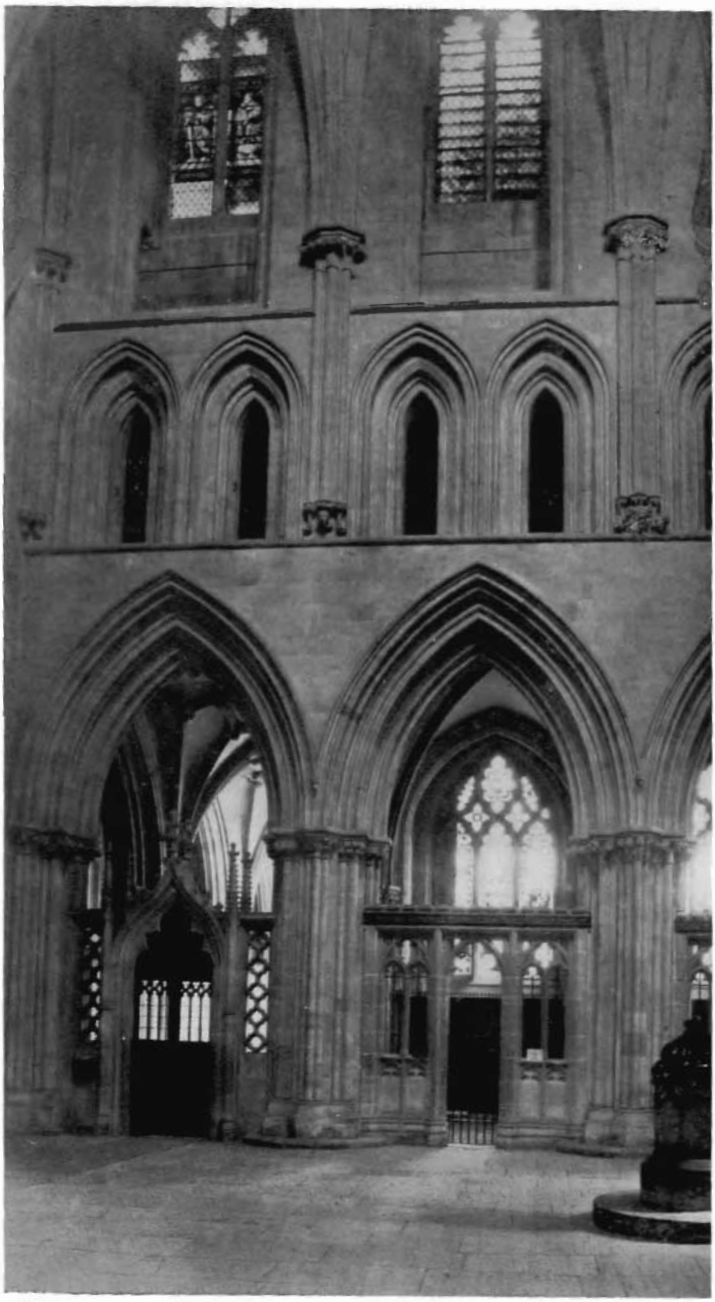

[*T. W. Phillips, phot.*

SOUTH TRANSEPT, EAST SIDE

NOTES ON THE EARLIER ARCHITECTURAL HISTORY OF WELLS CATHEDRAL

By JOHN BILSON, D.Litt., F.S.A.

The chronology of the earlier building of Wells cathedral has been the subject of much discussion, and widely differing conclusions have been reached by different writers.

Formerly, relying on the authority of Wharton and Godwin, the view generally accepted was that the church was begun by bishop Jocelin (1206–1242). Professor Willis shared this view, though some remarks of his[1] seem to indicate that he would have put the beginning earlier, had he not felt bound to accept the documentary evidence as it was then understood. His analysis of the stages of the building, 'commenced, continued, and carried on from east to west,'[2] was, as usual, entirely sound. It should have disposed finally of the strange idea that had been entertained[3] that the west front was the oldest part of the church, and that the existing nave had been built later, but it did not prevent a subsequent attempt to establish this extraordinary view.[4]

The publication of the Calendar of the Cathedral manuscripts[5] led quite properly to a correction of the theory that bishop Jocelin began the new work, but the reaction went much too far. The documentary and architectural evidence was held to prove that 'all the earliest parts of the

[1] Bristol volume of the Archaeological Institute (meeting of 1851), p. xxvi. This however is an inadequate and inaccurate report, decidedly inferior to that of Professor Willis' address of 1863 in the *Proceedings of the Somersetshire Archaeological and Natural History Society*, xii, part i, 14-24, to which Willis himself referred (in his *Glastonbury*, p. 46). In the cathedral library at Wells are copies, by the late J. T. Irvine, of some of Willis' diagrams.

[2] *Proc. Somersetshire Archaeol. Soc.*, xii, part i, 17.

[3] E. A. Freeman, *History of the Cathedral Church of Wells* (London, 1870), 76.

[4] J. T. Irvine, *Fabric of the Cathedral Church of St. Andrew at Wells*, in the *Proc. Somersetshire Archaeol. Soc.* (1873), xix, part ii, 1-47. In the cathedral library is an interesting and useful collection of drawings made by Mr. Irvine when he was acting as clerk of works under Mr. Benjamin Ferrey. The necessity of differing from some of his conclusions must not be interpreted as indicating any lack of appreciation of his careful and accurate records of facts.

[5] *Hist. MSS. Com. Report on the MSS. of Wells Cathedral*, 1885; *Calendar of the MSS. of the Dean and Chapter of Wells*, vol. i, 1907, and vol. ii, 1914.

church, including the three bays east of the crossing, the transepts, and the nave down to the west end, but only including the lowest courses of the west front, were to be assigned to bishop Reginald' (1174–1191).[1] So one of our esteemed text-books dates the nave as '*c.* 1170,'[2] and another writer speaks of Wells as 'the first important English church ever built in the Gothic style.'[3] The opinion (contested by the late M. de Lasteyrie[4] and the present writer in 1904) that the eastern arm, transept, and nave up to the west end, or at least up to westward of the north porch, were all built by the time of bishop Reginald's death in 1191, may be said to have been generally accepted. The object of these notes[5] is to set out the results of a careful examination of the building, undertaken to ascertain what answers it gives to the questions involved, and to show that this newer view, which is not supported by the documentary evidence, must be rejected on a due consideration of the architectural evidence.

The documentary evidence, as analysed afresh by the Dean (Dr. J. Armitage Robinson),[6] indicates that financial arrangements were being made for the work of the rebuilding of the church, not as Canon Church concluded very early in bishop Reginald's episcopate,[7] but probably not earlier than 1184 and not later than 1186. The earliest document from which we can conclude that building was actually going on is Nicholas of Barewe's charter which speaks of 'the rising church,' and, although the attestations do not *fix* the date of this charter, and might taken by themselves admit of a somewhat later date, the Dean's conclusion is that the charter must probably be dated before bishop Reginald's death at the end of 1191.

On the architectural side, the most definite material for

[1] *Archaeological Journal*, lxi, 216. Cf. Canon C. M. Church's *Chapters in the Early History of the Church of Wells* (London, 1894), 76 f.

[2] E. S. Prior, *A History of Gothic Art in England* (London, 1900), 104, 108, 116. But in their *Medieval Figure Sculpture in England* (Cambridge, 1912), Messrs. Prior and Gardner date some of the capitals and corbels of the transept as '*c.* 1200' (pp. 32, 228, 230, 238, 239).

[3] Francis Bond, *The Cathedrals of England and Wales*, 4th edn. (London, 1912), 366.

[4] *Archaeological Journal*, lxi, 217. A fuller report of M. de Lasteyrie's remarks was published in the *Shepton-Mallett Journal* of July 29, 1904.

[5] It is impossible for me to express adequately my appreciation of the value of the kind help and encouragement which I have received from the Dean, Dr. J. Armitage Robinson, throughout this study. I ought perhaps to add that it must not be assumed that he is committed to all my conclusions.

[6] Pp. 1 ff. above.

[7] C. M. Church, *op. cit.* 78.

fixing the date of the beginning of the new work at Wells is furnished by Glastonbury abbey. The Lady chapel there was built immediately after the fire of 25 May, 1184, and was consecrated *about* 1186,[1] though some of its sculpture must have been finished later.[2] The great church can scarcely have been begun before 1185 at the earliest, and both the documentary and the architectural evidence confirm the conclusion that its eastern part was rapidly built, but that its subsequent progress was slower, and that the building of its nave extended through the first quarter or first third of the thirteenth century.

That the earliest parts of Wells cathedral are considerably in advance of the Glastonbury Lady chapel is sufficiently obvious without labouring the point. A juster comparison however may be made between the two great churches. They do not, as has been suggested, represent the initiation of a new manner. They represent rather the culminating achievement of a local manner which had been developing during the second half of the twelfth century—a growth, here as elsewhere, based on the Anglo-Norman Romanesque in its later forms, continuously influenced by the much more advanced school of the Ile-de-France, either directly, or, especially in the south of England, through Normandy.[3] Glastonbury and Wells exhibit local characteristics which distinguish this development in the south-west of England, which descend directly from the works at Worcester cathedral which followed the fall of the tower in 1175, in the recasting of the transept, and in the contemporary two westernmost bays of the nave. These local characteristics, which will be noticed in their place, are even more pronounced at Glastonbury than at Wells, and passed on thence to Lichfield and other later works which came under the influence of this western manner.

Glastonbury and Wells, only six miles apart, belong to the same local school; they are built of the same stone,[4] and, as so generally happens in a district possessing excellent

[1] R. Willis, *The Architectural History of Glastonbury Abbey* (Cambridge, 1866), 12. W. H. St. John Hope, *Notes on the Abbey Church of Glastonbury*, in the *Archaeological Journal*, lxi, 185.

[2] Note the advanced character of the foliage in some of the bosses within the arches of the internal wall-arcade. The sculpture of two of the orders of the south doorway has never been finished (*Archaeologia*, lii, 87 and Pl. v).

[3] E.g. the choir of New Shoreham church.

[4] Doulting.

stone, they reach a remarkably high standard of masoncraft. Many of their details show close resemblances which will be noticed in their turn, and the slight differences indicate that Wells was the more advanced. The survivals of Romanesque ornament to be seen at Glastonbury, especially in the Lady chapel, and to a less extent in the great church, have almost entirely disappeared at Wells. A comparison of the surviving eastern parts of Glastonbury with the earliest work at Wells leads to the conclusion that Wells can only have been begun some few years after Glastonbury, and that it is difficult to place the beginning of Wells much earlier than about 1190. Detailed reasons for this conclusion will appear in the following notes of the indications furnished by the building itself of the progress of the work at Wells.

In order to indicate with precision, and without inconveniently long description, the various parts of the church referred to in these notes, I shall adopt the system of reference shown on the key plan (fig. 1), which consists of numbering the piers from west to east, with odd numbers on the north side, and even numbers on the south side, and the transverse divisions by the small letters a, b, c, d. Any pier or bay can thus be indicated by a simple combination of numbers and letters.

The plan of the church which was consecrated in 1239 comprised an aisled choir[1] of three bays, with a returned aisle across its square east end, and a Lady chapel to the east of it; crossing with central tower; transept arms of three bays each, with aisles on both eastern and western sides; and an aisled nave of ten bays, with north porch, and western towers projecting north and south beyond the aisle walls. The work is set out with great accuracy, and shows no indication of influence of any earlier building.[2] Within its limitations, its architectural character is remarkably perfect and regular, and the work is carried out with absolute mastery. There is nothing of the hesitation or ungrammatical characteristics of Lincoln; the master knew exactly what he meant to do, and did it. Owing to this

[1] I shall use the term 'choir' to indicate the eastern arm, without reference to ritual arrangement.

[2] The late Sir W. H. St. John Hope believed that the earlier church occupied a site a little further to the south (*Proceedings of the Somersetshire Archaeological and Natural History Society*, lv, part ii, 85).

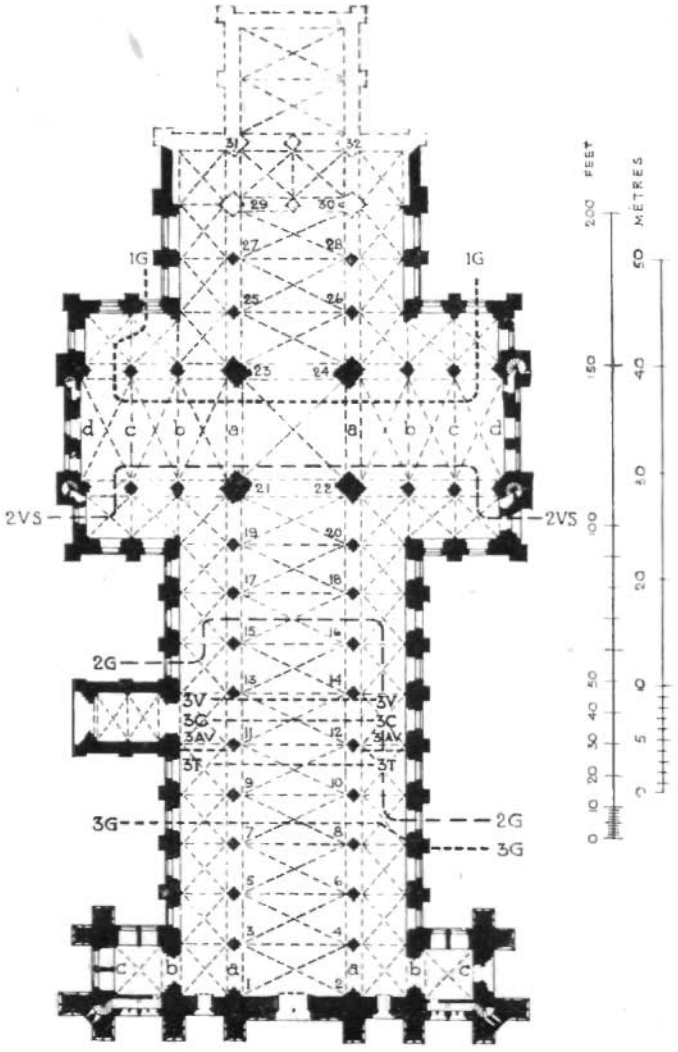

FIG. I. KEY PLAN.

general regularity and the perfection of the masonry, slight changes of detail are perhaps more significant here than would usually be the case.

The plan of Glastonbury, before its extension in the fourteenth century, belonged to the same type, but its choir had four bays, and chapels projected eastward from its returned aisle.[1] The transept arms, of three bays each as at Wells, had no western aisle, and chapels projected eastward from their eastern aisle. Although its nave had only nine bays, it was considerably longer than that of Wells. Its western towers were engaged, and, as at Wells, there was a large north porch.[2]

The Glastonbury plan is set out on a larger scale, the internal width of its choir being about 2 ft. more than that of Wells (Pl. iii), and the total internal width of choir and aisles about 4 ft. more. Nevertheless there are some coincidences of measurement that may perhaps indicate that the Wells master had some knowledge of the Glastonbury plan. The clear width of the choir of Glastonbury within the vaulting-shafts is within 3 in. of the clear width of the choir of Wells within the pier shafts. The clear width of the arcade openings within the piers is the same within 3 in., and the width of the aisle, including the triple vaulting-shafts, is the same.

The extent of the original choir of Wells is indicated by the three bays of the north and south arcades which have survived. The line of the east end of the choir itself is marked on each aisle wall by a broader buttress at 29 b and 30 b. The upper part of this buttress (30 b)[3] has been reduced in width by a long weathering on its eastern side, but the plinth and the courses immediately above remain unaltered. The original lower walling, with the plinth, extends eastward from 30 b as far as the western internal angle of the fourteenth-century buttress 32 b,[4] which proves the existence of an eastern aisle returned beyond the east end of the choir itself.

On the inside, at 29 b and 30 b, the base of the triple

[1] Willis, *Glastonbury*, 38.

[2] See Mr. F. Bligh Bond's report in *Proc. Somersetshire Archaeol. Soc.*, lviii, part ii, 29, and Pl. ii.

[3] The south side is here described, but the indications on the north side are similar.

[4] Excavation outside between 32 b and 34 b revealed only a broad rubble foundation, apparently extending to well beyond the face of the buttress plinths. No trace was found of the line of the original plinth on the east side of the buttress 32 b.

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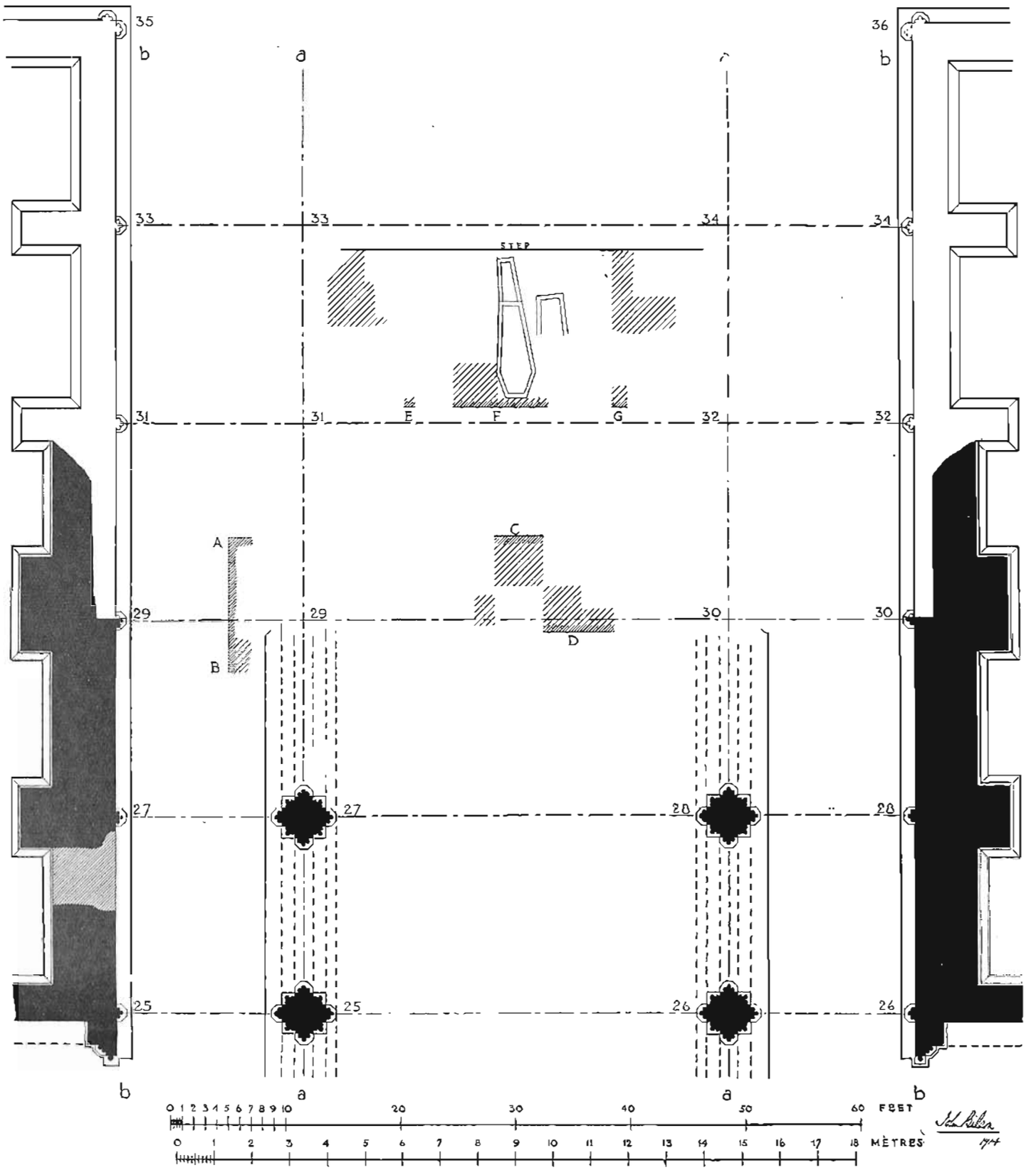

PLAN OF EXCAVATIONS IN CHOIR, 1914

vaulting shaft shows a significant joint, nearly in line with the eastern face of the middle shaft. This indicates that a pier projected from the aisle wall[1] to receive an arch across the aisle in line with the east wall of the choir itself, and that the vaulting support in the angle was a double shaft, as in the internal angles elsewhere.

In the spring of 1914, the Dean (Dr. J. Armitage Robinson) had some excavations made beneath the floor of the choir, in the hope of recovering more precise information as to the plan of the eastern termination. The results are shown on the plan, Pl. ii.

In the north aisle, to the north of pier 29 a, was found the northern face of a masonry foundation AB, 11 ft. 8 in. long, with a good corner at its east end, but broken at its west end. The face is 25 ft. from the centre line of the choir, and its eastern quoin is 7 ft. 2 in. to the east of the north-to-south centre line of pier 29 a.[2] This represents a continuous foundation under the piers of the north arcade. The ground here, as elsewhere, had been much disturbed by burials.

In the middle of the choir was found a broad masonry foundation CD, parts of both faces of which were bared.[3] The foundation is 8 ft. 4 in. in thickness, its western face being 1 ft. to the west of the centre line of piers 29, 30 a. This represents a continuous foundation under the arcade at the east end of the choir itself.[4]

At a distance of 11 ft. 4 in. from the eastern face of this foundation were found parts of the western face of the foundation EFG[5] of the east wall of the eastern aisle.[6] No trace could be found of the eastern face of this foundation. The ground has been much disturbed by burials, but the parts which could be examined between the graves up to the step at the altar rail (hatched on the plan) seemed to indicate that a

[1] At the back of the north triforium wall at 29 a, there is a pier projecting 2 ft., 6 ft. wide, with chamfered plinth, which would come over the corresponding opposite pier below. This pier is not found on the south side.

[2] I.e. the quoin is practically in line with the eastern face of the foundation D.

[3] On the western face, a set-off of rough rubble extends 1 ft. 11 in. to the west.

[4] This foundation was seen by J. T. Irvine, and is shown on his plan (*op. cit.* p. 28, *note*).

[5] The eastern face of this foundation is 13 ft. 7 in. west of the step at the altar rail.

[6] These foundations are of random rubble of local stone in thin beds of varying thickness, set in lias-lime mortar. The faces at D and G seem to have a slight batter.

solid rubble foundation had extended over the whole area, possibly so laid in order to keep back the water from the springs to the east.[1]

The results of these excavations therefore were disappointing, in that they do not enable us to give a definite answer to some questions in regard to the plan.[2] We can only accept as most probable the plan which Willis showed in one of his diagrams—an eastern aisle without chapels beyond it.[3] The east wall of the aisle may well have had the arched recesses for altars which we find in the east walls of the eastern aisles of the transept. Willis' diagram[4] shows two piers (three arches) at the east end of the choir,[5] but, if the piers were as large as those of the north and south arcades, the openings would be excessively narrow. We may conjecture as equally probable (perhaps more probable) an arcade of two arches with a central pier, as in the somewhat later choir of Lichfield[6] which in some other respects is obviously inspired from Wells. Willis' diagram shows a Lady chapel of the same width as the choir, but nothing is certainly known of its plan. It was probably at the altar of this chapel that bishop Savary instituted a daily mass of the Blessed Virgin about 1203.[7]

In comparing the architectural characteristics of the earlier parts of the churches of Glastonbury and Wells, we notice first a significant difference in the method of buttressing the choir aisle walls. At Glastonbury the buttresses differ from the Romanesque pilaster buttress only in their greater projection ; the angles are shafted, and rise vertically

[1] Some excavations in the north and south aisles yielded no result, but the ground is full of burials.

[2] They do however finally dispose of the suggestion, always most improbable, that the choir ended in an apse (see the reference to a supposed discovery in 1848 in Church, *op. cit.* 330, n. 2). What J. T. Irvine (*op. cit.* pp. 3, 34) took to be the remains of an apse (above the high vault of the choir at 29 a and 30 a) are probably only the ragged ends of the original high east wall.

[3] The rectangular ambulatory plan, which occurs at Romsey early in the twelfth century, became a favourite plan of the Cistercians (*Archaeological Journal*, lxvi, 214 f).

[4] 'The ground plan as in the thirteenth century' in Canon Church's book reproduces the plan of Willis' diagram, but in more detail. The ambulatory behind the east arcade could scarcely have been vaulted as indicated on this plan. The dotted lines representing the Lady Chapel on the key plan (Fig. 1), which follow Willis, are purely conjectural.

[5] As at Dore, where the difficulty was overcome by smaller piers, and by raising the springing of the eastern arches above the springing level of the north and south arcades. Compare the treatment of the ground story inside the transept ends at Wells.

[6] Willis in *Archaeological Journal*, xviii, 15, and Fig. 3.

[7] See above, p. 9.

without sets-off. At Wells the buttresses have much greater projection,[1] and are divided into two stages; the string-course (a pointed roll) under the window sills is continued around the buttress, and above it the plain lower weathering[2] rises steeply; the hood-mould string (a plain roll) is continued around the upper stage of the buttress, with a taller plain steep weathering above, to a narrow pilaster which stops under the eaves table.[3] The eaves corbels are profiled on the face with a quirked hollow between two rolls, and support a double-chamfered table.[4] The clearstory buttresses are of one stage only, but otherwise are precisely similar, with a corbel-table of the same detail. This buttress treatment (Fig. 6) is continued throughout all the aisles and clearstories, right up to the west end. Its advanced character, compared with the Glastonbury buttresses, confirms the slightly later date to which Wells must be assigned.

The choir aisle walls below the windows, both at Glastonbury and Wells, are perfectly plain, both externally and internally, without the rich wall-arcades which decorate the Lady chapel at Glastonbury. The windows of both churches have the same wide proportion, and the pointed arch is substituted for the semicircular arch of the windows of the Glastonbury Lady chapel. In the windows of the choir aisles of Glastonbury, the jambs show, both externally and internally, two chamfered orders with a keeled shaft[5] between them; the windows were glazed immediately within the inner chamfered order on the outer face, with a slight splay to the wide inner reveal. The chamfered orders are continued without interruption around the arch, and the capitals of the shafts, which have square-planned abaci, receive a middle order ornamented with chevrons of varying patterns, frequently in two rows on either side of a middle

[1] At Wells the buttress 28 b is 5 ft. 4½ in. wide, with a projection of 2 ft. 9 in. At Glastonbury the width is about the same, with a projection of only 1 ft. 6 in. The aisle buttresses at Wells retain the same projection throughout, but those of the nave aisles are a little less in width, and those of the transept aisles (where the bays are narrower) are less still.

[2] In the lower weathering of buttress 28 b, two of the courses are moulded and throated on their lower edge. This, as elsewhere (especially in the buttresses of the north aisle of the nave), represents later alteration. All the buttresses of aisles and clearstories originally had plain weatherings.

[3] See illustration in F. Bond, *Gothic Architecture in England*, 373.

[4] The parapets were added in the fourteenth century.

[5] What are here described as keeled shafts are slightly ogeed, both at Glastonbury and Wells.

roll.[1] At Wells, later alterations have left no traces of the original windows of the choir aisles. In the east wall of the eastern aisle of the south transept (26 b, c, d), the inner face between the shafted piers is set back a couple of feet or so, and arched over immediately beneath the wall-rib of the aisle vault (Fig. 6), to form recesses to receive the altars, but no traces remain of the original windows. The corresponding wall of the north transept is recessed in the same manner, and in the backs of the recesses (25 b, c, d) are the inner faces of the original windows, though everything behind was removed when the late tracery windows were inserted; the inner jambs show a keeled shaft, rising from a base at sill-height to a foliaged capital with square-planned abacus, receiving an obtusely pointed arch moulded with a roll between two deep hollows and chamfers, with the usual roll hood-mould. The plan of these windows suggests that they may have been similar to those at Glastonbury, without the inner chamfer, but here the late Romanesque chevron ornamentation has given place to the simple arch mould. It is possible that these windows may represent what originally existed in the choir aisles, but, however that may be, it is certain that before the choir clearstory was begun, or the lower works had reached the ends of the eastern aisles of the transept (23–25 d; 24–26 d), this type of shafted jamb had been abandoned for the simpler chamfered plan which rules throughout the remaining aisles, and through all the clearstories. These windows (Fig. 6) show two chamfered orders on the outside, with the glazing immediately within the inner order, which is repeated within the glass[2]; on the inner face of the wall are two chamfered orders, with a deep square reveal within[3]; all the chamfered orders, both externally and internally, are returned across the sills, and continued without interruption around the arches, which have the usual roll hood-mould. The simplicity of these windows reflects Cistercian practice, and the double-chamfered plan is found in the windows of the nearly contemporary eastern extension of Dore.

[1] See illustrations in E. S. Prior, *op. cit.* Figs. 81 and 82, pp. 118–9.

[2] When the windows were subdivided into two lights, by the insertion of mullions and tracery, in the fifteenth century, a moulding was cut into the inner chamfer to receive the cusping.

[3] In the clearstories the inner plan is slightly modified by the wall-passage (Figs. 5 and 6).

The details of the aisle vaults of Glastonbury and Wells are compared in Figs. 2 and 3. In both a bench runs along the aisle wall, consisting of a chamfered plinth, an ashlar band, and the bench-table itself, double-chamfered at Glastonbury, moulded with a simple roll at Wells. From this rise the vault-supports, which are triple attached shafts. At Glastonbury the central shaft is keeled as at Worcester.[1] At Wells all three shafts are plain, without keels. In both each alternate bed of the shafts is bonded

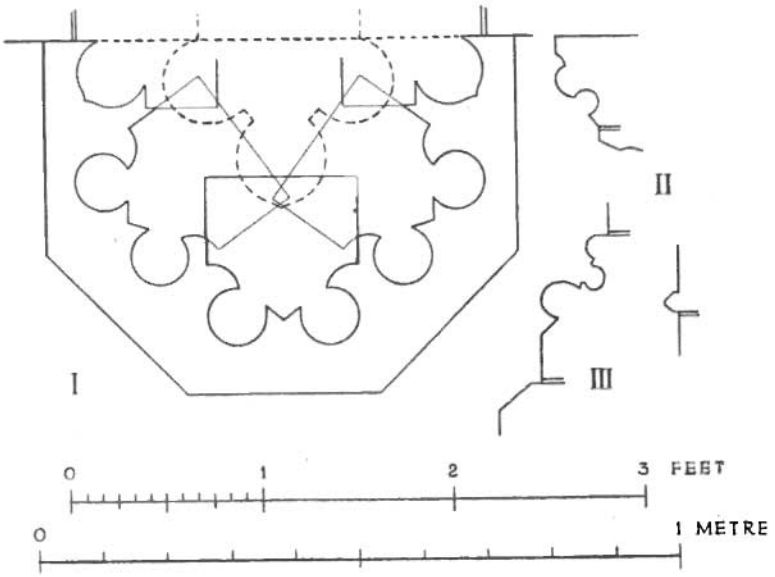

FIG. 2. GLASTONBURY: SOUTH CHOIR AISLE

I, Plan of springing of vault; II, Capital, and III, Base, of vaulting-shafts.

to the wall by a tail, narrower than the width of the shaft group,[2] but the alternate beds are not tailed in, the wall-face continuing behind the back of the shafts.[3] The abaci have somewhat similar profiles, and a semi-octagonal plan over the three shafts, as to the bases below the lower torus. At Glastonbury the transverse and diagonal ribs have the same profile—an angle fillet between two rolls flanked by hollows—of similar type to the rib profile of the aisle vaults at

[1] This and following comparisons with Worcester refer to the two western bays of the nave (see Mr. Harold Brakspear's drawing in *The Builder* Aug. 6, 1892, p. 108).

[2] Indicated by dotted lines in Figs. 2 and 3.

[3] Compare the bonding of shafts to a pier in the Album of Villard de Honnecourt, fo. 15 v°.

Worcester. The wall-rib, a flat with a keeled roll on its underside, is continued down below the springing, as at Worcester,[1] and is here returned horizontally beneath the windows, with an additional chamfer and small roll under the keeled roll.

At Wells the vaulting-shafts remain in the choir aisles, but the vaults were rebuilt in the fourteenth century. The transverse rib between the vaults of the choir aisles and the east aisle of each arm of the transept (23–25, b ; 24–26, b)

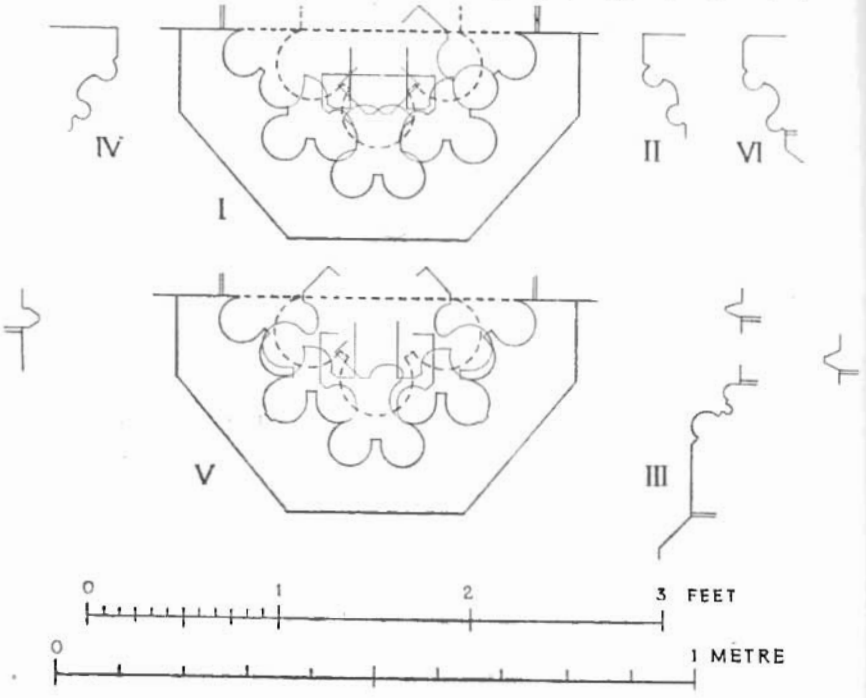

FIG. 3. WELLS

South Transept, East Aisle: I, Plan of springing of vault (26 c); II, Capital (24 c); and III, Base (24 b) of arcade piers; IV, Capital of choir arcade pier (26 a). Nave, north aisle: V, Plan of springing of vault (5 b); VI, Capital of vaulting-shaft (5 b).

is moulded, as at Glastonbury, with an angle fillet between two rolls, but the flanking hollows are deeper and finish with a chamfer (Fig. 7, ii)[2] which becomes normal in the arches and ribs at Wells.[3] Fig. 3, i, shows the vault springing

[1] E. S. Prior, *op. cit.* Fig. 50, p. 90. C. H. Moore, *The Mediaeval Church Architecture of England*, Fig. 52, p. 56.

[2] This is the profile of the transverse and diagonal ribs of the high vaults at Wells.

[3] The keeled rolls in the crossing pier at Glastonbury which are continued around the arches without capitals are flanked by proportionately smaller hollows finished with chamfers (Pl. iii), which also occur in some details of the Lady chapel.

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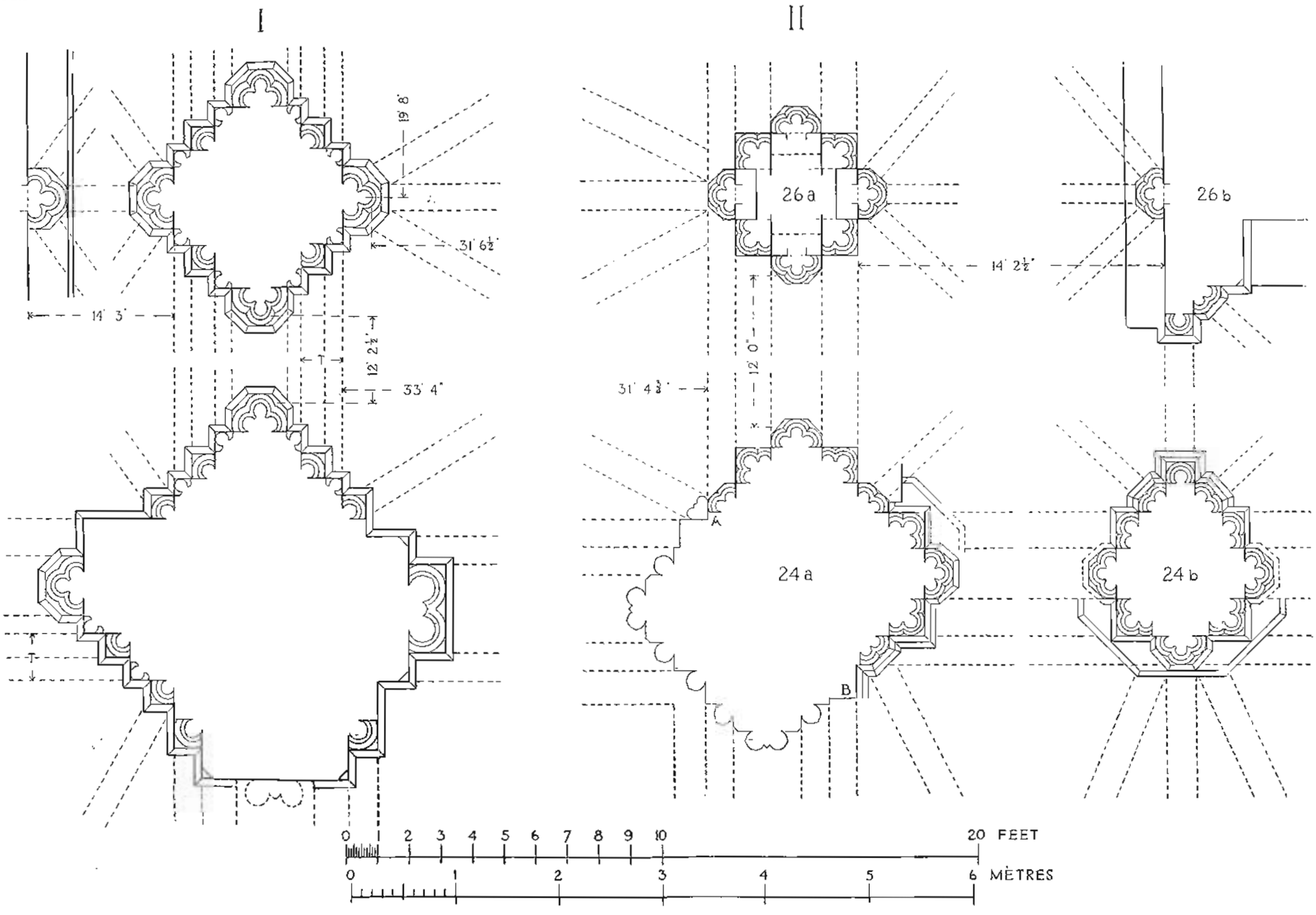


COMPARATIVE PIER PLANS

I. Glastonbury, north-east pier of crossing, and north side of choir. II. Wells, south-east pier of crossing, south side of choir, and east side of south transept.

of the east aisle of the south transept (26 c), from which it will be seen that the scale is smaller and the detail more refined than at Glastonbury. Moreover, unlike Glastonbury, all five ribs—transverse, two diagonal, and two wall-ribs—are gathered into one group at the springing from the capital, and the transverse and diagonal ribs have different profiles. The transverse rib has a double roll, the diagonal rib a triple roll, and the wall-rib a double roll, all flanked by hollows with the chamfer finish noticed above. All the rib-curves, including those of the diagonal ribs, are pointed (Fig. 5). The surfaces of the cells are curved only in one direction, i.e. they were built on straight centering from rib to rib and, as in all the vaults up to the west end, the cells are plastered. The crowns are practically level; in the bay 24–26, c, d, the cell at the key of the diagonal ribs is from 3 to 9 in. above the crowns of the cells on the four sides. The keys of the diagonal ribs of the transept aisles, both east and west, have plain intersections, without bosses.[1] Both at Glastonbury and Wells, the ribs are built in separate stones from the springing, with their sides cut away to fit each other until they clear. At Wells the construction in *tas-de-charge* only begins in the western bays of the nave aisles, as will be noticed presently.

The arcade walls of the choir of Glastonbury have been so completely destroyed that it is only possible to form some idea of their system from what remains on the east side of the crossing piers, obscured to some extent by later alterations, and from the analogy of the bay-design of the transept. The plan of the choir pier shown on plate III is deduced from that of the western respond pier. It is obviously influenced by the pier plan of Worcester. On the side next the aisle, a group of three attached shafts, the middle one keeled, received the springing of the aisle vault, like the similar group on the aisle wall. On the side next the choir, three similar shafts rose from the floor to receive the springing of the high vault. At Worcester, where we find the same arrangement of vaulting-shafts, those next the main span are flanked by a round shaft, little more than

[1] Except in the bay of the west aisles next the nave—the eastern bay of the nave aisles (19, 21 ab; 20, 22 ab). Here the bosses begin as quite small, over only the middle roll of the ribs.

a quarter-round, which goes up to receive[1] the wall-rib of the high vault, thus logically providing five shafts to receive the springing of the five vault-ribs; a similar round shaft is continued without capital around the arcade arch. At Glastonbury the corresponding member becomes a keeled shaft flanked by deep hollows finished with chamfers. If the system was the same as in the transept, the outer member and the keeled shaft within it were carried up to the triforium stage and arched over it,[2] the former framing the arch without a capital, the latter with a capital receiving an order ornamented with chevrons. Within these a similar member was continued around the arcade arch without a capital, framing an inner order ornamented with chevrons.[3] The support of this inner order shows a new expedient which is not found at Worcester—a group of three shafts precisely like the vaulting-shafts, receiving a single order. This not very logical motive becomes very frequent in the west of England, and is carried much further in the piers at Wells.

The capitals of all these triple shafts at Glastonbury, as at Worcester, have a single abacus of semi-octagonal plan over the three shafts. Most of the capitals of the eastern parts of Glastonbury are of the crocket type of French inspiration. Many of them show a leaf-form with a sharply incurved lobe at its base, which is distinctly French, and, according to Viollet-le-Duc, was inspired by the plantain.[4] The crockets here have more of the straight and vigorous upward shoot which is characteristic of French sculpture than the gentler curl-over of the crockets of the Wells capitals. The capitals and other details at Glastonbury are more advanced than those of Worcester of some ten years earlier, and it is only in the capitals under the crossing arches at Glastonbury that the Wells type first appears there.

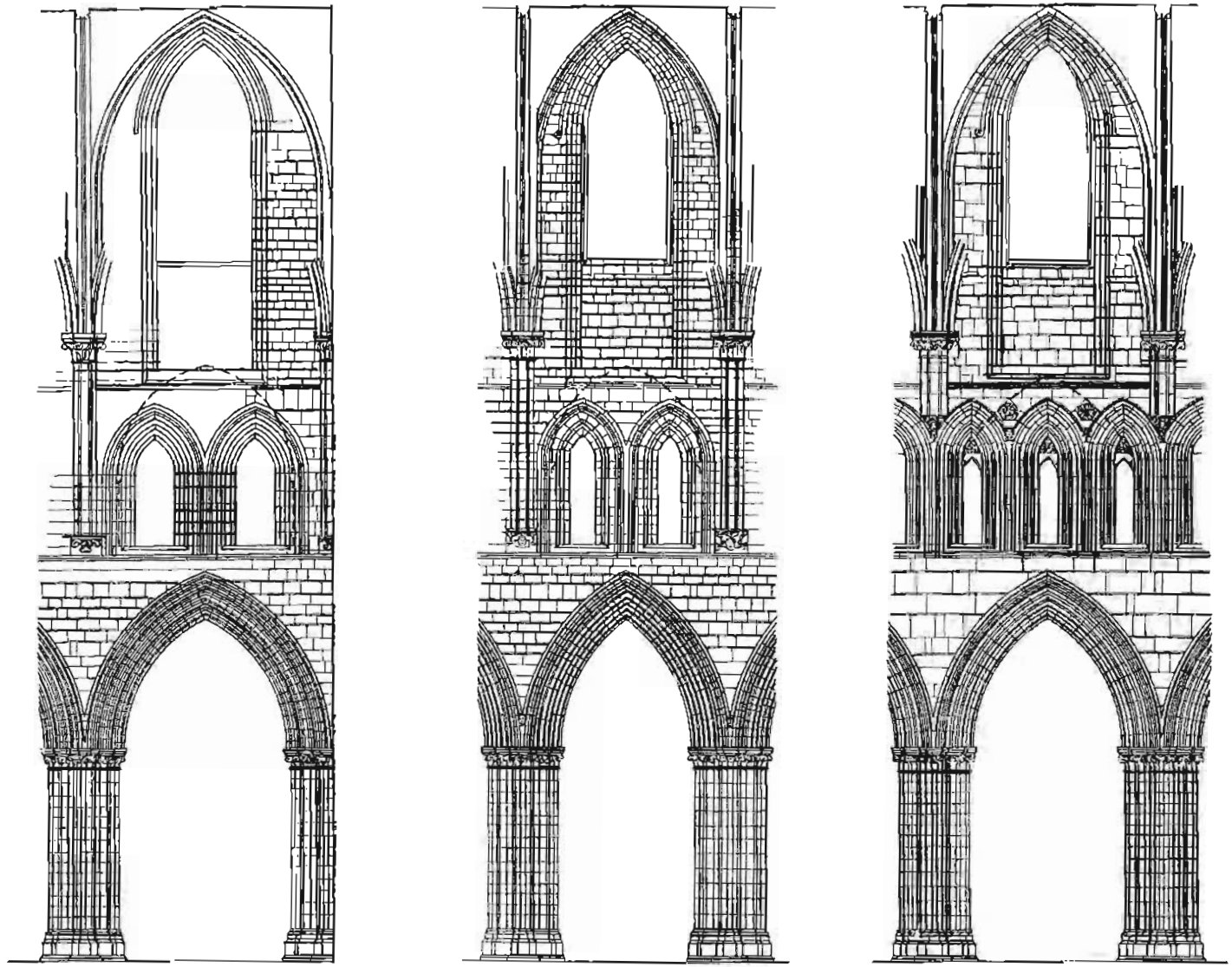
Moreover when we compare the eastern parts of Glastonbury and Wells, we find that, where their details vary, those of Wells are slightly more advanced. Glaston-

[1] The continuous quarter-round member to jamb and arch derives from the late eleventh-century choir ambulatory and transept arcade at Gloucester, where it is continued in the nave aisles.

[2] The experiment of combining the arcade and triforium stages had already been tried in the nave of Romsey and at St. Frideswide's, Oxford.

[3] See Mr. Roland W. Paul's drawings in *The Builder*, Aug. 4, 1894.

[4] *Dictionnaire*, v, 489-490.



COMPARATIVE ELEVATIONS OF BAYS AND PLANS OF TRIFORIUM STAGE

A, Choir, south side (24, 26 a). B, South Transept, east side (24 bc). C, Nave, south side (6, 8 a).

bury shows much closer similarity to earlier Worcester than does Wells, and the late development of the chevron motive so freely used in the arches at Glastonbury is entirely absent at Wells. The comparison amply justifies the conclusion suggested above, that Wells must have been begun a few years after the commencement of the great church at Glastonbury.

Of the original eastern arm of Wells, we have seen that the three bays of the north and south arcades remain. In the western bay next the crossing piers, both north and south (23, 24, a), some remains of the western sides of the triforium and clearstory above the arcades were left by the fourteenth-century builders when they renewed the internal elevation eastward. But behind their internal alterations they left much of the structure of the original walls. At the back of the triforium stage can be seen the walled-up openings, two in each of the three bays, between the piers banded by relieving arches, as well as the flying-buttresses beneath the triforium roof (at 25, 26, 27 and 28). In the clearstory stage new windows were inserted, but the original external walling was left, with the hood-moulds of the original windows, the buttresses and the corbel-tables. The surviving evidence is thus sufficient to prove that the bay-design of the choir (Pl. iv, A) and all its details were precisely the same as in the transept, where the original work remains unaltered—with the exception of the contraction of the width of the transept bays, and the resulting modifications, of which more presently. What follows is therefore to be read as applying for the most part to both choir and transept (Pl. i).[1]

The choir arcades (Pl. iv, A) have nearly the same span and the same low proportion as the arcades at Worcester, where the height of the pier was probably controlled by the earlier nave of which the two western bays were an extension. The Wells pier (Pl. iii, II) shows a group of three attached shafts (none of them, however, keeled) towards the aisle and towards the choir, as at Worcester and Glastonbury. The triple shafts next the aisle received the

[1] I have to thank Mr. Phillips, of Wells, for permission to use the photographs from which Pls. i, v and viii have been reproduced, two of which (Pls. i and viii) he has most kindly taken specially for the illustration of this paper.

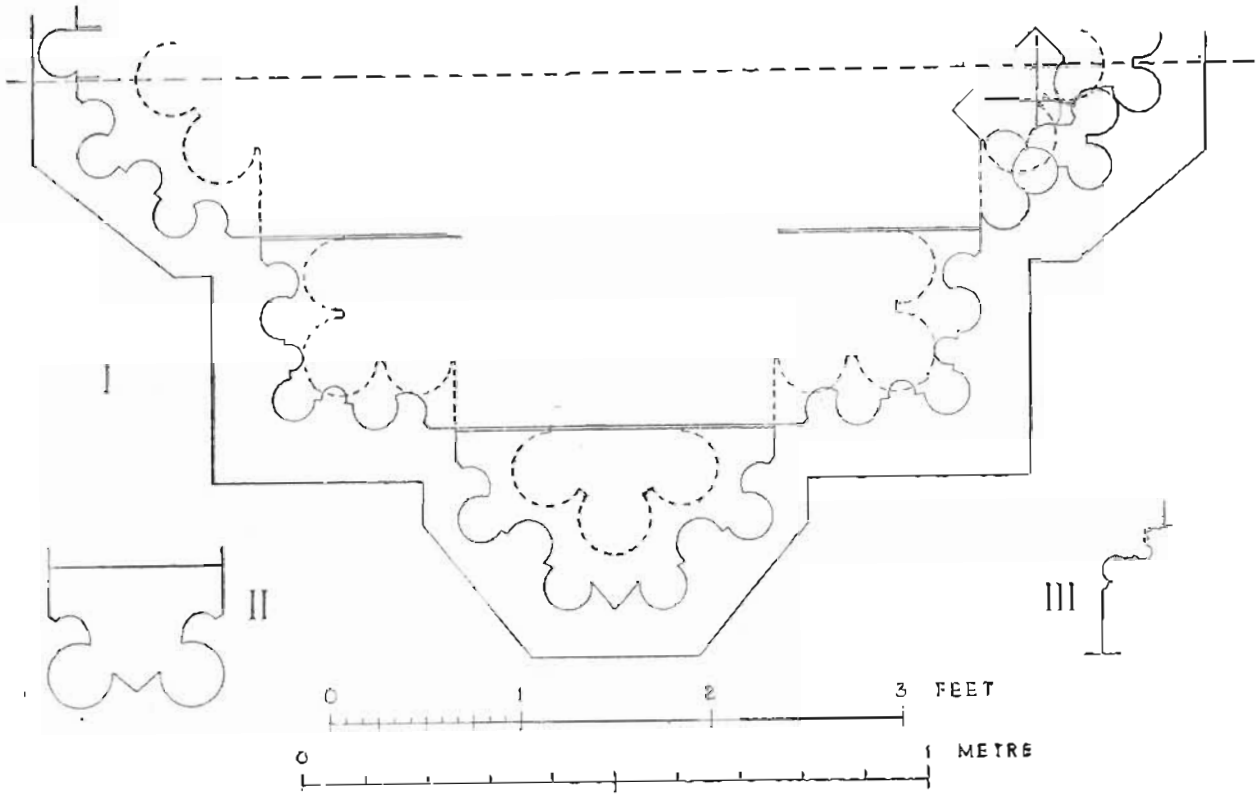


FIG. 4. SOUTH TRANSEPT, EAST SIDE

I, Pier and arch (24 c); II, Transverse rib (24, 26 b). III, Nave, west bays, base (p 2).

springing of the aisle vault, but those next the choir, instead of going up to receive the springing of the high vault, as they do at Worcester and Glastonbury, simply receive the outer order of the arcade arch, with twin shafts serving the same office at the respond piers. The pier therefore has no relation to the high vault, but the vaulting-shafts are corbelled out above the arcade stage, following a very common English fashion; here the corbels are immediately above the string between the arcade and the triforium stages. Similar groups of three shafts receive the inner order of the arch, as at Glastonbury. Here however the middle order is also supported by three attached shafts, set square on plan in the internal angles of the cruciform pier; and the middle shaft of these three is keeled. The Wells master thus gave his low pier a very graceful form, though at some expense of strict logic. The jointing of the masonry of the pier is indicated on Pl. III, ii (26 a).

The bases of the pier shafts are of the usual so-called 'water-holding' type, sometimes with the profile of the lower torus circular (Fig. 3, iii), but sometimes slightly elliptical, and this type is followed until we come to the western bays of the nave. The capitals have single abaci of semi-octagonal plan over the triple shafts on the cardinal faces (as to the bases below the lower torus), and of square plan over the triple shafts on the diagonal faces. The abaci are moulded with two rolls, separated by a hollow, beneath a flat face (Fig. 3, ii and iv); similar profiles occur at New Shoreham [1] and Dore. [2] The neckings of some of the earlier capitals are small rolls, but generally they are double chamfered. Some remarks on the sculpture of the capitals will follow presently.

The arches have three orders towards the choir (or transept) and two towards the aisle. The profiles (Fig. 4, i) show the rolls separated by deep hollows with fillets which are frequent in late twelfth-century work, and occur in the north arcade of the choir of New Shoreham. [3] The

[1] Edmund Sharpe, *The Architectural History of St. Mary's Church, New Shoreham* (1861), p. 24 and Pl. vi-viii; *The Ornamentation of the Transitional Period* (1871), Pl. 26-29.

[2] E. Sharpe, *Ornamentation*, etc., pl. 30-34.

Archaeological Journal, lxvi, p. 250, Fig. 5, viii.

[3] E. Sharpe, *New Shoreham*, p. 25 (outer order); *The Mouldings of the Six Periods* (1871), Pl. 7, i.

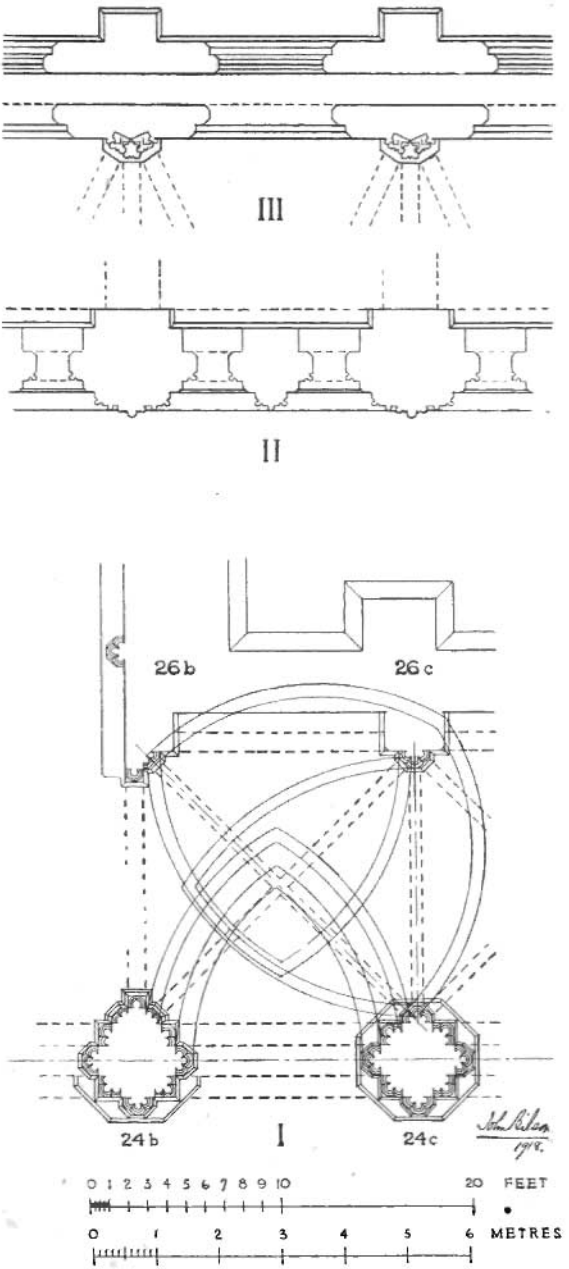


FIG. 5. SOUTH TRANSEPT, EAST SIDE

Plans of Bay 24 bc.

I, Ground story; II, Triforium; III, Clearstory.

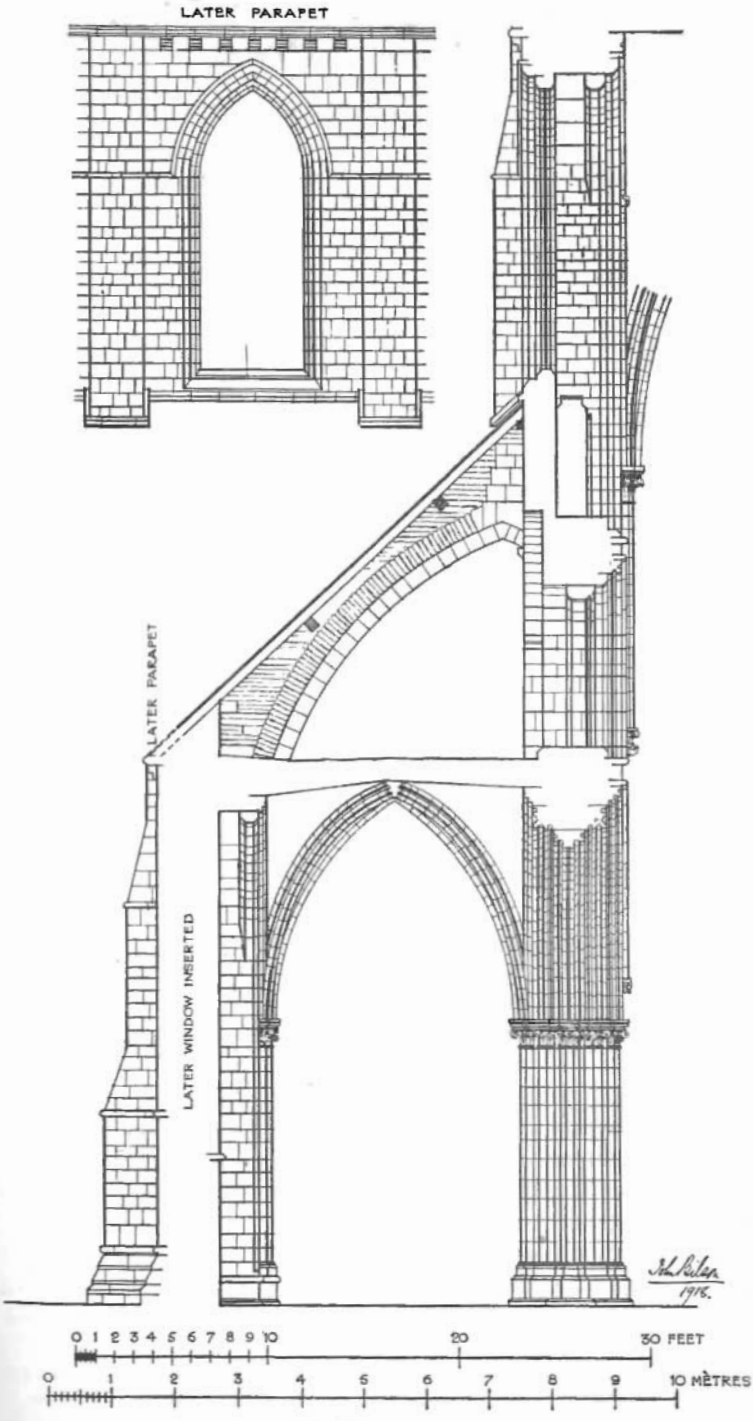


FIG. 6. SOUTH TRANSEPT, EAST SIDE.
Section of Bay 24 bc.

inner order has a large angular fillet between the two soffit rolls, beyond which the hollows and rolls are arranged on the chamfer plane, as they are also in the outer order; the middle order has three rolls arranged to suit the square plan of the abacus; in all, the outer hollow is finished with a chamfer. The hood-mould (cut away in the choir) is a simple roll.

The triforium stage has the modest height of but little more than one-sixth of the total internal height, and considerably less than half the height of either ground-story or clearstory. A string-course moulded with a simple pointed roll divides it from the ground-story, and a similar string-course from the clearstory. Each bay has two pointed arched openings, with the mouldings continuous from jamb to arch in three orders, of which the outer and inner show an angle roll flanked by the usual hollows and chamfers, while the middle order is only chamfered and is returned as a sill. The simple roll hood-mould is also continued down the jambs to the sill-string. In the triforium of the choir and east side of transept (Fig. 6), there is an unmoulded rear-arch over each opening, and both are included within a pointed relieving arch behind, which springs from chamfered imposts on the sides of the piers.

The clearstory stage on the inside is very lofty, its height being only some two feet less than that of the ground-story. The broad single window in each bay has the double-chamfered detail, externally and internally, precisely as in the aisle windows described above, but here with the usual wall-passage within the window plane (Figs. 5 and 6). Externally this stage has very much less height, for the glass-line at the window sills is nearly 9 ft. above the internal string-course, and the lean-to roof over the triforium rises as usual to the weathering under the external sills. This device of increasing the internal height of the clearstory by making the floor of the wall-passage much below the window sill was frequently adopted in the greater churches of the Norman Romanesque[1] (where the clearstory wall-passage was the rule), and is quite as marked in the nave of Gloucester as it is at Wells. Here it made it possible

[1] See, for one of the earliest, the section of the nave of Saint-Etienne, Caen, in Pugin and Le Keux, *Architectural Antiquities of Normandy*, Pl. 9, and cf. Pl. 3 for the section of Sainte-Trinite, Caen.

for the head of the flying-buttress to rise as high as the floor of the wall-passage.

The vaulting-shafts (choir and transept) start from sculptured corbels immediately above the string-course under the triforium stage. They consist of a group of three shafts (the middle one keeled) separated by angular fillets, set more flatly against the wall (proportionately greater width and less projection) than in the aisle vaulting-shafts. Their capitals are placed above the clearstory string, the springing-line of the vault (top of abacus) being 3 ft. 9 in. above the top of the string. Their sculptured capitals have single abaci of semi-octagonal plan over the triple shafts, the detail being similar to that already noticed below. The transverse and diagonal ribs of the high vault of the transept[1] are alike, two rolls separated by an angular fillet and flanked by the usual hollow and chamfer, and the wall-ribs repeat half this profile (less the middle fillet). All the rib-curves, including those of the diagonal ribs, are pointed, the wall-ribs being much stilted; the cells are plastered, and their surfaces are straight, and the crowns are practically level[2]—all as in the aisle vaults. The ribs are in separate stones from the springing, not in *tas-de-charge*. The intersections of the diagonal ribs have sculptured bosses.

The high vaults are abutted by sturdy flying-buttresses, finishing beneath the roof over the triforium (Fig. 6), following in more advanced fashion the Romanesque precedent of the naves of Durham and of Sainte-Trinité, Caen.[3] The arches of the flying-buttresses have an inner ring of ashlar, with a rubble arch above, both of the same width. The upper part of the ashlar arch has a key at some 15 inches from the main wall, and thus becomes a section of a pointed arch, with a very short inner side springing from a chamfered impost. The clearstory buttress starts from the head of the arch, the buttress and the flyer having

[1] The vault of the choir was rebuilt in the fourteenth century.

[2] The statement that the lateral cells of the vault are 'tilted upward' (F. Bond, *The Cathedrals of England and Wales*, 370) is not correct. The crowns of the vault cells are level to within the usual variation of a few inches. The cells next to the gable-ends of the transept do rise toward the walls, in order to give greater height for the wide low segmental arch over the three windows, but this is not the case with the lateral cells.

[3] Illustrated in the Caen volume (1908) of the *Congres archeologique de France*, opp. p. 10.

the same width (2 ft. 10 in.). The wall of the clearstory and triforium (including the rear relieving arch) is just over 5 ft. in thickness, and the abutment above the flyer is increased by the 18 in. projection of the clearstory buttress (Fig. 6).[1]

The plans of the crossing piers of Glastonbury and Wells are shown on Pl. iii. At Wells the shafts of the western piers and parts of the eastern are hidden by the 'inverted arches' which were added in the fourteenth century, and the plan on plate III, ii, is developed from what is now visible on the eastern piers. The lower part of the south-eastern pier is also covered by the screen, and it is not possible to be certain which of the shafts rose from the floor. Plate III, ii, therefore shows the plan of the north-western part of the pier 24 a from A to B at the triforium level, and the ground plan of the remainder of the pier. Both at Glastonbury and Wells the piers have keeled nook shafts, which are more numerous at Wells. The support of the soffit orders at Glastonbury consists of two keeled shafts separated by a section of a smaller keeled member; at Wells the two keeled shafts are separated by an angular fillet, and each of the shafts has keels on two of its sides. In both cases the abaci of the capitals are square-planned, with a single square abacus over the group of soffit shafts, and in both the arch orders are chamfered, with a moulded outer order in addition at Wells. The greater elaboration of the Wells plan again confirms its slightly more advanced date. The moulding which has been cut away, over the arches on the side towards the crossing, was a hood-mould, not the wall-rib of a vault, for the crossing originally had an open lantern, of which more presently.

The scheme initiated by the Wells master when he began the eastern arm, and the details which he employed to express the construction, were followed with remarkably little modification right up to the west end of the nave. We have now to consider the changes which were made as the works proceeded. Some of them were changes of design; others were slight changes of small details, or of methods of construction, which are significant as indicating definite stages in the progress of the works. Of the former class,

[1] For section of the nave, where the same system of abutment is continued, see *Journ. R.I.B.A.*, 3rd ser. xxxvi, 244 (by R. H. Matthew).

the most important is the evolution of the design of the nave triforium from the original design in the choir, which may now claim our attention.

Reference has already been made to the fact that the bay-width of the transept is less than that of the choir. This results from the setting-out of the inner bay of the eastern aisles of the transept (see Pl. III, ii). Dealing with the south side (both sides are alike), at 26 b the internal face of the south aisle wall is prolonged westward by a narrow pilaster with a single keeled shaft on its western face. This receives the transverse rib between the choir aisle and the transept aisle at 24–26, b, and it is flanked by the twin-shafts, adopted at all internal angles, which receive the diagonal rib of the vault of the transept aisle. The plan of the back of the arcade pier 24 b was modified to provide similar supports—a single keeled shaft in the centre, with twin-shafts on either side. As this did not leave room for the usual three shafts under the second order of the arch, one of the three shafts was omitted.[1] The result was to fix the axis of this pier 24 b beyond the internal face of the choir aisle wall to the extent of half the width of the pilaster. In short, the width of the bay 24 ab was controlled by the width of the choir aisle, and the width so fixed was repeated for the two other bays, 24 bc, cd.

This setting-out gives a width of bay, from centre to centre of piers, of 14 ft. 8½ in. in the transept, as compared with the bay-width of 17 ft. 0½ in. in the choir—i.e. 2 ft. 4 in. less than the width adopted in the setting-out of the eastern arm. This contraction of width considerably alters the proportions of the bay (Pl. iv, A and B). The arcade arches of the choir are more obtuse than equilateral, the radius of the soffit of the inner order being about seven-eighths of the clear span. The arcade arches of the transept are much more sharply pointed, the radius of the soffit of the inner order being about one-fifth more than the clear span.

What remains of the choir triforium shows that its details were followed precisely in the transept triforium, but here again the contraction of the width of the bay gave the two openings a very different proportion in the transept

[1] The same arrangement was followed in the western aisles of the transept.

(Pl. iv, B). In the choir, the openings were 2 ft. 10 in. wide, and 5 ft. high to the springing of the arch, and the arches were practically equilateral on the soffit of the inner order. In the transept, the pier between the two openings, in the middle of the bay, is the same width as in the choir—necessarily so, as the details of the three orders were repeated, with the two hood-moulds springing from a single member carried up in the middle of the pier from the string. The width of the main pier (over the arcade pier) was slightly reduced, but the greater part of the deficiency of width was taken out of the openings themselves. Thus the clear width of the openings became 1 ft. 8½ in. (instead of 2 ft. 10 in.), and the height to the springing was increased to 5 ft. 11 in. (from 5 ft.). The arches are much more acutely pointed, the radius of the soffit of the inner order being about one-third more than the clear span.

It is interesting to note that the narrower 'lancet' forms of the transept bay arose here simply from the practical necessities of setting-out, and not, in the first instance at any rate, from any aesthetic preference for the acutely pointed form of arch. In the clearstory, where there was no necessity to reduce width, the soffit of the window arch is not sharper than equilateral.

The west side of the transept repeats what has been described above for the east side, except as regards the modification of the treatment of the back mentioned below. The triforium is also continued across the north and south ends of the transept, to the great gain of the design of this part of the church, and its setting-out deserves attention. It consists of an unbroken series of five openings (to each end wall), detailed precisely like those of the side walls. The piers between the openings have the same width as the middle piers of the triforium of the choir and side walls of the transept. The length available for the series of five, however, necessitated a reduction of the width of the openings themselves, which are some 4 inches less[1] than those of the east and west sides. This reduction of width for much the same height of arch involved an increase in the acuteness of the 'lancet' form, the radius of the soffit of the inner order being something like one and a half times the clear span.

[1] The dimensions here (as elsewhere) vary slightly.

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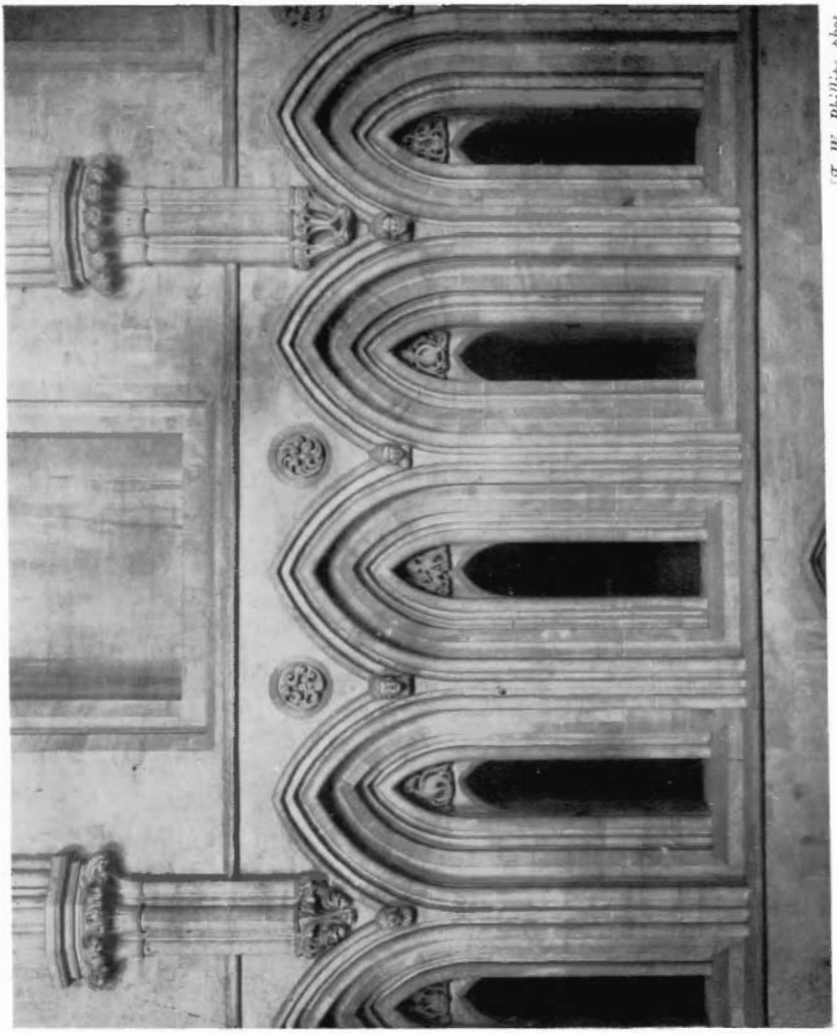


[*T. W. Phillips, phot.*

NAVE TRIFORIUM (13, 15 a)

It would seem that it was this continuous triforium arcade of the transept ends that suggested the unusual treatment of the nave triforium (Pl. v). This consists of a continuous arcade with openings of identical width and height, between piers of uniform width, which extends throughout the whole length of the nave. Here there are three openings in each bay, instead of two as in the choir and transept, but the series is unbroken by any division of bays, and the vaulting-shafts only start from corbels in the spandrels above the triforium arches (Pl. iv, c). The openings have the same width (1 ft. 4¼–5 in.) and height as those of the transept ends. The three orders of the jambs and arches, a chamfered order between two moulded orders, have the same profiles and the same acutely pointed arches as in the transept. Here however the hood-moulds are stopped above the springing, instead of being continued by a single roll-member down the face of the pier as in the transept.[1] This modification reduced the width of the pier by some 5 inches (to 3 ft. 11–11½ in.). The identity of the dimensions of the openings with those of the transept ends, and of the pier plan except for this reduction of width, would seem to indicate that the nave triforium was set out before the bay-width was fixed. The plans on Pl. iv show how the back of the triforium was treated. On the east side of the transept, each opening has an unmoulded rear-arch springing from square projections at the back of the piers. In the nave, as on the west side of the transept, these are eliminated, and the relieving arch over the three openings is correspondingly increased in depth. The increased bay-width involved an increase of the span of the relieving arches, which necessitated their being made pointed segmental, struck from centres below the springing-line.[2] As elsewhere, these arches spring from chamfered imposts on the sides of the main piers, which here continue the jambs of the side openings in each bay. It was the necessity of masking the ends of these chamfered imposts that led to the introduction of the lower arch within the lancet of the inner order,[3] with sculptured spandrels between the two arches. The sculptured circles above the arches in the spandrels

[1] For an excellent measured drawing of a bay of the nave (6, 8 a) by Mr. J. E. Newberry, see *Architectural Association Sketch Book*, 2nd. ser., iii (1883), pl. 36.

[2] The relieving arches are indicated by dotted lines on Pls. iv, vi and vii.

[3] Cf. the lower arches in the triforium and clearstory of the western bays at Worcester.

over the two minor piers in each bay recall a favourite motive in the early Gothic of Normandy.[1]

The pointed segmental relieving arches at the back of the triforium extend throughout the nave, with the exception of some bays on the south side which show a very curious variation. In bay 14, 16a, the back of each minor pier is reinforced by a pier of the same depth as to the major piers; on these are chamfered imposts from which springs an acutely pointed arch over each of the single openings. In the next bay westward (12, 14a), there is a similar narrow arch over the easternmost single opening, and a wider arch (not segmental) over the other two openings, and this arrangement is exactly repeated in the following bay (10, 12a).[2] It is difficult to see why such an experiment should have been made, since it only brought unnecessary loading on to the arcade arches.

It is not proposed to attempt here any analysis of the sculpture of capital and corbel which gives such distinction to the interior of the church, but a word may be said about the earlier capitals. Those of the two arcade piers on each side of the choir (25, 27 a; 26, 28 a) are still in the undeveloped stage, and show experiments in the forms and treatment of the crockets. In the capitals of the two easternmost piers (27 a, 28 a), above the crockets there are moulded rings of circular plan under each side of the abacus, but this experiment was not continued. The choir arcade capitals on the eastern crossing piers (23 a, 24 a) are more advanced, and the developed type is nearly reached. On the east side of the transept however other forms were still being tried, and the full accomplishment of the sculpture on the west side of the transept has not yet been reached, except perhaps in the corbels of the vaulting-shafts. One of the piers on the east side of the south transept (24 b), for example, has capitals which are not of the crocket type at all, but show rows of leaves turned outward and upward. A few capitals show the so-called 'plantain' form mentioned above, but this detail occurs much less frequently than at Glastonbury. Some of the earlier wall-shafts show the provincialism of absence of necking.

[1] See Pugin and Le Keux, *op. cit.* for Saint-Etienne, Caen (choir), and Bayeux cathedral (choir).

[2] See the dotted lines on Pl. vii.

The first indication of a definite stage in the progress of the works from the east westward seems to be afforded by a change in the height of the capitals of the arcade piers and the aisle vaulting shafts. In the choir and in the adjoining part of the east side of the transept, as far as the line I G[1] on the plan (Fig. 1), the capitals are about 17 inches[2] in height, including the abacus and necking. Westward of the line I G, this height is increased to about 20½[1] inches, and this height is followed throughout the remainder of the transept, and throughout the whole length of the nave. It must be noted that this line I G does not represent any break in the construction—there is none—but simply indicates the line of demarcation between the lower and higher capitals. In the western angles of the choir (23 a, 24 a) the capitals of the high vaulting shafts have the tall proportion, which suggests that the piers (at least) of the east arcade of the transept within the line I G had been built before the walls of the choir had reached the level of the springing of the high vault.

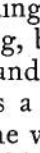
Professor Willis, speaking of the nave in his address of 1863, is reported to have said—'if they examined the spandrels, or open wall spaces between the sides of the arches down the nave, they would see that three remarkable changes[3] had taken place in the work. The work in his opinion was commenced, continued, and carried on from east to west in order of time, inasmuch as the stonework in the spandrels improved as it went on, the stones of the spandrels nearest the tower being small and indifferently set as compared with those nearest the west end.'[4] It is true that in the masonry of the easternmost complete spandrels (19 a, 20 a) the courses are shallower than in the next pair of spandrels westward, and that the appearance of these spandrels is rougher than usual, but there is no indication of any definite line of change. In his coloured plan (Irvine's copy) Willis shows his change of colour between the piers 15 a and 17 a and between 16 a and 18 a, for the arcades, in bay 14, 16 b for the south aisle wall, and

[1] In the referencing of these lines on the plan (Fig. 1), the letters signify—G, ground story; T, triforium; C, clearstory; VS, high vaulting shafts; V, high vault; and AV, aisle vault.

[2] The heights vary within narrow limits.

[3] Probably the report should have said 'two changes' between three sections. His second change is of course at the great 'break' further west, as described below.

[4] *Proc. Som. Archaeol. Soc.*, xii, part i, 17.

in bay 13, 15 b for the north aisle wall.[1] On the outside of the south aisle wall, in the middle of bay 14, 16 b, there is a break in the continuity of the bed-joints above the plinth, from three courses on the east to two on the west, and two of the beds break joint in the internal angle of the buttress 14 b; but the six bed-joints above up to the sill-string all range without interruption. On the inside of this bay, there is a nearly vertical 'toothing-joint'  from the bench-table up to the sill-string, but the bed-joints range without interruption; and in the clearstory outside bay 16, 18 a there is a similar 'toothing-joint' over the east jamb of the window between its springing and the eaves table. These seem to be simply the toothed ends of sections of the wall-facing, in work which was really continuous building, and do not suggest any definite stage in the progress of the work, much less any 'break' or pause.

There is a very small change of detail in the capitals of the arcade piers, aisle vaulting shafts, and high vaulting shafts. In the earlier capitals the profile of the abacus finishes at the top with a square angle (Fig. 3, ii, iv). In the later capitals the upper angle of the abacus is finished with a small chamfer (Fig. 3, vi). The lines of demarcation between the two are indicated on the plan (Fig. 1) by the lines 2 G for the ground story, and 2 VS for the high vaulting shafts, but there are some few exceptions on both sides of the two lines.[2] It would be rash to attribute much importance to so slight a change, but the lines may possibly convey some suggestion as to the order of the works. A comparison of the capitals of the high vaulting shafts and the vault bosses of the transept with those of the nave seems to suggest that the upper parts of the transept are in part slightly later than the upper parts of the eastern bays of the nave, and there is something to be said for the view that the former may have been going on with the upper parts of the bays of the nave east of 13–14.

We come now to *the* 'break' in the nave, in bays 7–13, 8–14; i.e. the bay opposite the north porch and the next two bays westward.

It is evident that a sound conclusion with regard to the

[1] This seems to be connected with the building of the porch, as mentioned below.

[2] I am indebted to the Dean for the notes on which these lines are based.

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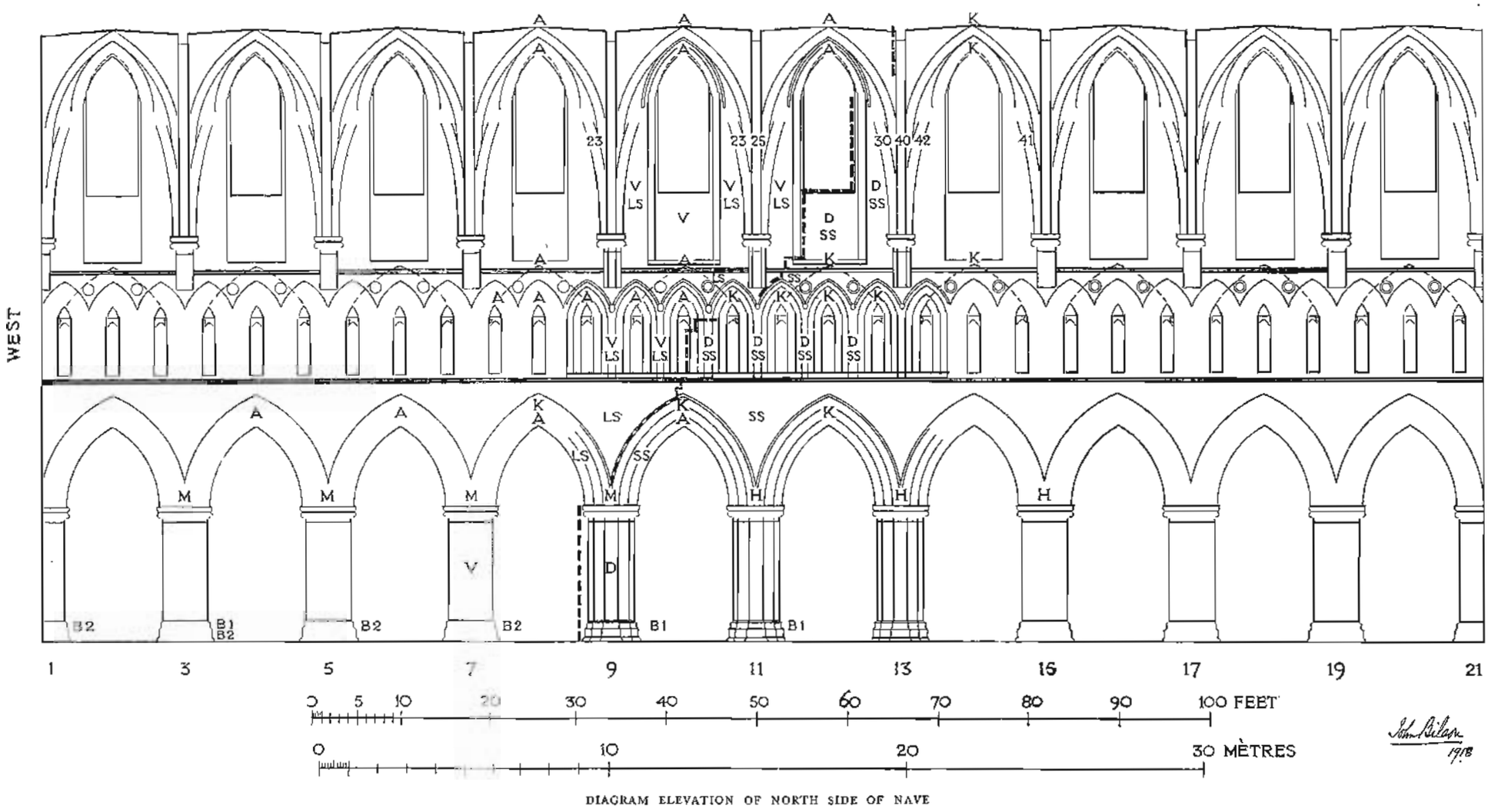

DIAGRAM ELEVATION OF NORTH SIDE OF NAVE

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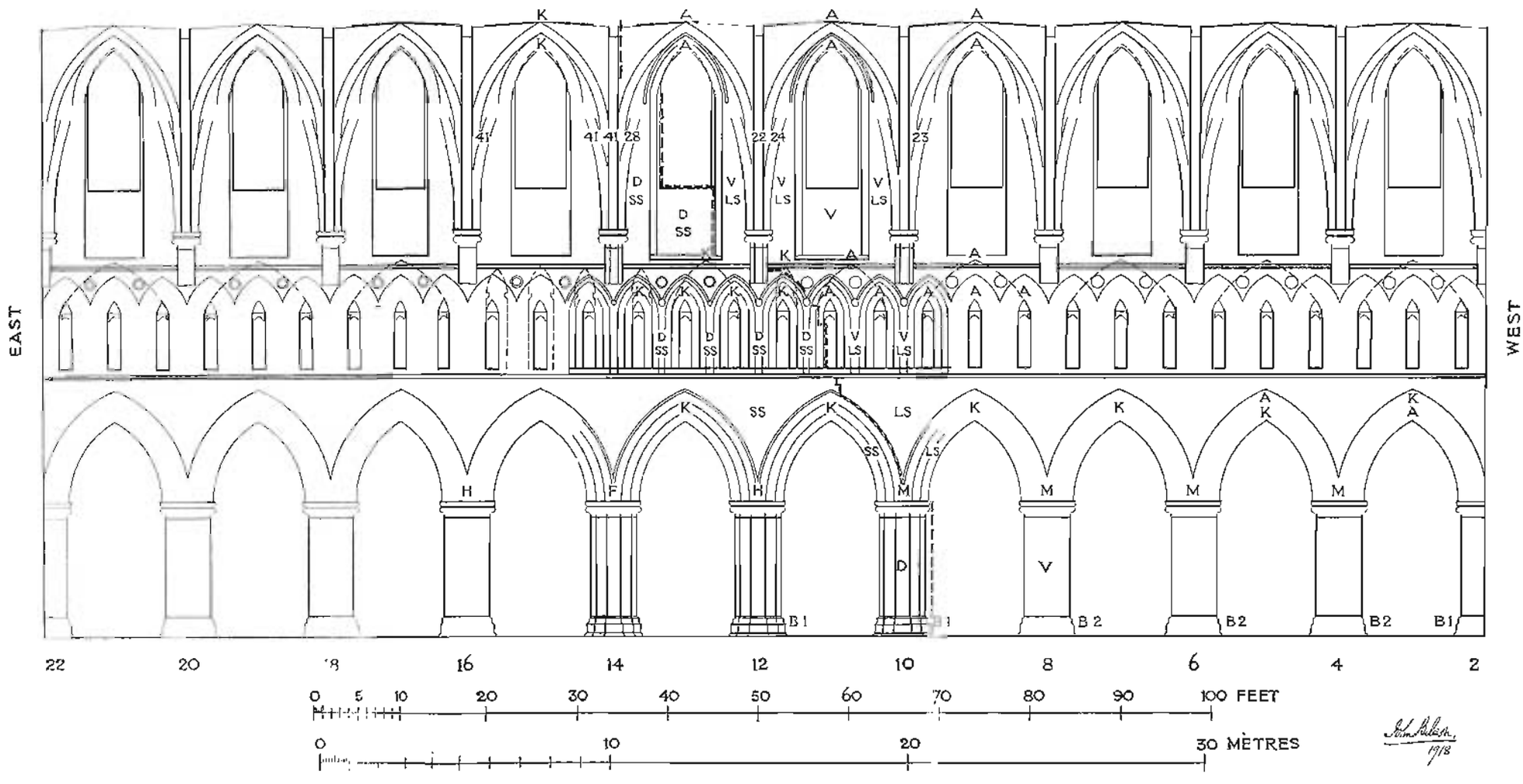

DIAGRAM ELEVATION OF SOUTH SIDE OF NAVE

chronology of the nave must depend to a great extent on the interpretation of the character of this break. It has been made to do duty for a stoppage of building for fourteen years,[1] and even for more than twenty years.[2] Does it really mean a stoppage of years? Or does it simply indicate the end of a stage in what was practically continuous building? It may not be possible to answer these questions with absolute certainty, but an examination of the changes which followed the break is an essential preliminary to a consideration of the problem.

The approximate lines of the break in the three stories and in the vaults are indicated on the plan (fig. 1) by the lines 3 G, 3 T, 3 C, 3 V, and 3 AV, and more precisely by the thick dotted lines on the diagram internal elevations of the north and south sides of the nave (Pls. vi and vii). It should be observed that these dotted lines are not intended to represent visible breaks in the construction, but simply to indicate the positions at which certain changes appear.[3] It is in this sense that the term 'break' is used here.

The changes which enable us to define, more or less completely, the lines of the break are two :—(1) the change from the diagonal tooling of the masonry which had been employed from the first to the vertical tooling which first appears west of the break, and (2) the increase in the heights of the courses of the walling or sizes of voussoirs of arches and ribs. With regard to (1), the original tooling has unfortunately been obliterated very extensively, in the ground story of the nave especially, by the chiselling off of the whitewash with vertical tooling by the mid nineteenth-century restorers.[4] The change (2) from 'small stones' to 'large stones'[5] is not quite constant, but when it occurs in places where the change in tooling can be recognised, the lines of the two changes coincide generally.

[1] From 1206 to 1220 (F. Bond, *Cathedrals* 372 f).

[2] From 1196 to 1219 (C. M. Church, *op. cit.* 159).

[3] The letters on each side of the break on Pls. vi and vii signify :—

D, diagonal tooling; V, vertical tooling.
SS, small stones (shallower courses); LS, larger stones (higher courses).
B 1, B 2, the earlier and later types of bases.
H, heads, and M, mitres, for the stops of the hood-moulds of the main arcades.
K, keystones; A, vertical apex-joints (of pointed arches).

[4] The Dean was the first to notice some cases where the modern vertical tooling is continued across the bed-joints.

[5] In using the terms 'small stones' and 'large stones,' the reference is only to the heights of the courses, not to the lengths of the stones.

In the main arcades the first work[1] on the north side includes, and ends with, the pier 9 a, the arch 9, 11 a, and the spandrel over the pier 11 a, and on the south side the pier 10 a,[2] the arch 10, 12 a, and the spandrel over the pier 12a. Some of the original diagonal tooling can still be distinguished on the piers 9 a and 10 a, and of the original vertical tooling on the piers 7 a and 8 a. The second work begins with the arch springing westward from each of the piers 9 a and 10 a, in which the voussoirs are larger and less numerous than in the next arches of the first work eastward. In the first spandrels of the second work, over piers 9 a and 10 a, the courses are higher than in the last spandrels of the first work.

In the triforium the break is indicated in the middle of the bay 9, 11 a–10, 12 a. On the north side the first work includes the pier 11 a and the next pier westward, and on the south side the pier 12 a and the next pier westward, all of which are tooled diagonally and are built in the shallower courses. In the second work, the piers 9 a and 10 a and each of the piers immediately east of them are tooled vertically, and the courses between the sill and the springing of the lower arches have an average height of about 2 inches more than those of the first work. It will be noticed that, on the south side, the break occurs in a bay (10, 12 a) which has the abnormal arrangement of relieving arches described above, the pier between the narrower eastern arch and the wider western arch belonging to the first work.

In the clearstory the break occurs in the bay, 11, 13 a–12, 14 a. On each side of the nave the first work includes the eastern jamb of the window and window recess in this bay, where the masonry is tooled diagonally, and built in the shallower courses, as also is the wall below the window in each case. Here the vertical tooling extends a little into the wall passage, beyond the line of the western jamb of the recess, on both sides of the nave. The western jambs of the window and window recess in this bay belong to the second work, and have vertical tooling; and the courses of the

[1] The work to the east of the break is here called 'first work,' and that to the west of the break 'second work.'

[2] There is no very marked difference in the heights of the courses in the piers on each side of the break, though the average height of the courses in piers 10 a and 12 a (first work) is a little less than in the pier 8 a (second work).

masonry between the clearstory string and the springing of the window arch have an average height of about 3 inches more than those of the first work on the other jamb of the window. The same difference between small stones and large stones is to be seen on the outside of the clearstory, in the same position. On the south side the external window sills on the west side of the transept have a deep splay, which is continued up to (and including) the window in bay 12, 14 a ; westward the splay is shallower.[1] On the inside of the north clearstory, in bay 11, 13 a, the western end of the sill of the window recess has been stooled for a slightly narrower opening than was actually built.

In the high vault of the nave, the first work extends to (and includes) the transverse rib, 13, 14 a. The difference in the sizes of the voussoirs is here very marked. The two halves of the transverse rib 13, 14 a have 40 and 41 voussoirs respectively,[2] while the numbers in the two halves of 11, 12 a (the first transverse rib of the second work) are 25 and 22. In the diagonal ribs springing eastward from 13 a and 14 a, the numbers of voussoirs in each half are 42 and 41 ; in those of the second work, springing westward from 11a and 12 a, the numbers are 23 and 24. It must be noted however that, in the eastern halves of the first diagonal ribs of the second work, those which spring westward from 13 a and 14 a, the numbers are 30 and 28, and that in each the voussoirs of something like the lower half are smaller than those above. Obviously these smaller voussoirs could not have been set until the building of this bay of the vault was undertaken in the second work. Were these smaller stones worked before the break, and set after it ? The profiles of the ribs of the earliest existing high vaults, in the transept, are continued unchanged in the nave, across the break, and right up to the west end.[3] The cells of the vaults are plastered as elsewhere.

The most pronounced example of a visible interruption in the construction of the wall-facing in the whole of the break (and of this there is extremely little in what has been described above) is on the inside of the south aisle wall,

[1] This small difference does not occur in the north clearstory.

[2] The numbers of voussoirs between springing and apex are figured on Pls. vi and vii.

[3] The wall-rib on the west wall belongs to the west front work.

immediately east of the vaulting shaft 8 b, in the lower portion of the wall between the bench-table and the sill string (Fig. 7). Here the ten courses which have ranged along the inside of the wall from the east become seven courses, with an increase of more than 3 inches in the average height of the courses.[1] And yet on the outside the bed-joints are only interrupted in the upper four to five courses below the sill string in the middle of the

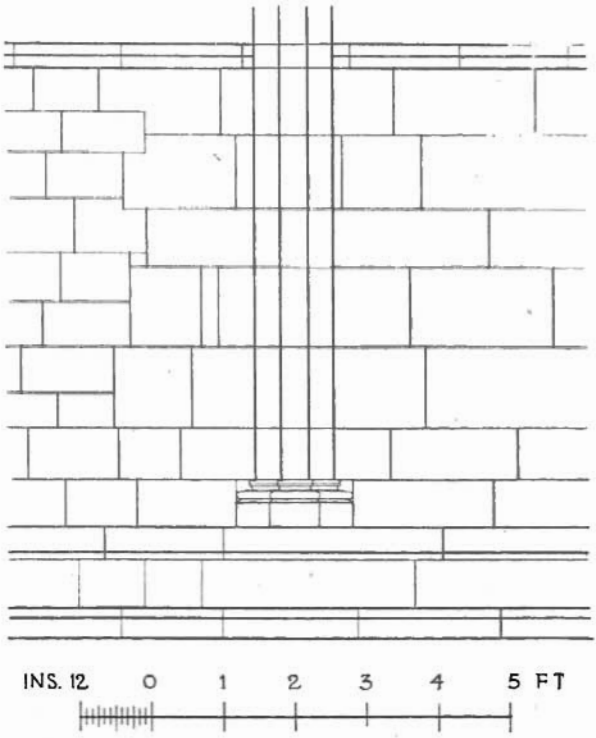

FIG. 7. SOUTH AISLE OF NAVE (8 b)

buttress 8 b. The diagonal tooling on the external facing can be traced from the east up to this point. Above the sill string the first work includes the eastern jamb of the window in bay 8, 10 b, which is built in the shallower courses ; on the outside the break shows above the springing of the window arch as a 'toothing-joint' immediately west

[1] From this point the bed-joints range without interruption westward into the south-west tower.

of the buttress 10 b. On the western jamb of this window, the average height of the courses is increased by nearly 3 inches.

On the inside of the north aisle wall, there is some little irregularity in the jointing of the masonry on the east side of the small door to the porch staircase, and also between the vaulting shafts 13 b and the east jamb of the north doorway. It would seem from his coloured plan (Irvine's copy) that Willis regarded one of these as the north end of his first nave break, but they would rather appear to be merely adjustments of the ordinary facing to the masonry of the doorways. Below the sill string the first work ends in the middle of bay 7, 9 b, where however there is no change in the heights of the courses. On the outside, the bed-joints range without interruption,[1] and the break is indicated by a 'toothing-joint.' On the inside, all the courses range except for the interruption of one bed-joint. Above the sill string, the first work includes the eastern jamb of the window in this bay which is built in the shallower courses; the change from these to the higher courses of the western jamb can be clearly seen above the window arch on the outside.

In the vaults of the aisles, the first work extends one bay further west than in the high vault, and includes the transverse rib 11 ab in the north aisle, and 12 ab in the south aisle. These ribs are in the smaller stones, and have more than one and a half times as many voussoirs as the ribs of the second work. The profiles of the ribs of the earliest existing aisle vaults in the transept are continued without change in the aisles of the nave to the end of the first work, and the transverse and wall ribs remain unchanged in the second work. In the diagonal ribs, however, a fillet is added to the middle roll (Fig. 3, v), beginning in the first bays of the second work, 9, 11 ab in the north aisle (the first bay west of the porch), and 10, 12 ab in the south aisle.[2]

We have now traced the lines of the break in the nave and aisles, so far as they are indicated by the change of tooling and of size of stones. A comparison of the lines at the various heights shows how closely they correspond

[1] Except for an inch in the second bed above the plinth.

[2] We shall see that the fillet had already made its appearance in the first work in the vault of the north porch and in the central tower.

on the two sides of the nave. This seems to suggest that the break represents the end of a predetermined stage in the construction of the building, and not an accidental stoppage due to some external cause.

Some further changes which were made more or less regularly in the second work still remain to be noticed.

The bases of the arcade piers and aisle vaulting shafts from the beginning as far as the break in the nave, are of the usual so-called 'water-holding' type (Fig. 3, iii), of slightly varying profiles (here called B 1). The bases of 9 b, 9 a, 10 a, and 10 b are all of this type. West of the break this profile is varied by the addition of one or more keels on the front or on the top of the lower torus (B 2), which we shall see was first used in the north porch before the break; sometimes the upper torus is given a curious keeled profile.[1] Fig. 4, iii, shows a typical profile. This type however is not used uniformly in the western bays. The simple form B 1 occurs in the north aisle at 1 b; in the north arcade on part of 3 a; in the south arcade at 2 a; and in the south aisle at 2 b, 4 b, and 6 b. This then is a case of an early detail being used west of the break together with a more advanced form.

Some slight changes of treatment may be recognised in the sculpture of the western bays beyond the break. In some of the capitals of the main arcades, the foliage is over-elaborated, and the crocket form nearly lost, the effect becoming crowded and confused. In some of these[2] there is a curious reminiscence of the incurved scallop[3] which assumes a trumpet-like form among the leafage. In the capitals of the high vaulting shafts, from 11 a and 12 a westward, there is a tendency towards larger crockets, set very closely together. In the bosses of the high vault, from bay 11, 12, 14, 13 westward, the foliage is in stronger relief. In the spandrels within the triforium arches a symmetrical motive becomes general from the western arch in bay 9, 11 a, and from the middle arch in bay 10, 12 a.

[1] This does not appear in the north porch.

[2] 7 b, 8 a, 8 b.

[3] The incurved scallop capital, so common in the west of England, is not found at Wells. The form however does occur in the small stops to the chamfered jambs of the clear-story wall-passage of the north transept, at 21 d (angle), and 23 c (both sides). A more remarkable case is in the full west-front work, on a corbel on the inside of the west wall of the towers, in the tall stage above the ground-story vault (E. Sharpe, *The Ornamentation of the Transitional Period*, ii, Pl. 9).

In the main arcades of the nave, the hood-moulds of the arches stop on heads, human or beasts',[1] up to those over piers 11 a and 12 a. West of these, beginning at 9 a and 10 a, the hood-moulds have plain mitred intersections.

The hood-moulds of the triforium arches stop on heads, which on the north side are smaller up to that over pier 11 a than the others in the bay 9, 11 a, and westward. On the south side the larger heads begin with that over pier 12 a, but the difference is less marked than on the north side.

In the roundels over the triforium arches, the foliage is set within a chamfered circle up to, and including, those in bay 11, 13 a on the north side, and bay 12, 14 a on the south side. West of these the chamfer is omitted, and the foliage is brought nearer to the face of the wall. West of the break however one roundel on the north side (in the eastern half of bay 9, 11 a) has a small chamfer.

The last change to be noted in the western bays of the nave is not a small change of decoration, but of construction. All the pointed arches at Wells, from the beginning until we come to the western bays, have keystones. Viollet-le-Duc's statement[2] that the intersection of the two arcs (of a pointed arch) is always divided by a vertical joint is by no means accurate. Very numerous examples of pointed arches with keystones are to be found both in France and in England,[3] and the difference is no criterion of date. It is worthy of note that in the original work in the church at Glastonbury, which for the most part is contemporary with Wells, the pointed arches which still exist have vertical apex-joints. At Wells all have keystones up to the break in the nave, except the inner order of the arcade arch of bay 9, 11 a, which has a vertical apex-joint. In the second work beyond the break, the tendency is to substitute the apex-joint for the keystone, but their distribution is by no means regular.

In the main arcades, on the north side both the keystone and the apex-joint appear in the bay 7, 9 a, but all the remaining arches have apex-joints. In the south arcade, the arches in bays 8, 10 a and 6, 8 a have keystones, but in

[1] Except that over pier 14 a, which is a boss of foliage.

[2] *Dictionnaire*, i, 33.

[3] The nave of Rievaulx must be one of the earliest instances in England of the systematic use of the pointed arch in nave arcades, and there both arch and hood-mould had keystones.

the two remaining bays there are both keystones and apex-joints.

In the windows of the aisles, both north and south, all the arches have keystones, except a single apex-joint on the outside of the window in bay 6, 8 a. In the vault of the north aisle, in the first bay of the second work, 9, 11 a, the wall-ribs on both sides have keystones, but from 7, 9 a westward they have apex-joints. In the south aisle the wall-ribs on each side have keystones in bay 10, 12 a, and also over the arcade in bay 8, 10 a, but with an apex-joint on the wall side of this bay, and also on both sides in all bays westward. The last transverse ribs of the first work (11 ab and 12 ab) have keystones, but from 9 a and 10 a westward all have apex-joints.

In the triforium arcade, all the arches have apex-joints from the middle opening of bays 9, 11 a and 10, 12 a westward, as also have the relieving arches behind them. The arches of the clearstory windows in bays 11, 13 a and 12, 14 a, and all westward have apex-joints, and all the wall-ribs in these bays also have apex-joints. On the other hand, all the transverse ribs of the high vault have keystones up to the west end.

It will be seen from this somewhat meticulous catalogue that the changes which appear in the second work beyond the break are for the most part slight, and that their character does not indicate any considerable interval of time. How small they are is realised when we reflect how completely the general design and nearly all its details were continued without change in the second work. We have seen too that some of the changes are not precisely conterminous with the break. Two of them indeed, as we shall see, had already been adopted in the north porch before the second work in the nave was begun. Even the change from diagonal to vertical tooling does not necessarily mean any considerable pause, for it is sometimes found in what is practically continuous work.[1] It is certain however that

[1] The nave of Noyon cathedral affords an interesting parallel to Wells in this respect. The change from diagonal to vertical tooling there occurs in the fifth and sixth bays west of the crossing (except in the wall of the south aisle, where the diagonal tooling extends much further west). The change in the tooling is accompanied by modifications so slight that the whole must have been practically continuous work from the third bay west of the crossing to the west end, and it is so shown on the plan which illustrates the notice by the late Eugene Lefevre-Pontalis in the Beauvais volume (1905) of the *Congrès archéologique de France*, p. 170.

the break must be interpreted as the end of a definite stage of the building. When this section, with its roof and vault, had been completed, a temporary enclosure at 13, 14 a would enable the four eastern bays of the nave to be used, together with all the eastern part of the church, pending the completion of the western bays. If we conclude that the building of the western bays beyond the break immediately followed the completion of the first work without interruption, the interval between the corresponding parts on each side of the break would be whatever length of time had been taken, from the lower parts at the end of the first work, to complete the upper parts and vault (four bays), including the lower part of the central tower. Such an interval would seem to be sufficient to account for changes of the character which are found in the second work. This seems to be a more reasonable explanation of the facts to be seen in the work itself than the idea of a complete stoppage of building, of which the structure affords no confirmation.

We have now to consider some works which, as their diagonal tooling proves, were carried out before the second work was begun.

The first of these is the beautiful north porch, a really admirable work which fully deserves the praise which it invariably receives.[1] An examination of the coursing of the external facing of the aisle wall and of the side walls of the porch proves that the porch was built with the bay of the aisle to which it is attached—the last bay of the first work to be vaulted. The diagonal tooling of the internal facing of the porch proves that it was built before the second work of the nave was begun. Much of the original tooling has been obliterated by the modern vertical tooling of the nineteenth-century 'restorers,' but there are places where it can be seen and recognized as diagonal. Moreover the inner face of the gable of the porch above the vault is tooled diagonally. The tall crocketted capitals have abaci of square and semi-octagonal plan, as those in the nave arcades, but they are here associated with monolithic shafts, with annulets, which, it is worthy of note, we have not met with before in the church. The profiles of the bases show

[1] For measured drawings of the north porch, see *Architectural Association Sketch Book*, 2nd ser., iii (1883), Pls. 34 and 35 (by J. E. Newberry); and 3rd ser., iii (1899), Pls. 31-32 (by W. Haywood).

both the earlier simple form (B 1) and the later type with keels on the lower rolls (B 2), and it should be noted that the latter does not appear in the nave before the second work after the break. The rolls of the annulets are similarly keeled. In the upper arcade on the side walls, the intersection of the arch mouldings at their springing is a detail which is common to the early Gothic of Normandy;[1] similar intersections at the apex of sub-arches are to be seen on the west front. Of the advanced type of chevron ornamentation in the arches of the doorways, there is a good example of the early thirteenth century[2] at Glastonbury, in an inner-window arch of the south aisle of the nave, where the usual arch-moulding of rolls and hollows is overlaid, so to speak, with chevrons, and examples of this type are found in the south-west through the first quarter of the thirteenth century, and even beyond.[3] In the inner order of the inner doorway of the Wells porch, only the middle roll itself is broken into a zigzag. In two of the orders of the outer doorway, the chevron assumes a still more elaborate form than at Glastonbury, for the middle roll between the chevrons is itself broken into a zigzag, and the spandrels are carved with sprigs of leafage. The fillet appears on the middle rolls of the ribs of the vault, and on the rolls of the arched recesses in the lunettes (but not in the arches of the doorways and arcades)—another detail which is only found in the vaults of the aisles of the second work, after the break. All the pointed arches have keystones. The ribs of the vault are in separate stones from the springing. The cells of the vault are plastered, as elsewhere. One unusual detail should be noticed, in comparison with Pershore. The angles of the clasping buttresses on the front angles of the porch have a keeled shaft flanked, not with the usual hollow and fillet,[4] but with an ogee, and the outer order of the inner doorway has the same profile, continuous to jamb and arch. At Pershore the angles of the buttresses of the eastern chapels have the same profile, with

[1] E.g. at Norrey (Calvados), in the wall-arcade of the choir aisle, and in the choir triforium (not earlier than mid-thirteenth century).

[2] A square capital of one of the buttress shafts is carved with trefoils of unmistakably thirteenth-century type.

[3] There is a precisely dated example in the western arch of St. Nicholas' chapel at Tewkesbury, which is recorded to have been built in 1237 (*Annales Monastici* (Rolls Series), i, 106).

[4] As on the external angles of the central tower.

the flanking ogees, except that the shaft has a fillet, instead of the keel; these chapels are considered to have been begun about 1210.[1]

The porch has been fantastically antedated, but we have seen that it falls into its natural place at the end of the first work on the ground story. Three things should be noticed as specially significant as to its date. (1) The pointed arched recesses in the lunettes on the side walls, which are divided into two 'lights' by a central mullion from which branch two arcs of the same radius as the containing arch. This is a precocious example of a form which became frequent both in England and Normandy.[2] (2) The sculptured spandrels of the lower arcades on the side walls, with their foliage of definite early thirteenth-century type. And especially (3) the profiles of the arch-mouldings,[3] with their simple or keeled rolls alternating with deep hollows—very different from, and much more advanced than the arch-mouldings of the last years of the twelfth century in the eastern part of the church. The conclusion from these and other characteristics noticed is that the porch may with every probability be dated from about 1210–1215.

In reviewing the numerous discussions with regard to the chronology of the nave, it is surprising to find that no one seems to have realized that the central tower could have any bearing on the question. Yet it is obvious that, before the central part of the church could be used, the ends of the high roofs abutting on the crossing must have been closed in some way, and the crossing itself at least temporarily roofed. The lower part of the central tower was in fact built in the usual course. It followed the general Anglo-Norman type of lantern tower, though it is now closed from the church by the vault which was built above the crossing arches in the fifteenth century.

On the outside the original work finishes at the string course which runs around the tower a little above the ridges of the high roofs. The walls on each side of the roof-slopes are arcaded, with keeled shaft and hollow continued from the jamb around the arch, which has a roll hood-mould.

[1] *Victoria County History, Worcestershire*, iv, 159.

[2] French archaeologists call it *remplage normand*.

[3] The profiles are excellently illustrated in Mr. Haywood's drawing cited above, and are very instructive on the question of date.

The interior of the original work (Pl. viii) is divided into two arcaded stages in height, the upper stage being incomplete.[1] The lower stage is about 19 feet in height, and each of the sides has an arcade of four pointed arches, containing lower pointed arched openings in the end bays, and recesses in the middle bays.[2] The piers consist of rolls, simple and keeled, alternating with deep hollows. The two inner rolls on the jambs are continued around the lower arches in the favourite western manner,[3] and the small hood-moulds are worked on the same stones as the arches. The two large keeled rolls are treated as shafts, with moulded capitals of circular plan—the first of this type which we have yet met with. The smaller roll between these two shafts is continued between the capitals and around the arch. The arches are moulded with alternate rolls and hollows, and the larger inner roll is filleted—here again earlier than the appearance of the filleted roll in the second work in the nave. The roll hood-moulds have plain mitred intersections, as in the western bays of the nave arcades, beyond the break. The original work of the upper stage is now about 10 feet in height, but it was apparently intended to have been about 23 feet high. Each side has an arcade of three openings in front of a wall-passage which runs around the four sides of the tower. The piers consist of two orders of rolls and hollows, the outer roll being filleted and the others keeled, and on their inner side is a monolithic shaft with an annulet. The original work ends at three courses above the annulets, which are at about the same level as the external string-course. Above this level all is of fourteenth-century date.[4] All the pointed arches of the original work have keystones, except that the arch of the southern opening on the east side has a vertical apex-joint.

[1] The tower is shown (not quite correctly) in Britton's *Wells*, Pl. xvi (reproduced in the Wells handbook in Bell's Cathedral Series, ed. 1922, p. 92). In the upper stage the annulets are shown at mid-height of the shafts, whereas the height from base to annulet is about double the height from annulet to capital. If the original intention had been carried out, the capitals would have been about 1½ ft. higher than the fourteenth-century capitals actually are.

[2] The recesses are omitted in the drawing in Britton.

[3] As in the gable, lower arcades, recesses in lunettes, and inner doorway of the north porch, and in the triforium throughout. A survival of the same motive is to be seen in the inner order of the south doorway of the south-west tower, which in point of date is full west-front work.

[4] The photograph in Bond, *Gothic Architecture*, 588, shows the fourteenth-century arches, and a little of the upper part of the original work, but nothing of the lower stage.

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PLATE VIII.

[*T. W. Phillips, phot.*

INTERIOR OF CENTRAL TOWER

All the masonry of both stages, and of the external faces below the roofs, is tooled diagonally. This proves conclusively that the lower part of the central tower was built before the beginning of the second work in the nave after the break. Its mouluration presents some similarities to that of the north porch, but its general character is more advanced, and indicates that it can scarcely have been finished much before 1220.

It has already been remarked that there is something to be said for the view that the upper parts of the transept may only have been finished with the upper part of the nave east of the break in the vault. This lower part of the central tower therefore falls into its natural place in the building of the upper parts of the church, and its importance as a landmark is all the greater because its character enables us to fix its date with some reasonable approach to certainty within very few years.

The doorway at the south end of the west aisle of the south transept (20, 22 d) is evidently of a later date than the wall in which it is set. This seems to be a case of the builders leaving a large ' barrow-hole ' where it was intended to place a doorway, so that their materials could be carried into the church without any risk of the damage to the doorway which would have been incurred if the doorway had been built with the wall in the ordinary course.[1] The doorway has several points of similarity with the north porch, but is more advanced. The jambs have two pairs of monolithic shafts, two shafts under each order of the arch, with annulets, and tall crocket capitals with abaci of polygonal plan. The bases are of the simple earlier type (B 1). The outer order of the arch is moulded with a triple roll of the same profile as that in the outer order of the outer doorway of the porch, but the middle roll, which is keeled in the porch, is here filleted. All three orders of the arch have keystones. The masonry of the jamb is tooled diagonally. The doorway is probably nearly contemporary with the central tower.

The north porch, the original part of the central tower, and this doorway have a special interest in that they illustrate the western manner of the masons when they

[1] The three doorways in the western part of the nave of Durham (north, south and west) were only inserted in the walls after the vaulting of the nave had been finished.

were not fettered by having to continue earlier work, as in the nave.

Little need be added with regard to the second work in the western part of the nave, where the design and details of the first work are faithfully followed, with only the small changes which have already been described. There is however one point of construction which deserves attention. In all the earlier vaults, the ribs are in separate stones from the springing. In the nave aisles of the second work, the solid springer with horizontal beds (*tas-de-charge*) is introduced tentatively, and its distribution is curiously irregular. Generally the solid springers begin on the line 7, 8. On the north aisle wall three occur (7 b, 5 b, 3 b), but only two over the arcade piers (7 a, 5 a). In the south aisle there are three over the arcade piers (8 a, 6 a, 4 a), but none on the aisle wall.[1] The solid springers are three stones in height (two horizontal beds, plus the bed-joint at the springing line), and include only the transverse rib and the two diagonal ribs, but not the wall-ribs, with the exception of two (6 a and 4 a) in which the two lower stones include part of the wall-rib. In the high vault of the nave, it is remarkable that all the ribs are in separate stones, from the springing, right up to the westernmost bay.

When the building of the second work was approaching the west end of the nave, we first meet with some work of the new master who was brought to Wells to undertake the building of the great west front. His architectural manner differed considerably from that of the western masters who had preceded him, and at first the two are curiously mixed. On the outside the plinths and coursing of the masonry of the aisle walls up to the sill-string are continued without interruption along the eastern faces of the towers up to the eastern buttresses, which shows that the two western towers were planned as part of the second work of the nave. The openings from the aisles to the towers have piers, capitals, and arch-mouldings which follow those of the nave arcades, but on the inside (towards the towers) we find the monolithic shafts and capitals with round abaci of the new master, who carried on the rest of the towers. The whole of the west wall was of course his work, but beside this there is

[1] Except an incipient *tas-de-charge* at 10 b, where the transverse and two diagonal ribs have a solid springer of only one stone in height.

nothing on the inside of the nave itself which can be recognized as his, except in the western respond piers of the main arcades (1 a and 2 a). These piers have attached shafts and capitals precisely like those of the other arcade piers, except that, instead of the attached double shaft which receives the outer order of the arch in the other respond piers,[1] there is here a single monolithic shaft and capital with round abacus, of the new master. The arches themselves (1, 3 a; 2, 4 a) are moulded with the same profiles which have ruled in the main arcades throughout the church from the beginning. In the triforium and clearstory stages the details of those eastward are continued without change, although the western ends of the side walls can only have been built as the west wall was being carried up.[2] Even the high vaulting shafts in the internal angles between the side walls and west wall (1 a and 2 a) have the double-shaft plan, tall crocket capitals, and abacus of polygonal plan, as those at the opposite end of the nave. It is certain that we have here a certain amount of building in the earlier manner which can only have been done some time after the new master had been at work,[3] and that there was no pause between the end of the second work and the beginning of the west front.

The west front[4] does not come within the scope of these notes, but something must be said of its date, because of its bearing on the chronology of the nave. It has been suggested above that the completion of the original part of the central tower and the beginning of the second work in the nave must be dated within the later years of the second decade of the thirteenth century. This of course would not leave sufficient time for the building of the western bays of the nave if the date of 1220 to which the beginning of the west front has frequently been attributed be accepted.

[1] See Pl. III, ii.

[2] This is not merely an inference from reasonable building practice (one cannot imagine that the side walls were built up to vertical ends to the line of the inner face of the west wall before this latter was carried up), but it is proved by the evidence of the masonry itself. It can be well seen on the outside of the clearstory, north and south, at the junction with the back of the west wall.

[3] It is just possible that a large amount of stone may have been worked for the completion of the side walls before it was required to be set.

[4] For the sculpture of the west front, see the admirable studies by the late Sir William H. St. John Hope and Professor W. R. Lethaby in *Archaeologia*, lix, 143-206.

Upon this point three observations suggest themselves. (1) The late Sir William Hope said that the beginning of the work in 1220 could be fixed by the grant in that year of sixty great oaks 'for making a certain limekiln for the work of the church of Wells.'[1] As however the building of the western bays of the nave was in full operation before the west front was reached, the limekiln may just as well have served the former as the latter. (2) The architectural details generally do not afford much assistance, for it is not possible to date most of them within very precise limits. There is however one exception. In the lower arcade the canopies of the pairs of niches are formed by trefoils corbelled forward, each under a little gable.[2] This corbelled canopy certainly seems to be too advanced a motive to appear in the first part of a work begun in 1220, and suggests a somewhat later date. (3) Professor Lethaby believes that the Wells scheme was made with the knowledge of Amiens,[3] which was begun in 1220. M. Durand assigns the western portal of Amiens, including its statues, 'aux environs de 1225,'[4] and some time must be allowed for knowledge of its scheme to reach Wells. These considerations suggest the probability that the west front of Wells may well have been begun after 1225 at the earliest, and possibly near 1230.[5]

It may be objected that this would not leave sufficient time for the completion of the front before the consecration of the church in 1239. Here the observations of Professor Willis are, as always, worthy of attention. He believed that the dedication was not a forced one,[6] but took place at the same time as several forced dedications, because the building then happened to be ready. The report of his address goes on—'The difficulty with him was whether (as it was not always necessary that every portion of a church should be actually completed when it was dedicated) the west front was completed in 1239, when the dedication

[1] *Archaeologia*, lix, 165, note b.

[2] See the excellent photographic illustrations in Prior and Gardner, *op. cit.* Fig. 14 (p. 15), and Fig. 87 (p. 89) where the authors date the statues as *c.* 1240.

[3] *Archaeologia*, lix, 183.

[4] Georges Durand, *Monographie de la cathedrale d'Amiens* (1901), i, 32, 299.

[5] As the sequence—central tower, west bays, west front—seems to be certain, the only alternative to what is here suggested would be to attribute the central tower to an earlier date, which its character does not justify.

[6] I.e. not a dedication consequent on the ordinance of cardinal Otho of 1237 (Matthew Paris, *Chronica Majora* (Rolls Series), iii, 421, 517, 638). See above, p. 14.

occurred. That date, however, was reconcilable with the phase of Early English which the architecture presented, but the sculpture might have been completed long after the tabernacles which received it.'[1] We might indeed go further than Willis does here, for the church might conceivably have been regarded as ready for consecration when enough of the west front had been built to close in the nave and aisles; though the chronology suggested above would admit of considerably more than this. With regard to the statues and imagery, Professor Lethaby tells me that he is inclined to date them from about 1230 at the earliest to 1250 or 1260. Moreover there is one detail which proves that some of the carved ornament was not worked until long after bishop Jocelin's death in 1242. In the middle doorway the inner order of the arch is decorated with a variant of the 'tooth' ornament, in the form of large pyramids of foliage. In some of these,[2] the leaves are bossed up to an undulating surface, with serrated edges—a definite step towards the later naturalistic treatment of foliage, which cannot possibly be dated before the middle of the thirteenth century, and may with probability be attributed to *c.* 1260.

What then, in brief, are the answers which this interrogation of the building gives to the questions set out at the beginning of these notes? The church was begun after 1185, probably about 1190. The work was commenced at the east, and continued regularly westward in the normal fashion. One of its most noticeable characteristics is the way in which the work of the first master was followed, for, not only was the general design continued with but little modification (except in the triforium of the nave), but the details remained for the most part unchanged with but slight exceptions, throughout the church up to the west end, over a period of more than thirty years. Such continuity is remarkable for so long a period, and it makes it difficult to assign even an approximate date to any particular part. Doubtless progress was not uniform; there would be periods of rapid building, and periods when progress

[1] *Proc. Som. Archaeol. Soc.* xii, part i, 18.

[2] Caution is necessary in examining these pyramids, as three-fourths of them are modern. Some of the original ones retain traces of red paint.

would be only slow; but there is no indication of these in the work itself. No attempt has been made here to suggest how far the building had advanced when Jocelin became bishop in 1206, but any reasonable interpretation of the building-facts must place very considerably more in his time than the authorities of thirty years ago were willing to admit. There is no evidence of any pause or break in the building until we come to the break in the nave, at the end of what I have called 'the first work,' which on the ground story seems to have been reached not earlier than about 1210. The upper parts of this 'first work' included the roofing and vaulting of the four eastern bays of the nave, together with the original part of the central tower. It has been suggested above that the latter can scarcely have been finished much before 1220. These works were followed, apparently without interruption, by the beginning of 'the second work' in the nave, west of the break. The construction of the western bays was probably only completed after 1225 (probably nearer 1230), when the new master began the work of finishing this beautiful church by the building of its marvellous sculptured front.