock holes
Bedingham	Norfolk	TM 285 934	North nave aisle, both bar lock and holes
Bywell, St Peter*	Northum	NZ 049 614	Three bar locks on west doorway. Holes on south side nearly a metre deep. Possibly some use of locks
Edlingham*	Northum	NU 114 091	a) West nave doorway (now leads to west tower), south hole deeper. b) South nave doorway, east hole deeper
Hartburn*	Northum	NZ 090 161	South doorway to south aisle with filled hole for bar lock
Newburn*	Northum	NZ 167 654	Nave (high) to East Wall of tower with bar lock on tower side
East Bridgford	Notts	SK 691 431	North aisle doorway
Old Newton [C]	Suffolk	TM 059 625	South nave doorway

evidence of bar locks surveyed by the author.

Evidence of other entrances	**Possible age of entrances with bar locks**	**Other comments**
No evidence	15th C	Both holes shallow **See Figures 2.2 , 2.3**
Not known	Late 13th - early 14th C	East hole deep **See Figure 2.4**
No evidence	Possibly 15th C	**See Figure 2.5**
Brewer's Door - south nave aisle possibly	Mid 14th C Brewer's Door, late 14th C	**See Figures 2.6 to 2.9**
Not known	Late 13th - early 14th C	Both holes infilled
Both of same age, other doorways, now of younger age	Both similar Post-Norman-pre 14th C	**See Figure 2.10**
-	-	**See Figures 2.11**
Not known	Post Norman – mid 13th C	**See Figure 2.12**
Not known rebuilt	In 13th C	
Not known rebuilt	Probably 14th C	Infilled with stonework
-	Infilled, east jamb (1350 or earlier)	
-	East deep (over a metre) jamb hole only	Southern part of former Augustinian priory founded before 1169 **See Figure 2.13**
No evidence	Bar lock holes 0.12 to 0.15m deep to both west and east	**See Figure 2.14**
No evidence	a) Late 12th- early 13th C b) Aisle later than nave	a)Preserves door and bar lock bar neither original b) Holes present, east 300 + mm deep **See Figure 1.7**
Evidence of other doors absent	Traces only and 14th C (or 13th C) date	
Not evident	Probably 14th - early 15th C	**See Figure 2.15**
Not evident	12th - 13th C	**See Figure 2.16**
-	Probably 16th C	**See Figure 2.17** and Brooke (2000, 187-8)
Evidence of other doors absent	a) Anglo-Saxon and older than14thC west tower b) Age of doorway Norman	**See Figure 2.18** and Brooke (2000, 106-9)
-	Probably all early to late 13th C	See Brooke (2000, 142-6)
-	Possibly 14th C.	See Brooke (2000, 190-93)
None known	Early English	West side 79cm deep, east blocked with wood
None known	13th - 14th C	Both holes timber lined in about wVictorian times **See Figures 2.19, 2.20, 2.21**

Table 2.1. Churches in England with evidence

Stowmarket	Suffolk	TM 049 247	Chantry chapel window
Thornham Parva [c]	Suffolk	TM 109 727	South nave doorway
Old Woking	Surrey	TQ 021 568	West porch doorway to tower
Appleby	Westm	NY 688 199	Nave north doorway
Long Marton	Westm	NY 666 240	West nave doorway (now leads to Norman west tower)
Morland	Westm	NY 598 225	East door to tower (inside the door and its rebate)
Bedale*	Yorks	SE 265 884	a) East side of south porch b) West door to tower. c) South door for porch to tower and church
Pateley Bridge	Yorks	SE 164 656	a) West doorway, south aisle b) East doorway, south aisle c) North aisle doorway
Ryther	Yorks	SE 555 394	South doorway, south aisle

Notes

* Sites also discussed in Brooke (2000)

A Information kindly provided by Peter Draper.

B Photographs and information kindly supplied by Diane A. Walker, Exeter.

C Information kindly received from Martin Renshaw and Vicky Harding of Soundsmedieval.org

of bar locks surveyed by the author (continued).

-	15th C	Bar lock holes evident on either side of window **See Figures 2.22, 2.23**
None known	13th - 14th C	Both holes reworked overtime to meet changes in door **See Figures 2.24 to 2.27**
No evidence	12th C	Long bar lock holes may have served a wider door. **See Figure 2.28**
Not known as rebuilt	Could be originally Anglo-Saxon (as a once wider door once set here)	East side hole 1.32m deep. The doorway outside is now only 0.95m wide (0.89m at the top). **See Figure 2.29**
No evidence	Anglo-Saxon	South side hole 1.2m deep. Rebated at 0.29m.for inward opening. **See Figure 2.30**
Tower, single door originally defended from inside	Anglo-Saxon	West side hole more than 0.5m deep. **See Figures 2.31, 2.32**
Three doorways, as a) provides supplementary support probably later	a) about 1350 b) and c) probably earlier, possibly Norman	a) Entrance to higher levels of tower (with portcullis support) b) West door for tower and ground floors. c) Main door to church (deeper to west). **See Figures 2.33, 2.34, 2.35** and Brooke (2000, 6-7)
The church is now a modified ruin, All three entrances show close resemblances	Possibly bar locks date from 13th C	a) Bar holes now shallow b) The east bar hole the deepest c) East bar hole deep **See Figure 2.36**
No evidence	About 1300, Early English	East bar lock hole present, west cement filled. (See Potter, 2016, 175).

Figure 2.2

Figure 2.3

Figure 2.4

Figure 2.5

Figure 2.2. (Table 2.1). Attention was kindly drawn to Meldreth church, South Cambridgeshire (TL 375 466) by Peter Draper, FSA. The church south aisle was rebuilt in the 15th C. and the south doorway appears to be of this date. The interior of the doorway is shown here.

Figure 2.3. (Table 2.1). At Meldreth church the bar lock holes for the south aisle doorway survive, they were probably created in the 15th C. The west hole shown has in the past been repaired with wood.

Figure 2.4. (Table 2.1). Astbury church, Cheshire (SJ 846 616), door to the north aisle showing partially blocked deep bar lock hole.

Figure 2.5. (Table 2.1). Evidence of an earlier bar lock, or more precisely its hole, may be seen in the west jamb, of the south door of Repton church (SK 303 272).

Figure 2.6. (Table 2.1). The central, west front door to Exeter Cathedral (SX 921 925), view north, with the bar lock in place. Note the pin to roll the weight of the bar on. The wooden roller appears to be a recent addition although the pin holding it may be original. Figures 2.6 to 2.9 kindly supplied by Diane A. Walker.

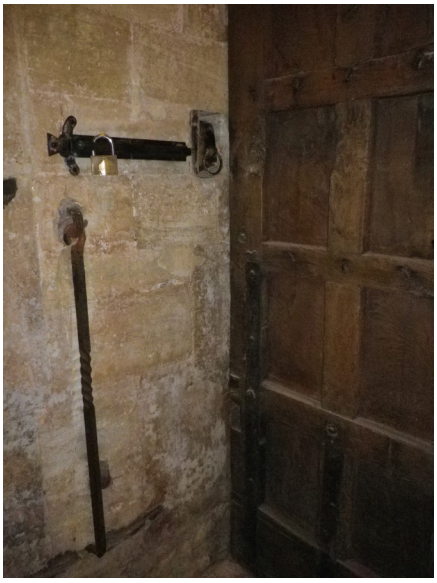

Figure 2.7. (Table 2.1). The two-leaf south door of the west front of Exeter Cathedral, view towards the south jamb (with the long hole). The iron bar hanging from the wall was designed to hook into a cup on the back of the door to help to hold the south leaf of the door closed.

Figure 2.8. (Table 2.1). The north leaf of the same south door, this time viewed towards the north jamb from the inside. The iron bracket is to support the bar on the back of the door.

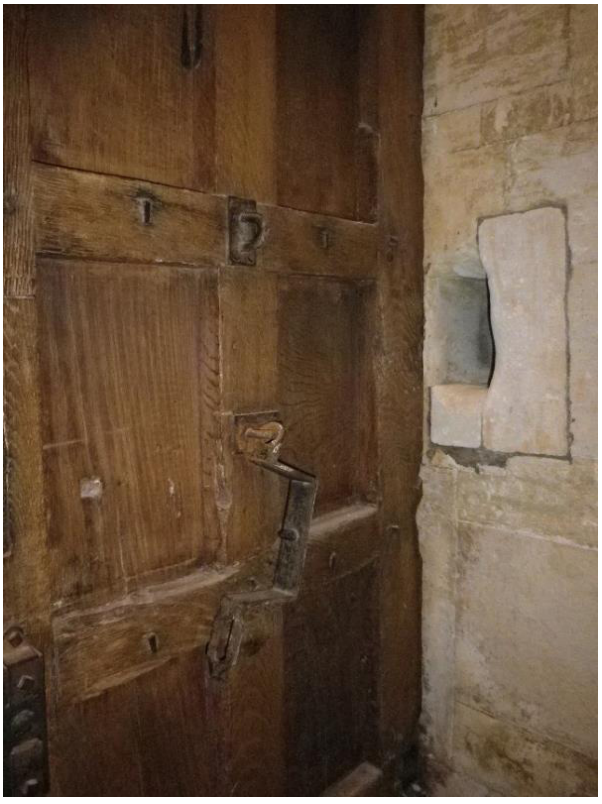

Figure 2.9. (Table 2.1). The lockable iron bracket in Figure 2.8 has been opened. This facility permits the bar to be removed and means the bar need not be passed into a long bar lock hole. It would seem likely that the ironwork associated with Figures 2.7-2.9 are additions to the door and possibly as late as Victorian in age.

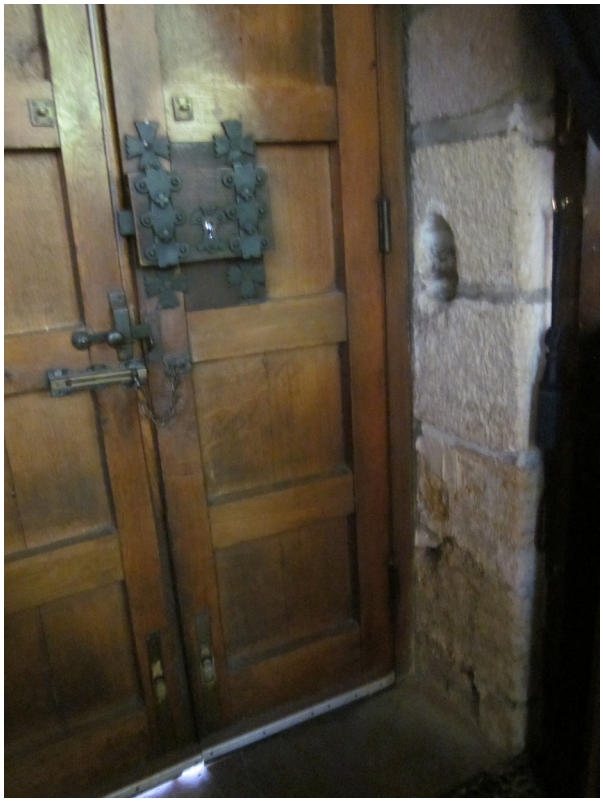

Figure 2.10. (Table 2.1). Haughton-le-Skerne church (NZ 307 158) reveals bar lock holes in both its south aisle and west tower doorways. The door jambs show their post-Norman bar lock holes to be deeper for the south aisle door, as shown, on its west side, and for the west tower door deeper in the north jamb.

Figure 2.11. (Table 2.1). Pittington church (NZ 328 426) south nave doorway has a bar lock hole, about half a metre deep, on its east jamb.

Figure 2.12. (Table 2.1). The bar lock hole in the west jamb of the south nave doorway at Barton-upon-Humber church (TA 035 219).

Figure 2.13

Figure 2.14

Figure 2.15

Figure 2.16

Figure 2.13. (Table 2.1). A deep bar lock hole is present on the east side of the south door of South Kyme church, Lincolnshire (TF 168 497). The original door has been replaced by a newer door.

Figure 2.14. (Table 2.1). Stow (-in-Lindsey) church (SK 882 819), Lincolnshire, preserves many interesting early features. The bar lock holes do not photograph well, but this Anglo-Saxon doorway on the west wall in the north transept with its interesting cut backs is always worth further examination.

Figure 2.15. (Table 2.1). Acle church in Norfolk (TG 401 103) reveals a bar lock hole in its south nave doorway. The visible hole is in its west jamb. The door would appear to be more recent in age than the hole.

Figure 2.16. (Table 2.1). A relatively modern wooden bar is in place in this north nave aisle doorway at the church of St Andrew, Bedingham, Norfolk (TM 285 934). The door and the bar lock holes are of different ages with the worn holes the earlier. Note, a short iron bar is used additionally high on the door, using the bar lock principle to the east jamb.

Figure 2.17. (Table 2.1). Dr Brooke kindly provided this photograph of the complex bar locks visible on the west door of Bywell, St Peter church, Northumberland (NZ 049 614). These would appear to relate to the bar provision for two adjoining doors: the farthest from the camera with the door rebate only visible over the top of the door, indicates that this door opened towards the viewer (the two lower bars would replace the requirement for the rebate to continue to the bottom of the door). The closure nearer to the camera appears not to have a rebate but the photograph fails to show the uppermost area of the door. The older parts of the church are described in Potter (2016, 26-7); the tower was built in the 13th C.

Figure 2.18. (Table 2.1). Edlingham church in Northumberland (NU 114 091) possesses a west nave doorway which now leads to the later (probably late 13th C) west tower. The bar lock hole on the south jamb is visible. It presumably pre-dates the tower and from the stonework of the doorway is likely to be of Anglo-Saxon age.

Figure 2.19. (Table 2.1). The south nave porch, and the view to the south nave door of Old Newton church, Suffolk (TM 059 625). Details of this church kindly supplied by M.J. Renshaw and Dr V.R. Harding.

Figure 2.20. (Table 2.1). Old Newton church, and a view of the interior of the south nave doorway to show the bar lock holes. The doorway probably dates from the 13th-14th C.

Figure 2.21. (Table 2.1). Old Newton church, detail of the west bar lock hole from the south nave doorway. The hole is lined with timber (as is the east hole) to permit easier movement of the bar. The lining was probably inserted about Victorian times.

Figure 2.22. (Table 2.1). This figure was also kindly submitted by M.J. Renshaw and Dr V.R. Harding. It illustrates what the author has been advised is the only window in the upper storey of the chantry chapel (the ground floor was subsequently the vestry, and is now the parish office) to the north of the chancel of St Peter and St Mary church, Stowmarket, Suffolk (TM 049 247). The chapel probably dates to the 15th C., but the window (with leaded lights) was most likely modified in the 19th C.. Bar lock holes are evident either side of this window.

Figure 2.23

Figure 2.24

Figure 2.25

Figure 2.23. (Table 2.1).The bar lock hole to the east of the window shown in Figure 2.22 can be seen to be lined with sawn planks. It has been suggested that the room may have once provided accommodation for the chantry priest. As to why the window should have been bar locked is uncertain but the room must at one time have been used to retain church valuables.

Figure 2.24. (Table 2.1). The south nave door, Thornham Parva church, Suffolk (TM 109 727). Details of this church kindly supplied by M. Renshaw and Dr V. Harding.

Figure 2.25. (Table 2.1). View of south nave door from the inside of Thornham Parva church; the earlier Norman doorway is also evident.

Figure 2.26. (Table 2.1). The east side bar lock hole for Thornham Parva south nave door.

Figure 2.27. (Table 2.1). The west side bar lock hole for Thornham Parva south nave door. The hole shows how it has been cut (probably through the earlier Norman walling) to accommodate the needs of a new bar lock and door (such as a change in door thickness or an adjustment to the door rebate).

Figure 2.28

Figure 2.29

Figure 2.28. (Table 2.1). The lower part of the west tower at St Peter's church, Old Woking, Surrey (TQ 021 568) as seen from the west. Internal bar lock holes are deep (north side over a metre and into Chalk walls) and may date to an earlier structure (a porch rather than a tower) and a wider door.

Figure 2.29. (Table 2.1). St Michael Bongate, Appleby, in Westmorland (NY 688 199), is now a private residence. Shown here is the internal view of the upper portion of the north nave doorway. Plait-work carving on the lintel stone is from an Anglo-Saxon hog-back. The door reveals bar lock holes at a lower level. The hole to take the east side of the bar is 1.32m deep which suggests that the doorway (now under a metre wide) was probably once wider.

Figure 2.30. (Table 2.1). Long Marton church (NY 666 240), Westmorland, here exhibits the one time south bar lock hole for this west nave doorway, when at about table top height the bar lock hole was used to the east of the door's rebate. This hole proves to be about 1.2m deep and is presumed to be of Anglo-Saxon age. When the tower was built, about the early 12th C., the nave door probably became redundant.

Figure 2.31. (Table 2.1). In the instance of Morland church (NY 598 225), rather than the west nave door, the locking system relates to the tower's east doorway. The tower door is reached by steps from the nave floor.

Figure 2.32

Figure 2.33

Figure 2.34

Figure 2.35

Figure 2.32. (Table 2.1). From within the Morland church tower, a bar lock hole is here visible in the north jamb. This occurs inside, in turn, the door and its rebate. The tower was probably originally a separate building from the church.

Figure 2.33. (Table 2.1). St Gregory, the Bedale church in Yorkshire (SE 265 884), has as its main entry point a porch on the south side of its tower. Inside the church, to the east of the porch a small doorway provides an entrance to higher levels of the tower. This narrow doorway, as illustrated, between the upper levels of the south porch and the tower looks highly innocuous.

Figure 2.34. (Table 2.1). The Bedale church doorway illustrated in Figure 2.33 proves to contain a portcullis within a groove in the doorway's structure (only discovered when the portcullis fell). The portcullis would have barred the access to the higher levels of the church.

Figure 2.35. (Table 2.1). The doorway between the porch and the tower at Bedale church provided further protection. On the east jamb of the doorway the presence of a bar lock hole is revealed. The protective structures all appear to relate to a period of around the first quarter of the 14th C.

Figure 2.36. (Table 2.1). The disused church at Pateley Bridge, in Yorkshire (SE 164 656) retains the bar lock holes for three doorways. Shown here is the north doorway, with the bar lock hole in its east jamb.

2.2 The Border country

For a period of about 400 years, from the close of the 13th C. to the end of the 17th C. relationships between Scotland and England were difficult and subjected to repeated bouts of war and hostility. Brooke (2000, 1-14) describes in historical detail these relationships, and all individual religious structures either side of the Border. The frontier between England and Scotland was far from stable, but for much of the time divided into six 'Marches' (three on either side of the frontier) in order to try to ease the tasks of administration. Brooke appropriately states:

> '*...in these unsettled circumstances it is no surprise to find the people of the Border region turning to the church for protection and, specifically to the church building.*'
> (Brooke, 2000, 5).

The architecture, on either side of the Border, reflected the harsh life and climate of the region and on occasions modifications were considered desirable to improve the obviously fortified status of the buildings.

Brooke (2000, 359) examined 533 churches and church sites in his extremely thorough study. He states that only 96 of these were found to preserve features characteristic of defence beyond the requirements of average security. He also noted that this number was partially due to the scale of loss of medieval churches since the 16th C., and advised that this loss was noticeably greater north of the Border, '*where many sites have now no standing remains*'.

In particular, the following list of Border churches within England, still preserving bar lock/draw bar evidence as observed by Brooke (2000, his page numbers given, to ease identification) are given below (see Table 2.2).

2.3 Bar locks / draw bars in churches in England

Tables 2.1 and 2.2 provide the information obtained from studies undertaken to date; they give details relating to bar locks observed principally over recent years by the present author (Table 2.1) and those carefully noted in the historical studies of the churches of the Border country by Brooke (2000), described here in Table 2.2. In this information, there is a slight overlap; and those churches asterisked in Table 2.1 were, in addition, examined by Brooke. In relation specifically to bar locks/draw bars, Brooke lists the following church details relating to his pages which were not seen by the present author; this largely because the evidence was no longer present, or the church structure was believed to be too young to record signs of an early draw bar:

p.74 (Lindisfarne Priory barbican), p.76 (Lindisfarne church), p.79 (Bamburgh Friary),

p.135 (Kirkwhelpington church), p.139 (Ponteland inn), p.140 (Whalton church), p.143 (Hartburn church), p.155 (Amble lighthouse), p.160 (Newbiggin-by-the-Sea church), p.165 (Morpeth church), p.187 (Bywell, St Andrew church), p.191 (Newburn church), p.195 (Blanchland Abbey) and each of the Cumberland localities listed in the table.

Table 2.2. A list of Border churches within England, still preserving bar lock/draw bar evidence, from information originally prepared by Brooke (2000).

Northumberland	
p. 74	Holy Island Priory (Lindisfarne): 14th C. barbican, porch door (also above Norman nave, crossbow-loops).
p. 76	Holy Island (Lindisfarne), St Mary church: south doorway 'once had substantial draw bar'.
p. 79	Bamburgh, Dominican Friary, ruin, north arcade, 16th-17th C. doorway with draw bar slot.
pp. 107-108	Edlingham church: post Norman west doorway to nave. South side draw bar slot 1.45m deep.
p. 135	Kirkwhelpington church: 13th C. south doorway deep slots possibly 14th C.
p. 139	Ponteland, Blackbird Inn -14th C. fortified house, draw bar socket.
p. 140	Whalton church, south entrance to 13th C. nave, heavy draw bar with deep slot in wall.
p. 143	Hartburn church, indications that the south doorway was protected by a draw bar (slot now filled), 13th C. or later.
p. 155	Amble, Coquet Island, lighthouse (built 1841), built on earlier chapel where upper door preserves heavy draw bar.
p. 160	Newbiggin-by-the-Sea church, 14th C. west tower, low doorway secured by strong door with draw bar slot on west side, 1m deep.
p. 165	Morpeth, St Mary church, 14th C., nave, door to south entrance with substantial draw bar.
p. 187	Bywell church, St Andrew, (?) 13th C. south doorway may have been secured by two draw bars, evidence now plastered over.
p. 188	Bywell church, St Peter, 14th C. west tower, west doorway with evidence of three draw bars (See **Figure 2.17)**.
p. 191	Newburn church, evidence of probably 14th C., blocked doorway mid-level tower to nave, draw bar on tower side.
p. 195	Blanchland Abbey, probably 14th C., tower external doorway, draw bar slot in south doorway.
Cumberland	
p. 264	Lanercost Priory, 13th -14th C., draw bar slots present on west and central north doorways. Musket-ball damage is visible on west face of church.
p. 271	Scaleby, All Saints church, 15th C. west tower doorway with inside two separate draw bar slots. Also draw bar slot to portal between first floor of tower and south-east corner of nave secured from within the tower.
p. 276	Carlisle Cathedral gatehouse, built 1527, evidence of large draw bars on inside of gates.
p. 283	Burgh-by-Sands church, 14th C. west tower with defensive east entrance involving draw bars with deep slot to the south. Other features such as gun-loop.
pp.289-290	Newton Arlosh church, built by monks 1304 (possibly as late as 1393). Tower east wall with draw bar slot, this deeper to north side. Other features (see **Figure 7.4**).
p. 294	Holme Cultram Abbey, much altered throughout the Middle Ages (as late 13th C.). The principal west doors were previously secured by two separate draw bars.
p. 302	Great Crosthwaite church, 15th-16th C., the doorway to the south aisle has a deep draw bar slot.

Chapter Three
Church Bar Locks in Scotland

3.1 The extent of bar lock studies in Scotland

In the studies of churches in both Ireland (Potter, 2009c) and Wales (Potter 2013a), the early techniques required to secure the churches which were then under scrutiny were brought vividly to the author's attention. Following the success of the review (Potter, 2005b) of the churches in England which had been defined as of Anglo-Saxon origin by Taylor and Taylor (1965), it was very evident to the present author that the extent of Anglo-Saxon churches (or of those churches with Anglo-Saxon pattern stonework) did not stop abruptly at the country boundaries. Particularly at the boundary with Scotland the number of such churches tended to increase rather than decrease. In Scotland, however, the majority of authors (such as, Cruden, 1986, 24; or Fawcett, 2002) believed that most, or possibly all, existing ecclesiastical buildings in the country were, at the earliest, of Romanesque age. Studies by the present author (such as Potter, 2005b, 2008b) revealed that churches in Scotland were built to an identical style to those in England. Although the buildings were erected probably by other than Anglo-Saxons, they were of the same fashion and style. In order that this style could be distinguished beyond the domain of the Anglo-Saxons the term 'Patterned' was designated to these structures (Potter, 2009d).

The present author's church studies in Scotland are far more restricted than in England. In undertaking the review of the fabric and stonework of early churches in England (Potter, 2005b) it was evident that there was no sharp divide in the number of early churches at the boundary with Scotland. Indeed, Taylor and Taylor (1965, 730) listed four ecclesiastical sites in Scotland where they believed Anglo-Saxon fabric was preserved, namely Dunfermline, Restenneth, St Andrews and Whithorn.

In the initial church trawl about 250 redundant or ruined ecclesiastical sites were examined.

The primary papers stemming from the author's Scottish studies are Potter (2006d and 2008b). These revealed many examples of early 'Patterned' stonework suggesting early ecclesiastical sites which could be expected to require enhanced security of some kind. The details of these early churches with their implications for enhanced security are given in Chapter 9, Section 9.2.

The churches of the Scottish Marches suffered in much the same manner as those described for the English Border area as indicated in Section 2.2. Brooke (2000, 359) stated that of the 533 churches which he examined in this area only 96 preserved features characteristic of defensive capability. This was, of course, inclusive for both the Scottish and the English sides of the Border. In his analysis of the figures, Brooke advises of the scale of loss of medieval churches since the 16th C. with, in particular, the loss being noticeably greater north of the Border, where, many sites no longer preserve standing remains.

From Brooke's analyses (pp. 365-367) it is possible to itemise those Scottish churches which still stand (in some instances as ruins) which retain primary evidence for, or strong indications of, features enabling greater security.

The presence of evidence for bar locks in these churches is specified below in Table 3.1.

Table 3.1. Churches to the north of the English-Scottish administrative Border, and therefore, within Scotland, still preserving bar lock/draw bar evidence as observed by Brooke (2000, his page numbers given, to ease identification).

Berwickshire	
p. 29	p. 29: Bassendean, ruined church, south doorway, probably 14th C., evidence of a substantial draw bar.
Roxburghshire	
pp 218-219	Kelso Abbey, possibly 16th C., north doorway slot for heavy draw bar.
p. 229	Melrose Abbey, possibly 15th-16th C., heavy draw bar evidence at the entrance to the dormitories at the top of the night-stair. Also there is a further example visible on the doorway to the south transept.
Peebles	
p. 249	Stobo church, window in nave (once a doorway) had a draw bar slot, discovered in 1863 but now concealed: period of use difficult to determine.
Kirkcudbrightshire	
p. 349	Sweetheart Abbey, late 13th C. main doorway into cloister and west and south entrances to church itself, all possess draw bar slots.

Chapter Four
Church Bar Locks in Wales

4.1 The extent of bar lock studies in Wales

The study of early Welsh churches was selected to follow that of Scottish churches, because although the geology of Wales has numerous similarities to that in Scotland, the rock types were more frequently less suitable for creating structures such as quoins which might display rocks with vertical or other specific orientations, that is, offer a 'Patterned' appearance. As in Scotland, a careful scrutiny of Ordnance Survey maps was undertaken in order to determine the presence of ruined sites. Similarly, these churches were more readily available, they could be viewed both inside and out, they were less likely to be locked and the earlier stonework was less likely to be obliterated with more modern repairs. Disappointingly, there proved to be rather less ruined sites in Wales than elsewhere. There appeared to be two reasons for this situation and these require some explanation, which is given below.

The results of the early Welsh churches study were published in Potter, 2013a. 410 early church sites were examined and their details recorded. A number of other sites were thought to be unworthy of recording, this typically being because all aspects of the church were clearly modern. Unexpected, was the fact that of the 410 churches, only 17 (4.1 per cent) revealed some evidence of 'Patterned' characteristics in their stonework. The comparable percentage figure for Scotland had been 7.2 per cent. The general absence of early stone churches in Wales had not gone unnoticed by other church historians and archaeologists (Lloyd, 1935, 119; Radford, 1963; Edwards and Lane, 1992, 7; Butler, 1996; Petts, 2009, 53; Edwards, 2009, 9-14; Pritchard, 2009). A citation from the last of these authors summarises some of the views:

> *'...there is no direct evidence for stone churches in Wales prior to the 12th century, other than at Presteigne and the surviving description of Llandaff. . .There is limited evidence for wooden churches in the documentary and archaeological records, but not enough confidently to support the idea of a wood to stone development.'*
> Pritchard (2009, 260)

Not long into the study of the 410 churches, the present author had become aware of the very significant number of 19th C. churches which had been erected in Wales. A large number of these 'new' churches were located in sites now no longer related to a centre of population. All too frequently a disused Victorian church would be found isolated in a field or even in a wood. Such a distribution required explanation and an understanding of the extensive period of change which occurred to Welsh religions during the 'Victorian' era. A full treatment of the subject is given in Potter (2013a, 421-2). Basically, 'the century between 1750 and 1850 had been a very traumatic one for the established church in Wales' (Yates, 1984, 3) and it is summarised by another author:

> *'...many Welshmen had deserted the church and found spiritual solace amongst the non conformists to the extent that by 1851 almost 80% of the worshipping population attended chapel as opposed to the church.'*
> Price (1990, 2)

Only as the Welsh Church lost its popularity were attempts made to repair and rebuild the churches by the then controlling Church of England (Potter, 2013a). As a result, prior to the mid-19th C. the condition of many churches had been permitted to deteriorate. That which followed was little better, for new buildings appeared which were too often stereotypes, and the restorations frequently destroyed genuine medieval features.

A further reason for the shortfall of churches in Wales of churches, or their ruins failing to preserve early such as Patterned characteristics, is evident. As sites fell out of use, the stone of redundant churches was 'quarried' for use elsewhere. This, in turn, reflects a local shortage of quality building stone. 'Squared' quoin stones are noticeably absent from the sites of ruins.

Thus there was a paucity of early stone ecclesiastical buildings in Wales where the evidence for bar locks and other possible defensive features could be found. They had either not been built, or their materials had been robbed out or they had been replaced by later Victorian edifices.

4.2 What of bar locks?

The field seasons related to the search for 'Patterned' churches in Wales provided the present author with his first encounter with a bar locking system. In the survey of the site of St Dogmael's Abbey ruin in Pembrokeshire (SN 164 458), the north doorway to the nave revealed an obvious cavity in its west jamb: the purpose of the cavity was appropriately duly considered. Table 4.1 lists the details of the limited number of similar bar lock holes discovered in Wales. Illustrations and descriptions of these are given in the Figures which follow.

4.3 Welsh church security

In comparison with England, the record relating to the presence of bar locking systems in Welsh churches might be described as remarkably weak. Of those Welsh church bar locks recorded to date, all appear to have been created in the 13th C., and all, therefore, could possibly be associated with the period of suppression of the Welsh by Edward 1. The structural church characteristics which could perhaps be related to general security are, however, not strongly displayed (see Chapter 10).

Table 4.1. Localities in Wales in which evidence of

Ecclesiastical Site	County	Grid Reference	Position
Capel Bettws	Carmarthenshire	SN 278 282	West nave doorway
Capel Dyddgen	Carmarthenshire	SN 465 126	a) West nave doorway. b) Tower east doorway from nave
Llanfihangel, Abercynwyn	Carmarthenshire	SN 303 134	West nave doorway – pre later west wall
Llanbedr Dyffryn, Clwyd	Denbighshire	SJ 145 598	South nave doorway
Rhuddlan	Denbighshire	SJ 021 781	North aisle doorway
St Dogmael (Abbey church)	Pembrokeshire	SN 164 458	North doorway to west end of nave
Llansantffraid -ym - Mechain	Montgomeryshire	SJ 221 204	South door to nave – half cross bar only

Note: The last example listed, at Llansantffraid-ym-Mechain church, is of a relatively modern half cross bar; the few examples of this type observed in this study all appear to be of a similar age.

Figure 4.1. (Table 4.1). Capel Bettws, Carmarthenshire (SN 278 282) is a 13th C. ruin viewed here from the south-east. The chapel has a chancel arch and a very narrow north aisle, all in ruins.

bar locks has been observed to date and their details.

Evidence of other entrances	**Possible age of entrances with bar locks**	**Other features**
Appears to be only doorway	Early 13th C	Ruin, wall recently collapsed **See Figures 4.1, 4.2**
Probably only doorway b) Built onto the west doorway a) with wall modification	Possibly early 13th C b) Later than a) probably 13th C	a) Ruin. This doorway was covered when tower built. b) Only entrance from nave, tower became stronghold **See Figures 4.3, 4.4, 4.5**
Probably only entrance	Possibly early 13th C	Ruin. Built prior to later west wall **See Figure 4.6**
Possibly only entrance at time of use	Possibly early 13th C	Ruin. 'Two' locking holes **See Figure 4.7, 4.8**
Not known	13th C	Only recently uncovered **See Figure 4.9**
Not known	Late 13th C	Ruin **See Figures 4.10, 4.11, 4.12**
Not known	Doorway possibly 13th C	Half cross bar used is relatively modern, perhaps Victorian **See Figure 4.13**

Figure 4.2. (Table 4.1). Capel Bettws is here viewed to show the interior of the nave and the position of the west doorway. Over the last few years the wall surrounding the west door has collapsed and the draw bar holes are no longer visible.

Figure 4.3. (Table 4.1). A further Carmarthenshire, 13th C. chapel ruin is Capel Dyddgen (SN 465 126). The principal remnant of the chapel which can be distinguished is the tower, here seen from the north-west.

Figure 4.4. (Table 4.1). Capel Dyddgen tower arch, as seen from the vestige of the nave which still exists to its east beneath the ivy. The ground floor of the tower has a stone pointed barrel roof.

Figure 4.5. (Table 4.1). From within Capel Dyddgen tower the bar lock holes of the south jamb of both the one time west nave door and the tower's eastern door (the nearer) may be seen. The relationship reveals that the chapel originally terminated at its west door, but with the addition of the tower that was to become the secure stronghold by placing a further bar locked doorway at the tower's eastern entrance.

Figure 4.6. (Table 4.1). A unicelled church, St Teilo, Llanfihangel Abercynwyn is also a ruin in Carmarthenshire (SN 303 134). The church shows evidence related to rebuilding, including an early extension to its east end. The west wall of the church has been rebuilt and thickened, probably when the bell tower was built, and a new west nave chamfered doorway inserted in a position which would have made the visible bar lock holes redundant. (This interpretation is different to that given in Potter (2013, 436) where the presence of a west tower was suggested).

Figure 4.7

Figure 4.8

Figure 4.9

Figure 4.7. (Table 4.1). The ruin of Llanbedr Dyffryn Clwyd church in Denbighshire (SJ 145 598), this also provides a view along the internal axis of the church from the east (the chancel) end. Initially the church must have been significantly smaller for the north and south walls, where built of Silurian 'Denbighshire Grits', terminate 8.67m from the western end, to be extended subsequently in red Triassic sandstone. Unfortunately, because of repairs, there is nothing to confirm a probable Anglo-Saxon age for the eastern end of the church.

Figure 4.8. (Table 4.1). The south doorway to the extended Llanbedr Dyffryn Clwyd church is built of local red Triassic sandstone, in a position just west of the south wall's junction with the 'Denbighshire Grits'. Two bar lock holes are shown in the east jamb of the south door, the upper one probably succeeding the lower in its use (the sandstone is relatively soft).

Figure 4.9. (Table 4.1). The church of St Mary, Rhuddlan, Denbighshire (SJ 021 781) is double-aisled. The north aisle was regarded as having been constructed in the 15th C., but building work in 1981 uncovered a doorway, probably of 13th C. date. The door concerned possesses bar lock holes which once secured this doorway, these occurring mid-way up each jamb.

Figure 4.10. (Table 4.1). The Benedictine abbey church of St Dogmael, Pembrokshire (SN 164 458) is also a ruin. This doorway is preserved towards the western end of the northern wall of the nave and is here viewed from the inside to show the west jamb and a bar lock hole.

Figure 4.11. (Table 4.1). This view of the St Dogmael nave north door shows the appearance of the same bar lock hole from the exterior.

Figure 4.12. (Table 4.1). The same north nave door at St Dogmael church viewed to show the east jamb from the exterior. The external ball-flower ornament has been described as of late 13th C. date. A worn lower possible bar lock hole is visible towards the base of the jamb.

Figure 4.13. (Table 2.1). In Montgomery, the church of Llansantffraid-ym-Mechain (SJ 221 204) provides an example of a bar lock using one side of the doorway only. The bar operates into the east jamb of the south door of the nave, with the door hinged on the west. This bar lock remains in use and is poorly visible above the mid-door horizontal support. Examples of half door bar locks have been rarely observed elsewhere in these studies. Although difficult to date none of these half bar locks appear unduly old.

Chapter Five
Church Bar Locks in Ireland

5.1 Church studies in Ireland

The history of the early church in Ireland is very different to that of the essentially Anglo-Saxon church and its building traditions with which we have been mainly concerned this far. However, some of the considerations for security, safety and refuge in the early Irish church would have been the same. There was the potential need for a strong structure and the need to secure windows and doors.

The Irish story brings some of its unique characteristics for consideration (see below), but in terms of our first theme of bar locks for door security, it presents very little.

The author's examination of Ireland's churches followed the same practices as those in Scotland: both in choice of sites to be visited, and the many problems typically encountered, such as inaccessibility due to height (particularly with Irish towers), external grime and lichen cover, lack of illumination, surface washes and plaster cover, etc. Nearly 300 sites were examined and 38 of these proved to exhibit 'Patterned' (i.e. of Anglo-Saxon age) workmanship. As elsewhere, at certain sites the stonework orientations were not readable, either because the stonework lineation traces were too weak or because they were hidden beneath grime or growths. The accompanying map (Figure 5.1) shows the positions of those churches discovered as possessing Patterned workmanship.

5.2 Evidence of bar locks / draw bars

In the years 2005 to 2007, when the present author was examining the churches of Ireland, he was unaware of the existence of bar locking systems and most Irish churches then examined exhibited little evidence of early or original means of security for the buildings as an entirety.

However, Ó Carragáin (2010, 98, Figure 102) illustrates the interior of the west doorway to Glendalough Cathedral and draws attention to three bar lock holes on the south jamb. He writes *'... when the church was rebuilt the walls were on each jamb made considerably thicker, and as a result the draw bar holes were blocked and became redundant.'.* In July 2006, the present author photographed the same doorway from both the east (that is the interior, Figure 5.2) and the west (Figure 5.3) and holes would appear to have been blocked at that time. For significantly different interpretations as to the age of the various structures at Glendalough see Potter (2009c, 113-122).

Ó Carragáin (2010, 104, Figure 115) also records the use of draw bars to help to secure internal shutters in windows at Temple Dowling, Clonmacnoise, Offaly (N 010 306) and Kiltiernan, Co. Galway (M 437 156). His figure of Temple Dowling is far from convincing and he does not figure Kiltiernan, east window. A photograph of the window at Kiltiernan is held by the present author but it does not appear to show holes for draw bars.

An unusual feature of early Irish church doorways is that it is rare for any two sides to be parallel. The doorways to round towers for instance taper in width upwards, but that is not surprising as the tower also tapers in an upward direction. The present author noted that in very many instances there was also a variation in width between the door jambs of churches, from exterior to interior. Measurements of this change in width (recorded to the nearest 5mm.) were made for a small number of churches. (These are presented in Table 5.1; this Table also appears in Potter, 2009c, as Table 7.1). Unexpectedly, for the 16

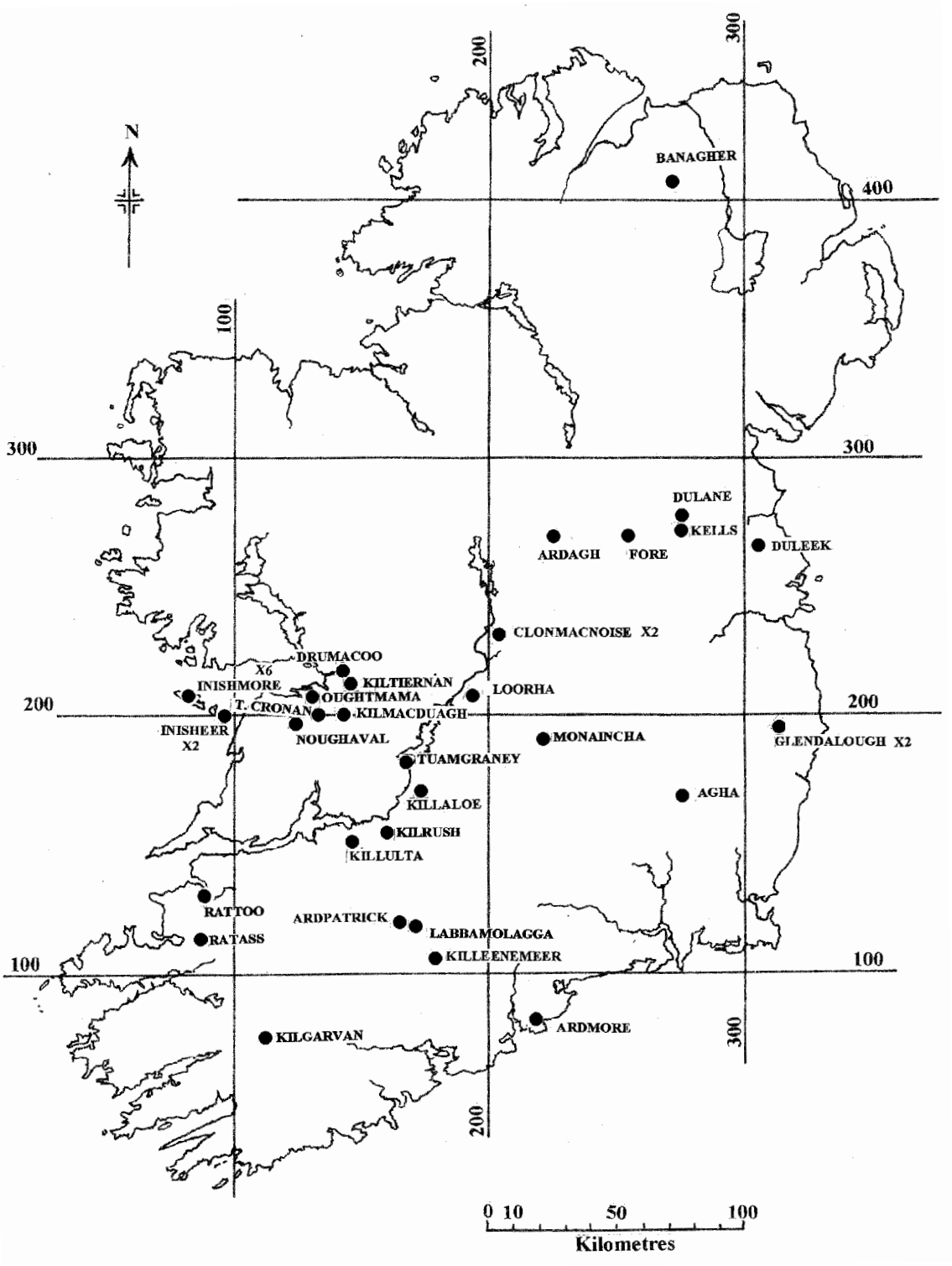

Figure 5.1. A map of Ireland indicating the positions of the Patterned churches examined by the present author in Potter (2009).

Figure 5.2. The inside of the west doorway to Glendalough Cathedral (T 123 968). The stonework is laid to typical Anglo-Saxon (Patterned) style with the exception of the doorway jambs which have been cut into and modified to provide a setting for a later door (if a date, has to be suggested in the 13th -14th C.).

Figure 5.3. The outside of the west doorway to Glendalough Cathedral seen in Figure 5.2. The stonework is clearly to 'Patterned' style (Folder 310mm long).

churches examined there was little clear pattern, and virtually the only door shape that could not have been fitted was one with parallel sides. No doubt, settlement over a long period would have influenced the measurements, but it would appear that if the churches had doors, each one was purpose-built to fit the enclosing aperture.

Table 5.1. West doorway widths for various early Irish churches. Measurements are recorded to the nearest five millimetres.

Church Site	Grid Reference	Aperture of West Doorway	
		At Top	At Bottom
		Wider By mm.	Wider By mm.
Ardagh,Longford [1]	N 204 686	Interior 15	--
Clonamery, Kilkenny [2]	S 658 354	Interior 10	Exterior 10
Fore, Westmeath	N 510 704	Interior 50	Interior 45
Friar's Island, Killaloe, Clare [3]	R 701 728	Interior 5	Neither 0
Glendalough, St Mary, Wicklow	T 122 968	Interior 10	Exterior 10
Inishmore, St Benan, Galway	L 884 071	Exterior 35	Exterior 15
Inishmore, T. Macduagh, Galway	L 823 104	Exterior 10	Exterior 10
Inisheer, Kilgobnet, Galway	L 975 027	Exterior 20	Exterior 10
Kill of the Grange, Dublin	O 226 273	Exterior 15	--
Killoughternane, Carlow	S 777 542	--	Exterior 40
Kilree, Kilkenny	S 497 410	Neither 0	Exterior 20
Labbamolag(g)a (small) Co. Cork	R 764 176	--	Exterior 30
Oughtmama (west), Clare	M 304 078	--	Exterior 20
Ratass, Kerry [4]	Q 853 141	Exterior 10	Interior 10
St John's Point, Co. Down [5]	J 528 338	Exterior 5	Neither 0
Tuamgraney, Clare	R 637 830	Exterior 20	Exterior 30

Notes:
1 Interior extensively repaired.
2 Interior of west gable wall thickened at later date to take bell tower.
3 Rebuilt.
4 Interior rebuilt.
5 Extensively repaired.

A greater degree of security would probably have been achieved where the doorway aperture was wider on the exterior. For this form of aperture, the door or closing device, presumably a composite thick and heavy wooden structure would have been pulled into position, and could have been secured on the inside by a bar or draw bar of some kind. If tightly fitting, in the absence of any external ornamentation, an assailant would have had difficulty in removing the door. A door pushed into a doorway opening from a wider exterior would have been doubly secure when secured on the inside by a bar or draw bar. It would have been very difficult for an assailant to push in the door – the greater the push, the more securely would be door have pressed against the door jambs. In either situation, a person or persons would be necessary inside the building to preserve this protection. The vertical taper to the doorways would enable doors to be more easily and rapidly presented correctly to the aperture, while again a bar or draw bar could have provided the internal locking mechanism.

Chapter Six
Comments and Conclusions on Bar Locks

6.1 Discussion

These studies commenced against a background of very limited knowledge. As referred to in Chapter 5, the present author having examined the structures evident across the churches of the British Isles was unable to explain the absence of doors which should have been present in some early Irish churches. At much the same time, he was to observe the holes for draw bars / bar locks in a few Welsh church ruins. In his early studies involving the structure and composition of many thousands of English churches he had never knowingly observed the hole for a bar lock. The author at that time had an ignorance of bar lock holes and their purpose, for they played no part in his attempts to date the churches and their structures. To the author the main tenets of ecclesiastical geology were to examine the details of the stones and the manner in which these had been applied to the structures of the churches. Carefully used, this provided information which helped to distinguish, for instance, Anglo-Saxon (or 'Patterned') church features from those of Romanesque age. It was later that he came to understand the potential of ecclesiastical geology to date the bar locks and their associated structures.

When this work was initiated, its intended purpose was to determine the role of bar locks/draw bars as related to keys. These prove to vary in application across the principal nations of the British Isles. The use of bar locks appears to have been widespread, although in Ireland, to date, only one clear example has so far been revealed. The earliest proven use was in England during Anglo-Saxon times and, across the nations, typically the 13th C. appears to be the commonest period in which bar locks were first installed.

It is evident that bar locks were a more usual church feature than had been expected at the outset. It should also be borne in mind that it is possible that the formal process of locking or securing a church – most obviously by bar locks – may not simply result from the need to keep aggressors or thieves out. It may stem from a more formalised need to assert the identity, independence or status of a church or church community; it may stem from a ceremonial or ritual purpose. Such purposes would be akin to the exaggerations of castle construction beyond critical defensive needs (the castellation of church towers comes to mind here), or the construction of town walls which would appear to be an assertion of status rather than defensive need. These considerations lie beyond the scope of this study, but it is the author's opinion that the most obvious interpretation of a need to secure the church against intruders most accurately describes the vast majority of the examples he provides.

During the course of his examination of bar locks, it became clear to the author that the presence of bar locks could well be associated with other church features which could be taken to indicate the construction of features introduced to enhance church security and defensibilty, and further indeed that these features could be identified without the necessary presence of bar locks (very possibly now removed, or obscured by rebuilding and repairs). The following section examines some of these additional church features which may be indicative of steps taken to enhance church security.

Chapter Seven
A Review of Possible Church Modifications to Enhance Security

7.1 Introduction

If the doors to a building in early times were to be made impregnable, it can be expected that steps would be taken to make the remainder of the building proof from human entry. Windows, if large enough, and not protected (as by a metal screen or indeed by shutters and bar locks as we have already seen), could provide relatively easy access, particularly when situated at ground and first floor level. Buildings of no great height might offer a surface of relative weakness such as their roofs, especially if these were constructed of wood, thatch, thin stone or tiles. Of these, wood and thatch are, of course, materials particularly susceptible to fire.

If used to defend its occupants over anything but a short period, the church or building would need to provide appropriate space for their needs. These could involve sufficient food and drink, areas in which to sleep and to meet toilet and ablution necessities. Certainly, within a church, all religious requirements would need attention. Any space constructed might well additionally be used for long term storage of food stocks such as grain, irrespective of any potential illegal entry to the building.

In his studies with regard to 'Security in English Churches', Oman (1979) described recorded aspects of theft from early monastic buildings and churches. Several aspects of this work are worthy of repetition. Oman emphasised that church robbery was not an English disease but was equally prevalent abroad where it followed upon the looting of temples in pagan times. He argued that in Anglo-Saxon England only cathedrals, minsters and monasteries held things which might have tempted the dishonest, and that lesser churches were initially unlikely to possess even a single silver chalice. He suggested that probably it was not until about AD 1300 that security became a more serious problem, for then items of some value started to be found in the possession of many more churches as they became of greater significance. Oman (1979, 93-95) itemised typical methods which he noted were utilised to achieve security and referred in particular to walls; stout oak doors 'furnished with locks and bolts'; treasuries ('of no particular shape'), but with stout doors and narrow windows with iron bars; 'watching chambers' and night watchmen.

7.2 Church security in the borderlands (Brooke)

As stated in Section 2.2 The architecture on either side of the English-Scottish border reflected the harsh life and climate of the region and on occasions modifications were considered desirable to improve the obviously fortified status of the buildings. The extensive and in-depth study of the early churches of the English-Scottish Borderlands published by Dr Brooke (2000), explored both the churches and their history over the period 1290 to 1690. In admitting that this thorough study took 12 years for him to complete, the detail which Brooke provides regarding church modifications over 400 years of their history can be both appreciated and better understood. The figure published in Brooke (2000, Figure 3), the author has kindly agreed could be shown in this present account, as Figure 7.1.

This figure may now be reconsidered. Brooke studied only the churches of the Borderlands of England and Scotland and his work covered the period of existence of the churches from 1290 to 1690. This can now be supplemented by the details resulting from the work of the present author and his examination of a selection of early churches, which in particular were thought to be of pre-Conquest age, covering the whole of England and Scotland. As to the qualities of the items named around the figure, and their

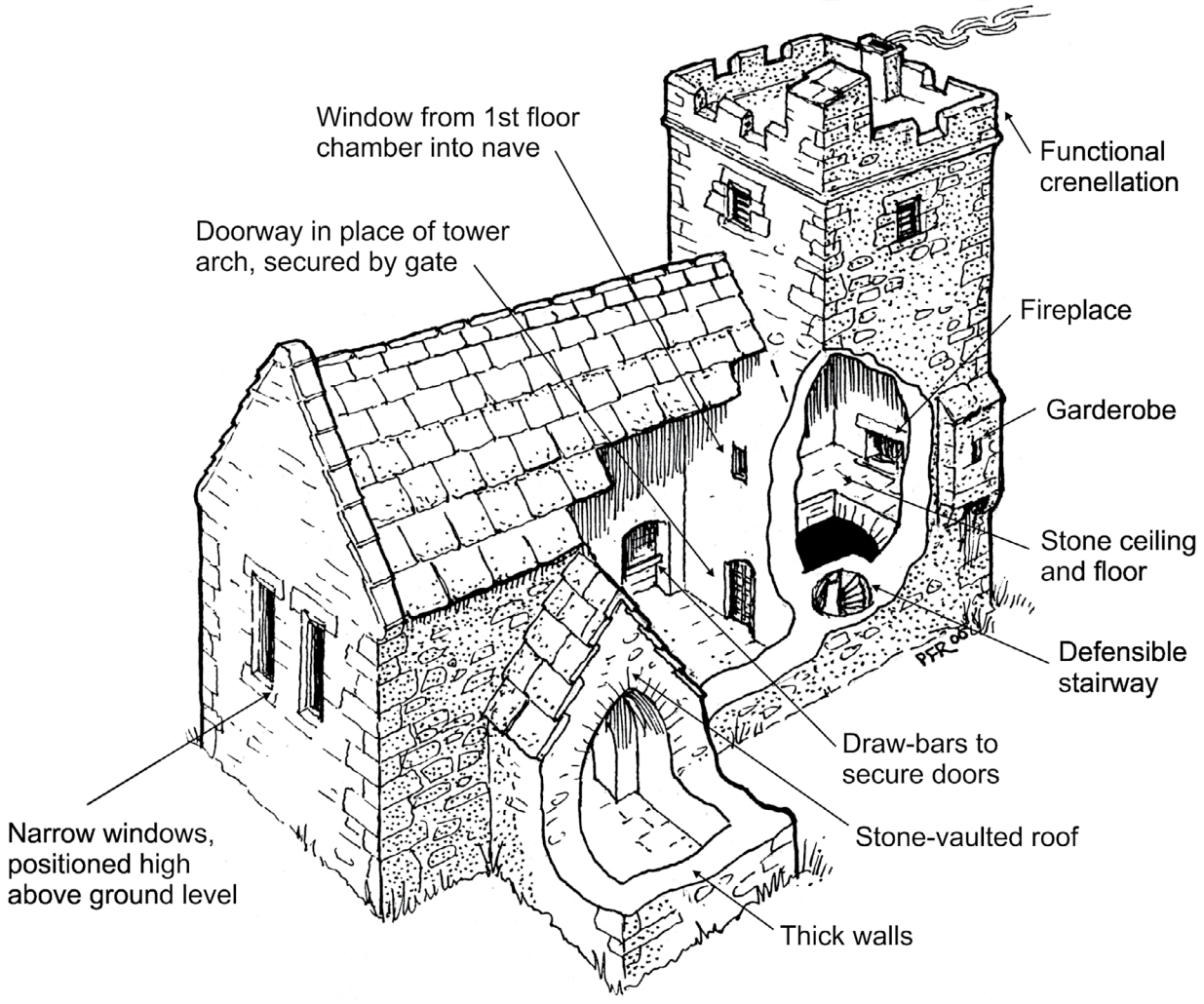

Figure 7.1. This copy of (Brooke, 2000, Figure 3) is kindly provided by that author, he also advises that, the final version was drawn by Peter Ryder. Resulting from the much more extensive geographical and historical present study, and in wishing to acknowledge the value of the figure, it is now republished here for further consideration.

respective abilities to help to provide church security and defensible potential, these are probably best treated in turn. The analysis commences with those features, which in the present author's view are of greatest significance in offering security and defensibility, and finalises the list with those items of limited or negligible values.

i) The presence of a tower (or towers) where communication above the lowest floor may ideally be with the higher floors of the rest of the church (such as the upper levels of the nave), whilst no (or restricted) direct link with the ground floor is maintained throughout the church.

ii) This leads to a number of additional and supportive items:
   a. Ladder(s), should be short (spanning one or a limited number of floors) so that, if possible, they can be drawn up, and not left in place at times of danger.
   b. Bar locks/draw bars installed to secure doorways in the tower. They would be required to prevent unwanted communication. These should encompass the additional requirements of averting access by means of entry or entries to the whole church building.

c. Stairways, if created, should be defensively narrow, restricted, tightly winding and complex. Such stairways are typical and partly of this style to save floor space and to make their building less expensive (see Figure 7.2). (Anglo-Saxon stairways have a different structure to others; see Taylor and Taylor, 1965, 115-6).

d. Other features, such as the portcullis seen at Bedale church, Yorkshire (see Figure 2.34), designed to prevent unwanted communication. These are rare in churches but common in castles.

iii) The presence of an upper storey (or storeys) to the main body of the church (nave, chancel, transepts, or aisles) to provide similar detached and separate communication as in the instance of the tower.

iv) A door (but less important by far, a window) generally from the east wall of the tower first floor to the nave first floor (or with a ladder to the ground floor), to permit secure communication. These doors tend to require lockable facilities (as bar locks).
Windows in this position serve to provide a visual site of the altar and /or the congregation from the tower, for persons related to the services (as bell ringers, etc.).

v) Tower arch of reduced size, typically replaced with a door with a bar lock (or more modern locking device) on the tower side. A gate in place of a door is rare.

vi) The main body of the church roof (or roofs) should be of stone (not wood or thatched). The roof would have typically been with a high (steep) pitch to prevent climbing, etc..

vii) Window sizes and positions have already been mentioned. Customarily, it is argued that windows should be narrow enough (slit, keyhole, etc.) and high enough to prevent human entry (See also Section 7.4). Unfortunately, it proves difficult to select whether or not a window might have been used illegally, or accidentally broken and rebuilt, and when this might have occurred. It should be noted that the church keyhole or narrow slit windows closely resemble in shape the arrow slit apertures in castle and town walls.

viii) Wall thickness is also significant. Wall thickness was much controlled by fashion, with hurriedly-built Norman walls typically thicker than Anglo-Saxon walls, but also weaker (See also Section 7.5).

ix) Internal roof structure is referred to on the Figure 7.1 as a 'stone-vaulted roof'. A pointed barrel vaulted roof is drawn. A range of factors may influence the strength of such a roof. The Early English arch is claimed to be stronger than the semi-circular arch of the Anglo-Saxon or Norman periods, but arch span and the material and methods used for the construction of the roof, as well as other features, could determine its strength. It would seem most unlikely that the roof structure could influence the person who was about to commit either petty theft or a murder. However, introducing stone may have prevented the church being set alight.

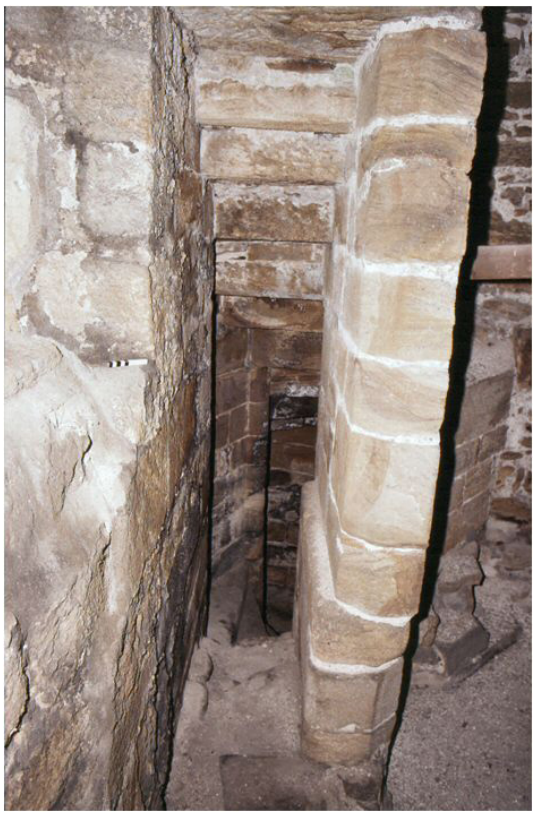

Figure 7.2. Kindly supplied by Dr Brooke, this figure of part of Blanchland abbey (NZ 946 448), Northumberland, displays an instance of a staircase where a mid-wall has been built which restricts the width available in which people could circulate.

x) 'Stone floors in towers' were particularly critical above ground level. Higher level floors tend to naturally be built of wood, but to be used for defensive purposes these floors should not be flammable and, therefore, should be constructed in stone.

xi) The tower as drawn and labelled refers to certain other structures. These are described as:

a. 'Functional crenellation'. In these times of Health and Safety regulations the present author has only succeeded in examining two roofs of church towers and neither was built to obviously provide detail for defensive purposes. However, Dr Brooke (2000, 253-5) has kindly provided a photograph of what became a defensible tower parapet at Biggar church (see Figure 7.3). Most examples of crenellation related to towers throughout the British Isles suggest that these were present to provide nothing more than an ornamented finish to a part of the church that would otherwise have looked gaunt.

b. Garderobes. The present author has never seen garderobes in association with the very many churches he has viewed. They are, of course, a feature of castles and less commonly of monastic buildings. Dr Brooke advised that the church at Newton Arlosh, in Cumberland, with monastic origins has a garderobe and he kindly provided the figure (see Figure 7.4 and Harrison, 2004, 68-69).

c. Fireplace and chimney. Both fireplaces and their chimneys are found more commonly in geographical regions where there is a local availability of coal (far less frequently wood). Otherwise a means of transport for the combustible materials would have been required. They are absent in early (pre-Gothic) churches and in abundance particularly in the 18th and 19th C., until replaced by more modern means of heating. No doubt wood, being more easily worked and obtained, would have been used in the earliest churches but in an open hearth.

Figure 7.3. This figure is again from Dr Brooke; it illustrates the tower parapet at Biggar church, south Lanarkshire. The parapet was clearly hurriedly built (following difficult times related to the restoration of the monarchy {1660-90} and a requirement for defensibility).

Figure 7.4. Newton Arlosh church in Cumberland (NY 198 553) has monastic origins, and the tower at height, as kindly displayed here by Dr Brooke, carries a garderobe.

A number of features were not considered in the Brooke figure and deserve a brief mention:

a Particularly where they deface religious elements of a church, the presence of whetstones that appear to have been used for sharpening swords, arrows, etc., in a church, must mean that the church was defended (or its occupants were ready to defend), if it was not otherwise defensible. The same conclusion can be reached where church walls appear to show gun loops or local walls are rampired.

b. Church crypts, if present, could have provided temporary security if they were protected.

c. The porch in early churches, as in Anglo-Saxon times, was significantly different to that drawn, which would have been no earlier than 13th C. At the present time porch doors may be found to still retain bar locks.

d. Finally, appropriate geographical situations can do much to provide or improve security (See Section 7.6 and Figures 12.1 and 12.2).

7.3 The building of floors at a higher level

There is in many early churches clear evidence of the building once possessing a second floor, or a loft above areas of the ground floor. In particular, the church nave will exhibit such a structure, but in some churches this is extended to areas over the chancel and, less commonly, the transepts. Where such extensions exist connecting doorways were necessary and these, from their structure, may provide evidence of their date of construction. Access to this higher level required a ladder, or more permanently, stairs, and typically these were inside the church tower. The intervening tower to nave wall frequently still reveals evidence of the communicating doorway high above the tower arch. Externally, the evidence

of the, now removed, but one-time higher, nave roof can frequently be noted by the impression of its outline on the east tower wall. Where the higher nave roof line still stands it may well cover features in the tower which were constructed at an earlier date.

In all instances involving church towers or the body of a church possessing an additional floor or floors in this work, the details have been tabulated by country. In the majority of instances the church tower was erected after the body of the church. The first to have been erected (nave or tower) can in some instances be determined by the orientations of the stonework. Various forms of staircase have been utilised to reach the higher floors, but ladders which can easily be raised or withdrawn provide clear evidence that the upper floors were sometimes appropriately protected. Doorways inserted in the created passageways are on occasions provided with appropriate locks, and these doorways may prove dateable from the style of the stonework and stone orientation.

Huitson (2014) devotes a whole book to what he describes as 'The Architecture of Medieval Upper Spaces' and their purpose (this covering the period c.1000 to 1550). Apart from the upper floors providing obvious elements of security and possibly levels of potential defensibility, he designates (p. 115) the spaces to a wide range of activities which supported both religious (such as, liturgical use, singing, the provision of a library or additional altars, storage, etc.) and other functions (such as, use for legal and other businesses, entertainment, use as granaries, etc.). At the higher levels of the larger ecclesiastical buildings, such as cathedrals, some authors (for example, at Lincoln, Gem, 1986) have proposed the space related in part to use associated with military fortification.

7.4 Window size and position

Assuming they were not part of an original structure, small windows in churches, or the complete absence of windows, especially at ground floor level, might of course represent evidence of an earlier important breach in security; the windows being altered or blocked up following previous illegal access and damage. Equally they may represent an attempt to improve security by allowing only a small and inaccessible point of entry at a high level. The presence of windows which were filled in with matching wall stonework (that is: blocked) are frequently extremely difficult or impossible to confirm. In early churches (Anglo-Saxon particularly), windows were often placed in opposing pairs (for instance, the north and south walls of a chancel or nave would match in the position of their windows). The absence of a window from this pattern may well suggest building modification.

Many of the English churches examined in this study (See Table 8.1) were analysed to try to determine what role their windows might have played in providing a means of past improper entry. Illustrated on the pages that follow in Chapter 8, many of the early North of England churches which are detailed in Table 8.1, have been reviewed by both the present author and also independently by Brooke (2000). Matters relating to the windows are discussed in the captions to the illustrations in Chapter 8.

Unfortunately, although many authors (such as Taylor and Taylor, 1965, 8-10) have suggested that the state of a particular window or windows should indicate whether they were ever utilised to gain false entry into a church, the many unknown factors (such as whether illegal access had been by means of a single window or more; or what factors caused the windows to be blocked or repaired) hide the actual events in their history. The arrow-slit/ keyhole windows observed in Lincolnshire were examined in some detail in Potter (2015, 28-32). Only under exceptional circumstances can the particular occurrence or position of early windows be relied upon to indicate past means of improper access to a church.

Early church modifications for protective purposes, as suggested above, were it seems of great importance. However, many churches originating in that early period, today fail to reveal any or all of

the modifications described. Typically, for example, it is possible for only the narrow slit windows or the high nave roof to remain visible. In the 600 or more years since it became possible to replace bar locking with doors with locking keys, in the vast majority of the early churches, they have either been totally replaced, to disappear altogether, or become modified to the extent that the early features are no longer evident.

7.5 Thickness and construction of walls

Wall thicknesses in early churches certainly vary. It might be thought that walls built particularly stoutly would have had defensibility in mind, but in fact much of the variety relates to the styles of building. Anglo-Saxon walls tend to be relatively thin, 'seldom as much as 3 ft' (0.914m.) 'in thickness' and 'more often nearer to 2ft 6in' (0.762m.), (Brown, 1925, 23; citation from Taylor and Taylor, 1965, 12; Taylor, 1978, 959; Potter, 2015, 22-23). Their walls remain, where still standing, of considerable strength. The church of St Michael, Heckfield (SU 723 605) in North Hampshire retains walls which were once constructed wholly of ferruginously-cemented gravel. These were situated to the north side and to the south side of the nave and each wall was little more than 0.20m (or 8in) thick. Fortunately, a churchwarden's account book of 1876 (Potter, 2001, 9-10; 2003a) described in some detail the manner in which ('very old') wall material of ferruginously-cemented gravel had been demolished to build new walls illustrating Victorian characteristics (Figure 7.5).

Figure 7.5. The church of St Michael, Heckfield, Hampshire (SU 723 605) has its Victorian nave walls built in ferruginously-cemented gravel. When the Anglo-Saxon walls were knocked down in 1876, their strength was such that the wall material was reused.

The Normans, as conquerors, partly by means of their churches, were intent on displaying their authority, as quickly as possible. Their walls were built to possess added thickness and features in those walls, such as doors and windows, built to confront those who might approach. The wall thickness between the outer and inner faces frequently had no bonding mortar (Figure 7.6). Additional strength was added only by mass and these thicker walls were often no more secure than the thinner walls of earlier centuries.

Figure 7.6. The Norman walls of the ruined Agha church, Carlow (S 730 654) in Ireland. The outer walls consist unusually of well-fitted boulders of hammered granite but their interior is only of rubble of limited strength.

Security was also affected by local factors such as the skills of the masons, the type and quality of the materials available. For most walls, therefore, it is difficult to assess their quality or ability to defend ecclesiastical buildings.

Other factors more effectively modified the strengths of walls; the skills of the masons erecting the walls varied, but in particular the masons' choice of stones was critical. Different rocks vary enormously in their ability to offer protection against both random and wilful damage. For most walls, therefore, it is difficult to assess their quality or ability to defend ecclesiastical buildings. The situation can differ, however, where, as with more extensive town walls, new techniques in warfare may be employed. At much the same time as other cities, the walls of York were provided with rampires (Figure 7.7). The walls of Great Yarmouth were studied in detail by the author (Potter, 2008a, Table 1.1). There, historically, initial building commenced in the late 13th C. with a murage grant helping to create the early walls of both bricks and flints. The first rampiring (building of earthen ramps on the lower inside of the walls of the City to protect their collapse by gunfire) commenced at Great Yarmouth in 1544. Both wall arrow slits and gun ports were built into the lower levels of the rampired wall (Figure 7.8).

Figure 7.7. View north, of the rampired walls, City of York.

Figure 7.8

Figure 7.9

Figure 7.8. With the removal of rampires as shown here at Great Yarmouth, some defensive systems, as gun emplacements and arrow slits were retained in the walls.

Figure 7.9. The church of Bywell, St Peter (NZ 049 614), see also Figure 2.17, stands by the north bank of the River Tyne. Three of the four of the round-headed windows on the north side of the higher levels of the nave are of Anglo-Saxon build. Brooke (2000, 187) dated the tower to the 14th C. and indicated the presence (his text Figure 99) to a set of 'draw-bar' slots in the west entrance. A view down into the nave was once served by a small lancet, now blocked. He concluded that the tower was a 'defensible' refuge but doubts must remain as to whether the church was ever defended

7.6 Appropriate geographical situations

The careful selection of the site for a church can do much to provide or improve security; island sites have been frequently selected for church sites, as have those hill sites where a water supply is available (See Chapter 12, Figures 12.1 and12.2).

7.7 Conclusion

Aspects of church security have probably been discussed by Brooke (2000) more extensively than by any other author. His analyses of the churches which resulted from the period of unrest on the Anglo-Scottish Border about the 14th C., revealed that there, very many churches were modified in order to increase their security. In these Border studies, it proved possible to utilise historical evidence to substantiate that the building was actually defended. Brooke used the word defensible, for many churches in his studies were certainly defended. In the present work, where it proves impossible to confirm any structural damage the present author refrains from the use of 'defensible'.

Figure 7.10. St Andrew's church, Bywell (NZ 048 615), see Tables 1.3 and 2.1, retains its Anglo-Saxon tower (Potter, 2016, 22-26) and characteristics which include a south facing belfry outlined in strip work and a doorway opening into space. Brooke (2000, 187) suggested that the south doorway may have been secured by two draw-bars, now plastered over and not seen by the present author.

The instance of the church of St Peter, Bywell (Figure 7.9 and Table 2.1, Figure 2.17), reveals typical interpretation difficulties (Brooke, 2000, 187-189). Brooke suggests the west tower in particular 'bears the typical hallmarks of a defensible refuge'. The church fails to display, however, any evidence of ever being defended. A few hundred metres to the north of St Peter, stands St Andrew's, and this church (Figure 7.10) provides barely any indication of being defended. If the locality had undergone a period of destruction or lack of security, its effects would be expected to be shown in both churches.

Of course it is very important to recognise that there could be many alternative explanations for all of the features mentioned above: a matter of style and fashion, a lack of resources, the need to provide for choirs and bell-ringers for example. However, when these features occur together, especially with the presence of a bar lock, and in particular when the features can be shown to be modifications or additions, the possibility of a programme of enhancing the defensibility of the church structure must be brought into consideration.

Chapter Eight
Church Security in England

8.1 Survey of the evidence

The analyses provided by Brooke (2000, 365-367) list 56 churches in the Borderlands in England, which built in the period 1290–1690, he regards as created to, at least in part, offer a safe sanctuary. 22 of these earn this designation on the presence or evidence of the possession of a draw bar, and these are listed in Table 2.2. Six churches in the Borderlands in Scotland are listed in Table 3.2 as possessing the same draw bar security. Other reasons given by Brooke for inclusion in his 'safe sanctuary' classification are; documentary evidence, overall construction, location, structure of tower and stairs, perimeter wall (moat), restricted arch, gatehouse, fortified (licensed) monastery (Tynemouth Priory), chamber over chancel, archaeological evidence and musket shot damage.

Only the church at Barton, in Westmorland, receives an accolade from Brooke (2000, 360) for possessing a twelfth-century defensible tower built prior to the 1296 period of unrest. The remaining 55 churches it would appear likely were modified or constructed to offer elements of safe sanctuary after this date.

The details which relate to church information gathered largely by the present author, dealing with those areas of England as a whole examined to date, are presented in Table 8.1. 69 ecclesiastical sites are described, 47 of these revealing evidence of draw bars/bar locks (see also Table 2.2). The evidence for bar locks presented there is repeated here in Table 8.1). Apart from the evidence of the bar locks, aspects of safety or security ('safe sanctuary') used to distinguish these sites were: evidence and creative use of church upper floors (doorways above tower and chancel arches), tower, early window positions (arcade window relationships), keyhole and other narrow windows, tower door to space, high level doors, use of internal whetstones, portcullis, and foundation date. These studies developed from the author's searches for early (as Anglo-Saxon) churches. In comparison with Brooke's Borderland studies, a larger percentage of their number is considered to have been secured with the aid of 12th C. and earlier bar locks. These are exemplified by the church bar locks seen at South Kyme (pre 1169), Appleby (Anglo-Saxon) and Morland (Anglo-Saxon). Similarly, of the churches within the 69 sites of those modified to provide greater levels of security and not revealing bar locks, the proportion thought to have been adapted for this purpose prior to the 12th C is higher. Apart from the occasions where an east window in the first floor of a church tower permitted those in a level of protection to view others (friend or foe) in the nave ground floor, there are no other clearly obvious features, such as small viewing windows on external church walls.

Figure 8.1. (Table 8.1). Aston by Trent church, Derbyshire (SK 414 294), and its tower viewed from the south-east.

Figure 8.2. (Table 8.1). On this Aston by Trent buttress, at the join of the nave south wall and the chancel, the stonework has been used for possible sharpening.

Table 8.1. Churches in England with evidence of enhanced church security surveyed

Ecclesiastical Site	**County**	**Grid reference**	**Position**	**Evidence of other Entrances**
Meldreth [A]	Cambs	TL 375 466	South aisle, south doorway	No evidence
Astbury	Cheshire	SJ 846 615	North aisle doorway, north door	Not known
Aston by Trent	Derbys	SK 414 294	-	-
Repton	Derbys	SK 303 272	South aisle doorway, west jamb	No evidence
Exeter Cathedral [B]	Devon	SX 921 925	Three main doors- centre, south and north, West Front	Brewer's Door - south nave aisle possibly
Aycliffe	Durham	NZ 283 221	South aisle doorway	Not known
Billingham	Durham	NZ 657 223	-	-
Hart	Durham	NZ 470 357	-	-
Haughton-le-Skerne	Durham	NZ 307 158	a) South aisle doorway b) West tower doorway, north jamb	Both of same age, other doorways, now of younger age
Norton	Durham	NZ 442 221	-	-
Pittington	Durham	NZ 328 436	South nave doorway (Hole *c.*0.5 m deep on east side)	-
Staindrop	Durham	NZ 131 206	-	-
Alton	Hants	SU 717 396	-	-
Alkborough	Lincs	SE 882 219	-	-
Barnet-le-Wold	Lincs	TA 062 091	-	-
Barton-upon-Humber	Lincs	TA 035 219	South aisle doorway, west jamb	Not known
Broughton	Lincs	SE 960 086	-	-
Caistor	Lincs	TA 116 012	-	-
Castle Bytham	Lincs	SK 988183	-	-
Coleby	Lincs	SK 975 606	South aisle doorway	Not known rebuilt
Colsterworth	Lincs	SK 930 241	North aisle doorway	Not known rebuilt
Corringham	Lincs	SK 872 917	-	-

by the author (the evidence for bar locks is also stated in the table - see also Table 2.1).

Possible age of entrances with bar locks	**Other features**
15th C	Both holes shallow **See Figures 2.2, 2.3**
Late 13th - early 14th C	East hole deep **See Figure 2.4**
-	Blocked 14th C or later arch above tower arch. Possible knife sharpening exterior south wall on buttress **See Figures 8.1, 8.2**
Possibly 15th C	Higher level passage way above chancel arch (Anglo-Saxon) **See Figures 2.5, 8.3**
Mid 14th C Brewer's Door, late 14th C	**See Figures 2.6 to 2.9**
Late 13th- early 14th C	Both holes infilled
-	North jamb of west nave doorway used as whetstone
-	Triangular doorway above chancel arch probably modified in Norman times. Chamfered lancets probably 13th - 14th C **See Figure 8.4**
Both similar Post-Norman-pre 14thC	Aisle door west hole deep **See Figure 2.10**
-	Triangular doorways (four) from tower at high level (Anglo-Saxon). Also tower windows **See Figures 8.5, 8.6**
-	Above tower arch doorway (probably 1350). Windows cut by Norman arcade (intimates pre *c.*1180) **See Figures 2.11, 8.7**
-	High level doors in tower and above tower arch (possibly 13th C.). Monosplay window above Norman south nave wall **See Figure 8.8**
-	Civil War (1643) musket shot holes in south nave door **See Figure 8.9**
-	Village Cross served as whetstone **See Figure 8.10**
-	High level window over tower arch, and Anglo-Saxon south nave wall
Post Norman – mid 13th C	Anglo-Saxon high level doors tower, and whetstone use of north jamb west tower door **See Figures 2.12, 8.11, 8.12, 8.13**
-	Both low west tower and west tower staircase show Anglo-Saxon features as slit windows, and use as whetstones **See Figure 8.14**
-	East wall tower once had door to high nave, tower narrow windows
-	High level, (?1350) doors/windows once east wall of tower **See Figure 8.15**
In 13th C	Keyhole Anglo-Saxon low tower windows **See Figure 8.16**
Probably 14th C	Infilled with stonework
-	Infilled high level door above tower arch **See Figure 8.17**

Table 8.1. Churches in England with evidence of enhanced church security surveyed

Glentworth	Lincs	SK 945 881	-	-
Great Hale	Lincs	TF 148 428	-	-
Hough-on- the- Hill	Lincs	SK 923 463	-	-
Lincoln, St Benedict	Lincs	SK 975 711	-	-
Lincoln, St Mary-le-Wigford	Lincs	SK 974 708	-	-
Lincoln, St Peter-at-Gowts	Lincs	SK 973 703	-	-
Little Bytham	Lincs	TF 013 180	Chancel south door	-
Marton	Lincs	SK 840 817	-	-
Scartho	Lincs	TA 267 063	-	-
South Kyme	Lincs	TF 168 497	Nave to early modified church south door. Original doorway no longer present	-
Stow-in-Lindsey	Lincs	SK 882 819	Nave door to north vestry	No evidence
Stragglethorpe	Lincs	SK 913 524	a) North aisle doorway north door b) South nave	No evidence
Thurlby	Lincs	TF 105 167	Traces of bar lock holes at south and north aisle entrances	Evidence of other doors absent
Wilsford	Lincs	TF 006 429	-	-
Winterton	Lincs	SE 928 126	-	-
Acle	Norfolk	TG 401 103	South door bar lock holes	Not evident
Bedingham	Norfolk	TM 285 934	North nave aisle, both bar lock and holes	Not evident
Bywell, St Peter*	Northum	NZ 049 614	Three bar locks on west doorway. Holes on south side nearly a metre deep. Possibly some use of locks	-
Edlingham*	Northum	NU 114 091	a) West nave doorway (now leads to west tower). South hole deeper. b) South nave doorway. East hole deeper	Evidence of other doors absent
Hartburn*	Northum	NZ 090 161	South doorway to south aisle with filled hole for bar lock	-
Ingram*	Northum	NU 019 163	-	-

by the author (the evidence for bar locks is also stated in the table - see also Table 2.1) (continued).

-	Keyhole windows in tower. Tower/ nave high level communication
-	Tower narrow windows. Suggested evidence of infilled door (late 13th C) tower/high nave
-	Narrow/lancet windows tower. Infilled doorway tower/high nave
-	Infilled high doorway west chancel wall, date uncertain
-	Tower narrow windows and ?10th C. reopened doorway above tower arch **See Figure 8.18**
-	Tower west face window and doorway to high nave described as Anglo-Saxon (Taylor and Taylor, 1965)
Infilled, east jamb (1350 or earlier)	Tower/nave high doorway (suggested date 1350) **See Figure 8.19**
-	Altered tower/nave high doorway. Tower west face repaired keyhole (?Anglo-Saxon)
-	Tower/nave high doorway (?13th C.). Tower modified small windows **See Figure 8.20**
East deep (over a metre) jamb hole only	Southern part of former Augustinian priory founded before 1169 **See Figure 2.13**
Bar lock holes 0.12 to 0.15m deep to both west and east	North and south transepts display Anglo-Saxon and Norman style windows (some modernised) **See Figure 2.14**
a) Late 12th - early 13th C b) Aisle later than nave	a) Preserves door and bar lock bar neither original b) Holes present, east 300 + mm deep c) Narrow window west wall nave **See Figure 1.7**
Traces only and 14th C (or 13th C) date	High level door tower/nave (Anglo-Saxon) **See Figure 8.21**
-	Traces of once higher roof lines to nave and chancel
Modern, rebuilt	High level door tower/nave, in Anglo-Saxon style. Keyhole window south tower wall **See Figure 8.22**
Probably 14^{t} - early 15th C	Roof of thatch **See Figure 2.15**
12th - 13th C	**See Figure 2.16**
Probably 16th C	Three Anglo-Saxon windows above the north arcade (not that rebuilt to the west) **See Figures 2.17, 7.9** and Brooke (2000, 187-8)
a) Anglo-Saxon and older than 14thC west tower b) Age of doorway Norman	Narrow windows in tower probably 14th C, elsewhere narrow windows 12th C East wall of tower reveals nave roof once higher **See Figure 2.18** and Brooke (2000, 106-9)
Probably all early to late 13th C	Tower arch blocked not central with both doorway and window within and above. Nave loft accessible **See Figure 8.23** and Brooke (2000, 142-6)
Modifications with rebuilding	Tower windows part Norman. East tower wall reveals nave roof once higher **See Figure 8.24** and Brooke (2000, 94-5)

Table 8.1. Churches in England with evidence of enhanced church security surveyed

Lindisfarne* (St Mary the Virgin)	Northum	NU 125 418	-	-
Newburn*	Northum	NZ 167 654	Nave (high) to East Wall of tower with bar lock on tower side	-
Ovingham*	Northum	NZ 085 637	-	-
East Bridgford	Notts	SK 691 431	North aisle doorway	None known
Old Newton [c]	Suffolk	TM 059 625	South nave doorway	None known
Stowmarket	Suffolk	TM 049 247	Chantry chapel window	-
Thornham Parva [c]	Suffolk	TM 109 727	South nave doorway	None known
Old Woking	Surrey	TQ 021 568	West porch doorway to tower	No evidence
Appleby	Westm	NY 688 199	Nave north doorway	Not known as rebuilt
Long Marton	Westm	NY 666 240	West nave doorway (now leads to Norman west tower)	No evidence
Morland	Westm	NY 598 225	East door to tower (inside the door and its rebate)	Tower, single door originally defended from inside
Ormside	Westm	NY 701 176	-	-
Appleton-le-Street	Yorks	SE 733 736	-	-
Bedale*	Yorks	SE 265 884	a) East side of south porch. b) West door to tower. c) South door for porch to tower and church	Three doorways, as a) provides supplementary support probably later
Gilling West	Yorks	NZ 182 052	-	-
Hovingham	Yorks	SE 666 757	-	-
Kippax	Yorks	SE 417 303	-	-
Kirby Underdale	Yorks	SE 808 585	-	-
Kirk Hammerton	Yorks	SE 465 555	-	-

by the author (the evidence for bar locks is also stated in the table - see also Table 2.1) (continued).

Probably Anglo- Saxon Early English	Nave to chancel roof passage, doors over arches. Chancel, east lancet windows **See Figure 8.25** and Brooke (2000, 76)
Possibly 14th C	See Brooke (2000, 190-93)
All Anglo-Saxon 13th C	Tower to nave passage. Small tower windows and south side high door to space. Chancel lancet **See Figure 8.26** and Brooke (2000, 189-90)
Early English	West side 79cm deep, east blocked with wood
13th - 14th C	Both holes timber lined in about Victorian times **See Figures 2.19, 2.20, 2.21**
15th C	Bar lock holes evident on either side of window **See Figures 2.22, 2.23**
13th - 14th C	Both holes reworked overtime to meet changes in door **See Figures 2.24 – 2.27**
12th C	The lower part of tower is thought to have been built as a porch. Long bar lock holes may have served a wider door. **See Figure 2.28**
Could be originally Anglo-Saxon (as a once wider door once set here)	East side hole 1.32m deep. The doorway outside is now only 0.95m wide (0.89m at the top). **See Figure 2.29**
Anglo-Saxon	South side hole1.2m deep. Rebated at 0.29m.for inward opening. North side nave and chancel each support a Norman altered window **See Figure 2.30**
Anglo-Saxon	West side hole more than 0.5m deep. Tower now locked from nave. Modified Anglo-Saxon narrow Tower windows **See Figures 2.31, 2.32**
About 1200	Blocked high level nave /tower doorway. Norman Tower narrow windows **See Figure 8.27**
Anglo-Saxon	Tower east wall shows evidence of high level tower/nave communication. Tower south side has a door, now blocked, to space
a) about 1350 b) and c) probably earlier, possibly Norman	a) Entrance to higher levels of tower (with portcullis support) b) West door for tower and ground floors c) Main door to church (deeper to west) Door above chancel arch and east nave/chancel walls indicate high level communication. **See Figures 2.33, 2.34, 2.35** and Brooke (2000, 6-7)
Possibly Norman	Tower and nave roof line impressions suggest early roof level communication
11th C Modified 11th C	Off-centre, high doorway over tower arch indicates high level tower/nave communication. South face tower small window **See Figure 8.28**
Probably Norman Modified Norman	East face tower possesses high level doorway to nave (roof now removed). High lancets in north nave wall
Probably Anglo-Saxon 11th C	Above tower arch blocked doorway indicating nave/tower communication. Early windows cut by arcades **See Figure 8.29**
Possibly late Anglo-Saxon Anglo-Saxon	Blocked rectangular doorway above tower arch, once for nave/tower communication. Part of blocked monosplay window south wall chancel

Table 8.1. Churches in England with evidence of enhanced church security surveyed

Ledsham	Yorks	SE 456 297	-	-
Pateley Bridge	Yorks	SE 164 656	a) West doorway, south aisle. b) East doorway, south aisle. c) North aisle doorway	The church is now a modified ruin, all three entrances show close resemblances
Ryther	Yorks	SE 555 394	South doorway, south aisle	No evidence
Skipwith	Yorks	SE 657 385	-	-
Stonegrave	Yorks	SE 655 778	-	-
Weaverthorpe	Yorks	SE 966 710	-	-
Whorlton-in-Cleveland	Yorks	SE 484 025	-	-

Notes

* Sites also discussed in Brooke (2000)

A Information kindly provided by Peter Draper.

B Photographs and information kindly supplied by Diane A. Walker, Exeter.

C Information kindly received from Martin Renshaw and Vicky Harding of Soundsmedieval.org

Figure 8.3. (Table 8.1). The chancel arch at Repton church (SK 303 272) when viewed from the east shows traces centrally of a higher, Anglo-Saxon blocked smaller arch.

by the author (the evidence for bar locks is also stated in the table - see also Table 2.1) (continued).

Anglo-Saxon (No proof of full circulation for persons)	Window above tower arch, also in blocked state high south nave wall and porch (*porticus*)
Possibly bar locks date from 13th C	a) Bar holes now shallow b) The east bar hole the deepest c) East bar hole deep **See Figure 2.36**
About 1300 Early English	East bar lock hole present, west cement filled. Nave west end two lancet windows
Possibly 11th C Ground floor earliest possibly 11th C	High level blocked door above tower arch. Tower early windows, some double splayed
Probably Norman. 12th C.	Door over west nave door from tower. Small window second stage tower **See Figure 8.30**
Norman	High level doorway above tower arch
Possibly 14th C	Ruin. Blocked doorway over chancel arch (for communication) **See Figure 8.31**

Figure 8.4. (Table 8.1). Hart church, Durham (NZ 470 357) showing the Norman chancel arch and, as seen from the chancel, above it traces of an earlier chancel arch and a triangular doorway. The triangular doorway typifies Anglo-Saxon work, but this doorway has been rebuilt, for all jamb stones are laid BH.

Figure 8.5

Figure 8.6

Figure 8.7. (Table 8.1). St Laurence church, Pittington (NZ 328 436) here displays one of its archaeological attractions. This elaborate Norman north arcade is thought to date from about 1180. The arcade cuts earlier windows which retain paintings probably of 12th C. date

Figure 8.5. (Table 8.1). Norton church (NZ 442 221), in Anglo-Saxon style, has the lowest walls of its square tower broader than the adjoining adjuncts, so that all four quoins of the tower are visible. The areas above all four arms of the church (nave, chancel, and both transepts) were it appears accessible from the higher floors of the tower by means of triangular headed doorways. In this view the high doorway over the arch to the nave may be seen from the tower.

Figure 8.6. (Table 8.1). A second of the tower doorways at Norton church can be seen in this picture, where on the north side of the tower a triangular doorway once provided access to the floor over the north transept. The trace of the early transept roof can be seen on the tower's north face.

Figure 8.8. (Table 8.1). Above the tower arch at Staindrop church, Durham (NZ 131 206) an off-centre, high level doorway, now blocked, once connected to a higher level in the nave.

Figure 8.9. (Table 8.1). Alton church, in Hampshire (SU 717 396), where local aspects of the Civil War, in 1643, left musket shot holes on the outside of the south nave door. The door has subsequently been thickened on the inner surface.

Figure 8.10

Figure 8.11

Figure 8.12

Figure 8.13

Figure 8.10. (Table 8.1). In Lincolnshire, at Alkborough (SE 882 219), the village cross has clearly been much used as the village whetstone.

Figure 8.11. (Table 8.1). The south face of both the Anglo-Saxon tower and western annexe at Barton-upon-Humber church (TA 035 219), Lincolnshire.

Figure 8.12. (Table 8.1). On the east face of the tower, and above the tower arch, at Barton-upon-Humber church this Anglo-Saxon doorway clearly reveals its patterned stonework.

Figure 8.13. (Table 8.1) The lowest stones in the northern jamb of this doorway at Barton-on-Humber church, Lincolnshire (TA 035 219) have been used as whetstones, probably for sharpening swords (note vertical cuts). The church is fully described in Potter (2015, 144-153).

Figure 8.14. (Table 8.1). In Broughton church tower, Lincolnshire (SE 960 086) one arch jamb reveals its past use as a whetstone, from the height of the wear possibly for sharpening arrows.

Figure 8.15

Figure 8.16

Figure 8.17

Figure 8.15. (Table 8.1). The church of St James, Castle Bytham (SK 988 183) possesses high level windows/doors, these on the west wall of the nave.

Figure 8.16. (Table 8.1). This keyhole window is preserved at a relatively low level on the south wall of the tower of Coleby church, Lincolnshire (SK 975 606). The cut back visible and stonework indicate the window to be of Anglo-Saxon age.

Figure 8.17. (Table 8.1). The tower arch at Corringham church, Lincolnshire (SK 872 917), seen from the nave, shows above it a blocked doorway at first floor level.

Figure 8.18. (Table 8.1). St Mary-le-Wigford church, Lincoln (SK 974 708) carries a high level doorway above its Tower arch. When this doorway was unblocked the jambs were said to convey an Anglo-Saxon age.

Figure 8.19. (Table 8.1). Little Bytham church (TF 013 180) showing the tower arch as seen from the nave. Unfortunately, all stone detail relating to the high level doorway is covered in plaster.

Figure 8.20

Figure 8.21

Figure 8.22

Figure 8.23

Figure 8.20. (Table 8.1). St Giles church, Scartho in Lincolnshire (TA 267 063) is yet another church in the county to carry a high level doorway above its tower arch.

Figure 8.21. (Table 8.1). Thurlby church (TF 105 167), like others in Lincolnshire, has a doorway above its tower arch. The doorway in this instance is with a triangular head and likely to be Anglo-Saxon. Paul Ratcliffe, a local resident had permission to visit the higher levels of the tower and he kindly took this photograph (the doorway viewed from inside the tower). Unfortunately, no stonework orientations could be read.

Figure 8.22. (Table 8.1). Much of Winterton church (SE 928 126) has been modernised. The doorway above the tower arch probably in 1904 when it was stated it was modelled on the earlier doorway replaced. The 'long and short' stones in the part of the doorway visible suggesting an earlier Anglo-Saxon style.

Figure 8.23. (Table 8.1). Hartburn church in Northumberland (NZ 090 161) has a blocked tower arch, seen here as from the nave, to presumably give the tower security. But to maintain limited tower access, two doorways have been opened in the blocking on a line central to the church. The earlier and higher, of these doorways is thought to have been used by means of a removable ladder to maintain security, the lower doorway is relatively modern. Higher in this wall there is a window and above it (not visible) a further blocked doorway.

Figure 8.24. (Table 8.1). Ingram church, Northumberland (NU 019 163). Brooke (2000, 94-95) noted that the tower was restored in the 19th C. although the openings were in size minimal; but that the original Norman tower arch remained and the various records for the 16th C detailed Scottish raids.

Figure 8.25

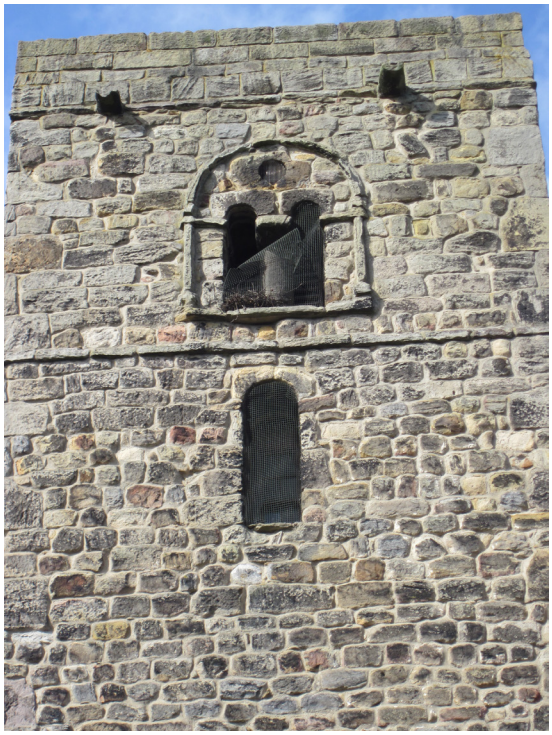

Figure 8.26

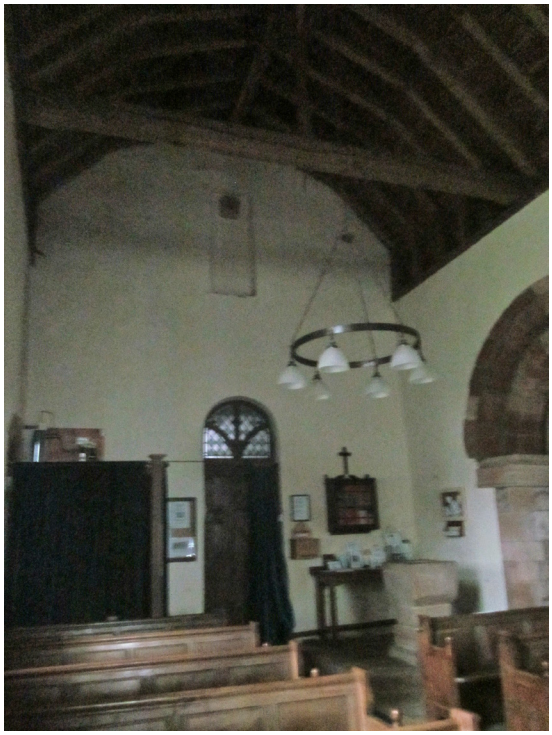

Figure 8.27

Figure 8.25. (Table 8.1). The doorway high above the chancel arch at Lindisfarne church, Northumberland (NU 125 418), as seen from the chancel.The stonework suggests the doorway to be Anglo-Saxon in age.

Figure 8.26. (Table 8.1). Ovingham church in Northumberland (NZ 085 637), showing the upper south face of the tower. The stonework of the double belfry window (all stones BVFIA or BH) indicates it is of a Patterned, Anglo-Saxon build. Below the belfry there is a doorway which opens into space; clearly not an indication of increasing church security. Other Anglo-Saxon similar doorways are known elsewhere as at Earl's Barton in Northamptonshire and St Andrew, Bywell, always on the tower south wall, their purpose is as of yet unknown.

Figure 8.27. (Table 8.1). The west face of the nave, inside Ormside church Westmorland (NY 701 176) displays the doorway to the tower. Unfortunately, heavy plaster cover prevents any interpretation of the stonework. Note the blocked doorway higher in the wall.

Figure 8.28. (Table 8.1). At Hovingham church, in Yorkshire (SE 666 757) the tower arch has apparently been created by cutting straight through the west nave wall, quite possibly by enlarging a smaller earlier arch. Viewed here from the nave, high above the arch, a doorway exists somewhat north of the central line of the church of the church. This doorway must have once permitted communication between the tower and the nave.

Figure 8.29. (Table 8.1). Viewed from the nave and seen high above the tower arch, a blocked early doorway may be seen at Kirby Underdale church (SE 808 585). The jamb stones from their setting suggest that the doorway may be Anglo-Saxon.

Figure 8.30. (Table 8.1). Viewed from the east the western wall of the interior of Stonegrave church (SE 655 778) is evident. The nave west door (now the tower arch), with higher, the lower portion of a doorway from the tower to a chamber over the present nave, are visible.

Figure 8.31. (Table 8.1). The Holy Cross church, Whorlton-in-Cleveland (SE 484 025) here displays the west side of its blocked Norman chancel arch, and higher, a later doorway. To the south of the arch the low walling, over a small area, is constructed of boulders, a possible intimation of an earlier age.

Table 8.2. A selection of churches with early windows recorded in counties in Northern England. Those asterisked were examined separately both by the present author and also by Brooke (2000). Only two of these churches (both of later 15th /16th C. age) might be regarded as having at one time been possibly defended (Ingram, Fig. 8.23 and Longhoughton, Fig.8.24). Despite examination, each church (and their windows) referred to in this Table, failed to reveal any evidence relating to (the term used by Brooke) 'defensibility'.

Ecclesiastical Site	**County**	**Grid Reference**	**Narrow Windows**	**Any Specific details**
Cross Canonby* **See Figure 8.32**	Cumberland	NY 069 390	Narrow window south chancel wall, 2.15m above cill	Modified, possibly Norman originally
Kirkhampton	Cumberland	NY 305 564	Narrow window south chancel wall	Rebuilt, now includes only one Anglo-Saxon stone
Croxdale Chapel	Durham	NZ 274 399	Nave north wall	13th C. lancet
Escomb **See Figure 8.33**	Durham	NZ 189 302	Nave north wall	13th C. lancet
Jarrow **See Figure 8.34**	Durham	NZ 339 653	South chancel wall	Three Anglo-Saxon windows
Monkwearmouth	Durham	NZ 402 577	Small, west and south facing windows	Uncertain
Seaham	Durham	NZ 422 505	Small nave windows	Three windows Anglo-Saxon
Barholm	Lincolnshire	TF 090 110	Nave south wall	?Anglo-Saxon
Clee	Lincolnshire	TA 290 084	Tower has west 'keyhole' window	Modified
Greetwell	Lincolnshire	TF 013 715	South wall nave	Uncertain
Hainton **See Figure 8.35**	Lincolnshire	TF 180 144	Tower south side has keyhole window	Probably Anglo-Saxon
Harpswell	Lincolnshire	SK 936 300	Tower south side narrow window	13th -14th C. probably
Heapham	Lincolnshire	SK 878 885	Tower west side	Rebuilt
Holton-le-Clay	Lincolnshire	TA 286 027	Tower with narrow windows	13th -14th C.
Lusby	Lincolnshire	TF 340 679	Keyhole window chancel north wall	Anglo-Saxon
Nettleton	Lincolnshire	TA 111 002	Tower narrow windows	Originally Anglo-Saxon
Ropsley	Lincolnshire	SK 992 342	Window south wall chancel	Norman
Rothwell	Lincolnshire	TF 149 993	Tower and nave narrow windows	Varied and altered
Springthorpe	Lincolnshire	SK 875 897	Tower narrow window south wall	Modified
Swallow	Lincolnshire	TA 176 030	Tower west wall narrow window	Modified Norman
Syston	Lincolnshire	SK 930 409	Tower south wall narrow window	Modified
Bolam*	Northumberland	NZ 093 826	Tower, windows ground floor. Possesses tower arch partially blocked	Infilled and modified, probably Norman
Bywell, St Andrew* **See Figure 7.10**	Northumberland	NZ 048 615	Tower, ground floor south wall and first floor west wall	Anglo-Saxon
Bywell, St Peter* **See Figure 7.9**	Northumberland	NZ 049 614	Three windows above the north arcade (not that rebuilt to west)	Anglo-Saxon

Chillingham*	Northumberland	NU 063 259	Small window at south-east of chancel	Possibly modified Norman
Corbridge*	Northumberland	NY 988 644	Window built above west door. North wall nave two windows above arcade	Probably Anglo-Saxon Anglo-Saxon
Heddon-on-the-Wall*	Northumberland	NZ 135 669	Chancel traces of windows	Anglo-Saxon
Ingram* **See Figure 8.24**	Northumberland	NU 019 163	Tower, small low defensible windows, at one time tower-arch blocked, higher levels accessed by ladder. But largely rebuilt 1870s.	16th C
Longhoughton* **See Figure 8.36**	Northumberland	NU 243 151	Tower, low windows 2m from floor to cill. Brooke (2000, 85-86) cites the survey of 1567 referring to use in defence.	Modified, probably originally early Norman
Newburn*	Northumberland	NZ 167 654	Tower, low west wall	Probably Norman
Old Bewick	Northumberland	NU 067 222	Nave and apsidal chancel, small monosplay windows	12th C.
Seaton Delaval	Northumberland	NZ 323 764	Blocked window North nave wall	Possibly 12th C
Stamfordham	Northumberland	NZ 076 720	Tower lancet windows	12th – 13th C
Warden	Northumberland	NY 913 664	Tower, low windows	Norman
Carlton-in-Lindrick	Nottingham shire	SK 588 839	Chancel, low blocked window	Norman
Southwell Cathedral	Nottinghamshire	SK 702 537	Internal and external work	Norman
Ilam	Staffordshire	SK 133 507	Tower, low south side window	Probably 13th C
Lichfield Cathedral	Staffordshire	SJ 921 232	Internal and external work	1195 to 1330, some rebuilding
Tamworth	Staffordshire	SK 206 041	Rare small windows	Church rebuilt 1350-1369, further rebuilding
Bardsey	Yorkshire	SE 366 432	Evidence in both tower and nave	Anglo-Saxon and Norman
Birkin	Yorkshire	SE 531 266	Narrow windows low tower and north nave wall	Norman
Bramham	Yorkshire	SE 427 430	South face of tower, window identification not confirmed	Norman
Bulmer	Yorkshire	SE 699 676	Narrow monosplay windows in nave	Probably 11th C
Easby **See Figure 8.37**	Yorkshire	NZ 185 003	Chancel, south wall window	Repaired Norman
Hackness	Yorkshire	SE 969 905	Vestiges of windows above south arcade arches	Probably Anglo-Saxon
Hauxwell	Yorkshire	SE 166 932	Part of window, west end of south nave wall	Late 11th C.
Hornby	Yorkshire	SE 222 937	Tower second stage, south wall	12th C.
Lastingham **See Figure 8.38**	Yorkshire	SE 728 904	Crypt and apse area	Modified Norman

Laughton-en-le-Morthen	Yorkshire	SK 517 882	Chancel, south wall	Norman
Masham	Yorkshire	SE 236 806	Tower, windows second and third stages	Norman, part modified
Middleton-by-Pickering	Yorkshire	SE 782 854	Tower, lower windows south face	Anglo-Saxon modified
Newton Kyme **See Figure 8.39**	Yorkshire	SE 466 449	Semi-circular slit window south wall of chancel	Probably 12th C.

Figure 8.32. (Table 8.2). Cross Canonby church, Cumberland (NY 069 390). Brooke (2000, 296) commented 'there are very few windows earlier than the 17th or 18th centuries' and 'there are no obvious defensible features'. The north wall of the nave and chancel are shown (constructed of Roman squared stones), the windows illustrated are late additions to the walls (note the irregular relationship with the wall stones).

Figure 8.33. (Table 8.2). Escomb church, Durham (NZ 189 302). Escomb church is renowned for features of its preservation, for windows, doors and quoins all retain evidence of the distinctive Patterned style of stonework. Nearly all elements of the stonework of the church reflect 'The Escomb Style' surely confirming no elements of past disturbance or destruction.

Figure 8.34. (Table 8.2). Jarrow church, Durham (NZ 339 653). In many respects Jarrow church having been in use for a millennium or more years is complex to interpret. The south wall has elements of various doorways which remain visible. The three monosplay Anglo-Saxon windows in the south chancel walls each have BVFIA and BH stones creating the window jambs. Several years ago the present author commenced an analysis of the Patterned wall masonry that occurred patchily on the south chancel wall, in which Face Bedded stones were common (Potter, 2015, 98). This analysis was not completed.

Figure 8.35. (Table 8.2) A keyhole window in the south wall of the tower of Hainton church, Lincolnshire (TF 180 844), fully described in Potter (2015, 200-205).

Figure 8.36. (Table 8.2). Longhoughton church, Northumberland (NU 243 654). As noted by Brooke (2000, 85-86) the church was used as a defensive refuge during the mid-16th C.

Figure 8.37. (Table 8.2). Easby church, Yorkshire (NZ 185 003). This Norman style window in low in the south wall of the chancel has clearly been extensively repaired. The shallow buttress is also an additional feature.

Figure 8.38. (Table 8.2). The crypt in Lastingham church, Yorkshire (SE 728 904) appears to show very limited modification since its original inception.

Figure 8.39. (Table 8.2). Newton Kyme church, Yorkshire (SE 466 449) displays three similar but unlike windows in the south wall of the chancel.

Chapter Nine
Church Security in Scotland

9.1 Introduction

As has been stated above, the present author's church studies in Scotland have been far more restricted than in England but it is evident that there is no sharp divide in the number of early churches at the boundary with Scotland. Taylor and Taylor (1965, 730) listed four ecclesiastical sites in Scotland where they believed Anglo-Saxon fabric was preserved, namely Dunfermline, Restenneth, St Andrews and Whithorn.

The author has examined about 250 redundant or ruined ecclesiastical sites in Scotland. Some of these were identified as possessing stonework which suggested an early or 'Anglo-Saxon' date for construction. These sites are listed in Table 9.1 below, where features which may relate to individual church security are also noted.

Figure 9.1. (Table 9.1). Abernethy round tower (NO 190 165) in Perth and Kinross, is today Scotland's only wholly free-standing tower. It is here viewed from the north.

Figure 9.2. (Table 9.1). The stonework to the doorway of Abernethy round tower reveals a 'Patterned' style. A full description of the tower is given in Potter (2009a, 64-65).

Table 9.1. Ecclesiastical buildings in Scotland which clearly display appropriate vertically bedded stone orientation in quoins and individual church

Ecclesiastical site	**Grid ref.**	**Pre-Conquest style emplacement detail**[1]
Abbotrule, Borders	NT 615 217	North-east, south east quoins below string course
Abernethy Round Tower, Perth and Kinross	NO 190 165	4 belfry windows (interior north facing) and main doorway (some repairs)
Auld Cathie, West Lothian	NT 078 760	South-west quoin
Ayton, Borders	NT 927 609	South-west quoin below string course
Borline, Loch Eynort, Skye	NG375 260	South-west, south-east quoins (side-alternate)
Brechin Cathedral, Round Tower, Angus	NO 579 602	Doorway
Cill Chriosd, Skye	NG 617 207	North-east, south-west quoins
Edinburgh Castle, St Margaret's chapel	NT 253 735	North-west, north-east quoins; west doorway (modified). Upper portions of quoins rebuilt.
Egilsay, Orkney[3]	HY 466 304	Evidence of difficult to access upper floor to church and tower
Eye, Uidh, Lewis	NB 485 323	North-east, south-east quoins (part modified)
Fetteresso, Aberdeenshire	NO 854 857	South-west (low) and south-east (in part) quoins
Glenearn, Perth & Kinross	NO 107 164	4 principal quoins
Gullane, East Lothian	NT 480 827	South-east chancel quoin; north doorway east jamb
Inch, Dumfries & Galloway	NX 103 609	South-west, south-east chancel quoins; south doorway
Kildalton, Islay	NR 458 507	North-east, south-west, south-east quoins (each in part)
Kirkton, Burntisland, Fife	NT 232 864	South-west quoin (in part)
Lamberton, Borders	NT 968 574	South-east nave quoin (low)
Little Dalton, Dumfries & Galloway	NY 090 747	North-east, south-east quoins
Preston, Borders	NT 786 570	South-east chancel quoin, chancel arch jambs (in part)
Restenneth, Angus	NO 483 516	North-west, south-west tower quoins, parts of tower south doorway and east arch
Rothesay, Bute	NS 085 636	South-west nave quoin
Rudh'an Teampuill, Harris	NF 970 913	North-west, north-east quoins
St Andrew's (St Rule), Fife	NO 515 167	4 principal quoins of chancel, east quoins of now demolished nave

Notes

1. For a quoin or jamb to be included in this table it had to incorporate at least two, and generally more, clearly exhibited vertically emplaced stones.

2. References cited may offer dates now believed to be incorrect.

3. Egilsay church has been included in this table (although it shows no Anglo-Saxon characteristics) because it possesses defensible features.

jambs: these being sufficient to suggest construction in Anglo-Saxon (Patterned) style. If present, features which may relate to the security are listed here.

Notes[2]	**Other referrals to this church in this work**
-	See Brooke (2000, 204)
The only free-standing church tower to remain in Scotland.	**See Figures 9.1, 9.2**
RCAHMS (1929) – 'may be late 14th C.'	-
Church much repaired (Ferguson, 1890-1) 'before the close of the 12th century'	See Brooke (2000, 41-42)
-	**See Figure 9.3**
-	**See Figure 9.4**
RCAHMS (1928) suggested date late 16th-early 17th C.	**See Figure 9.5**
-	See Potter (2008) **See Figures 9.6, 9.7, 9.8**
Egilsay church is probably early 12th C and it shows no Anglo-Saxon characteristics	For full description see Potter (2009, 67-73). **See Figures 9.9, 9.10, 9.11 9.12**
RCAHMS (1928) suggested 14th C.	**See Figures 9.13, 9.14**
-	**See Figure 9.15**
-	**See Figures 9.16, 9.17**
9th C. church once 'on site'	**See Figures 9.18, 9.19**
Church orientation atypical	**See Figures 9.20, 9.21**
The High Cross, illustrated as better known	**See Figure 9.22**
RCAHMS (1933) 'consecrated 1243'	**See Figure 9.23**
Church abandoned mid-17th C.	See Brooke (2000, 16-17)
RCAHMS (1920) 'probably early 16th C.'	See Brooke (2000, 335). **See Figures 9.24, 9.25**
Ferguson (1890-1) 'church use ceased 1718'	See Brooke (2000, 37-38). **See Figure 9.26**
-	See Potter (2008). **See Figures 9.27, 9.28. 9.29, 9.30**
-	**See Figure 9.31**
-	**See Figure 9.32**
-	See Potter (2008). **See Figures 9.33, 9.34, 9.35, 9.36**

Figure 9.3. (Table 9.1). Borline ruined church, Loch Eynort, Skye (NG 375 260) as viewed from the south-east. The church is built of vesicular basalt.

Figure 9.4. (Table 9.1). The doorway to Brechin Cathedral round tower (NO 596 601) possesses all the characteristics of being constructed in 'Patterned' style. The stones in the doorway are set BVFIA and exhibit cut backs.

Figure 9.5. (Table 9.1). Cill Chriosd chapel, Strath Suardl, Skye (NG 617 207) viewed from the south-east. Although ruined, the north-east and south-east quoins both exhibit pre-Conquest, 'Patterned' construction.

Figure 9.6. (Table 9.1). St Margaret's chapel, Edinburgh Castle (NT 253 735) has been described in detail Potter (2008b, 205-222). Various periods and styles of building are displayed in the south face shown here.

Figure 9.7. (Table 9.1). The north-west quoin of St Margaret's chapel, where the stones are set to 'Patterned' style.

Figure 9.8. (Table 9.1). The outline of an earlier infilled window still shows some Anglo-Saxon ('Patterned') characteristics in the north wall of St Margaret's chapel, Edinburgh Castle.

Figure 9.10. (Table 9.1). In this view the interior of the west end of Egilsay church is visible; this shows the nave door to the tower and a second doorway above.

Figure 9.9. (Table 9.1). The ruined Egilsay church, Orkney (HY 466 304), seen here from the north to show the tower and north nave door. The church was probably built early in the 12th C. and Patterned features are not apparent.

Figure 9.11. (Table 9.1). In the opposite direction to Figure 9.10, Egilsay church chancel's early single-splayed windows to north and south are now blocked and above the chancel a further room existed.

Figure 9.12. (Table 9.1). Egilsay church, in this view, is observed from the south east.

Figure 9.13. (Table 9.1). St Columba ruined church on the Eye Peninsula, Stornaway, Lewis, is viewed here from the south-east.

Figure 9.14. (Table 9.1). A closer view of the south nave wall of the Eye church to show what is probably a 13th C. doorway and to its left a taller blocked doorway which preserves some 'Patterned' characteristics.

Figure 9.15. (Table 9.1). A view of the inside of the south east quoin, of St Ciaran, Fetteresso ruined church (NO 854 857), which retains areas of Anglo-Saxon (Patterned) workmanship.

Figure 9.16. (Table 9.1). Although only preserving its principal features, Glenearn church (NO 107 164) here shows the north-east quoin to best advantage.

Figure 9.17. (Table 9.1). In this view the south-east quoin of Glenearn church clearly displays the 'Patterned' features of its stonework.

Figure 9.18. (Table 9.1). A general view of Old St Andrews ruined church Gullane (NT 480 827), as viewed from the south.

Figure 9.19. (Table 9.1). The north face of the east jamb of the north door to the nave of Gullane church has its stonework set mainly to 'Patterned' style.

Figure 9.20. (Table 9.1). The much overgrown ruined site of Inch church (NX 103 609).

Figure 9.21

Figure 9.22

Figure 9.23

Figure 9.21. (Table 9.1). This doorway to Inch church has well preserved late Anglo-Saxon ('Patterned') features. Note the cut back voussoirs that create the arch.

Figure 9.22. (Table 9.1). The early Christian High Cross, at Kildalton, Islay (NR 458 507), is here viewed from the south-west. The church shows some evidence of 'Patterned' stonework in the lowest stones of the four principal quoins.

Figure 9.23. (Table 9.1). The ruined church of St Serf, Kirkton, Burntisland (NT 232 864) in its visibly closest south-west quoin displays a quoin structure representative of Anglo-Saxon style workmanship.

Figure 9.24. (Table 9.1). The ruined church of Little Dalton, in Dumfries (NY 090 747), in the Scottish West March, possesses a south-east quoin where the stonework is 'Patterned'.

Figure 9.25

Figure 9.26

Figure 9.27

Figure 9.25. (Table 9.1). The south wall and south-west quoin of the same Little Dalton church is somewhat later in age; note the horizontally bedded rocks which are used to create the quoin.

Figure 9.26. (Table 9.1). A further ruined church, that at Preston in Berwickshire and in the Scottish East March (NT 786 570), shows some evidence of early Anglo-Saxon building, as in a few stones in the south jamb of the later unusual chancel arch.

Figure 9.27. (Table 9.1). The moderately distant building seen from the west is of St Peter, Restenneth (NO 482 516), a church recognised by Taylor and Taylor (1965, 710-711) as partially of Anglo-Saxon origin. The roof line of the nave is visible on the west wall of the tower.

Figure 9.28. (Table 9.1). The east side of the tower arch of Restenneth church reveals a significant amount of building in Anglo-Saxon ('Patterned') style.

Figure 9.29. (Table 9.1). The south door of the tower at Restenneth is here viewed from the exterior. The cut back pilaster-strip (architrave) can be seen cut to the width of the third stone above the ground in the right jamb.

Figure 9.30. (Table 9.1). The same tower south door at Restenneth viewed from the interior. The structure of this doorway is closely similar to that of the two Heysham churches in Lancashire.

Figure 9.31. (Table 9.1). The south-west quoin of St Mary, Rothesay, Bute (NS 085 636) remains partially built to 'Patterned' style.

Figure 9.32. (Table 9.1). The ruin of Rudh' an Teampuill chapel, Harris (NF 970 913) in which the north-west and north-east quoins shoe evidence 'Patterned' style building.

Figure 9.33. (Table 9.1). The church of St Rule, St Andrews (NO 515 167) as viewed from the south-east. Taylor and Taylor (1965, 711-713) recognised this church as of Anglo-Saxon age.

Figure 9.34. (Table 9.1). A view of St Rule, St Andrews from the north-west provided to show the relationship of the tower and the chancel.

Figure 9.35. (Table 9.1). The tower blocked west arch and door at St Rule, St Andrews.

Figure 9.36. (Table 9.1). The detail of the plinth and stones 1 to 5 in the south-west chancel quoin of St Rule: above the plinth the stones in ascending order are set with their bedding orientated, BH, BVFL, BVFR, BVFL, BVFR, in Anglo-Saxon or 'Patterned' style.

Figure 9.37. (Table 9.2). The ruined church at Bassendean, Berwickshire (NT 631 457) which is described by Brooke (2000, 29): in this view the south-east quoin is visible. The lowest 3 stones used in this side-alternate quoin are set to Anglo-Saxon fashion possibly suggesting an early Anglo-Saxon origin.

Table 9.2. Scottish churches showing provision for enhanced security following analysis by Brooke.

East March
Auldcambus, Berwickshire (limited ruins, overall construction)
Bassendean, Berwickshire (ruin, overall construction). **See Figures 9.37, 9.38**
Chirnside, Berwickshire (much rebuilt, tower and documentary evidence)
Coldingham Priory, Berwickshire (documentary evidence)
Dryburgh Abbey, Berwickshire (perimeter wall, gun-loop, documentary evidence)
Dunglass, Lothian (overall construction, documentary evidence). **See Figure 9.39**
Ellemford, Berwickshire (limited ruins, restricted site)
Greenlaw, Berwickshire (much rebuilt, tower, documentary evidence)
Ladykirk, Berwickshire (tower, overall construction)
Swinton, Berwickshire (documentary evidence)
Middle March
Biggar, Lanarkshire (tower with shot holes in parapet).
Hermitage Castle Chapel, Roxburgh (ruin, construction details, earthworks, documentary)
Jedburgh Abbey, Roxburgh (archaeological excavations, documentary evidence). **See Figure 9.40**
Kelso Abbey, Roxburgh (overall construction, documentary evidence)
Melrose Abbey, Roxburgh (features in construction, documentary evidence)
Peebles, St Andrew, Peeblesshire (ruin, tower)
Peebles, Cross Kirk, Peeblesshire (ruin, tower)
Stobo, Peeblesshire (tower, features in overall construction)
West March
Kirkpatrick –Juxta, Chapel, Dumfries (ruin, features in construction, documentary evidence)
Kirkindar, Kirkcudbrightshire (ruin, island site)
Lincluden, Dumfries (ruin, tower, defensible stair, gun-loops, documentary evidence)
Sweetheart Abbey, Kirkcudbrightshire (tower, perimeter wall, overall construction)
Trailtrow, Repentance Tower, Dumfries (location, later strong tower)
A considerable number of additional buildings are no longer in existence or have been completely rebuilt after the 17th C.

From Brooke's analyses (pp. 365-367) it is possible to itemise those Scottish churches which still stand (in some instances as ruins) which retain primary evidence for, or strong indications of, features enabling greater security or use. As the number involved for Scotland (23 sites) is less than for England, the churches are named below in Table 9.2 (with in brackets the form of evidence displayed).

9.2 Discussion

With regard to the earlier period studied by the present author it is evident that measures to achieve security were certainly sometimes necessary. The most significant examples of these are referred to in Table 9.1. Egilsay church in Orkney, described in Potter (2009c, 67-74), utilises some of the most effective ways in which to possibly organise protection. In historic terms the island of Egilsay is famous for the Martyrdom of St Magnus Erlendson, probably in 1115. Magnus and his cousin Haakon had shared the Earldom of Orkney for twelve years, but Haakon is said to have become jealous of the popularity and success of Magnus and either Haakon, or one of his followers, killed Magnus whilst he was using the church for prayer. The church today, probably built to commemorate the death of Magnus, is a simple three-celled structure of tower; nave and chancel. The tower, unusually for Scotland, tapers in the

Figure 9.38. (Table 9.2). Access to the interior of Bassendean church is through the south door, as seen towards the west-south-west. Brooke observed 'there is evidence of a substantial draw-bar and lock-mortices to protect a door'. Regrettably, these were not observed by the present author.

Figure 9.39. (Table 9.2). The collegiate abbey at Dunglass (NT 767 718) as viewed from the north. The building is described by Brooke (2000, 47-49).

Figure 9.40. (Table 9.2). Brooke (2000, 205-208) gives an extensive description of Jedburgh Abbey (NT 650 204) viewed here from the south.

manner of Irish towers, but remains in contact with the nave. Above both nave and chancel are, what today prove to be, inaccessible areas of the same outline which carry no roof or roofs. The relationships of these component parts of the church have been discussed in full in Potter (2009c, 67-74). Certainly, the ground floor chancel, with its two blocked monosplay windows and thick walls, must have offered an area of seclusion and/or security.

Other ecclesiastical buildings where an upper floor remains, or can be made by exclusion to remain, separate from the rest of the building, must provide the very best evidence of potential defensibility or seclusion. Churches with towers, such as Abernethy (and less so Brechin where the tower remains attached) again can offer security (the case will be examined again when the Irish churches are discussed). In Table 9.1 those early religious sites of relatively long-standing recognition, such as Restenneth and St Andrews, noticeably possess towers. The chapel at Edinburgh is somewhat different, for its protection and security are offered by the castle. Other sites in Table 9.1, listed because they preserve elements of Anglo-Saxon building, tend to have been of insignificant proportions, and confined to low, ground floor only apartments in which sanctuary would have been difficult to achieve. It seems probable that such buildings had little to protect in the way of valuables.

Chapter Ten
Church Security in Wales

10.1 Summary findings

We have seen that, in comparison with England, or more particularly with Scotland, the record relating to the presence of bar locking systems in Welsh churches might be described as remarkably weak. Of those Welsh church bar locks recorded to date, all appear to have been created in the 13th C., and all, therefore, could possibly be associated with the period of suppression of the Welsh by Edward 1. The structural church characteristics which could perhaps be related to security are, however, not strongly displayed. An approximate analysis of the churches and church ruins which are present in Wales suggests that over 60 per cent are what might be described as 'primitive' in character: that is, they are confined to single storey, ground floor structures and, therefore, they possess only low level windows (see Figures 10.1, 10.2). The bell tower is the only part of these churches which has any elevation. Although many of these churches and chapels will have been rebuilt, in part or wholly, their origins are likely to have been originally in, or earlier than, the 13th C.. It seems probable, as suggested by Oman (1979) that many churches included little worthy of protection. It would appear that the period of extensive church rebuilding, from 1750 to 1920 in particular, also removed much of the early evidence.

Figure 10.1. The Anglesey church of St Peiro, Rhosbeiro (SH 391 918) as viewed from the south, although here no longer used, is typical of the type of single-storey church which might be described as 'primitive' in character.

Figure 10.2. St Tanwg, Llandanwg, Merionethshire (SH 569 282) is similar in character to Rhosbeiro church. Seen here from the south-west it is partially buried in sand dunes (to the extent that it was derelict for much of the 18th century).

Of those churches with a tower, about 75 per cent had the tower at the west end of the nave, and of all towers only about 50 per cent were crenellated. Examples of ecclesiastical building in Wales particularly designed to provide the incumbents with security and protection are not common. Some do, however, occur and of those a few worthy of illustration are shown below.

Evidence of the facility of higher levels of communication on at least a second floor can be seen at churches such as St Caradoc, Lawrenny (SN 016 068) (see Figure 10.3), Llandyfaelog church (SN 414 119) (see Figure 10.4) and (as seen in Figure 10.5) St Illtwd, Llantwit Major (SS 966 687). Llandow church, in Glamorganshire (SS 943 734) (Figure 10.6) provides an example of a church in which the chancel arch was intentionally reduced in width. A small number of Welsh churches display double-storey porches (Figure 10.7) perhaps providing accommodation for an appointed priest.

Figure 10.3. The chancel of St Caradoc church, Lawrenny, Pembrokeshire (SN 016 068) had received an unsatisfactory coat of fairly recently applied lime plaster when this photograph was taken. On the east face of the tower the one time contact with a much higher nave roof line (above the clock) is just visible. Such a roof would have included the nave aisles in its cover. The aisles have been replaced by transepts where the aisle hagioscopes can now be used.

Figure 10.4. The Carmarthenshire church of St Maelog, Llandyfaelog (SN 414 119) viewed from the south-east to show the east gable of the nave. The chancel has been rebuilt at a lower level than its predecessor. The outline of a doorway can be seen on the heavily rendered east nave wall. This doorway provided, for Wales, a facility for unusual high level communication between nave and chancel, a feature considered as assisting the defensibility of the church. The window in the nave gable appears to be above the earlier chancel roof line.

Figure 10.5. St Illtwd church, Llantwit Major, in Glamorgan (SS 966 687) has Anglo-Saxon origins some of which are best shown in the stonework of the south chancel wall of the 'East Church' (Potter, 2013, 215-9). High early roof lines are visible inside the church on the east wall of the tower.

Figure 10.6. A characteristic of many churches regarded as showing defensible features is the occurrence of tower or chancel arches having been reduced in size. This is seen at Holy Trinity church, Llandow, Glamorganshire (SS 943 734), where the original Norman chancel arch (the age of which can be identified from the jamb stonework), which is seen here from the west, has been replaced by a smaller (probably 13th C.) arch.

Figure 10.7. St Aelhaiarn, Guilsfield, in Montgomeryshire (SJ 219 116) is one of only a few churches in Wales which has a two storey porch; this example was built prior to 1739. The second storey in some similar porches, and possibly in this instance, was used to provide accommodation for a priest in residence.

Chapter Eleven
Church Security in Ireland

11.1 The extent of church studies in Ireland

The present author's move to examine the early churches of Ireland was, as for England, Scotland and Wales, promoted by a desire to understand the area of possible origin of the Patterned stonework style in Christian churches. In the summer of 2005 the author paid a short visit to Ireland in response to this question. The purposeful orientation of stone bedding in some early churches certainly existed. A further two full field seasons followed and the results were published in Potter (2009c). It is largely in retrospect that the author turned his considerations to the presence of bar locks and wider aspects of church security in Ireland.

Figure 11.1. Temple Benan, Inishmore (L 884 071) viewed from the north-west (the church is orientated with its 'west' door towards the north.

Figure 11.2. Palmerston church ruin, Dublin (O 090 355) is still relatively simple in structure but it possesses a south door, a chancel and chancel arch, and is partially Romanesque in age. It is here viewed from the south-west.

Nearly half the rocks at the surface (or beneath thin Quaternary deposits) in Ireland are of Carboniferous age, the remainder is composed of hard and durable, Palaeozoic and older sediments, metamorphic and igneous rocks. The Jurassic and Cretaceous laminated and bedded limestones and sandstones, with which so many Patterned structures are created, are absent. Ireland's early churches, therefore, have more affinities with the early churches of Scotland than those of England.

Early Irish churches often take the simplest of forms: such churches are rectangular and unicameral in structure; any openings may be confined to a west doorway, a small east window and possibly a single, similar window to north and south (Figure 11.1). They increase in complexity via churches with chancels (Figure 11.2) to those with more advanced or elaborate features (Figures 11.3; 11.4). As we have seen above, the evidence of bar locks to enhance security in the churches in Ireland is sparse, however there are other features, specific to Ireland, which may have security implications.

Figure 11.3. Viewed from the south, the church at Kilsheelan, South Tipperary (S 288 233) with west tower and south porch could possibly be mistaken for an 'English' church in appearance. It has evidence of some Norman workmanship.

Figure 11.4. The west face of Ullard church, in Kilkenny (S 724 482) with its remarkable west doorway. The church contains both Patterned and Romanesque workmanship.

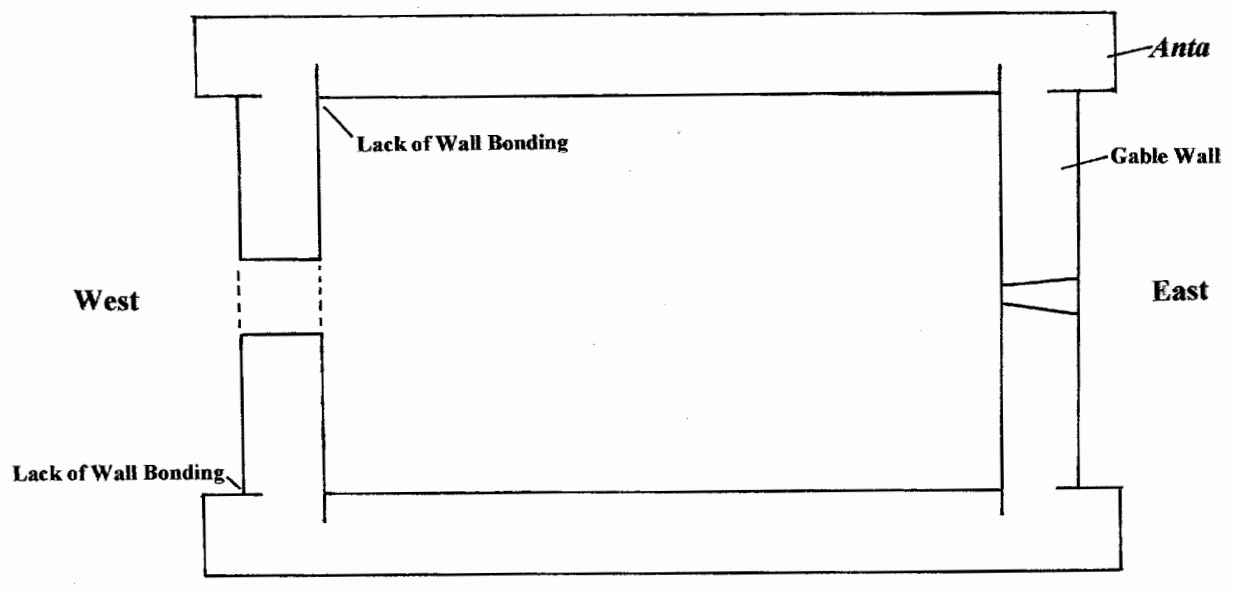

Figure 11.5. The plan of an early, simple unicameral Irish church with antae is shown. Typically, there is a lack of apparent bonding between the gables and the adjoining walls and often this takes the form as illustrated.

11.2 *Antae* and their purpose

The occurrence of *antae*, constructed as they are at the corners of Irish stone churches as prolongations of the north and south walls, has been a subject of controversy for many years (Figure 11.5). Although *antae* resemble buttresses, this function is universally discredited, for they are not built against the walls which carry the greatest lateral roof pressures. The many and various other ideas for their construction (such as, to provide roof support by extending the *antae* up the gable ends, possibly to intersecting finials (Figure 11.6), or that they represent skeuomorphs of earlier wooden structures) were discussed fully in Potter (2009c, 162-174). A simple suggestion for their presence, which the stonework reveals, is that they were provided to enhance the security of the churches in which they were built. For this reason, it is beneficial to examine their detail.

Figure 11.6. Kilmalkedar church, Dingle, Kerry (Q 403 062) is viewed here to display the west gable. The antae rise to roof height where they are 'capped' with slightly broader stones; they then continue a very short distance in line with the roof. The finials are, however, constructed on the top of the gable and are not associated with the antae. There are two, possibly three, building periods involved with the construction of the west gable wall, the earliest rising in height only to the top of the arch jambs.

In the analyses undertaken by the present author the following characteristics were observed and where necessary measured:

a) As with quoins, the stonework in *antae* shows the same distinctive features in the manner in which the selected stones have been used. Patterned and normal (generally horizontal) dispositions of the antae stones can be distinguished, with clear evidence that the older style of stone insertion was that observed in the Patterned (that is, of Anglo-Saxon age) *anta*. A new nomenclature for the possible dispositions of stones which might be placed in an *anta* is shown in Figure 11.7. As such, Patterned *antae* are very similar to Patterned quoins (Figure 11.8) but their width may require ancillary stones which occur in either BVEB (Bedded Vertical Edge Bedded) or BVFB (Bedded Vertical Face Bedded) attitude.

b) Manning (1998, 76), Ó Carragáin (2005a,139) and others, have suggested that the amount which *antae* project beyond their respective gable walls (their depth) might reflect the date of origin of these structures. They proposed that those of earliest origin were the examples which projected the greatest. Ó Carragáin cited, for instance, the church at Clonkeen, County Limerick (R 689 547), where he stated, *'...the pre-Romanesque* antae*...are 0.66m deep; those of its Romanesque extension are 0.30m deep'.* Many of the *antae* examined by the present author have been extensively rebuilt, and Clonkeen provides no exception. All of the *antae* at Clonkeen have been rebuilt (Figure 11.9), with

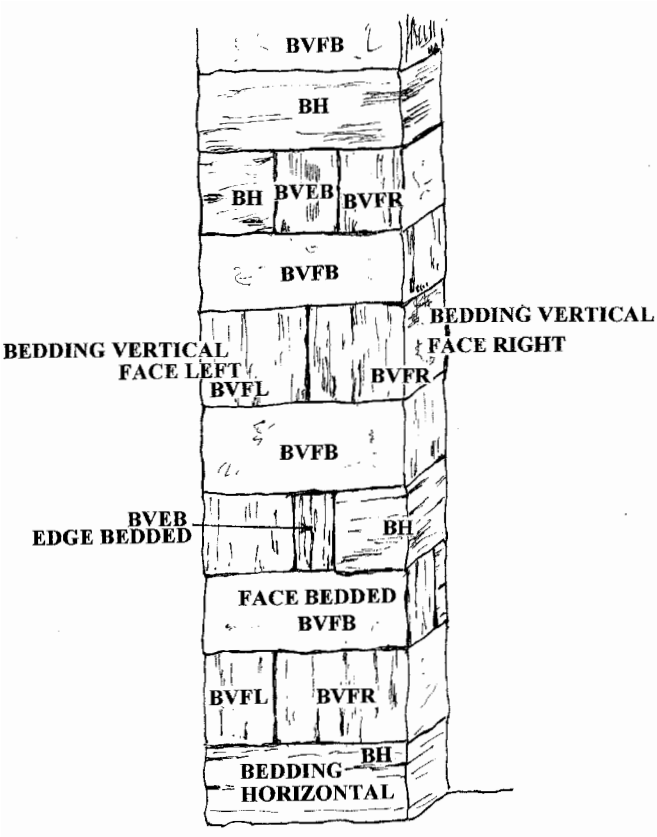

Figure 11.7. A nomenclature for the possible dispositions of stones which might appear in an anta.

Figure 11.8 Detail of two stones in the north-east quoin of Rattoo church, Kerry (Q 878 336). The bedding in these calcareous sandstone blocks, which represented stones 2 and 3 in the quoin, is orientated BVFL, BVFR, as such in Patterned style. That Irish churches may preserve ornamented quoins tends to be overlooked. The church is not referred to in Ó Carragáin (2010). Rebuilding work subsequent to 2009 could mean that the stones may no longer be in the same position in the quoin.

some of the rebuilding including stones dressed and inserted in recent centuries. Labbamolaga small church (Figures 11.10; 11.11) provides a typical example of the problems of rebuilt *antae* and the difficulties of trying to assess their date of construction from the differences in amounts the *antae* project from their associated gable walls. Nevertheless, the present author measured the projection length and the breadth of all *antae* observed and tabulated these figures together with their likely age of construction as determined from their stonework (see Potter, 2009c, 173, Table 6.1). In 2010, Ó Carragáin accepted levels of rebuilding in both churches.

Figure 11.9. The west face of Clonkeen church (R 689 547) as viewed from the south-west. Although the lowest part of the west gable wall (and short stretches of the north and south walls) are considered to be of Patterned age, the antae have been entirely rebuilt (probably, in part, since the church fell into disuse in the mid-17th C.), with some of the stones being relatively modern. The stonework settings of the west doorway are Romanesque (possibly partly including re-used earlier stones).

c) In the construction of *antae*, the four points of weakness to be found in a single-celled church, the quoins, are no longer present. As illustrated in Potter (2009c, 170, Figure 6.14), the *antae* may have been constructed to provide a 3-wall junction at these former weak points – in other words, they were built to provide additional security. At a quoin, where just two walls meet, stones may be easily levered or picked out of the two walls in turn. With 3 walls meeting, the stones in the wall can be easily interlocked within the same plane or level; indeed, the only way to dismember the wall is to start at the top course and work down a row at a time (otherwise individual stones have to be broken). In the field, modern Irish stonemasons working on church sites (five different teams) were approached with this view – all agreed the theory was correct but none had been called upon to remove an *anta*, their duties involved rebuilding or repairing it (Figure 11.12).

d) An unusual aspect of *antae* construction is that, in many instances when the simple, single-celled church is closely examined, the gable walls appear to lack any proper stone bonding externally with their respective north and south walls (see Figure 11.13). One wall appears to abut directly upon the other. Exceptions tend to occur only where walls have been repaired. The external appearance is, therefore, of the north and south *antae* walls having been built first. One of the earliest detailed descriptions of a church with antae was provided by Biggar (1896) following a visit to St MacDara on the Atlantic island of the same name, off Galway. In this description Biggar noted that slight bonding did actually exist (as did the present author at other sites), with stones perhaps every three or four courses being inserted a small amount into the opposing wall (Figures 11.14). Initially, the present author suspected that what was an apparent lack of wall bonding was provided intentionally by the early Christian mason as an act of deception to frustrate any assailant, guiding that person to an area of the wall from which it would prove impossible to remove further stones (for internally, stones would remain interlocked). Such early

Figure 11.10. Labbamolaga small church, County Cork (R 764 176), classified by Ó Carragáin (2010, 66) as a shrine-chapel with antae, is viewed here to show the south-east anta (folder length, 315mm.). Note that the stones of which the anta is created are all laid with their bedding horizontal.

Figure 11.11. The same Labbamolaga church to show the shorter north-west anta and the west doorway which is set to Patterned style (vertically bedded jamb stones). The north-west anta is built in the same manner as that in the south-east with all stones set BH and both antae have been rebuilt. Ó Carragáin (2010) indicates that just the south-east has been rebuilt.

Figure 11.12. The abbey of St Ruadhan, Loorha, North Tipperary (M 920 046) to show the north-west anta as viewed from the south-west. When visited the church antae were under repair and the masons involved were invited to give their views as to the purpose of these structures. Although partially rebuilt the antae examined showed sufficient original, generally megalithic and orientated stones, to be considered of Patterned age.

Christian guile concerned the author, so much so that many churches with *antae* were revisited. It was clear that limited bonding between a variety of walls (as between nave and later chancel walls) was of common occurrence. On balance, the suspicion was that the early stonemasons of the period chose to provide only limited bonding for adjoining walls, finding that this met the necessary requirements for the strength of their buildings.

e) In 1982, Harbison classified early Irish stone churches according to their morphology into various types. One of his four nominated types was selected as 'churches with antae'. Ó Carragáin (2005a; 2005b) following this theme, chose to elect five church types which he thought might be regionally distributed. The distribution of the churches with *antae* he found difficult to explain (2005b, 33). For those east of Munster for instance, he wrote, *'... the reasons why the type was perpetuated there remain obscure'*. The present author further examined the geographical position of churches with antae and proposed that their contribution to church security might have more readily determined their distribution. Of the churches which display evidence of antae, none is as much as 10km from waters which would have been readily navigable to those such as Viking marauders (Figure 11.15). Ardagh (N 204 686) in the Shannon valley is, at about 8km., probably the most distant (see Figure 11.27, reproduced from Potter, 2009c, 169).

The other four further fabric styles which were identified by Ó Carragáin (2005a) were discussed in full by the present author (Potter, 2009c). Unfortunately, they tend in part to reflect changes in local stone source (as discussed in Potter, 2009c, 160-161), other than be the result of any external human influences as suggested by that author.

Figure 11.13. The south-east anta at Clara church, Kilkenny (S 578 564) is slightly displaced from the east gable wall. Bonding between the two walls when viewed from the east appears to be negligible, and of the two walls in this view the gable wall appears to be of a more recent date.

Figure 11.14. In the years leading up to 2009 the north-east anta at Sheastown church, Kilkenny (S 544 523) started to fall away from its adjoining east gable wall. The east end of the site is viewed in this photograph.

11.3 Irish round towers

A very wide range of authors have contributed to the existing knowledge regarding Irish round towers and O'Keeffe (2004, 43) indicated that as many as 64 might, at least in part, still be visible. The present author has examined just 30 of these (Potter, 2009c, 176-179). O'Keeffe writes:

> '*There is general agreement that the main period of their construction was between the start of the tenth century and the end of the twelfth'. 'There is also agreement that they were first and foremost, the bell-houses of church sites ... symbols of wealth of monasteries ... occasionally treasuries in which relics and other valuables were stored ...*'
> O' Keeffe (2004, 11)

These views accept that, in part at least, the round tower provided a place for the security of valuables. Over the years the purpose of the towers has been extensively debated, but a suggestion that they might act like chimneys if a fire was built near their entrance (so that any occupants would be smoked out) has been supported by many in recent years. With the entrance about 3m above the ground, and a well-constructed wooden door (Figures 11.16; 11.17), however, the fire would have to be of enormous dimensions to achieve this aim. The typical presence of the tower, a short distance south-west of the

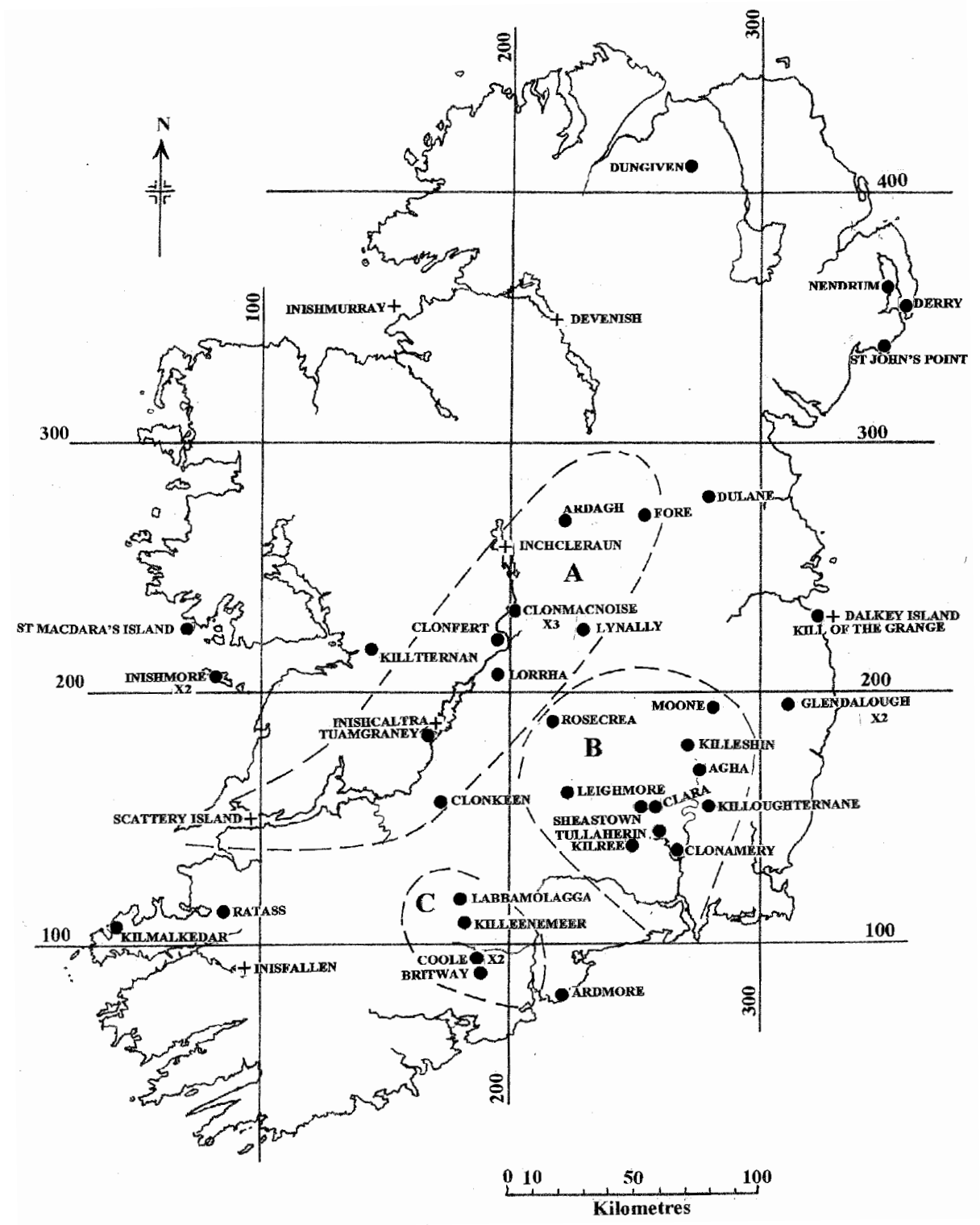

Figure 11.15. A map of Ireland to illustrate the position of those churches which are known to possess antae. Those churches examined by the present author are marked with a solid circle, others, typically more inaccessible, are shown with a cross. A few churches for which traces of antae have been claimed, such as Ardpatrick (R 637 208), are omitted because no evidence of an anta could be seen. All churches are close to navigable waters and were, therefore, in potential danger from Viking attack (particularly during the period 800 to 1100). Area A is drained by the River Shannon and its tributaries; in Area B the churches may be reached by the river systems of the Suir, Nore and Barrow, draining into the Waterford estuary; and in Area C the River Blackwater flows into the Youghal Estuary.

Figure 11.16. The lower part of the tower at Donaghmore, South Tipperary (S 188 291) which is built of Carboniferous Limestone. Sufficient evidence is visible from the stonework to determine that the tower is of Romanesque age. Note the height of the doorway.

Figure 11.17. The round headed doorway to Ratoo tower, Kerry (Q 878 336) is of interesting stonework and is probably of early Romanesque age. The door is relatively modern.

west door of the church that it must in part have served, tends to confirm that it was intended to assist the church occupants and provide them with safety (the entrance ladder having been lifted to safety within).

As with the churches it proves possible to distinguish Patterned from Romanesque styles within the fabric of the towers. The evidence, although difficult to read, will, with good fortune, be recorded in the doorway and windows of the tower. Unfortunately, the windows are generally too high for the lineation of different stones to be recorded, and for the same reason even the orientations of the stones in the doorway are likely to be too difficult to determine. In a very small number of towers the present author examined the different methods of reducing the tower circumference to permit the tower to decrease in diameter with height, and without a ladder, this study was only possible for a short difference in height. There was a suggestion that the masons in the Patterned and Romanesque times tackled the problem differently.

The author was extremely fortunate to visit the Glendalough site on an occasion when he was able to view (with binoculars) the tower's features in bright low setting sunlight (but regrettably the camera was hand held). Figures 11.18 to 11.21 reveal that the tower windows stonework was in the main created to the Patterned style. The doorway to Glendalough tower has been reconstructed in blocks of granite (Figure 11.22), and the lichen attracted to this rock type covers any possible lineation that might otherwise be visible on the granite surfaces.

Figure 11.18. Viewed from the south-east the Glendalough round tower, Wicklow (T 123 968) dominates the Cathedral site.

Figure 11.19. The west window at the top of the Glendalough round tower is constructed of blocks of phyllite which are clearly set in Patterned style. The jambs, each of three stones, are placed in long and short setting and orientated BVFIA, BH, BVFIA.

Figure 11.20. The south window at the top of the Glendalough round tower, is similar to the west window (Figure 11.19), but the right jamb appears to have three BH between the BVFIA stones.

Figure 11.21. Such well illuminated windows in Irish round towers are so rare that one further window from the Glendalough display is shown in this figure. The east window on the level below those at the top of the tower (Figures 11.19 and 11.20) is captured in this photograph. It shows the jambs are in this instance constructed of single large BVFIA stones.

The lintel stone attracting the lichen may be of granite.

Figure 11.22. The doorway to the Glendalough round tower is largely reconstructed of granite (upon which lichen grows readily). Any lineation in the granite stones is, therefore, impossible to determine.

Harrison (2004, 26-28), who regarded many of the Irish ecclesiastical structures as of monastic derivation, presented his views on the Irish round towers citing a range of other authors (such as Lalor, 1999), and quoted their pillaging by the Vikings and their occupation by a monastic community which was *'constantly under threat from the native Irish'*. This second suggestion supporting threats from the local Irish inhabitants fails to explain the typical close proximity of the towers to churches.

11.4 Double-vaulted churches

A small number of Irish churches have been classified by Ó Carragáin (2010) as double-vaulted. These churches contain a relatively inaccessible chamber on their upper floor, reached only by ladder, which must certainly have provided an element of security, although Ó Carragáin does not suggest this for being a reason for their structure. Perhaps the most famous of these is variously named as St Columba's or St Columcelle's house, and is evident at Kells, Meath (N 740 758); see Figures 11.23 to 11.25. A further example (Figure 11.26) may be seen at St Kevin's house, Glendalough (T 123 967).

11.5 Megalithic and face-bedded stonework

The frequency with which both megalithic and face-bedded stonework is used in churches in parts of Ireland (Figure 11.27 5.30) has for some suggested that their use, particularly with reference to megalithic stones, might be related to methods of increasing church security. This is not, however, the case. Rather, the common occurrence of these features in Ireland relates to the underlying geology and the readily available widespread presence of rocks such as calcareous sandstones from within the Carboniferous Limestone sequence (such as Unit 64; which can be broken more readily into more megalithic proportions).

Figure 11.23. St Columcelle's house, Kells, Meath (N 740 758) is viewed here from the south-west. A wall fabric change near the base of the south wall can be distinguished. The south doorway is reasonably modern and now provides the access to the building.

Figure 11.24. Inside St Columcelle's house, Kells, the interior of the west wall displays a fabric change at gable level, indicating rebuilding at the time of construction of the vault and the roof, now accessed by ladder.

11.6 The west doorway – 'A Priest in Residence?'

There remain uncertainties regarding the feasibility of using irregularly shaped doorway apertures to improve early church security. An immediate question arises: why not use megalithic stones to create the doors? It seems probable that these would have proved unwieldy and their distribution would be geographically regionalised according to rock type variations. Although the smallest churches may well have been left with no person(s) in attendance, the style and structure of most early Irish churches, as they may be seen today, suggests that they were built to provide elements of defence and security, if perhaps only from the climate. Windows are limited in number and are very small in size in these early churches. In some circumstances, the presence of a local round tower may have sufficed to provide any requirements for personal security. The whole subject certainly requires further study.

Figure 11.25. The 'propping arches' which are built into the interior of the roof of St Columcelle's house, Kells.

Figure 11.26. Viewed from the north-east, St Kevin' house, Glendalough, Wicklow (T 123 967). Evidence of an upper floor can be observed externally by the small windows which can be seen at the appropriate level when walking round the site.

Figure 11.27. The east wall of St Mel, Ardagh, Longford (N 204 686) showing the megalithic blocks of face-bedded Lower Carboniferous calcareous sandstone. The wall has been capped more recently with limestone.

Chapter Twelve
Conclusions

12.1 Discussion

When this work was initiated its intended purpose was to determine the role of bar locks/draw bars as related to keys. With time, the task extended to examine in full the interwoven subjects of security and possible defensibility. These proved to vary in application across the principal nations of the British Isles. The use of bar locks appears to have been widespread, although in Ireland, to date, only one clear example has so far been revealed. The earliest proven use was in England during Anglo-Saxon times and, across the nations, typically the 13th C. appears to be the commonest period in which bar locks were first installed.

Those structures and devices which were additionally used in an attempt to provide security varied by country, but more especially by the rock types of regions. Over much of England, additional high level floors (within the body of the church or its tower), to which access could, if necessary, be restricted, were used on occasions to provide defensibility. In Ireland, the simple double-vaulted church may well have offered a similar facility. The Irish (and to some extent the Scottish) offered as an alternative the tapered round tower, for admittance to these towers would have proved difficult without a ladder. In contrast the round towers of East Anglia, together with apses and apsidal ends were more probably constructed to enable walls to be erected with materials such as flint boulders, rather than specifically to improve security, for their entrance was at ground level.

In Ireland, the building of *antae* at the corners between walls undoubtedly gave a considerable additional strength to early churches. Although aspects of these churches with *antae*, such as their inclusion only with a limited number of small windows, intimate that this was recognised at the time as providing additional security; modern Irish authors are apt to suggest that *antae* possessed no structural importance, but, for example, represented skeuomorphs of early timber structures. Of course, the cut backs so prevalent around features such as doorways of Anglo-Saxon, Patterned churches, might equally be judged as similar skeuomorphs, but Irish archaeologists it is believed have yet to consider or make such a proposition.

Churches which include elevated floor areas are less common outside England than within; possibly because their regular attendees were more geographically dispersed (i.e. it would be more difficult for those distant from the church to use this security in an emergency); they naturally offered lower levels of security and protection and, therefore, probably possessed limited items of value. In Ireland similar small churches in particular appear to have never been secured with a typical door. The aperture seems to have been filled by a different means, as illustrated in **Section 6.5**, but this remains difficult to confirm.

The security or potential defensibility of churches may involve discussion of many church structures and most of these have been considered in the text. Situations involving geomorphological features, such as island or cliff top sites (Figures 12.1 and 12.2), should also be considered in such deliberations.

This study has revealed that it is difficult to assess what proportion of surviving churches actually possesses defensive features. Following the author's initial public request for information on the occurrence of bar locks (which provided limited response) no further examples have been forthcoming. What is very obvious is that the period of unrest in the English/Scottish Border Country reveals

Figure 12.1. Viewed from the north-west the original 'island' setting of the ruined Monaincha Abbey, North Tipperary (S 170 884) can be seen; both the high cross (centre), and to its left the sacristy, are visible.

Figure 12.2. In Anglesey, North Wales, the church of St Cwyfan, Llangwyfan ((SH 336 683) is built upon an off-shore island, The church may be accessed at low tide by means of a rough causeway.

proportionately far more evidence of bar locks and further measures taken to enhance church security than anywhere else in the British Isles. Quite possibly as much as 90 per cent of the bar lock evidence in the British Isles has already been noted, or possibly no longer exists, having been removed in the course of restoration and renewal. The task of defining the defensibility of churches, especially early churches, remains a task which will depend on the interpretation of the widest possible range of evidence, much of it often tenuous.

Important Note and Resulting Apologies

Some of this study relies on the ability to interpret geological features as they may be observed in the rocks used to build churches. The glossary of technical terms will hopefully assist readers.

Building stones throughout the British Isles are most commonly quarried or obtained from rocks which were originally deposited as sediments in water, and in particular, the sea. Such sedimentary rocks, as sands, sandstones, mudstones, limestones, etc., when deposited, are frequently layered, preserving slight variations in their composition and character. This layering, typically described as bedding or stratification, although generally visible in a cliff or quarry on a macroscopic scale, is normally present also on a microscopic scale. It may, therefore, be visible in a block of rock incorporated as a building stone within, for instance, an early church. In the fabric of long-standing buildings, bedding of this nature is often most clearly observed by means of a magnifying glass. Although at the time of first emplacement in a building bedding may have been unmistakably evident, lichen and grime tend to eventually obscure its presence. That is, when the rock was fresh the bedding would have been clearly visible and available to offer variations in pattern which could be employed by the masons. In certain rock types other than sediments a similar lineation or planar development may be created by processes such as heat or pressure. These processes will be referred to in more detail where required within this work.

The orientation of rock bedding or lamination within church wall fabrics and structures appears to have been significant to the fraternity of early stonemasons and its interpretation provides evidence of past building styles. Unfortunately, it proves difficult to portray stone bedding orientations by means of photographs – each stone would have to be seen in its magnified image as originally interpreted by the author. To illustrate different, adjoining stone, bedding orientations which might portray a pattern, requiring a necessity to display a number of stone blocks in a single photograph proves difficult. An apology, is, therefore, offered. While figure captions in this work may detail the presence of certain stone orientations they may not always be very clearly apparent within the limiting size of the photograph. It is also to be hoped that readers will recognise that were it possible to view the photographs of the building structures in colour their detail would be more evident. Indeed, the most productive way to observe many of the features would be to visit the locality in person.

Finally, an apology should be offered to those who are acquainted with the author's previous works which discuss aspects related to the geological structures of rocks in churches, and in particular, with earlier comparable Monographs (Potter, 2009c; 2013a; 2015; 2016b).

Glossary

A number of words in this work are not used with great regularity in archaeological literature. They are in some instances defined when they first appear in this document. These may be defined again here to enable the casual reader to appreciate their meaning more readily.

AMMONITE: the ammonites were a, now extinct, fossil group of molluscs, typified by a planar coiled chambered shell. They were abundant especially in the Jurassic seas.

ANTAE: vertical, buttress-like structures constructed at the corners of Irish churches as prolongations of the north and south walls. Their purpose remains uncertain. The text, however, suggests a reason for their presence.

ARRIS: the sharp, generally straight, edge between two planar surfaces; and a term used particularly when working stone.

ASHLAR: squared hewn stone or stones, or masonry constructed of such stones. The shape of such blocks is often determined by its jointing or incipient jointing. It should be noted that boulders used in megalithic quoins, for example, need not necessarily be ashlar in form.

BASALT (basaltic): a volcanic (or extrusive) igneous rock or lava, which is fine grained and dark in colour.

BEDROCK: the solid rock underlying the much more recently formed, and typically unconsolidated, superficial deposits.

CHERT: microcrystalline silica; in sedimentary rocks it may be chemically precipitated to form thin seams or nodules. Flint is a distinctive variety of chert which occurs in the Chalk.

CLEAVAGE: in rocks. Cleavage in a rock creates a tendency for the rock to break along thin, parallel, and closely spaced, layers. The layers, known as the cleavage, are generally imparted as a result of pressure during metamorphism and normally involve some degree of mineral recrystallisation.

CRENELLATE (crenellation): fortified with a battlement of indentations, generally ornamental only on church towers.

CYCLOPEAN: large, generally well-fitting building stones.

FERRUGINOUSLY-CEMENTED GRAVEL: gravel (or very coarse sedimentary rock) typically consolidated by iron oxides and hydrated iron oxides precipitated from iron-enriched ground waters. See also PAN.

FISSILE (fissility): easily broken or split into thin layers. In a rock this is normally due to the rock possessing a marked cleavage.

FLINT: see ‘chert’.

FLUVIOGLACIAL: created by melt waters from glaciers.

GARDEROBE: a medieval privy or toilet, typically carrying unwanted waste to beyond the confines of the building.

GNEISS: a coarse grained, generally banded, metamorphic rock formed as a result of very extensive heat and pressure.

GREYWACKE: an unsorted, rapidly deposited, sedimentary rock of mixed mineralogical and textural composition.

HAEMATITE: also spelt hematite, iron oxide, $Fe_2 O_3$.

IGNEOUS: a rock solidified from a molten, or partially molten, state.

JOGGLED: stones fitted into a wall and partially interlocked in such a way (joggled joints) as to prevent the rocks sliding at least in one direction.

LITHOLOGY: the appearance, grain size and composition of a particular rock; generally with reference only to sedimentary rocks.

LONDON BASIN: the downfolded (that is, synclinal) structure created between the Chalk of the Chilterns and the North Downs. Rocks inside and lining the Basin are all more recent in age geologically than the Chalk.

MASSIVE bedding: where the beds in a sedimentary rock remain homogeneous over a considerable thickness (typically several metres) and stratification or bedding is apparently absent. As opposed to thinly bedded.

MEGALITHIC: rocks of large size used in building.

METAMORPHIC: a rock formed under the influence of a considerable amount of heat and/or pressure, typically with some resultant mineral recrystallisation.

MICA SCHIST: a relatively medium grained metamorphic rock in which the intense heat and pressures involved have developed the sheet structured mineral mica; the abundance of this mineral imposes a foliation (or schistosity) on the rock.

OOLITIC: a rock composed of millions of ooliths (literally, 'egg' 'stone'); such as an oolitic limestone, where the ooliths are largely composed of calcium carbonate. Ooliths in a limestone are created by the deposition of Ca $CO_{3,}$ in concentric layers on wave disturbed, and therefore moving, minute particles in a shallow sea.

PAN: (in particular iron pan) a layer of hydrated iron oxides/iron oxides which may develop approximately at the level of the surface of the water table in permeable rocks such as gravel or sand, due to a degree of evaporation, thus forming a layer of ferruginously-cemented gravel.

PHYLLITE: a fine grained, low grade metamorphic rock with a well developed fine schistosity (which tends to give the flat surfaces of the rock a smooth silky sheen).

PILASTER: vertical ornamental strips of stone (hence often described as pilaster-strips) built into the walls of older churches.

QUARTZITE (quartzitic): a sandstone with a silica cement. A sarsen is a variety of quartzite.

RAMPIRE: a ramp of earth constructed behind a wall (particularly at its lower levels) to strengthen the wall. Rampires were especially introduced with the development of canon fire.

SARSEN: a silicified sand or silcrete, probably formed at the surface, or slightly below the surface, under certain climatic conditions. Following extensive weathering these may be found as large irregular boulders (sarsens) in superficial deposits.

SCHIST: a relatively medium grained metamorphic rock in which the intense heat and pressure develops a mineral foliation or schistosity. See mica schist.

SEDIMENT: a rock formed following the processes of weathering, transportation as a solid or in suspension, and deposition as solid or by precipitation. Sedimentary rocks are derived, therefore, from pre-existing rocks. Fossils may be included.

SEPTARIA (septarian nodules): in certain clay deposits (such as the London Clay), calcium carbonate (sometimes iron rich) concretions may have been formed, normally of cobble size, but occasionally up to 2m across. In these concretions irregular polygonal dehydration cracks (septaria) may be present.

SILCRETE: surface or very near to surface deposit rich in silica particularly formed in warm to subtropical climates. See also sarsen.

SKEUOMORPH (skeuomorphic): an object which in its shape and decoration is thought to resemble or copy a form or technique made in, or of, another different material.

SLATE: fine-grained metamorphic rock with a well-developed rock cleavage.

SUPERFICIAL: typically unconsolidated, surface deposits of recent geological age, such as river gravel.

THINLY BEDDED: As opposed to massively bedded. Sedimentary rocks which exhibit frequent minor changes in lithology, typically displayed as layers of bedding.

TRAVERTINE: see Tufa.

TUFA: a rock of cavernous, precipitated calcium carbonate. Tufa is relatively light in weight, and normally soft when first precipitated so that it can be cut or sawn readily into blocks. In England it was worked extensively by the Romans as a building stone. The rock hardens on exposure, when it is better described as TRAVERTINE.

References

Biggar, F.J. 1896. Cruach MacDara, off the coast of Connamara: with a notice of its church, crosses and antiquities. *Journal of the Royal Society of Antiquaries of Ireland,* 26, 101-112.

Bonde, S. 1994. *Fortress-Churches of Languedoc. Architecture, religion and conflict in the High Middle Ages*. Cambridge University Press, Cambridge.

Borg, R. 2002. Smålands medeltida dopfuntar. En inventering i komparativ belysning. (Medieval Baptismal Fonts in the Swedish province of Smolandica. An inventory in the light of comparison). Göteborg University: *Gothenborg Studies in Art and Architecture*, 11, 281 pp., Göteborg, Vols I-II.

Brooke, C.J. 2000. *Safe Sanctuaries: security and defence in Anglo-Scottish Border Churches 1290 – 1690*. John Donald, Edinburgh.

Brown, G.B. 1903. *The Arts in early England: Ecclesiastical Architecture in England from the conversion of the Saxons to the Norman Conquest.* John Murray, London.

Brown, G.B. 1925. *The Arts in early England: Anglo-Saxon Architecture.* John Murray, London.

Butler, L. 1996. 'A landscape white with churches': In; J. Blair and C. Pyrah (eds), *Church archaeology: research directions for the future*. CBA Research Report 104, York.

Clapham, A.W. 1930. *English Romanesque Architecture before the Conquest.* Clarendon Press, Oxford.

Clapham, A.W. 1934. *English Romanesque Architecture after the Conquest.* Clarendon Press, Oxford.

Cruden, S. 1986. *Scottish medieval architecture*. J. Donald, Edinburgh.

De Vries, M.J., Cross, N. and Grant, D.P. (eds), 1992. *Design Methodology and Relationships with Science: introduction*. Kluwer Academic, Eindhoven.

Edwards, N. (ed.) 2009. *The Archaeology of the Early Medieval Celtic Churches.* Maney Publishing, Leeds.

Edwards, N. and Lane, A. (eds) 1992. *The Early Churches in Wales and the West: recent work in early Christian Archaeology, History and Place-names.* Oxbow Monograph, 16, Oxford.

Fawcett, R. 2002. *Scottish medieval architecture: architecture and furnishings*. Tempus, Stroud.

Ferguson, J. 1890-1891. Notices of remains of Pre-Reformation Churches, etc., in Berwickshire. *Proceedings Berwickshire Naturalists' Club*, 86-184.

Gem, R. 1986. Lincoln Minster: *Ecclesia Pulchra, Ecclesia Fortis. British Archaeological Association Conference Transactions*.

Gilbert, E. 1946. New views on Warden, Bywell and Heddon-on-the-wall churches. *Archaeologia Aeliana,* 4th Ser., 24, 157-162.

Harbison, P. 1982. Early Irish Churches, 618-629. In: H. Löwe (ed.), *Die Iren und Europa im früheren Mittelalter 11.* Klett-Cotta, Stuggart.

Hare, M. and Hamlin, A. 1986. The study of early church architecture in Ireland: an Anglo-Saxon viewpoint, 131-145. In: L.A.S. Butler and R.K. Morris (eds), *The Anglo-Saxon church: Papers on history, architecture and archaeology in honour of Dr H M Taylor.* CBA Research Report, 60.

Harrison, P. 2004. *Castles of God: fortified religious buildings of the World.* Boydell Press, Woodbridge, Suffolk.

Huitson, T. 2014. *Stairway to heaven: the functions of medieval upper spaces*. Oxbow Books, Oxford and Philadelphia.

Hurley, V. 1982. The Early Church in the South-West of Ireland: Settlement and Organisation, 297-332. In: S.M. Pearce (ed.), *The Early Church in Western Britain and Ireland: Studies presented to C.A.Ralegh Radford,* British Archaeological Reports, British Series, 102.

Lalor, B. 1999. *The Irish round tower.* The Collins Press, Ireland.

Lloyd, J.E. 1935. *A History of Carmarthenshire, I. From prehistoric times to the Act of the Union (1536)*. W. Lewis, Cardiff.

McNeill, J.T. 1974. *The Celtic churches: a history A.D.200 to1200.* University of Chicago Press, Chicago.

Manning, C. 1998. Clonmacnoise Cathedral, 56-86. In: H.A.King (ed.), *Clonmacnoise Studies Vol. 1, Seminar Papers 1994*, Dúchas, Dublin.

Manning, C. 2010. Patterns in stonework: The early church in Britain and Ireland; an introduction to ecclesiastical geology. British Archaeological Report, British Series 496. Book Review, Royal Society of Antiquaries of Ireland, Dublin. (And associated correspondence).

Micklethwaite, J.T. 1896. Something about Saxon church building. *Archaeological Journal*, 53, 293-351.

Micklethwaite, J.T. 1898. Some further notes on Saxon churches; being the Address at the opening of the Architectural Section of the Lancaster Meeting. *Archaeological Journal*, 55, 340-349.

Ó Carragáin, T. 2005a. Habitual masonry styles and the local organisation of church building in early medieval Ireland. *Proceedings of the Royal Irish Academy,* 105C, 99-149.

Ó Carragáin, T. 2005b. Regional variation in Irish Pre-Romanesque architecture. *The Antiquaries Journal*, 85, 23-56.

Ó Carragáin, T. 2010. *Churches in Early medieval Ireland: architecture, ritual, and memory.* Yale University Press, New Haven and London.

O'Keeffe, T. 2003. *Romanesque Ireland; architecture and ideology in the twelfth century.* Four Courts Press, Dublin.

O'Keeffe, T. 2004. *Ireland's Round Towers: buildings, rituals and landscapes of the early Irish church.* Tempus, Stroud.

Oman, C. 1979. Security in English Churches, AD 1000-1548. *Archaeological Journal*, 136, 90-98.

Pearson, A. and Potter, J.F. 2002. Church building fabrics on Romney marsh and the marshland fringe: a geological perspective. *Landscape History*, 24, 89-110.

Petts, D. 2009. *The Early Medieval Church in Wales*. The History Press, Stroud.

Potter, J.F. 1987. Geological traces of Saxon churches in the London Basin. *Geology Today*, September-October, 164-168.

Potter, J.F. 1998. The distribution of silcretes in the churches of the London Basin. *Proceedings of the Geologists'Association*, 109, 289-304.

Potter, J.F. 1999. The geology of the London Basin churches: the Palaeogene rocks. *Tertiary Research*, 19, 117-138.

Potter, J.F. 2000a. The occurrence of travertine in the churches of the London Basin. *Proceedings of the Geologists' Association*, 111, 55-70.

Potter, J.F. 2000b. More about Tertiary churches: the London Clay septaria. *Tertiary Research*, 20, 59-63.

Potter, J.F. 2001. The London basin's gravel churches: indications of geology, medieval history and geographical distribution. *Landscape History*, 23, 5-26.

Potter, J.F. 2002. The distribution of Bunter quartzites in the London Basin as portrayed by their abundance in church fabrics. *Tertiary Research*, 21, 155-170.

Potter, J.F. 2003a. Continuing the debate on ferruginously-cemented gravel churches. *Landscape History*, 25, 79-82.

Potter, J.F. 2003b. Geology of Essex churches – All Saints, Messing visited on a GA field meeting. *Magazine of the Geologists' Association*, 2 (3), 6.

Potter, J.F. 2004a. Suffolk's Crag churches: with observations on other Crag building structures. *Proceedings of the Suffolk Institute of Archaeology and History*, 40, 399-413.

Potter, J.F. 2005a. A geological review of some early Essex church quoins. *Essex Archaeology and History*, 36, 99-109.

Potter, J.F. 2005b. No stone unturned – a re-assessment of Anglo-Saxon long-and-short quoins and associated structures. *Archaeological Journal*, 162, 177-214.

Potter, J.F. 2005c. Field Meeting: Romney Marsh – its churches and geology, 22 May 2004. *Proceedings of the Geologists'Association*, 116, 161-175.

Potter, J.F. 2005d. A geological review of some early Borderland churches. *Transactions of the Shropshire Archaeological and Historical Society*, 80, 1-16.

Potter, J.F. 2006a. A geological review of some Hampshire Anglo-Saxon churches. *Proceedings of the Hampshire Field Club and Archaeological Society*, 61, 134-152.

Potter, J.F. 2006b. Anglo-Saxon building techniques: quoins of twelve Kentish churches reviewed. *Archaeologia Cantiana*, 126, 185-218.

Potter, J.F. 2007a. A day visiting churches: the geology of some West Surrey churches: 12th May 2007. *Magazine of the Geologists' Association*, 6 (3), 14-15.

Potter, J.F. 2007b. A review of some early West Sussex churches. *Sussex Archaeological Collections*, 145, 81-96.

Potter, J.F. 2008a. *The Medieval Town Wall of Great Yarmouth, Norfolk: A geological perlustration*. British Archaeological Report, British Series 461, xiv + 106 pp., Archaeopress, Oxford.

Potter, J.F. 2008b. Early stone emplacement in three Scottish ecclesiastical national monuments. *Proceedings of the Society of Antiquaries of Scotland*, 138, 205-222.

Potter, J.F. 2009c. *Patterns in Stonework: The early church in Britain and Ireland; an introduction to ecclesiastical geology*. British Archaeological Report, British Series 496, xxvi + 191pp., Archaeopress, Oxford.

Potter, J.F. 2009d. Decorative Anglo-Saxon wall fabrics: a fashion in stonework, *Church Archaeology*, 13, 41-51.

Potter, J.F. 2013a. *Searching for Early Welsh Churches: a study in ecclesiastical geology.* British Archaeological Report, British Series 578, xxxvi + 457pp., Archaeopress, Oxford.

Potter, J.F. 2015. *Patterns in Stonework: The Early Churches in Northern England: a further study in ecclesiastical geology. Part A. The Counties of Cheshire, Cumberland, Derbyshire, Durham, Lancashire and Lincolnshire.* British Archaeological Report, British Series 617, xxxvii + 314pp, Archaeopress, Oxford.

Potter, J.F. 2016b. *Patterns in Stonework: The Early Churches in Northern England: a further study in ecclesiastical geology. Part B. The Counties of Northumberland, Nottinghamshire, Staffordshire, Westmorland and Yorkshire.* British Archaeological Report, British Series 624, xxxvi + 234pp.

Price, D.T.W. 1990. *A history of the Church in Wales in the twentieth century*. Church in Wales Publications.

Pritchard, A. 2009. The origins of ecclesiastical stone architecture in Wales, 245-264. In: N. Edwards (ed.), *The Archaeology of the Early Medieval Celtic Churches*, Maney Publishing, Leeds.

Radford, C.A.R. 1963. The native ecclesiastical architecture of Wales *c.*1100-1285, 355-372. In: I.L. Foster and L. Alcock (eds), *Culture and environment: essays in honour of Sir Cyril Fox*. Routledge and Keegan Paul, London.

RCAHMS, 1920,1928,1929 and 1933. Royal Commission for Ancient and Historical Monuments in Scotland, Edinburgh.

Rickman, T. 1836. Further observations on the ecclesiastical architecture of France and England. *Archaeologia*, 26, 26-46.

Slocum, J. and Sonneveld, D. 2017. *Romano-Celtic Puzzle Padlocks: a study in their design, technology and security.* Archaeopress, Oxford.

Taylor, H.M. 1978. *Anglo-Saxon Architecture.* Vol. III. Cambridge University Press, Cambridge.

Taylor, H.M. and Taylor, J. 1965. *Anglo-Saxon Architecture.* 2 vols. Cambridge University Press, Cambridge.

Whittow, J.B. 1974. *Geology and scenery in Ireland*. Penguin, London.

Yates, N. 1984. The Welsh Church and Celtic Nationalism. *The Journal of Welsh Ecclesiastical History,* 1, 1-16.

Bar Locks and Early Church Security in the British Isles examines the evidence for the measures taken to make church buildings secure or defensible from their earliest times until the later medieval period. In particular it examines the phenomenon of 'bar locks' which the author identifies in many different contexts throughout England, Wales, Scotland and Ireland.

Bar locks take various forms and can be made of different materials, but they all provide a means of locking a door by placing a bar behind it from the inside which is then secured onto the door frame or housings on adjacent walls. The most dramatic examples are provided by thick wooden bars slotted into recesses incorporated in the adjacent door jambs. The volume describes and lists all the examples identified by the author and also publishes his photographs of the evidence for the first time.

The recognition of the role of bar locks in securing churches led the author to consider further measures which may have been introduced to enhance church security; these measures could Have had major implications for structural change and design in the buildings. These supplementary protective requirements and methods for achieving them are many and various and are also considered in the volume.

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