
THE LAYOUT OF THE ABBEY

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Whilst it seems reasonable to assume that some form of plan was produced before work on the construction of the abbey began in the 12th century, certain problems arise when trying to establish the architect's intentions concerning the overall layout of the monastery. Without documentary evidence it is difficult to be certain which points the architects considered significant. Fernie (1978) has demonstrated the dangers inherent in any speculation on the length of the original units used in a particular building; at Jedburgh investigations were also hampered by the fragmentary state of the surviving structures. Nevertheless, an examination of the principal dimensions of Jedburgh Abbey, as revealed by the recent excavations, strongly suggests that a geometric grid, based on a unit of 5' 6", and the limited application of a system of proportions were used to lay out the church and conventual buildings (illus 109).

7.1 THE EAST END OF THE CHURCH

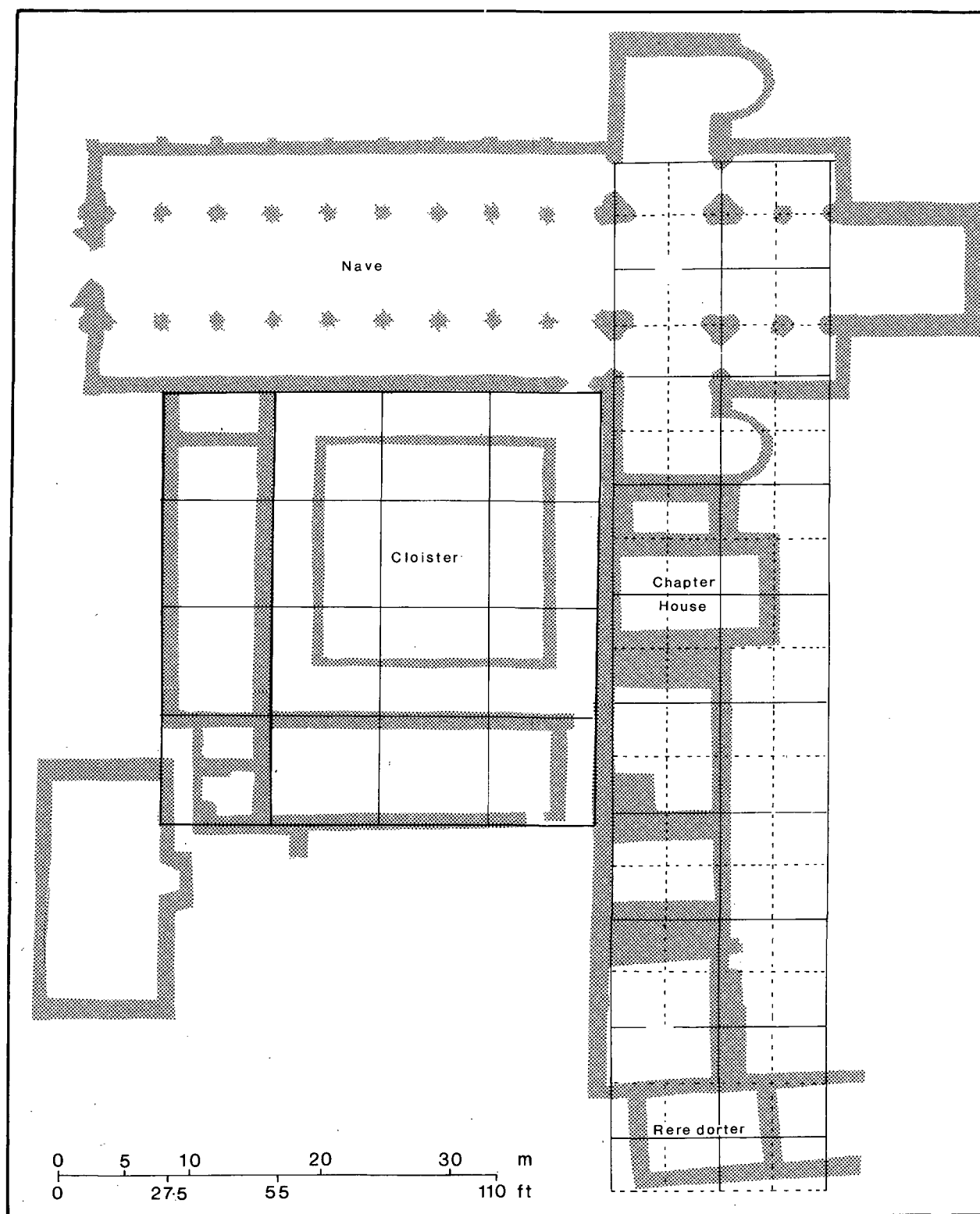
The original plan of the E arm of the church appears to be based on 27' 6" squares with its sub-divisions into units of 5' 6". The crossing, measured from mid-pier to mid-pier, is 27' 6" (8.4m) square, the piers of the choir are 5' 6" (1.68m) wide and 11' (3.35m) high to their springing points, the width of the choir from mid-pier to mid-pier is 27' 7" (8.4m) and the footing of the W wall of the transept is 5' 4.5" (1.64m) wide. The loss of the N wall and the rebuilding of the S wall of the choir aisle make it difficult to estimate the original overall internal width of the presbytery and choir aisles, the present width between wall footings being 54' 10" (16.7m).

It is apparent that the E end was laid out using multiples of 5' 6" although it is not clear on which part of the structure the measurements were based. In the architect's mind, the church may have been conceived as a linear grid, similar to those illustrated by Villard de Honnecourt (Stalley 1987, 69). Simple linear grids would emphasise points at the mid-piers whereas measurements from wall faces would be of more practical use to builders. Nevertheless, there is some evidence to suggest that the inner face of the footings of the primary E wall of the presbytery was used as a base for measurement, the distance from it to the W faces of the footing of the NE and NW crossing piers being 55' (= 5' 6" × 10) (16.8m) and 82' 6" (= 5' 6" × 15) (25.2m), respectively. The area of the crossing, choir and choir aisles appears to be based on a 55' square, the W corners of which are centred on the responds at the junctions of the nave and the transepts. It seems reasonable to conclude that the builders adopted a flexible approach, basing their critical measurements on more than one point of the structure.

7.2 THE NAVE

From mid-pier to mid-pier, the nave is 27' 4" (8.33m) wide, a distance presumably intended as 5 units of 5' 6", and its overall width of 56' 5" (17.22m) is approximately 5' 6" multiplied by 10. The width of the South aisle, between the wall face and the centre of the S arcade, is 13' 10" (4.22m), roughly one quarter of the total internal width, or 2.5 units of 5.5' (13' 9"). The North aisle is 0.45m wider (15' 2") than the South aisle because, although the exterior wall faces of the nave aisles are aligned with those of the choir aisles, the N wall of the nave is narrower than those of the South aisle and choir.

The length of the nave from the footing of the respond at the E end of the S wall to the internal footing of the W wall is 126' 4" (= 5' 6" × 23) (38.5m). The bays of the nave arcade, from mid-pier to mid-pier, are 13' 9" (4.2m) wide, being 2.5 units of 5' 6", except for the three westernmost bays which are slightly wider.



Illus 109
Gridded plan of the abbey.

It has been established that the proportion of 1: root 2 was in common use in major Anglo-Norman churches, especially when establishing the relative lengths of the nave and the total length of a church (Ferne 1976; Fernie 1979, 4; Singleton 1979) and such a relationship is evident at Jedburgh. The E arm of the church, measured from the interior footing of its E end to the line of the W edge of the base of the respond at the junction of the South aisle and transept, is 27.6 m. This figure multiplied by root 2 (1.414) is 39.03 m, only a slight deviation from the actual length of the nave which is 38.05 m.

7.3 THE CLAUSTRAL BUILDINGS

The East range appears to have been laid out as an extension to the 27' 6" square grid evident in the crossing. The distances from the S side of the crossing square to the N wall of the chapter house, to the S side of Room 4 and to the S limit of the East range, as defined by the SW corner of the reredorter are approximately 55', 110' and 220' respectively. It is not possible to take accurate measurements within the East range because the precise positions of the wall faces have been obscured or lost through stone robbing and the consolidation of foundations exposed during the present century. This apparent relationship between the E arm of the church and the East range suggests that the two structures were laid out at the same time although the buildings themselves were almost certainly not contemporary. However, the East range may have had priority over other claustral buildings as it not only contained the dormitory and chapter house but was also contiguous to a part of the church built early in the campaign and which helped define the cloister square. The exact size of the original chapter house is unknown. Subsequently, it was extended to the E beyond the limits of the range, the external walls of the projection forming a square with sides approximately 27' 6" (8.4m) in length.

The cloister, South range and West range were laid out within a 110' square, based on the external face of the S wall of the nave and hence not forming part of the same constructional programme as that associated with the East range. In all probability, the former structures were contemporary or near contemporary with the construction of the nave. The first phase cloister was 82' 8" (25.2m) square with the cloister garth measuring 55' 1" (16.8m) E-W and 54' 2" (16.5m) N-S, its area being one quarter of that of the combined cloister, South range and West range. Identical distances of 110' (33.5m) occur between the external face of the S wall of the nave and the external face of the S wall of the South range; and also from the exterior of the W wall of the West range to the exterior of the W wall of the East range. Measured between their external wall faces, the West and South ranges are both 27' 7" (8.4m) in overall width. The exact length of the West range is unknown although internally it appears to measure approximately 55' (16.8m). The internal measurements of the South range are obscured by later alterations although the building is approximately 82' 8" (25.2m) long.

Similar units appear to have been used for the construction of the Period II timber buildings. From the N wall of Timber Structure 1 to the N wall of Timber Structure 2 is approximately 4.25 m, the latter building also measuring 4.25m in width (N-S) which suggests that these two timber structures represent different phases of a single building. The total N-S measurement of approximately 8.5m across the two structures relates to a grid system of 27' 6" (8.4m) as discussed above. The N wall of Timber Structure 1 and the S wall of Timber Structure 2 are situated approximately 0.5m S of one of the E-W grid lines and the N terminal of ditch 928, a feature associated with the early Augustinian occupation, is the same distance from the church as is the N wall of Timber Building 1, a further indication of an overall plan for the layout of the monastic complex during its initial stage of development.

In summary, the abbey was laid out using a framework of squares, the choir and crossing and the cloister garth both consisting of 55' squares whilst the South range, West range and cloister were planned on a 110' square. The principal dimensions are 5' 6" (1.68m), 27' 6" (8.4m) and 55' (16.8m), all multiples of a basic unit of 5' 6" (1.68m). This unit, being one third of the standard perch of 16' 6" (Ferne 1985, 250), has a documented historical basis dating from the 7th century (Huggins 1981) and has been noted by Fernie (1976) in a study of Ely Cathedral. At Jedburgh, the widths of the nave and aisles and the lengths of the nave, the E arm of the church and the cloister were all measured in units of 5' 6" and bore simple arithmetic relationships to each other. The 5' 6" unit, being one third of a perch, may have appealed on the spiritual level as being an approximation to the average height of a man.

7.4 THE SIZE OF THE CLOISTER

In general, the size of a cloister was dictated by the number of residents within a monastery. Often, as at Jedburgh, the area of the cloister was increased subsequent to its original layout and, in many cases, its final dimensions were arbitrary, dictated only by the need to house a dormitory, Chapter house and other monastic buildings of adequate size in their traditional positions around the claustral precinct.

An examination of the surviving cloisters of Scottish Augustinian houses shows an arithmetic progression in size, based on a unit of 55'. The largest cloister is at St Andrews Cathedral Priory where dimensions of 164'(50m) × 162' (49.4m) (Cruden 1950, 12–13) are double those of Jedburgh (82' 8"). Several abbeys have cloisters and cloister garths similar in size to those at Jedburgh. For example, at Cambuskenneth, an Augustinian house observing the Order of Arrouaise, the cloister garth is approximately 55' square and the cloister measures approximately 80' (24.6m) N–S (RCAHMS 1963, 123). Recent survey work and excavation at Inchaffray suggest a cloister plan and length of nave very similar to those at Jedburgh (G Ewart *pers comm*). At the other end of the scale, the irregular cloister garth at Inchcolm measures approximately 44' x 42' (Fawcett *et al* *nd*, 32). Oronsay Priory has a cloister with sides varying from 39' 6" (12.1m) to 41' 6" (12.7m) long and a garth approximately 21' 6" (6.5m) square (RCAHMS 1984, 241).

It was usual for Augustinian houses to have either 13 or 26 canons although smaller numbers were also common. Unfortunately, information on the original numbers of canons in Scottish houses is not available. However, arranging monasteries into three categories according to cloister size (for example: St Andrews 164'; Jedburgh, Cambuskenneth and Inchaffray about 82'; and smaller houses such as Oronsay approximately 41'), suggests that an exact ratio of cloister size to the number of canons was common among Scottish Augustinians.

