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The North Clerestory Wall, Holy Trinity Church, Great Paxton



Cambridgeshire
County Council

The North Clerestory Wall, Holy Trinity Church, Great Paxton

PHOTOGRAMMETRIC RECORDING

1993

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Great Paxton Church



cambridgeshire
archaeology

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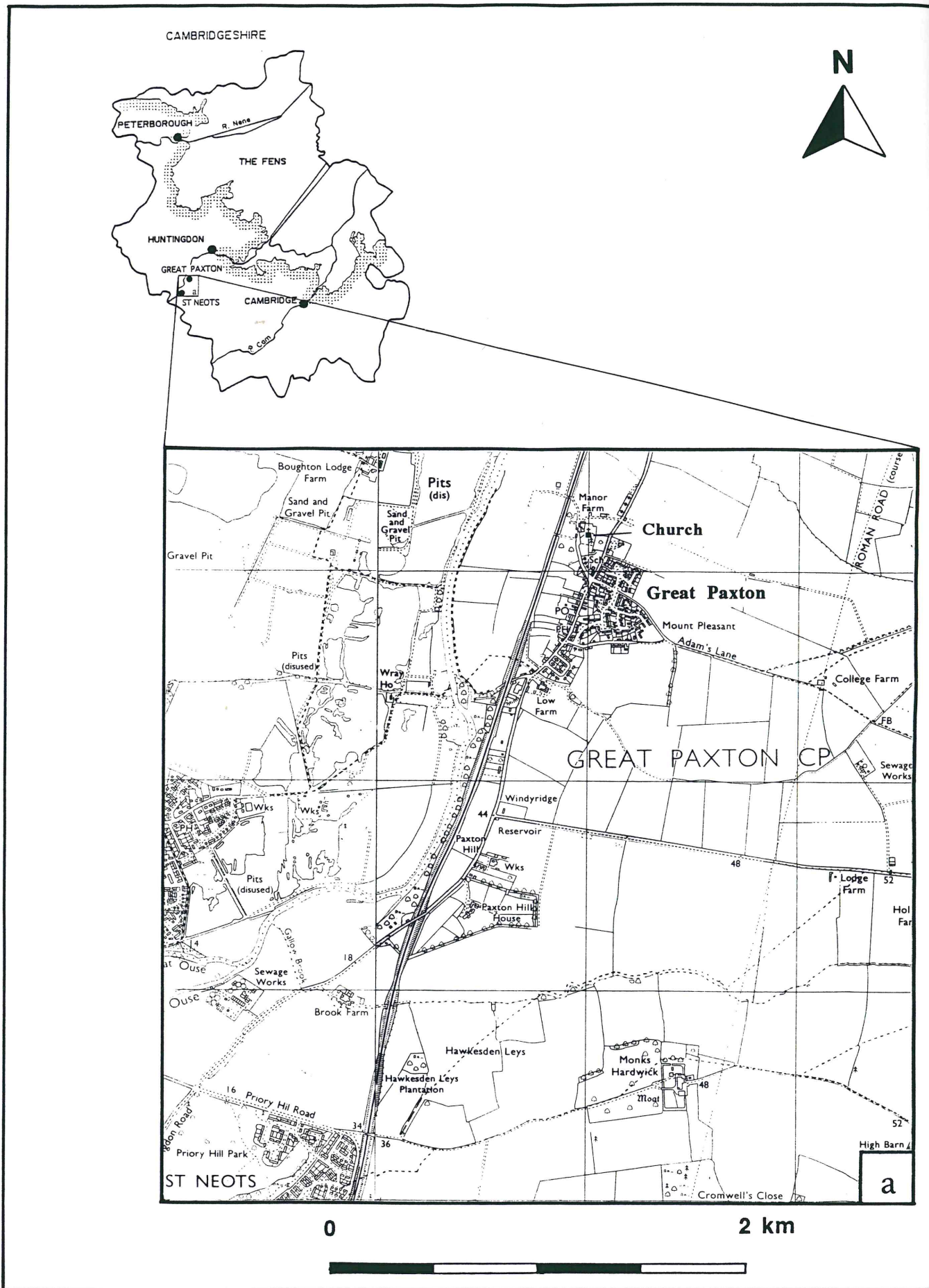


Figure 1 - Location map showing Great Paxton

PHOTOGRAMMETRIC RECORDING OF THE NORTH CLERESTORY WALL, HOLY TRINITY CHURCH, GREAT PAXTON

1 ABSTRACT

In September 1992, Cambridgeshire Archaeology undertook the photogrammetric recording of the exterior of the north clerestory wall of Holy Trinity Church, Great Paxton, prior to renovation work involving repointing and limited rebuilding. Overlapping photographs were taken at 1m intervals, matched together, and used as the basis for the production of an accurate elevation drawing of this surviving portion of the original late Saxon church. As a result, the possible roof line of the Saxon north transept was identified.

2 INTRODUCTION

It became necessary to carry out a limited programme of renovation work on the north clerestory wall of Holy Trinity Church, Great Paxton, in 1992. This was to involve repointing of the entire wall, rebuilding 3 square feet of wall behind the eastern downpipe, and provision for the rebuilding of a further 3 square feet of wall in various areas as required. Oak would also be replaced in the west window, and the glass in both windows was to be removed and replaced with new glass where necessary.

An application was made to English Heritage for a church grant towards the cost of this and other repair work. The application was approved, but one of the essential conditions was that before commencement the north clerestory be archaeologically recorded with 100% funding from English Heritage. This was necessary in view of the late Saxon date of the clerestory, and the unique significance of the church and many of its features in British architectural history (p. 2 below). Cambridgeshire Archaeology was contracted to perform the work, which can be seen as one element in a wider process of increasing the level of knowledge and understanding of this important building, a process which has included excavation in 1971 and geophysical survey earlier in 1992 (p. 3 below).

3 BACKGROUND

3.1 Great Paxton:

Great Paxton lies about 2 miles northeast of St. Neots, Cambridgeshire. It is likely that an early settlement was founded by Saxon incomers slightly nearer to the river than the present village, a short distance from Manor Farm, where quantities of Saxon pottery and coins have been found (Dickinson 1973). Sometime later the inhabitants seem to have moved to higher ground, to a site at the north end of the present High Street.

3.2 Holy Trinity Church:

Holy Trinity Church is located slightly to the north of the present village. The date of the establishment of the earliest church is not known, and the first historical reference to Great Paxton is in Domesday Book (1086), where it is stated that the parish had a church and a priest. However, a twelfth century charter reference to "the prior and canons of Great Paxton" (charter of King David of Scotland, Dickinson 1973) seems to imply the existence of a Minster, which would almost certainly have had its origins in the Anglo-Saxon period. Domesday Book records that Edward the Confessor held the manor before the Conquest, and the scale and character of the church (below) are consistent with its being constructed by him.

3.3 Architecture:

These indications of the preconquest importance of the church are reinforced by the architectural evidence of the structure as it survives today. Substantial portions of an original late Saxon transeptal, aisled church still stand, incorporated within later additions, primarily of the 13th, 14th, and 15th centuries. These Saxon elements consist of the pillars of the crossing and its northern arch, and two and a half bays of the main walls of the nave, with arcades and clerestory windows above. The clerestory will be considered in more detail below (p. 4), but in total the 0.9m thick nave walls are 11.6m high, the surviving two and a half bays enclosing an area 9.2m long by 5.5m broad. The two complete nave arches are carried on a line of delicately moulded piers (Taylor and Taylor 1965), and there are massive plain responds at the east of each arcade, built of large slabs of stone laid in "Escomb" fashion, alternately upright and flat, a style characteristic of many Anglo-Saxon churches. To the west are parts of a third arch, but, as with the third clerestory window above (now blocked), it seems to have been truncated by the construction of the 14th century tower. It has been suggested that the Saxon nave originally stood four bays long, before its west end was demolished to make way for the tower (Taylor and Taylor 1965).

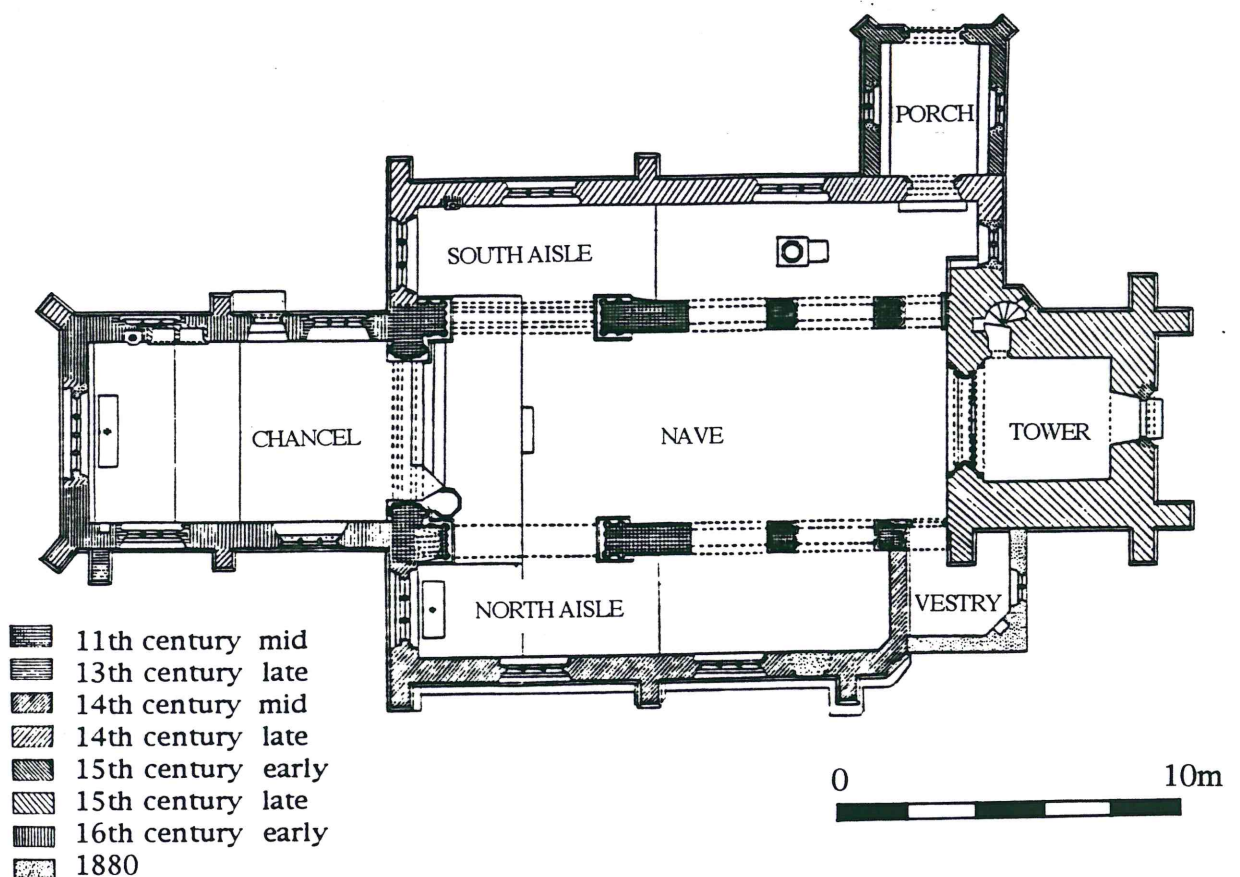


Figure 2 - Plan of Great Paxtom Church (After Dickinson 1973)

The crossing remains imposing despite later alteration. Its four pillars are all Saxon in date, and those of the north arch were again laid in characteristic "Escomb" fashion. Of the three arches now opening to the choir and former transepts, only this northern one is original, semicircular and rising to a height of some 8.5m. The impressive size of this crossing makes it unlikely that any central tower was of stone: it has been considered far more likely to have been crowned by some form of wooden superstructure, as at Breamore, Hampshire (Taylor and Taylor 1965). This was probably removed in the 14th century, to be replaced by the fine western tower which is seen today.

Other elements of the late Saxon church seem to have stood for two or more centuries before being replaced by the more recent structures which have survived to the present. An original chancel was probably demolished and rebuilt in the late 13th century and evidence for its likely position has recently been acquired by geophysical survey. Ground probing radar was used to investigate the present chancel floor, and revealed no evidence for any crypt but located at least two substantial wall foundations (Stratascan 1992). Likewise, the Saxon aisles and transepts have also been replaced, removed to make way for the present 15th century aisles. The earlier transepts probably extended outwards a further 3.0m beyond the line of the aisles seen today. Excavation in 1971 by the Research Group of the Huntingdonshire Local History Society located the foundations of the north transept, in line with the present northern and central buttresses of the north aisle (Cozens 1971). The foundations had been constructed on damp subsoil, resulting in a degree of subsidence which the excavator considered sufficient to have caused severe damage to the north wall of the transept, a probable reason for this phase of rebuilding.

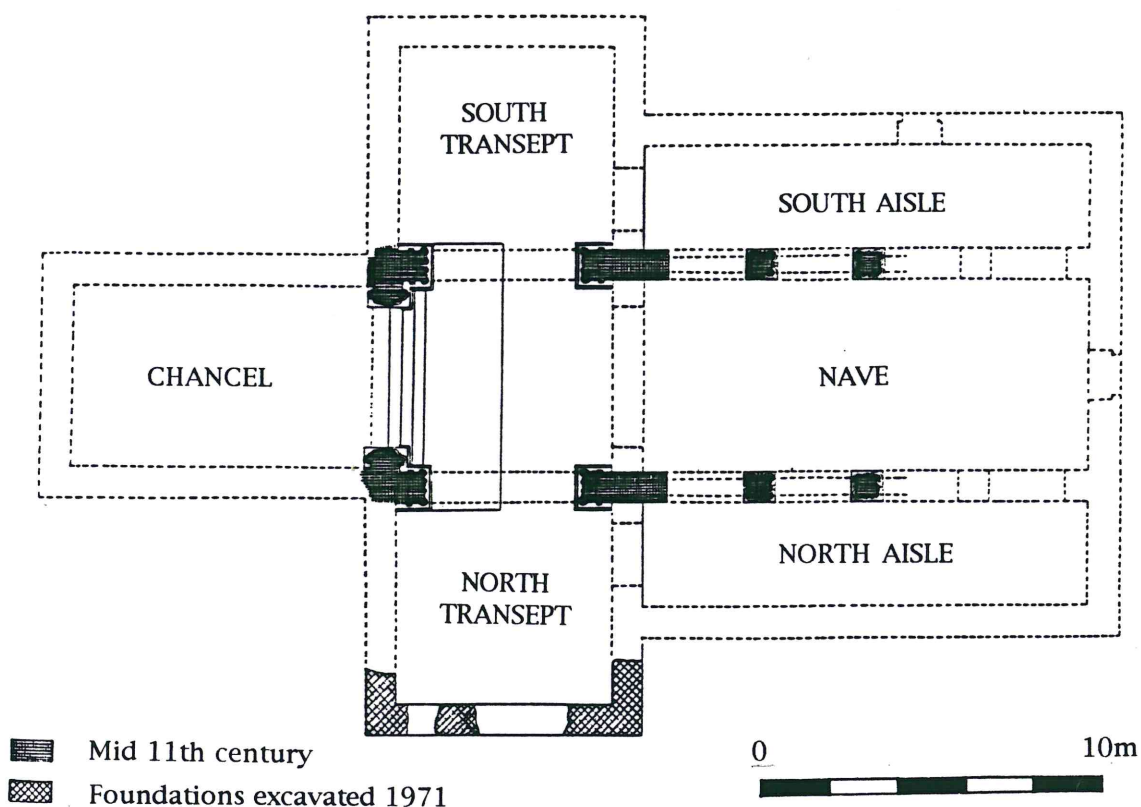


Figure 3 - Suggested plan of the Saxon Church

Despite these changes, Great Paxton Church remains in many respects a unique pre-conquest monument. Its arrangement on a hillside with a platform at the east end of the nave and raised chancel is otherwise unknown in Britain, and must be considered derivative of early Romanesque churches in Germany (Taylor and Taylor 1965). Brixworth and Lydd are the only other Anglo-Saxon churches with clerestory windows still visible, and unlike those examples, the Great Paxton windows are arranged over the arches of the arcade rather than the piers. Other, smaller features are also exceptional, the bulbous capitals of the nave pillars being unknown anywhere else in England. The precise date of the church remains uncertain: suggestions include the reign of Edward the Confessor, 1042-1066 (Taylor and Taylor 1965), and c. 1020 (Dickinson 1973), but an early to mid 11th century date seems to be accepted. The antiquity and interest of this building is clearly such that archaeological recording was essential before the limited rebuilding of the clerestory, the more so as this is the only area of the fabric where a portion of the exterior of the Saxon church survives.

4 THE CLERESTORY

As noted above (p. 4), Great Paxton is one of only three surviving examples of an Anglo-Saxon clerestory with windows still visible. The windows themselves have sills some 7.32m above the floor, and are exceptionally high and wide for their time. They have heads of carefully worked brownish ironstone, rubble jambs, and are widely splayed both inside and out (Taylor and Taylor 1965; Dickinson 1973). Two complete examples remain on either side, and half of a third set can also be seen externally, truncated by construction of the west tower and now blocked in. A horizontal string-course runs externally along the south wall level with the middle of the windows, but cannot be an original feature as it also crosses the blocked western window; it probably marks the position of a former aisle roof (Dickinson 1973). Parts of original string courses do remain though, on both the north and south walls, running below the sills of the windows. They show the same simple chamfered section as the string-course within the nave, visible just above the arcades. Externally the stonework of the clerestory walls includes blocks of a brownish ironstone, the substance used for the heads of the windows, as well as limestone blocks and varied fieldstone cobbles.

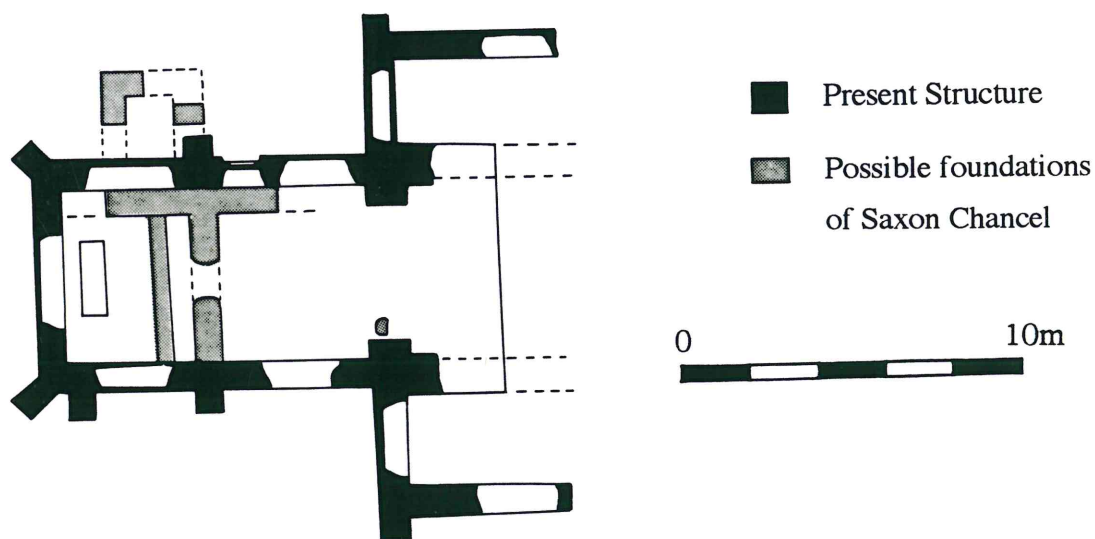
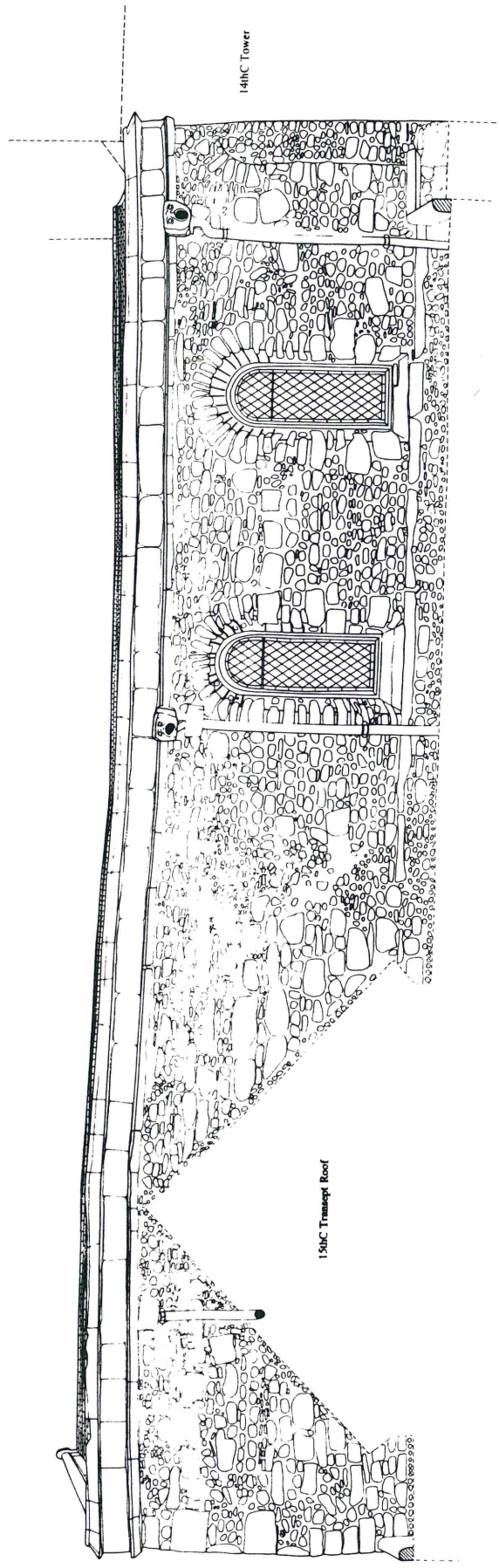


Figure 4 - Possible foundations of the Saxon Chancel based on Stratscan Survey

5 METHODOLOGY

A scaffold was erected along the entire length of the north aisle to provide a safe and steady platform to work on. The vertical scaffold poles extended three metres above the aisle roof, and horizontal scaffold poles were then attached to the vertical poles, again running the whole length of the aisle. The camera was mounted and levelled (by bubble level) on the horizontal poles and photographs taken at 1 metre intervals, overlapping by a considerable amount to minimise distortion. The prints were matched together to give a complete view of the north clerestory wall. From this, an accurate elevation drawing was produced, which was subsequently checked against the stonework (Fig. 5)

In addition, once building work was underway, 5 mortar samples were taken from the exterior of the north clerestory wall (see below).



GREAT PAXTON CHURCH
North Clerestory Wall

North Facing Elevation



Fig.5 North Clerestory Wall

6 RESULTS

Examination of the photographs, elevation drawing, and fabric of the north clerestory in consultation with staff of Cambridgeshire County Council's Conservation Office allowed a number of observations to be made.

6.1 Mortar

It might be expected that differences in mortar type could be identified which would help to differentiate between original areas of stonework and later phases of renovation. Unfortunately the limited nature of the present reconstruction work, involving no more than repointing and replacement of cobbles facing the wall, meant that the only mortar exposed and accessible was close to the outer face. When the site was visited, there was found to be no visible difference in the mortar exposed along the length of the wall. In the opinion of the stonemasons, the entire north clerestory had been repointed to a considerable depth, probably in the 18th century or later. All the mortar removed appeared homogenous from the surface inwards, indicating that it was likely to have been applied in a single phase of repair work. Had the mortar been original, it would not have survived unweathered and in relatively good condition close to the surface of the wall.

Five mortar samples were taken from different points along the length of the clerestory, and their positions recorded on a copy of the elevation drawing in the project archive. In view of the probable recent date of the mortar it was decided not to analyse these samples, but they remain in storage and available for analysis should this be thought desirable in future.

6.2 Stone type

The site was visited after the production of the elevation drawing and the stone types present were recorded (Fig 6). The face of the north clerestory is comprised of three categories of stone. The window arches, apparently original, are of brownish ironstone, a material found interspersed among other stone types along the wall. There are a small number of more extensive courses of ironstone, most notably immediately to the east of the eastern clerestory window.

The quoins, string-course, and window jambs are of limestone, and again these are used elsewhere in the walling, mostly mixed with other stones rather than in extensive courses. Many blocks are rectangular and carefully cut, though limestone rubble in a variety of shapes is also present.

Alongside these two stone types, extensive use has been made of a range of field stone rubble, in the form of cobbles and small blocks varying greatly in colour. They are treated as a single category (Fig. 6).

6.3 Stonework: features of potential interest

It seems clear that the north clerestory wall has been extensively patched and renovated since its original construction as in a number of places, most noticeably to the east of the eastern window, regular courses of stonework are interrupted by areas of cobbling and mortar. It would probably now be impossible to disentangle all phases of repair work: Anglo-Saxon stone from the chancel and west end of the nave would have been available for re-use, whilst fieldstone cobbles cannot be distinguished from those used in the original building, and it also seems likely that the whole wall has been completely repointed to a considerable depth (p. 10 below). Nevertheless, a number of features were identified as being potentially of interest, and these are presented in Fig. 7.

[A] A high proportion of large limestone blocks has been used in the walling at the east end of the clerestory.

[B] Two diagonal lines of cobbles and pieces of tile can be seen on either side of the junction of the clerestory with the 15th century transept roof, above and roughly parallel to the roof, but lying at a shallower angle (Fig. 5). They meet at an apex, and are broadly symmetrical, although displaced slightly to the left of the transept roof line. The lines appear to cut the fabric of the clerestory wall: to the west of the transept, a large limestone block seems to have been cut off at an angle.

[C] There is a change in the type of quoins used at the eastern end of the north clerestory. At the base of the wall the medium sized blocks of limestone are laid horizontally. After c. 0.60m, bigger stones are used, laid so that their faces are alternately large and small. The face of the adjacent walling shows signs of disturbance and patching.

[D] A vertical line stands out east of the transept roof, immediately east of the downspout in the upper portion of the wall. At the bottom, small cobbles seem to have been packed vertically alongside a large square limestone block.

[E] A vertical crack in the masonry can be seen in the upper part of the wall, immediately above the western end of the transept roof.

[F] A large area of cobbling and mortar is very prominent in the centre of the wall, c. 0.80-1.15m east of the eastern clerestory window. It appears to truncate two even courses of ironstone blocks, and is vertically above the central buttress of the 15th century north aisle.

[G] Between the window arches of the eastern and central windows, and again between the central and blocked western window, courses of masonry have been laid at an angle to the horizontal, sloping downwards from east to west. The courses sloping most markedly are of brown ironstone blocks.

[H] Large subcircular limestone blocks lie to the east of the central and blocked western windows, at the base of the window arches.

[I] At least three irregularities show up in the string course, with the long narrow limestone blocks apparently having been cut away.

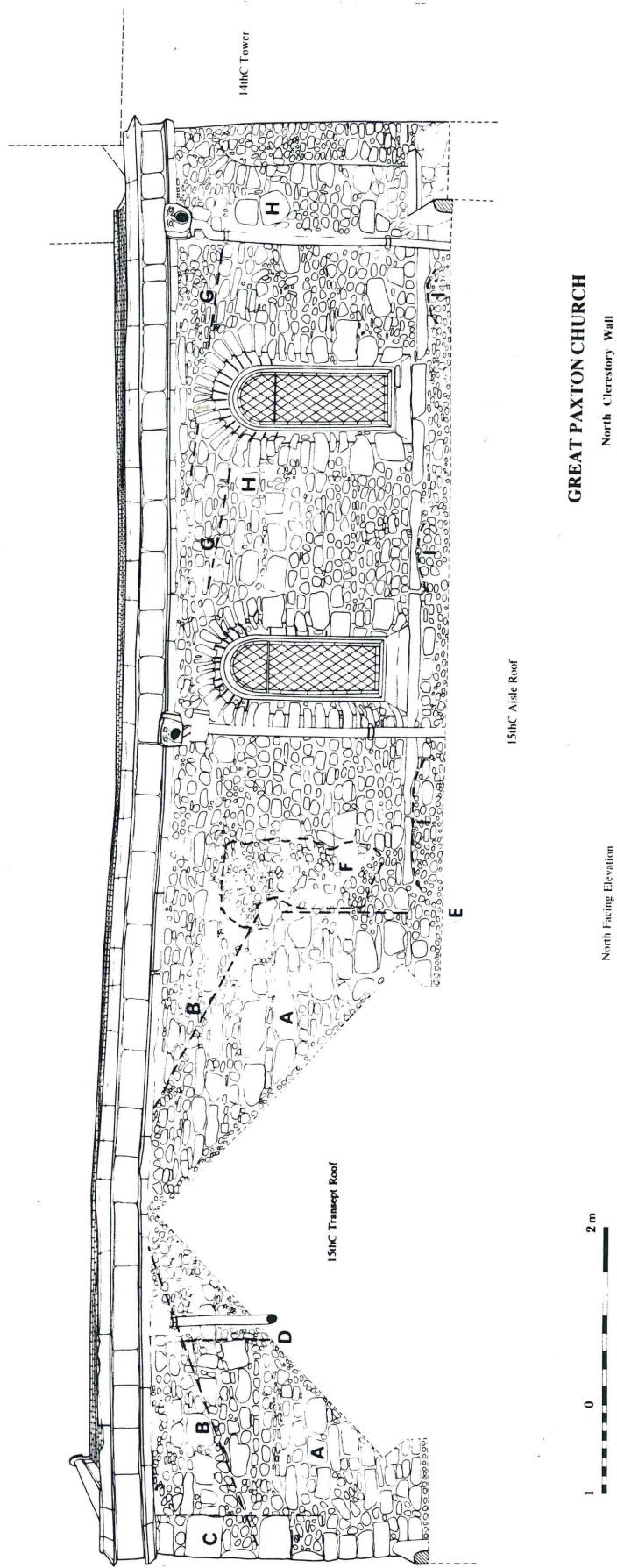


Fig.7 Features of potential interest in the North Clerestory Wall

7 DISCUSSION

Some of the features outlined above can be regarded as being of little or no structural significance. This seems to apply to the disturbance noted to the string course ([I] above). The string course appears to have been cut back, hit with a hammer or mallet in order to sheer off the projecting stone so that it no longer extends outwards beyond the face of the wall. A roughly curved break often occurs, and in the opinion of the stonemasons this process would have been responsible for the anomalies noted. Likewise, the vertical line and packing stones [D] apparently result from severe weathering around the downspout, whilst the selection of rounded stones at the base of the window arches [H] seems to be a quirk of construction. The laying of sloping courses of stonework between the windows [G] also seems to be a constructional peculiarity, although of rather more interest. The most steeply sloping courses are of ironstone, and the same pattern can be observed between the windows of the south clerestory. The use of a high proportion of large stones towards the east end of the north clerestory may not be significant, although it might reflect a desire for additional stability and strength to support a superstructure above the crossing.

The sloping lines observed on either side of the transept roof [B] are considered to be of greater significance. It is suggested that they represent the original roof line of the Saxon transept, infilled with cobbles and pieces of tile when the transept was demolished. The very shallow angle of the supposed roof may have implications for the type of roofing material that was used. The large area of patching [F] may also relate to the original Saxon transept. It lies c. 7.6 - 8.3m from the east end of the nave, and is vertically above the probable foundations of the Saxon transept wall discovered by excavation in 1971 (p. 6 above and Cozens 1971). It seems possible that this area of stonework represents the repair of damage to the nave wall after the removal of the west wall of the transept. The vertical crack west of the present transept roof [E] may have formed for similar reasons, although it may be unrelated. The change in quoins [C] likewise may relate to the transept, though it occurs slightly below the probable roof line. It is not certain that the upper quoins are original: they have no Saxon characteristics other than their large size and the adjacent walling shows signs of patching. This may be the product of a phase of restoration work.

The identification of the probable roof line of the Saxon north transept emphasises the impressive scale of the 11th century cruciform church, and especially of the central crossing. The transept did not rise to the full height of the nave roof, but its apex seems to have been c. 0.5m higher than the present transept, whilst its greater width and shallower pitched roof would have made it much more spacious. A diagonal linear feature similar to those on the north clerestory wall can also be seen today on the south side of the east wall of the nave above the present chancel roof (Plates 1 & 2). It seems possible that this may represent the roof line of the Saxon chancel: if so its angle of pitch is very similar to that of the probable original north transept, whilst its height would again have been greater than that of the present building. Great Paxton Church has often not received the attention it deserves in the literature on Anglo-Saxon ecclesiastical architecture. This present project has provided a welcome opportunity to stress that Cambridgeshire possesses a unique and imposing Anglo-Saxon monument unlike any other surviving in Britain, the elevated chancel in particular suggestive of strong links with early Romanesque churches in Germany (Taylor & Taylor 1965).

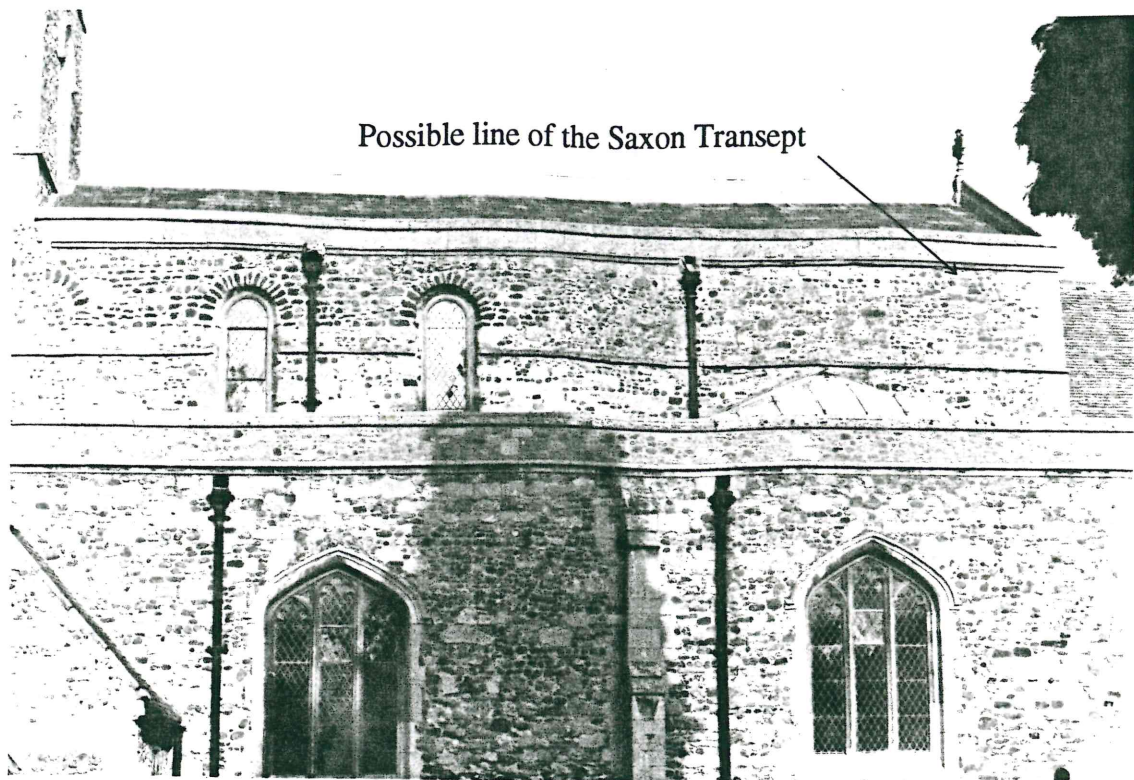


PLATE 1. *Photograph of the South Clerestory Wall.*

Just visible are two diagonal lines at the east end of the Clerestory Wall. These may represent the line of the Saxon South Transept roof.

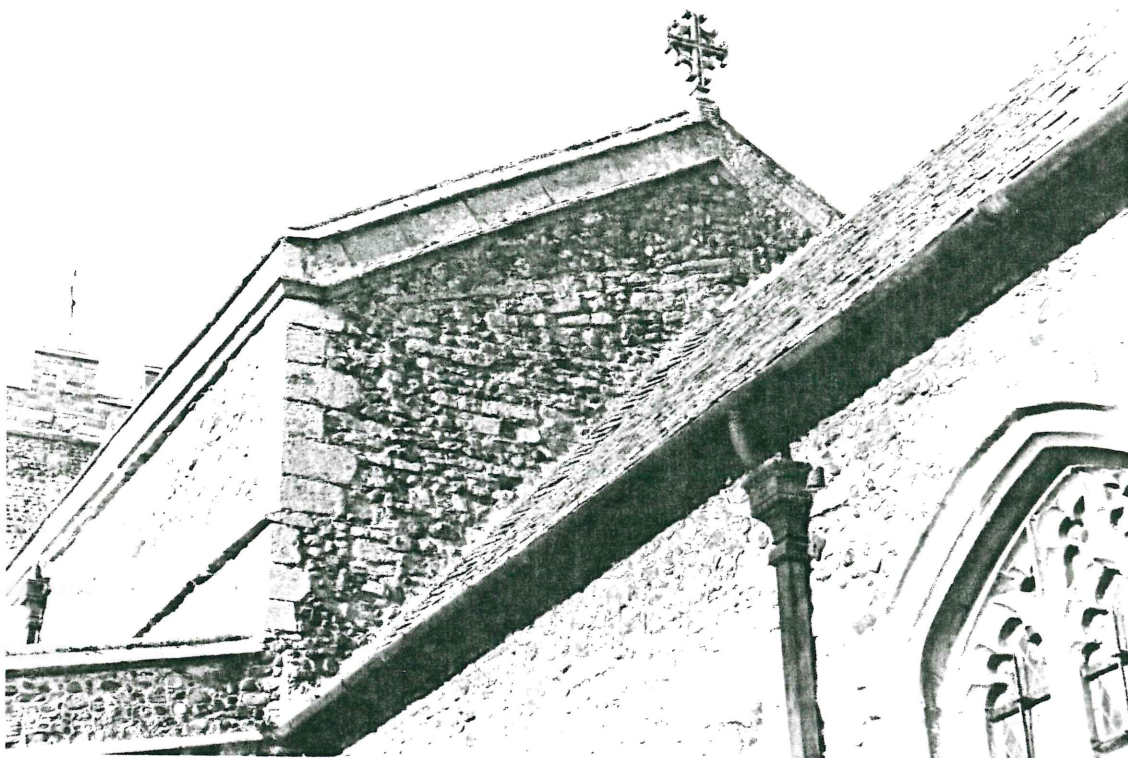


PLATE 2. *Photograph of the East Clerestory Wall*

This shows the probable line of the Saxon Chancel above the present Chancel roof.

ACKNOWLEDGEMENTS

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GLOSSARY OF ARCHITECTURAL TERMS

- Aisle:** Part of a church, parallel to the nave, and divided from it by piers or columns.
- Arcade:** A range of arches on piers or columns, free-standing or against a wall.
- Bays:** Compartments of an interior separated by divisions marked in the side walls (columns), or external divisions at windows or buttresses.
- Buttress:** Masonry built against a wall to give it support.
- Capitals:** The feature at the top of a column.
- Chamfer:** The surface made when the edge of a stone block is cut away, usually at an angle of 45 degrees.
- Chancel:** The eastern part of a church where the main altar is sited. The term is often used to describe the entire space east of the crossing.
- Clerestory:** The upper part of the main walls of a church or domestic building.
- Column:** An upright support, circular in plan, consisting of a base, shaft, and capital.
- Crossing:** The space at the intersection of the nave, chancel, and transepts.
- Crypt:** An underground room, usually below the eastern end of a church.
- Escomb Jambs:** Jambs built in the manner of the chancel arch at Escomb, with long stones on end placed between flat ones.
- Jambs:** The straight side of a doorway, arch, or window.
- Nave:** The western element of a church. Where a church has aisles it lies between them.
- Photogrammetry:** The use of photography to produce drawings or plans.
- Pier:** A solid masonry support, or the solid mass between doors, windows, and other openings.
- Pillar:** A free-standing upright support which, unlike a column, need not be cylindrical.
- Quoin:** Dressed stones laid at the corners of buildings.
- Pre-conquest:** Before the Norman invasion of England in 1066.
- Repointing:** Replacement of the exposed mortar close to the outer surface of a wall.
- Respond:** A half-pier bonded into a wall and bearing one end of an arch.
- Saxon:** Of Anglo-Saxon origin, dating from c. 410 - 1066.
- String-course:** A continuous projecting horizontal band of stone set in the face of a wall.
- Transept:** The transverse arms of a cross-shaped church, usually lying between the nave and the chancel.