

The Great Hall of the Bishop's Palace at Hereford

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THE bishop's palace at Hereford incorporates what is probably the most complete timber building in England to have survived from the twelfth century. The only other coeval timber structure known to exist is in the great hall of Leicester castle, a building which, although it may be slightly older than the one at Hereford, has been altered to such an extent that none of the original timbers can now be seen. It might be supposed that a building of such age, one, moreover, that is uniquely instructive in the study of early timber-work, would long since have been thoroughly examined and adequately published, yet that is not so. It is hoped that this article will go some way to remedy the defect and at the same time draw the attention of archaeologists to several remarkable features of its construction that require discussion before they can be properly elucidated. The scope of the article is thus restricted to describing verbally and graphically as much of the twelfth-century timber-work as is accessible, and to conjectures about the destroyed parts of the roof; in carrying out the necessary survey no attempt was made to consider the history of the palace as a whole, the Royal Commission on Historical Monuments having done this thirty years ago.

THE TWELFTH-CENTURY PALACE

We may begin by quoting the relevant parts of the Royal Commission's authoritative description:¹

'The Bishop's Palace stands to the S. of the Cathedral-cloister. The walls are of brick and stone with some timber-framing in the kitchen wing; the roofs are covered with slates. The earliest part of the palace buildings is the surviving wall of the late eleventh-century chapel, which was a structure of the double-chapel type common in Germany and N. France.² . . . The great hall of the palace . . . was built late in the twelfth-century, and was a large timber building with a stone base to the outer walls and perhaps a stone porch on the W. side; it had aisles and was at least three bays long; the bay at each end, N. and S., now forms cross-wings, but may originally have formed part of the hall, in which case it would have had five bays. . . The main

¹ R.C.H.M., *Herefordshire*, I (1931), 116-7. We offer our thanks to the Bishop of Hereford, the Rt. Rev. T. W. Longworth, and to Mrs. Longworth, for their kindness in allowing us to examine the old timber-work; to Mr. W. O. Thomas, of Cray, Breconshire, who helped to measure it; and to Mr. Deiniol Williams of Brecon, by whose agency we were enabled to visit Hereford. We are also indebted to the Royal Commission on Historical Monuments (England) and Her Majesty's Stationery Office for permission to use printed and manuscript material and to Mr. F. C. Morgan and the Church Commissioners for permission to use photographs.

² See, now, N. Drinkwater, 'Hereford Cathedral: the bishop's chapel,' *Arch. J.*, cxi (1954), 129-137.

structure was completely remodelled by Bishop Bisse, 1713-21, who formed the present hall and partly cased the building in brick, . . . and the present drawing room [was] formed by Bishop Atlay (1868-95), the lower part of one of the original oak posts being removed for the purpose . . . The elevations of the main block have no ancient features except the base of the E. and W. walls of the middle portion which are of stone rubble and probably supported the timber-framing of the outer wall of the great hall . . .

'The interior of the great hall was divided into at least three bays, with aisles, by square oak posts each having four round attached shafts with scalloped capitals and moulded abaci from which sprang arches transversely across the body of the building, between the posts and forming arcades, and across the aisles; the shafts carrying the main transverse arches were carried up higher than those supporting the arcades. The upper parts of two of the main posts, in the E. range, are visible in the roof over the drawing-room; between them springs one of the semi-circular arches of the E. arcade; it has large roll-moulded timbers with a chamfered outer member, partly missing, enriched with a row of large nail-heads; above the arch runs a plain plate or purlin with traces of a series of painted rosettes on the W. face; this is the only bay of the arcades which is now visible, but it is probable that two more arches, one on each side, are preserved under the plaster arches of the existing hall. Part of a third post, the southern one on the W. side, is visible in a room on that side of the house; it retains the attached shaft towards the W. aisle. The main transverse arches of the original roof have all been removed and replaced by plain tie-beams resting on original plates over the arcades; intermediate tie-beams have been inserted over the middle of each bay. The existing hall, re-modelled by Bishop Bisse, now extends completely across the building; the original arches have been cased and the aisle on each side covered with a plaster semi-dome; the ceiling of the main portion of the hall is flat; the arches spring from fluted Doric pilasters and an entablature, the frieze and cornice of which are continued along the walls of the middle portion of the building; the frieze is enriched with crossed croziers; the N. and S. walls have coupled Ionic pilasters, and the E. and W. walls of the aisles have Doric pilasters.'

The Royal Commission's description of the Palace may be supplemented by the elevation and cross section of the only visible bay (FIG. 22), upon which detailed observations will be made.

The first thing that strikes the visitor to the palace is the exceptionally large size of the timbers. Each post of the arcade comprised a central portion rising to the plate and four attached round shafts cut in the solid, which, must, before carving, have needed a piece of timber about $4\frac{1}{2}$ ft. square. Joining the posts are plates $1\frac{1}{4}$ ft. square, with arch-braces below of proportionate size. The general form of the complete structure is clear enough (PL. XI), and is adequately stated by the Commission, yet it possesses certain unusual features that have not been discussed before. Most remarkable is the way the posts are related to the plates, which do not run continuously in the normal fashion of arcade plates³—from end to end of the building, receiving direct support from the posts—but instead are tenoned into the posts. We are thus confronted with a concept of timber-construction fundamentally different from anything hitherto published, since the surviving posts imply one of three alternatives, all unknown elsewhere: a two-story elevation, a double plate, or tie-beams resting directly on the posts. Moreover, the

³ For this term see J. T. Smith, 'Medieval aisled halls,' *Archaeol. J.*, cxii (1955), 77.

THE GREAT HALL.

BAY ELEVATION.

CROSS SECTION.

Section of stone pier showing aisle rafter housing. 9" 12" 18" 24" Inches

Section of arcade brace and label. Y D

Rebuilt roof c. 1500

Suggested line of transverse arch.

Large dowel for missing transverse arch.

Wall plate c. 1500.

Large dowel for missing transverse arch.

Aisle wall plate c. 1500

Semi-octagonal? capital (much worn)

Slot for arcade brace

Later inserted framing

Suggested line of arch above aisle

Section of pier X-X' 6" 12" 18" 24" Inches

Spandrels originally filled with waste and lath

Large dowel for missing transverse arch

FIG. 22
THE BISHOP'S PALACE, HEREFORD
Elevation and cross-section of a bay in the great hall (p. 70)

horizontal timbers, so far designated simply as plates, do not perform the normal function of an arcade-plate, which gives support to two sets of common rafters; these particular timbers support the upper ends of the common rafters spanning the aisles and may thus be correctly designated as a form of plate, while they also provide a housing for the two braces that form a semi-circular arch in each bay.

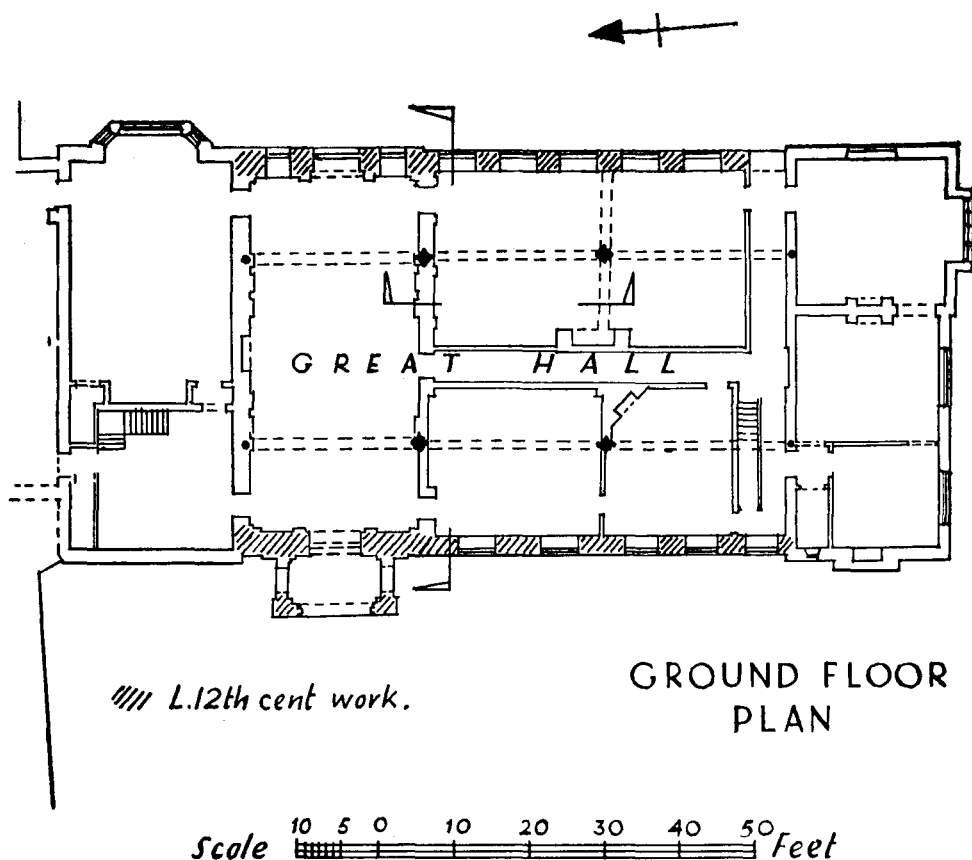


FIG. 23
THE BISHOP'S PALACE, HEREFORD
Ground-floor plan (p. 69)
(After R.C.H.M. records, by permission)

The first of these functions suggests 'sub-plate', because (as will appear below) another and more important plate that supported the main roof must have stood somewhere above it, so this term will henceforth be used. The evidence provided by the sub-plate is extremely interesting. On the outer face, above a series of large housings (or mortises) for the upper ends of the aisle rafters, the grain of the timber shows clear signs of exposure to weather. This proves that the roof did not slope continuously from the apex to the aisle wall-plate. The upper surface of the sub-plate cannot be examined because the arcade-plate above is contiguous to it.

We cannot, therefore, assert positively that it has no housing for common rafters, though that would be most unlikely. We have thus arrived at the central problem posed by the palace, namely, what happened above the sub-plate? Before getting to grips with it other relevant structural features must be discussed.

The Commission's observation that the middle and side aisles were originally spanned by semicircular arches accords perfectly with the evidence of the attached shafts and capitals (PL. XII, A). A minor point of construction we have not observed elsewhere is the use of a large dowel driven from the back of the post into the arch-brace spanning the nave to steady it (FIG. 22).

Above the sub-plate the whole of the original roof was removed and replaced by an entirely different type of structure in the early sixteenth century,⁴ perhaps soon after 1500, as part of a general scheme of alteration involving the kitchen wing and gate-house. We disagree with the Commission's opinion that the present arcade-plates on which the tie-beams rest are original; more probably they are part of the late-medieval reconstruction. It is not at all clear how they are fastened to the earlier structure, since there are no pegs to indicate a mortise-and-tenon joint with the posts. One solution would be to have a dovetail joint at the head of the post, but we saw nothing to prove this was the method used. In this connexion must be mentioned a feature for which we can offer no satisfactory explanation. Set in the top of the sub-plates at fairly regular spacings are blocks of wood looking like the sawn-off remnants of beams that once spanned the nave (PL. XII, D). They are not original, because they are unrelated to the twelfth-century bay system, nor do they appear to serve any purpose in the rebuilt roof. It may be that they are intended to bind the two phases of construction together, making a dovetail joint with the sub-plate and a lengthwise tenon joint with the arcade plate. Admittedly this is only a guess which may be invalidated by the fact that the supposed tenon joint is not pegged through. For an alternative possibility that they were part of a ceiling no corroborative evidence exists on either of the sub-plates, nor is the purpose of a ceiling in the accessible bay obvious at any period.

The complete rebuilding of the aisle walls deprives us of information from that source, but a reconstruction of the transverse arch coupled with the position of the rafter housing on the sub-plate shows that the height of the wall-plate has changed very little.

The technical details of the timber joints are interesting. The mortise-and-tenon, pegged through, is used only to fasten the sub-plates to the posts, where, perhaps, a halved joint might have been thought likely to part in the event of any lateral movement in the structure. Whatever the reason, this sparing use of what is the commonest form of joint encountered by students of English timber buildings presents a striking contrast to later practice. To fasten the arch-braces to the posts and sub-plates halved and pegged joints were used; their construction is shown by diagrams (FIG. 24). The use of this type of joint for this particular purpose either does not occur, or has not been specifically mentioned in later timber buildings. Certainly it is not used in any of the other timber houses we

⁴ Date as given by R.C.H.M.

have examined, whether aisled or aisleless, its function being performed by the mortise-and-tenon.

Even more surprising, though not without a certain appropriateness, is the use of nails to fasten the label, ornamented with nail-head (PL. XIII, A), to the arch-braces. The use of metal to join sizable pieces of timber, though it can be inferred

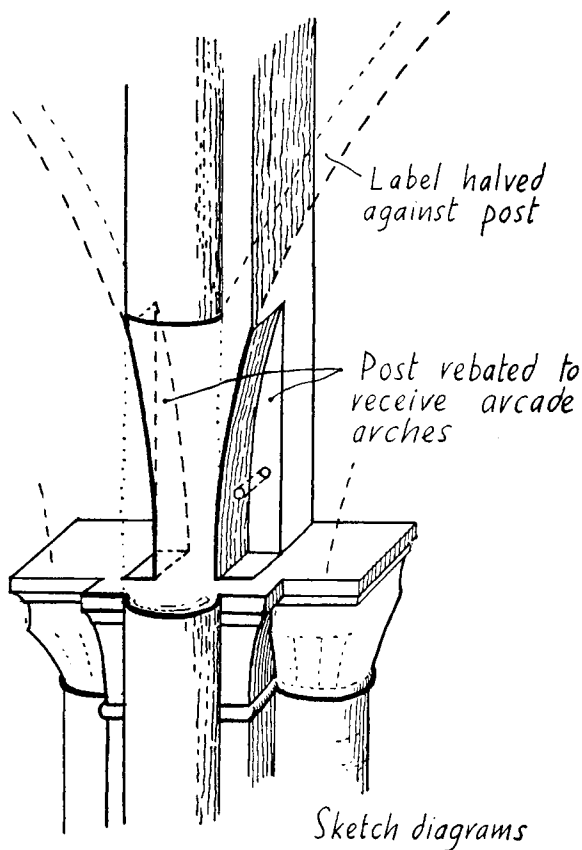


FIG. 24

THE BISHOP'S PALACE, HEREFORD

Method of jointing capital and arch-brace to post (pp. 73 ff.)

in the early middle ages,⁵ is never found in buildings of the fourteenth and fifteenth centuries where wooden pegs would be expected to perform such a function, as they do at the palace in fastening the capitals to the posts (PL. XII, A). Here perhaps, the length required for the inserted pin led to the use of wood. The two parts of the label butt against a chock projecting horizontally, whereas the arch-braces butt against each other. There is yet another contrast with later practice, where the braces almost invariably butt against a chock that projects from the

⁵ Cf. finds at Old Yeavinger reported by Mr. Brian Hope-Taylor to the Society of Antiquaries, 14 February, 1957.

soffit of the beam and is sometimes slightly dovetailed; clearly this, combined with mortise-and-tenon joints, is sounder structural practice.

A final detail is that the panel of wattle-and-daub infilling of the arch spandrels that is visible in the Commission's published photograph⁶ must have been original because the holes for large wattles can be seen in the soffit of the sub-plate and the back of the arch braces (PL. XII, B, D). Since that time the

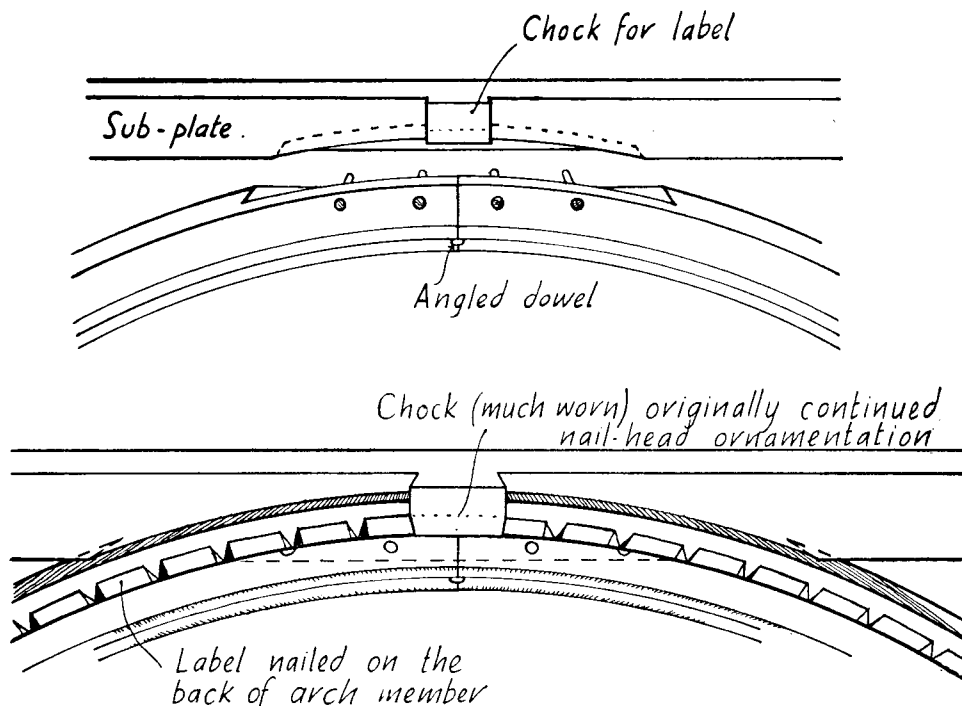


FIG. 25

THE BISHOP'S PALACE, HEREFORD
Details of jointing arch-braces and sub-plate (p. 74)

spandrel filling has been destroyed. Evidently the hall was intended to resemble as nearly as possible a masonry structure.

POSSIBLE ENGLISH ANALOGIES FOR THE PALACE HALL

From what has been said already it will be obvious that nothing like a complete English analogy for the palace structure is known, nor even analogies for its several details. It is unfortunate that the existing accounts of the great hall of Leicester castle, the one building likely to provide close parallels, are too conflicting to allow it to be used for our purpose. On the one hand Walter Horn,⁷

⁶ *Op. cit.* in note 1, pl. 24.

⁷ *J. Soc. Architectural Historians*, xvii (1958), pt. 2, p. 9.

going beyond the more cautious remarks of Margaret Wood⁸ and accepting unreservedly the reconstruction of T. H. Fosbrooke,⁹ claims that the whole of the roof is original, while on the other C. A. R. Radford¹⁰ suggests that 'the reconstruction is probably based on fourteenth-century work, as there is considerable evidence of the roof having been reformed at that date'. Radford's view is, in our opinion, the right one, and only after the most careful study, which would probably need to be made in circumstances more favourable than the hall's present use allows, could much of value be learned about the original timber-work. Lacking any other relevant English timber-posted hall, the aisled great hall of Oakham castle, where the arcades have stone columns, may be considered.

Radford in a recent reassessment¹¹ argued that 'the substantial character of the arcades implies that they were originally designed to rise as a clerestory with a range of windows lighting the nave . . . The original roof probably had tie-beams, each supported by a semicircular arch springing from corbels three or four feet above the capitals. A corbel in this position¹² occurs on the wooden posts of the twelfth-century hall in the Bishop's Palace at Hereford, and its scale, similar to those carrying the arches of the arcade, suggests that it carried a heavy arch rather than a brace'. The suggestion of a clerestory is very relevant to our problem at the Hereford palace, though it is doubtful if the evidence quoted will sustain the conclusion. A comparable building on a grander scale, the great hall of Winchester Castle,¹³ resembles Oakham in having stone arcades and no clerestory, yet it does not appear from the relevant publications (which are admittedly defective) that a clerestory ever existed there; the same is true of the great hall at Bishop Auckland.¹⁴ If both these be dismissed on the score of inadequate evidence there is the aisled manor house at Warnford in Hampshire,¹⁵ where the lack of any sign of an arcade implies that the stone columns supported the roof timbers directly. Nevertheless some explanation has to be found for one other piece of evidence at Oakham, that the 'side walls of the nave now rise barely 1 ft. above the top of the aisle roofs'. If there were never a clerestory, it is not easy to see why the nave roofs should not have run down continuously to the aisle walls, as they do, e.g. in the fourteenth-century Cambridgeshire church of Long Stanton,¹⁶ unless perhaps the seventeenth-century rebuilding of the Oakham roofs may in some way account for the difference^{16a}.

⁸ M. E. Wood, *Archaeol. J.*, xcii (1935), 191-2.

⁹ Published by Walter Horn, *op. cit.* in note 7.

¹⁰ *Archaeol. J.*, cxii (1955), 183, note 1.

¹¹ C. A. R. Radford, 'Oakham castle,' *Archaeol. J.*, cxii (1955), 181-4, esp. p. 183. This article supersedes M. E. Wood, *Archaeol. J.* xcii (1935), 201-3, and, following her, J. T. Smith, *op. cit.* in note 3, p. 76.

¹² *Recte* the capital of an attached shaft, PL. XII, A.

¹³ M. E. Wood, '13th century domestic architecture,' *Archaeol. J.*, cv (1950), Supplement pp. 29-31, citing earlier literature.

¹⁴ J. Charlton, *Archaeol. J.*, cxi (1954), 222-3; M. E. Wood, *op. cit.* in note 13, pp. 18-19, lists earlier literature. Cf. also big French barns with stone arcades and no clerestory; Enlart, *Manuel d'archéologie française*, pt. 2, vol. 1, p. 212.

¹⁵ M. E. Wood, *op. cit.* in note 13, pp. 27-28.

¹⁶ R. and J. A. Brandon, *Open Timber Roofs* (1859), pl. 2.

^{16a} Since this article went to press a visit by one of us (J.T.S.) has confirmed that this was so, the heightening being carried out as part of the structural alterations in the seventeenth-century, re-using twelfth-century masonry.

The later aisled timber halls, mainly of the fourteenth century with perhaps one or two ascribable to the thirteenth, throw no light on Hereford.¹⁷

THE RECONSTRUCTION OF THE ROOF

Lacking any useful English parallels to elucidate the palace at Hereford it is necessary to assess on internal evidence alone the variant forms its roof structure might have taken. The principal condition all must satisfy is that the posts of the arcades shall rise above the sub-plate. To this we would add one further condition based on our knowledge of medieval roof construction, that the roof was almost certainly single-framed using one or other of the several types of trussed-rafter construction. No direct evidence remains to support this contention, but indirectly the use of halved joints in a post-and-beam structure allies the palace to the carpentry tradition of south-eastern England and so to the trussed-rafter or uniform-scantling roofs that are an integral part of that tradition.¹⁸

The simplest solutions are those without a tie-beam. The one that involves least speculation (FIG. 26a) has transverse arches kept stable principally by their own weight but helped also by the dowels driven through the posts from the back and perhaps by being joined in some way to the collar of the relevant pair of common rafters. The posts would in this case be tenoned into the arcade-plates that sit immediately above the sub-plate. The precise form of the arches spanning the aisles and their associated roofs is of much less importance, since it could not affect the general stability of the building very much. For this reason no detailed conjectures have been attempted in any of the proposed solutions.

A variant of the method (FIG. 26b) uses a spur-tie to link the arcade-plate securely to the arch-brace in the manner common in halls of the fourteenth-century.

Both solutions satisfy the archaeological conditions of the problem better than the structural logic of timber construction; in particular the use of two massive plates in close proximity has to be accounted for. The reader who has followed the argument so far will hardly expect an exact analogy to be forthcoming. Instead reference may be made to an interesting phenomenon—the double collar associated with the base-cruck form of construction¹⁹—that has lately been studied and might theoretically account for the duplication of an

¹⁷ J. T. Smith, *op. cit.* in note 3.

¹⁸ To justify this statement in detail would require an article in itself, but briefly the steps in the argument are as follows. The use in roof-construction of halved joints, prior to the development of the mortise and tenon, is one of several techniques that are known from N. France (H. Deneux, *L'Architecte* (1927), II) and can also be traced in SE. England, so by inference they are of Norman inspiration (J. T. Smith, 'Medieval roofs,' *Archaeol. J.*, cxv (1960). The use of such halved joints in other English schools of roof-construction is nowhere found, nor is it suited to any form of timber-framing other than that which originated in SE. England. Moreover, the fact that Hereford palace was built for a member of the Anglo-Norman ruling class provides a second link with the south-eastern trussed-rafter tradition. It is not claimed that the argument is water-tight, only that it is as good as can be produced in the present state of knowledge. Lacking some such practical limitation, the number of possible solutions using every main class of English roof is appalling.

¹⁹ A base cruck is a form of roof incorporating what looks like a normal pair of cruck blades, save that they are not joined at the top but support the ends of a collar-beam; above the collar is a quite separate structure supporting the upper part of the roof. For illustration of the term see S. R. Jones and J. T. Smith, 'Manor Farm, Wasperton,' *Trans. Birmingham Archaeol. Soc.*, LXXVI (1958) 19-28.

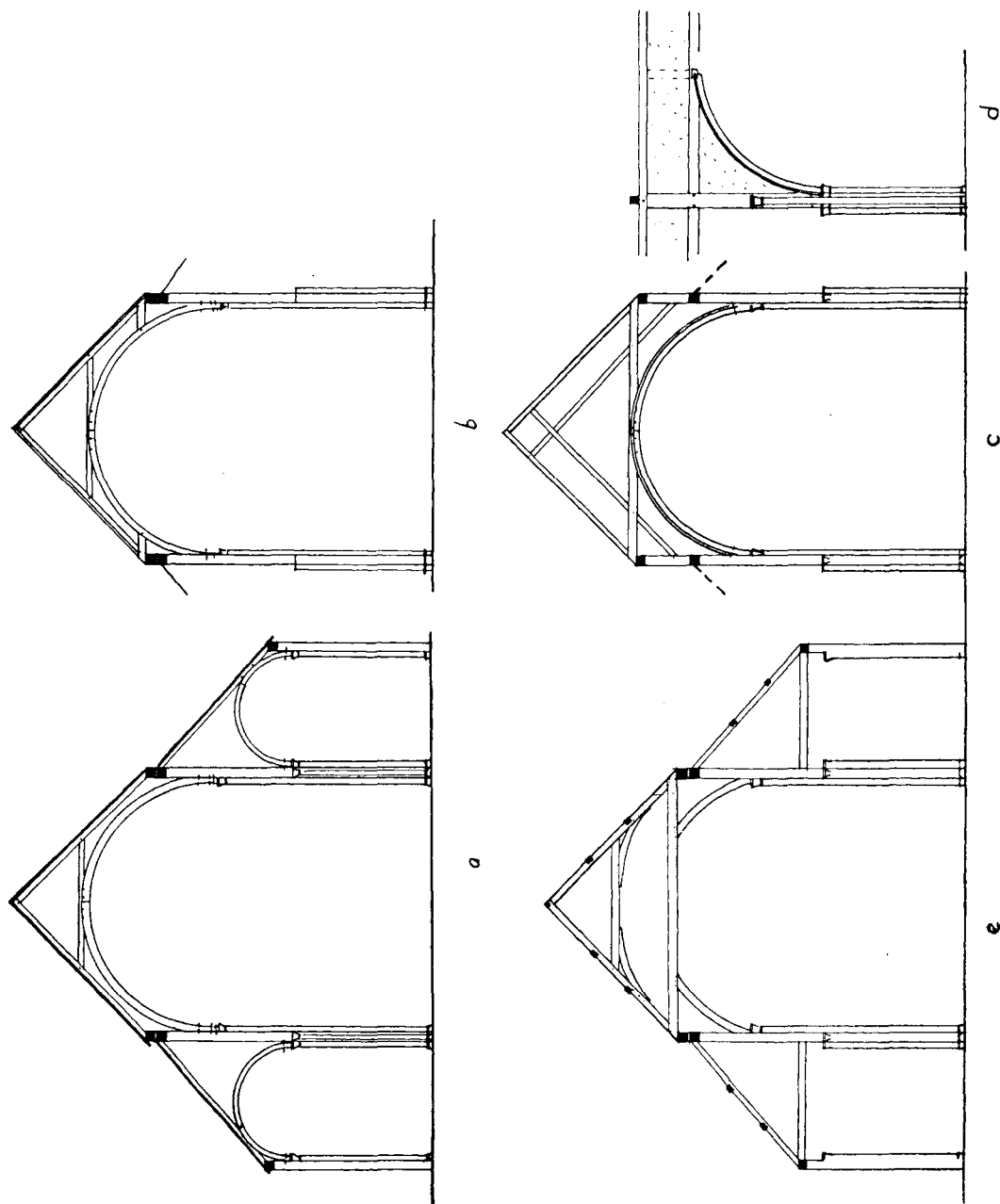


FIG. 26

THE BISHOP'S PALACE, HEREFORD

Possible reconstructions of the twelfth-century hall. (c) shows the existing roof (pp. 77 ft.)

important structural member. We have argued²⁰ that such duplication implies the union of two structural concepts without any attempt to reduce the number of timbers required by each concept when used independently. The application to Hereford would run thus: the basic aisled structure of posts and beams has a very long ancestry,²¹ to which was joined in the late twelfth-century at Hereford what is primarily a decorative scheme of shafts and arches in the current manner of late-Romanesque church architecture. That is not to say that the arches are solely decorative, since they perform the same function as the straight braces or struts that might otherwise be expected to join plates and arcade-plates. Nevertheless a carpenter used to framed structures, when modifying one to meet the demands of architectural fashion by imitating stone construction—the spandrel fillings alone prove he was doing that—might well have conceived such an innovation, comprising the arch and sub-plate, both bored to take wattle-and-daub, as a complete unit to be inserted in the basic structure he was familiar with.

Next we will consider a more complicated reconstruction (FIG. 26, *c, d*), where the posts are carried upwards about four feet above the sub-plate to the arcade-plate; these are joined by a tie-beam into which are tenoned the two braces forming the transverse arch. The other timbers are not based on any evidence but are inserted as one of several forms of trussed-rafter roof.²² This reconstruction, implying a clerestory above the arcade, has one very serious drawback. The sub-plate shows no sign of any superstructure, neither peg holes for mortise-and-tenon joints nor rebates for halved joints, yet the bay-width of 24 ft. (to centres) demands some fairly substantial wall. The later intermediate truss perhaps conceals some evidence, so the solution is not ruled out entirely. The first floor great hall of Taunton castle, built between 1107 and 1129, has been reconstructed in a rather similar way,²³ unfortunately without reference to the evidence it was based on. One further theoretical possibility was mentioned above, that the spur-ties to the arch-braces were placed directly on the posts without the interposition of a plate. No analogies exist for such a method, so the matter cannot be pursued; the possibility is remote.

FOREIGN ANALOGIES

The final task is the hazardous one of seeking continental parallels for this unique building. The most obvious type of timber building to go to in seeking analogies for the two-storied reconstruction, the Scandinavian stave church,²⁴ is ruled out by the following structural considerations: 24 ft. bay width, which is far greater than anything used in contemporary or later stave churches; the complete absence at Hereford of a plank technique, especially in arch construction; the complete absence in the stave churches of halved joints for structural timbers; and the contrast between the proportions of the timbers used at Hereford and,

²⁰ *Ibid.*, 23.

²¹ Usefully summarized by Walter Horn, *op. cit.* in note 7.

²² Cf. J. T. Smith, 'Edgar's Farm, Stowmarket,' *Proc. Suffolk Inst. Archaeol.*, xxviii (1958), 54-61.

²³ C. A. R. Radford and A. D. Hallam, 'Taunton castle,' *Proc. Somerset Arch. and Nat. Hist. Soc.*, xcvi (1953), 55-96.

²⁴ Anders Bugge, *Norwegian Stave Churches* (1953), *passim*.

e.g. Borgund²⁵—the former being roughly square, the latter throughout of plank-like scantling.

Certain big barns in northern France supply faint hints of a structural parallel, though of course they have no clerestory. The grange at Parçay-Meslay may be of the thirteenth-century. It has two rows of posts which carry arcade-plates, and, some 10 or 12 ft. below, sub-plates; both plates are braced to the posts.²⁶ This type of structure could easily be adapted to form a clerestory and it is perhaps the most hopeful starting point in a search for detailed analogies. France is in any case the most likely source of the carpentry traditions embodied in a twelfth-century English episcopal palace, but too little has yet been done on the dating and development of these barns to make it worth discussing the matter further. The reader may be referred to Walter Horn's recent article, which discusses a few of them.

CONCLUSION

The great hall of the Bishop's palace at Hereford is the earliest and probably the most important timber structure in England. Our article, though it has failed to establish definitely the form of the hall structure, records details of the building for the first time, and, we hope, in a manner adequate to permit further discussion of the issues involved. Properly elucidated, this impressive structure may provide a link between excavated remains and the numerous surviving buildings of the fourteenth century.

²⁵ The well-known section of Borgund church is now best seen, redrawn, in K. J. Conant, *Carolingian and Romanesque Architecture, 800-1200* (1959), p. 40.

²⁶ Walter Horn, *op. cit.* in note 7.

Recent Excavations in the Keep of Farnham Castle, Surrey

By M. W. THOMPSON

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FARNHAM CASTLE consists of a ditch and bank surmounted by a curtain wall forming an irregular enclosure around a triangular group of buildings.¹ The south side of the triangle is filled by a range containing kitchen and chapel, hall and bishop's apartments (from west to east), the whole range being essentially twelfth-century in date and dominated by a tall brick entry tower of the fifteenth century. At the northern apex of the triangle stands the massive circular keep. (PL. XIV, A). This is entered by steps from the south side leading to a level area about 140 ft. in diameter which is about 35 ft. higher than the ground outside the keep (the height is considerably more on the west side than on the east). The shell wall rises higher than this and is interrupted by four turrets, which rise from the ground as solid buttresses but originally contained rooms in their upper part which rose above parapet level.² These turrets are set at regular intervals with two pilaster buttresses between each except on the south side, where the turret is missing at the point where the west curtain joins the keep, and at the entry where the entry tower is much larger (FIG. 27).

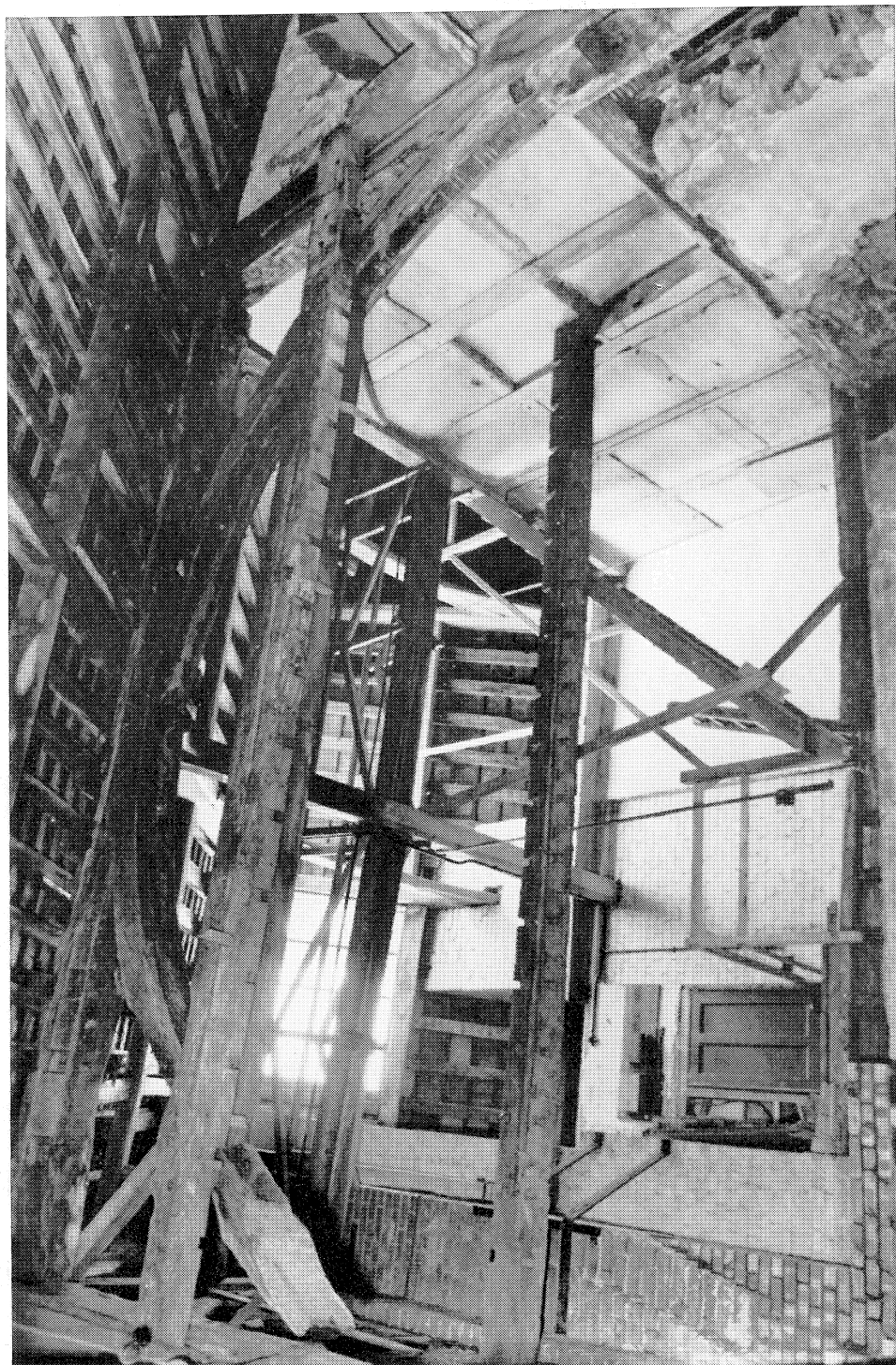
The keep was placed in the guardianship of the Ministry (then Office) of Works in 1933. After the treatment of the outside of the shell, work started on the interior, where it was discovered that the lower parts of the doorways and rooms in the two turrets on the eastern side of the keep survived at a depth of about 3 ft. below the modern grass surface. To discover the medieval level within the keep so that the later overburden could be removed it was decided by the Chief Inspector of Ancient Monuments that I should carry out a trial excavation.

THE EXCAVATIONS

Work began in April, 1958. A trench was cut across the middle of the interior (AB in FIG. 27), roughly on a line extending south-east to north-west. The trench unexpectedly revealed a great mass of masonry about 50 ft. square with a square central shaft 13 ft. square, but expanding to about 20 ft. or so at its weathered top (PL. XIV, B). This masonry, which was evidently the foundation of a square tower, was set in the centre of a conical mound of marl. In 1958 the side of the mound was followed down to the point where it intersected the face of the present shell keep; in the late summer and winter of 1958-9 a motor-driven hoist was used

¹ There is a plan and description by the late Sir Charles Peers in the *Victoria County History, Surrey*, ii (1902), 599-605. For the documentary evidence for dating the entry tower to 1470-75, see my paper in *Surrey Archaeol. Collections*, LVII, (1960), 85-92. The N.G. reference of the castle is SU/837474.

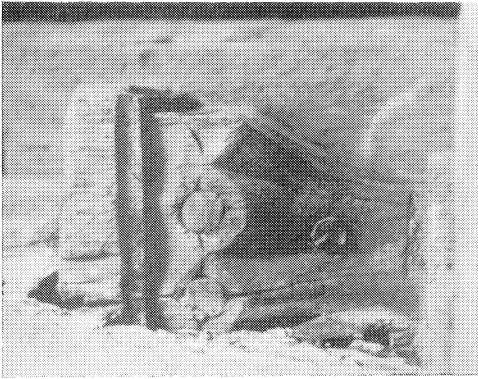
² As shown in the Bucks' view reproduced in Peers, *op. cit.* in note 1, p. 596.



THE BISHOP'S PALACE, HEREFORD

A bay of the arcade in the great hall exposed during repairs (p. 70)

Ph.: Church Commissioners



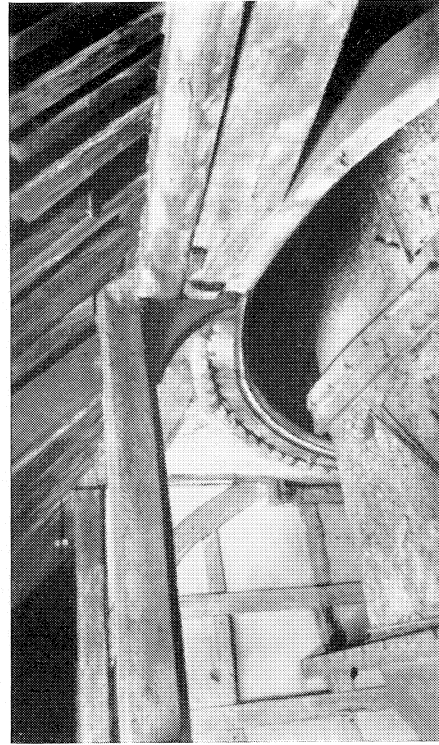
A



C



B



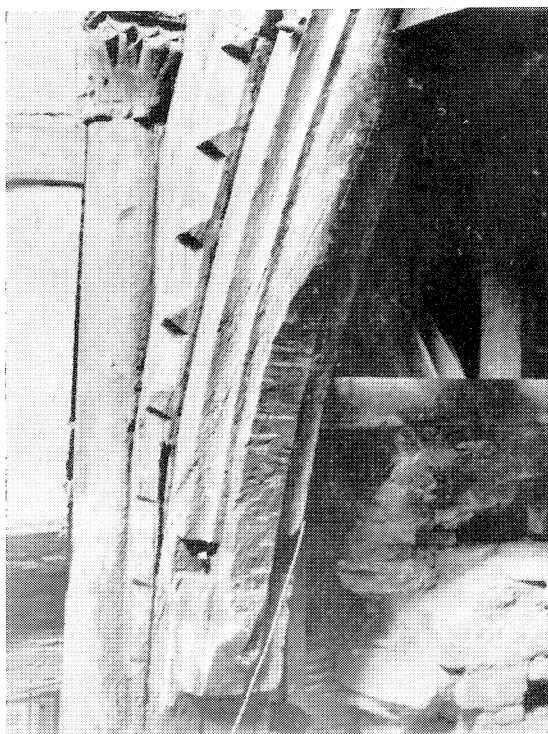
D

THE GREAT HALL, BISHOP'S PALACE, HEREFORD

- A. Capital pegged to post (p. 74)
- B. Detail showing, nail-head ornament and original in-filling (pp. 74-75)
- C. After alteration (p. 75)
- D. Before recent alterations showing original wattle-and-daub in-filling (p. 75)

*Plh.: A, C, S. R. Jones
B, D., R.C.H.M.*

PLATE XIII



A



B



C

THE BISHOP'S PALACE, HEREFORD

Capitals and other details of the woodwork in the middle bay of the great hall (pp. 73-4)

Phh.: F. C. Morgan