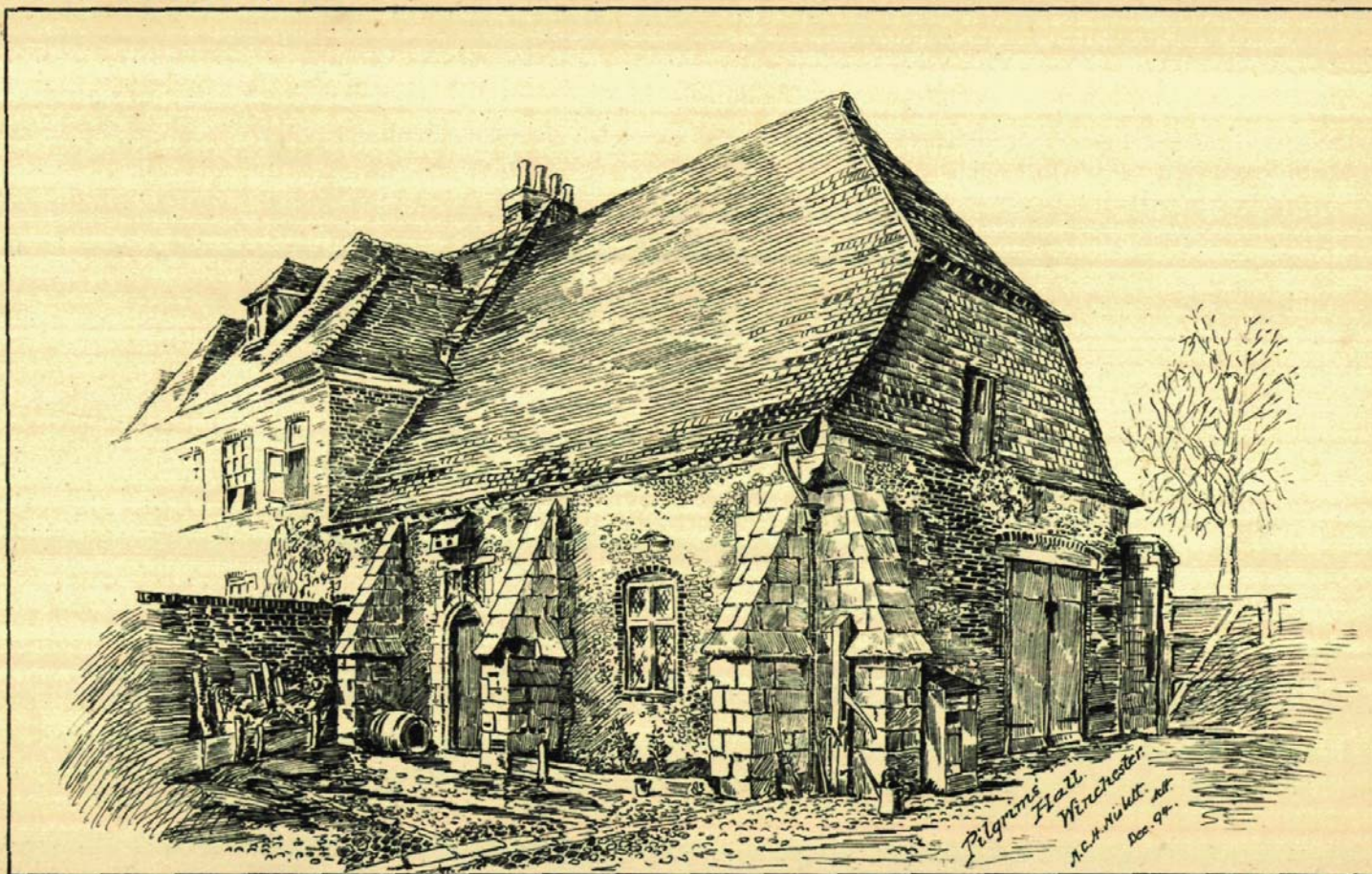


HANTS FIELD CLUB, 1894.



PILGRIM'S HALL, WINCHESTER.

*Pilgrim's Hall
Winchester
A.C.H. Nisbet
Dec. 9th.*

J. TOWNSEND PHOTO. LITH. EXETER.

NOTES ON THE ROOF OF THE PILGRIM'S HALL, WINCHESTER.

BY NORMAN C. H. NISBETT, A.R.I.B.A.

The subject of "Timber Roofs" must always be to the English student, whether artist or antiquary, one of interest, not unmixed perhaps, with a certain amount of national pride, when he finds that in no other country did these constructions ever attain the degree of perfection to be found in a large number of English examples.

As soon as the principles of stone vaulting were mastered, it seems to have been acknowledged abroad as the only kind of covering admissible for important buildings, wooden construction being retained merely to afford protection from the weather to the upper side of the vault. Being thus relegated to a practically unseen position in which neither convenience nor appearance imposed any restraint, these timber roofs seem never to have received the same attention as regards constructive principles, as in England.

It is difficult to say why English builders persisted in the use of timber so long after their French neighbours had adopted stone. The use of the latter in the French Gothic style undoubtedly originated in the architecture of southern France, where stone domes were a common mode of roofing since the time of the Roman occupation.

The development of roof construction in England may be briefly summed up as follows. At first each pair of sloping rafters were framed together by means of cross braces and "collars." Tie beams were used but these tied together the wall plates of the opposite walls, and had no special reference to the binding together of the feet of the rafters, although since these rested on the wall plates they derived an indirect advantage from the arrangement. The braces were sometimes placed so as to connect the lower end of one rafter with

the upper part of that opposite, crossing one and another at the "collar." The portion of the brace below the "collar" was subsequently replaced by a curved member as shewn in our sketch. The earliest roofs had nothing to tie them together in the direction of their length as each pair of rafters was practically independent. To remedy this a beam was placed a few feet below the ridge, and parallel with it. By means either of the "collar," or cross braces resting upon this the upper portion of the roof obtained a necessary addition. This new member, sometimes called the "owl" beam was supported by means of the "king" post standing on the centre of the "tie" beam which was usually a massive timber with a marked tendency to curve, or "camber" upwards in the centre.

During the thirteenth century the practice commenced of using "principal" trusses, formed with a pair of stronger rafters than the "common" ones, and having their feet tied together by means of the "tie" beam, to prevent undue outward thrust upon the walls. The wall plates were always double, one on the outside, the other inside the walls, and connected together by means of cross pieces generally joined in such a way as to act equally well as a "strut" or "tie," as circumstances and the nature of the strain brought upon them might require. From the inner wall plate a short upright strut or ashlar piece formed an additional support for the common rafters, just above their feet, which rested on the outer "plate."

By the introduction of principal "trusses" which supported the "purlins" running longitudinally with the roof, an additional tie in this direction was obtained, and the "owl" beam became of less importance. The office of the tie beam was thus more limited and direct in action, while the carpenters seem to have become more economical with their timber, and the massive tie beams of the earlier period were discontinued. The new type however showed symptoms of sinking, or "sagging," in the centre from its own weight, although their stout predecessors had carried also the "king" post and its burden as well. The very term of "post" is probably a reminiscence of the fact that this member was, originally subjected to a compressive strain.

The use of the "principal" truss with "purlins" made it unnecessary for the "king" post to be saddled with the weight of the "owl" beam, and it forthwith became a "post" no longer in anything beyond the name, which it still retains. The fact that with the introduction of "principal" trusses, the tie-beams were placed in connection therewith, enabled a simple means of preventing the "sagging" alluded to by suspending the centre of the tie-beam to the apex of the rafters by means of the "king" post which thus changed its original compressive strain to a tensional one.

In large "spans" the tie beam was frequently provided with curved braces beneath its ends springing from corbels in the walls. The "common" rafters continued to rest on the external wall plate, while they were supported by a strut from the internal one, the cross piece connecting the two plates being acknowledged as an important factor in making, what the carpenter would call, "a stiff job of it."

It is probably from a development of both these features in the construction of timber roofs that we must attribute the introduction of the "hammer beam" roof of which we have an example at Winchester.

The building known as the Pilgrims' Hall was provided to afford shelter to the pilgrims visiting the shrine of St. Swithun, many of whom had not only travelled a long distance to reach Winchester, but made it the starting point for a further journey into Kent in order to pay their devotions at the popular shrine of St. Thomas, of Canterbury.¹

The Hall stands about a hundred yards to the south east of the Deanery, and that part of it which best preserves its original features is now used as a stable. The upper part forms a loft by means of a rough floor placed at about the level at which the scale of feet is drawn on the accompanying sketch.

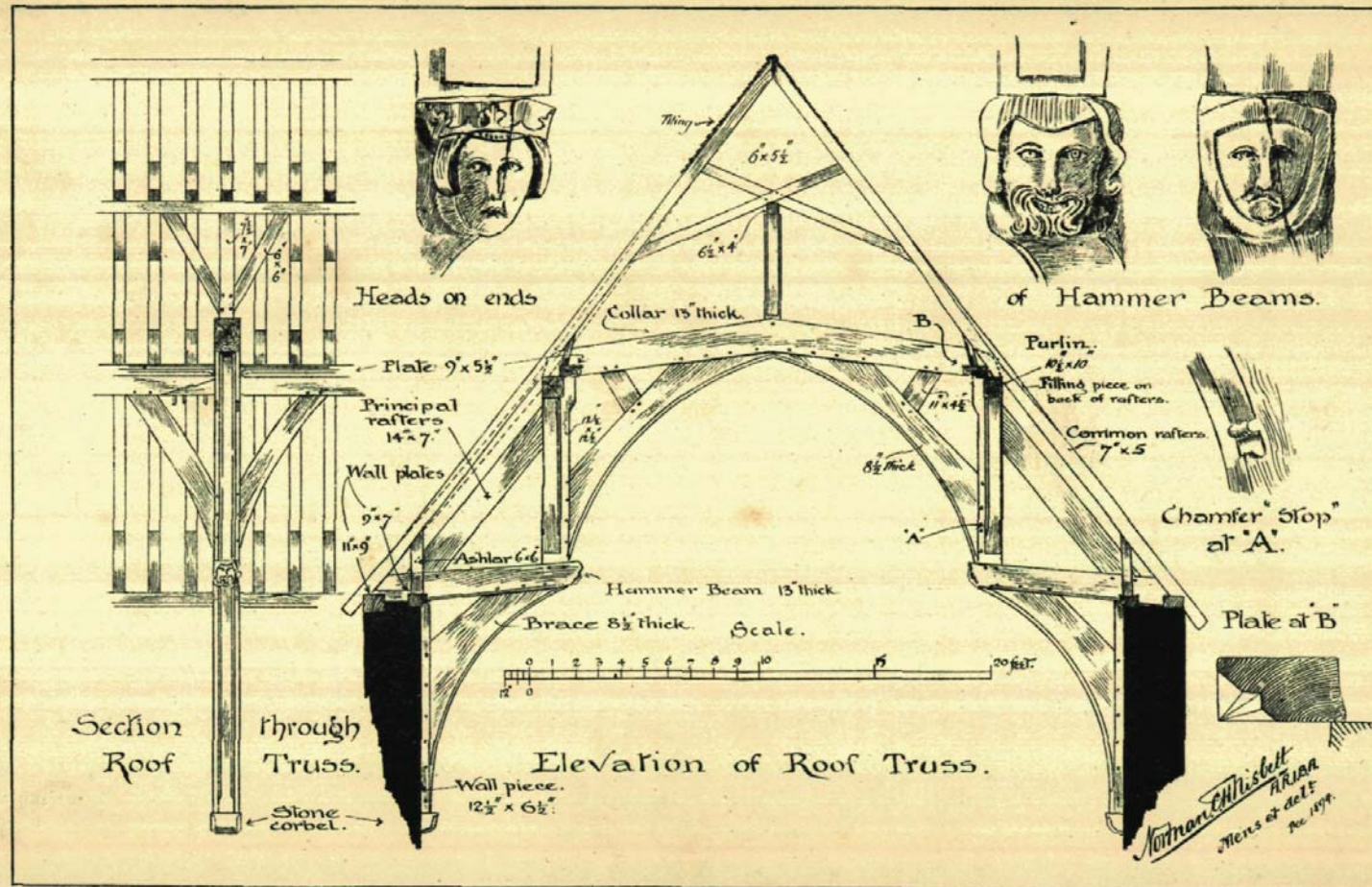
¹ Long before the institution of the Canterbury pilgrimage, Winchester had a good name for its hospitality. William, of Malmsbury, who wrote during the first half of the twelfth century, tells how Godfrey, who was Prior of Winton from 1082 to 1107, "strongly impressed the laws of religion and hospitality on the monks who to this day so closely follow the footsteps of the prior in both that they deserve all possible commendation; indeed in this house there is a place of entertainment to any extent for travellers of every description by sea or land, with boundless expense and ceaseless attention."

That it was originally of larger extent is evident from the portions of the roof which are seen in the adjoining house. The internal width is about 30 feet. Two of the "Hammer-beam" roof trusses remain in very fair preservation and in their original position, the one illustrated is about 14 feet from the end wall and the second is placed at about the same distance from it. Continuing in the same direction, after an interval of 8 feet, a modern brick wall occurs which prevents further investigation from this side, but in the attics of the next house we find the "collar" beam of a similar truss, with the strut above its centre still in position, at a distance of 5 feet 6 inches beyond the dividing wall, the thickness of which being added we obtain a spacing agreeing with those already referred to. After finding three trusses placed at regular intervals it will probably be safe to infer that a second "collar" in the same house is not in its original position since it is 17 feet from the last, the struts above it have been removed, although the mortice holes are witnesses of their former existence, while iron straps and bolts are further evidence of alterations. It is nevertheless clear that at least four trusses existed, which would make the hall one of five "bays," and if all were equal to those which undoubtedly retain their original dimensions, they would make the hall to have been about 70 feet long by 30 feet wide. A very fair proportion. A third timber having mortice holes the whole length of its upper surface, which is level instead of "cambered" like the "collars" was probably one of the wall plates.

The roof of the Pilgrims' Hall is of the kind known as "Hammer-beam" in which the usual tie beam at the level of the wall plates is omitted, and the tendency to outward thrust from the rafters minimised, by means of the "wall-piece" and brace below the "hammer-beam" by which contrivance the stress is carried to a much lower point in the wall. The latter has also the assistance of buttresses, some of which still remain.

The property of a triangle, by which it is impossible to alter the angles so long as the length of the sides remain unchanged, is also taken full advantage of in the framing of the various timbers together. This arrangement gives great stiffness to the whole.

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The wall-plates which are double, rest immediately upon the walls, and are connected at intervals by cross pieces which with the upright "ashlar" pieces form a triangle at the foot of the common rafters.

The Hammer beams are massive timbers about 13 inches thick and tapering in their depth from 14 to 12 inches. They are not placed horizontally but rise about 6 inches towards the centre. Each hammer-beam supports an upright timber of about 13 inches square, while the "principal" rafters with a scantling of 14 inches by 7 inches complete the triangle. All the connections are formed with oak pegs about an inch in diameter and placed from $1\frac{1}{2}$ to 2 inches from the edges of the timbers.

The "purlins," which form a longitudinal tie and provide intermediate support to the "common" rafters are carried by the upright above mentioned, with the addition of curved struts on each side. The purlins are not in one length but have simple scarf joints placed over the trusses, and secured with long oak pegs projecting beyond the face of the timber (one of these joints is shewn in the Section).

The "collar beam," which forms the actual tie between the two opposite sides rests upon the purlins, although its weight is carried by the uprights which are made to project slightly above to counterbalance the effect of the portion cut out to receive the purlins. Curved braces $8\frac{1}{2}$ inches thick connect the centre of the "collar" with the lower part of the uprights forming a triangle which is further stiffened by the insertion of struts between the back of the brace and the underside of the "collar."

Above the purlins, but in front of them, is a "plate" which is the nearest approach to a "moulded" member in the roof. It should be mentioned that the "common" rafters do not all run continuously from the wall to the ridge, but appear to be generally in two lengths; the lower portion abutting against the purlin and the upper one starting from this level. Very often the continuity of the roof slope is very irregular, as is shown by a rafter *dotted* on left side of sketch. In such cases rough timbers are fixed to the back of the rafters. This is probably only a later expedient in consequence of the decay of these parts, exposed as these are to the damp which finds its way between the tiles.

On the centre of the "collar" stands a square post, the successor of the "king" post of the earlier roof, which with the aid of two struts, shewn on the section, supports the longitudinal timber known as the "owl beam." Upon this the cross braces, connecting each pair of "common" rafters, rest. The "collar" thus takes the position of the "tie-beam" of the old and massive type.

The timber used is oak, as may be proved by the "silver grain" caused by the large medullary rays lying parallel to the sawn surface. Chestnut, a wood often supposed to have been used in mediæval roofs has no large medullary rays.¹

The upper part of the roof is considerably blackend from the smoke of the fire which was no doubt placed on a hearth in the centre of the hall. The sooty deposit cannot adhere so well to the smooth surface of the "silver grain" as to the rougher parts intervening and in consequence forms a "setting" which shews up this feature distinctly.

No very definite data exists as to when the Pilgrims' Hall was erected, but the "hammer-beam" roofs was adopted at Westminster Hall in 1397, after the removal of the earlier roof which was supported by two rows of Norman columns.

The present roof at Westminster is often quoted as the earliest dated example of this type, but the very fact of its use in so important a building and over so great a span (68 feet), as well as the thorough knowledge of the principles of construction to which it bears witness, seems good evidence of the fact that it was only selected after the experience gained from less noted examples. Ferguson, in his "Hand-book of Architecture," states that the roof of the royal hall was copied from an earlier one of similar construction which covered the adjoining chapel of St. Stephen.²

The late Mr. G. E. Street, R.A., an authority on gothic woodwork, states that while "hammer beam" roofs are more

¹ The writer has been informed by the late Dean (Dr. Kitchin, F.S.A.), that there is documentary evidence, obtained from the "Rolls," lately so generously presented to the Dean and Chapter by the Rev. R. F. Bigg-Wither of Worting, that large oaks were sent from "Manidown" for the roof of the present Deanery.

² It is perhaps interesting to notice that this Chapel Royal only exceeded the width of the Winchester example by 3 feet. Its length was about 90 feet, in five bays. It was built entirely during the reigns of the first three Edwards.

particularly characteristic of the fifteenth century, their first invention must be claimed for the fourteenth century carpenters.

The only features of the Pilgrims' Hall which may assist in determining the date of its erection, are—the carved heads on ends of hammer beams—the “stop” to the chamber shewn in sketch, and the remaining buttresses. None of the original windows remain, and the door seems to have been altered. Some trace of the apex of a window is visible in the northern bay of the east wall.

If the head wearing a crown is intended for the reigning king he was evidently quite a young man. Such was the case in the early years of Edward III, who ascended the throne in 1327 at the age of 14 years, so that any time during the next ten or twenty years he might have been portrayed as shewn. His successor, Richard II, was four years younger at his accession in 1399, which would make our example later than the Westminster roof, which is probably not the case, since the “stop” to the chamber as well as the buttresses seem more indicative of fourteenth century work.

Of the other heads, one shews the hair worn as in the effigy of Edward II on his tomb. We may therefore probably assume that this roof was constructed about the middle of the fourteenth century. Notes on other Hampshire roofs of which the dates are known would assist us in determining the correctness of this conclusion.

For the present we must be content to leave the date somewhat indefinite hoping that some of our members may be prompted to furnish information as to the different types of roof construction most in favour in the county at various periods.
