

**The Old Cottage, Main Street,  
Cotesbach, Leicestershire:  
Historic Building Record**

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with a report on Tree-Ring Dating by R. E. Howard

***For X4 Limited***

**Checked by Project Manager**

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University of Leicester Archaeological Services

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by R E Howard

## **The Old Cottage, Main Street, Cotesbach, Leicestershire: Historic Building Record**

### **Summary**

University of Leicester Archaeological services (ULAS) carried out an historic building survey of The Old Cottage, Main Street, Cotesbach, Leicestershire (NGR: SP 5362 8227), on behalf of X4 Limited, prior to demolition of the building and redevelopment of the site.

The principal frontage range was a timber-framed structure which has been tree-ring dated to 1733. Three bays of framing remained, however it was evident that further bays formerly existed to the south. Although fragmentary, enough of the timber frame survived to arrive at a reasonable understanding of its original form. The evidence suggests that this was a Mud and Frame structure, a style of building characteristic of this part of south Leicestershire.

In the 19th century a brick façade was added to the timber-framed range and a brick-built extension constructed on its north side. The property was sub-divided into three dwellings at that time. The north end of the building was in use as the village Post Office in the early 20th century. In the 1960s the building was converted into a single dwelling part of which was used as a shop. A large extension was added to the rear of the house in about 1978 and the south end of the timber-framed range seems to have been demolished around the same time. These late 20th century alterations had a major impact upon the timber-framed structure.

### **1. Introduction**

University of Leicester Archaeological Services (ULAS) carried out an historic building survey of The Old Cottage, Main Street, Cotesbach, Leicestershire (NGR: SP 5362 8227) in May 2005. The survey, commissioned by X4 Ltd, was required in respect of an application to demolish the building and construct two new dwellings on the site: Planning Application number 04/01844/FUL.

The survey was completed to Level 3 standard as defined in the Royal Commission on the Historic Monuments of England guidelines *Recording Historic Buildings: A Descriptive Specification* (RCHME 1996, 3rd edition). Dendrochronological dating was undertaken by Robert Howard of Nottingham University Tree-Ring Dating Laboratory. This report presents the results of the historic building survey and tree-ring dating programme.

### **2. Description of the Building**

#### **2.1 General Description and Chronology**

The Old Cottage consisted of three main built elements: an early 18th century timber-framed range, its long axis parallel with Main Street; on the north side of this a small 19th century brick-built addition; and on the east (rear) side a large late 20th century brick extension, mainly single-storey but rising to two storeys at the north end.

A small glazed timber porch was reportedly removed from Hillside, a house on the opposite side of Main Street, and installed on the front of The Old Cottage in c.1980.

To the south of the house was an open area. The timber-framed frontage range formerly extended into this area, but its southern portion was demolished some time between 1962 and 1981 based on map evidence.

The topography of the site is notable as almost immediately to the rear (east) of the house the land rises by more than 3m to a high-level garden area. It is apparent that some terracing

of the site was required to provide a reasonably level area for the construction of The Old Cottage.

## 2.2 The Timber-Framed Range

The timber-framed frontage range was a 1½ storey structure with a thatched roof. A brick façade was added to the Main Street elevation in the 19th century, concealing the timber frame, nothing of which was visible externally at the time of the survey.

### Cross-frames/principal roof trusses

There were three bays of timber framing, nominally identified as Bays 1-3 from north to south, although it was evident that further bay(s) formerly existed to the south. The three bays were defined by four cross-frames/principal roof trusses, nominally Trusses T1-4, again from north to south.

Only the upper portion of the rear corner post of truss T1 survived. The remainder of the truss may have been removed when the building was extended to the north in the 19th century (see below).

Truss T2 was largely intact and is illustrated in Figure 4. Front and rear posts were complete save for their lower extremities; the rear post had no jowl. A stone pad on which the front post stood remained *in situ*, revealed in a small sondage excavated against the external face of the building (see Figure 2 & Plate 3). A central stud and rails defined four large panels, the upper panels retained original mud on lath infill. There were straight braces between the tie-beam and posts, that on the east side was a reused timber (Plate 7). Principals were halved at the apex in scissor form and linked at mid height by a collar. The collar was tenoned into the principals (c/f T3 and T4). The principals were inset some way from the ends of the tie-beam. An empty mortice in the underside of the collar suggests that there may originally have been queen struts framed between the tie-beam and collar. Evidence for the corresponding strut, if it existed, was obscured by the chimneystack. A first floor doorway was inserted at some time, cutting through the tie-beam and utilising the collar as its head.

Truss T3 was fragmentary. The upper part of the front wall post survived. The tie-beam had been cut where the principals were tenoned into it and the centre section removed, leaving only the outer ends. The elbowed principals were clearly two halves of the same tree, these were linked by a collar that was halved and pegged into position. The apex was again of scissor form. Mud on lath infill survived above collar level.

Truss T4 was reasonably complete, although the rear wall post and lower portion of the front wall post were missing (Figure 5). This truss was of slightly different form to T2, with a girding beam framed between the wall posts and no evidence of a central stud. Two pairs of staggered peg holes in the girding beam possibly marked the positions of removed framing members. The jowl of the front post was square cut and there was a straight brace between post and tie-beam, the equivalent brace towards the rear of the building was missing but its position was indicated by peg holes in the tie-beam. An inserted first floor doorway cut through the tie-beam, the rear section of which had dropped significantly as a consequence. The principals were halved to form a scissor apex and were linked at mid height by a collar. The collar was halved and pegged in a similar way to that of T3. An empty mortice in the underside of the collar suggested a central strut between this and the tie-beam, however the absence of an equivalent joint in the tie-beam perhaps points to the collar being a reused timber and the joint unrelated to this structure, particularly since there was also intact mud on lath infill at this point. A strut between the tie-beam and girding beam forming one side of the inserted doorway was certainly not original.

Carpenter's assembly marks were recorded on the north face of trusses T2 & T4 and on the south face of truss T3. In each case a similar marking system was employed. Joints on the



west side of the building were marked with the number 'one' in a variety of forms: gouge-stamped marks, short chisel-cut marks and long chisel-cut marks; joints on the east side were numbered 'two' in a similar variety of ways (Figures 4 & 5). See Wallsgrove (1989) for an explanation of these terms.

### Side wall framing

Remaining elements of the front wall frame were limited to the wall plate over bays 2 & 3 and sections of the main posts at T2, T3 & T4. Peg hole/joint evidence in these timbers permits a partial reconstruction of the front wall frame (Figure 6).

Two intermediate studs and two orders of rails defined 9 rectangular panels in bay 2, with braces between posts and wall plate. The shorter bay 3 apparently had a single intermediate stud with the rails staggered either side of this to compensate for the sloping site. The wall plate in this bay had been cut and rotated through 90° at some stage; a mortice for the intermediate stud was visible from within the building. The post at the south-west corner had mortices for a rail and brace indicating that the timber frame originally extended further to the south.

Evidence for the arrangement of the front wall framing in bay 1 was limited to two notches in the T2 wall post, at a corresponding level with the rails of the centre bay. Nail holes indicated that horizontal timbers were fixed into the notches, but these need not have been a primary feature. The location of the main fireplace may have had some bearing upon the arrangement of the wall framing at this point.

It was not possible to determine the position of original door and window openings in this elevation.

All timber framing in the rear wall of bay 3 had gone and only a single rail remained *in situ* in bay 2. The rear wall frame in bay 1 had been largely intact before elements of this were removed as part of renovation works begun not long before the survey was made, but subsequently abandoned. The removed timbers remained within the building and reconstruction was a straightforward matter (Figure 7). The framing arrangement was identical to that of bay 2 on the Main Street elevation, except for the omission of one of the post to wall-plate braces. A coherent sequence of carpenter's assembly marks was recorded in which posts and studs were numbered with chisel-cut Roman numerals I to IIII from north to south, corresponding with equivalent marks on the wall-plate. A second series of marks, again Roman numerals but made using a smaller chisel, apparently numbered the horizontal members of the frame (including the brace) from top to bottom, north to south. Stave grooves were noted in the top edges of all the extant rails and stave holes in the underside of all but rail III, the reasons for this are discussed below. Rail VI was nailed rather than tenoned into the T2 wall post; waney edge at this point apparently made it impossible or impractical to form a tenon on the rail, hence this method of fixing. The single surviving rail in bay 2 did not correspond with rail height in bay 1 and seems to have formed the head of a doorway on the south side of the truss T2 wall post.

### Roof structure

The roof over bay 1 had been replaced, probably in the 19th century. The original structure remained over bays 2 and 3. Side purlins were laid over the backs of the principals at collar height and a diamond-set ridge purlin was carried in the forked apex of each truss. Wind-braces in the centre bay were tenoned into the top face of the purlins and pegged to the backs of the principals (Figures 6 & 7). Rafters were mainly whole or halved beech poles plus some reused oak pieces, which rose in two orders from wall plate to purlin and purlin to ridge (timber identification by Dr. Graham Morgan Principal Curator, University of Leicester). The thatch was tied on with tar cords and straw ropes; this had been covered in corrugated iron sheeting some time between 1911 and 1962, based on photographic evidence.

Subsequently a massive additional load was placed on the roof frame when concrete tiles were laid over the corrugated iron, this had resulted in failure of the ridge and one of the side purlins over bay 2; various props had subsequently been installed.

#### First floor structure

Axial beams in bays 1 and 2 were chamfered but lacked stops; neither was oak. The tree used for the bay 1 axial beam was apparently specifically chosen for the curve at its southern end, which allowed it to lie over the centre of the room but still be carried on the rail to one side of the central stud of T2.

In bays 1 and 2, the inner ends of the first floor joists were joined into the axial beam, their outer ends were originally seated on the upper rail of the side-wall frames (see Figure 7). Some early, wide butted boards remained.

The floor structure in bay 3 was of slightly different form. The axial beam was an untrimmed timber of relatively slight scantling, supported at its north end on an inserted post. The joists ran over the top of the axial beam, the spacing of these was at variance with those of bays 1 and 2. The two joists at the north end of this bay on the east side were relatively recent insertions (possibly part of the c.1962 remodelling – see below) as they blocked a former staircase opening. The entire floor structure in this bay was ill-conceived and poorly executed in comparison with bays 1 and 2.

#### Interior

On the ground floor, the main fireplace was located at the south end of bay 1, adjacent to the front wall. This may have been the only heated room originally and can be identified as the living kitchen. The back and jamb of the fireplace were brick-built, as was the massive chimney hood that rose through the room above. The bricks were 18th century and probably original - brick dimensions: 9¼ x 4¼ x 2 ¼ inches (235 x 108 x 57mm). The brickwork of the fireback had been hacked into to accommodate a small spice cupboard, the door and surround of which were gone. Fixed to the fireplace breast was a bracketed mantelshelf with a simple bead moulding. In the opposite corner of the room was a plain winder staircase, the lower portion of which had been broken away.

The plank and batten front door was 19th century. The room was lit by a two-light timber casement window in the west wall, which was also 19th century in date.

Bay 2 was presumably a parlour, originally unheated as the brick fireplace and stack was a 19th century insertion. An enclosed staircase with under-stair cupboard was located against the east (rear) wall. The plank and batten door at the foot of the stairs had wrought iron strap hinges, handle and latch (c/f Hall and Alcock 1994, 26 for comparative handles). The door may well have been early 18th century, but seems to have been altered as the battens were fixed to the beaded face of the planks and the handle was also on the wrong side.

There appears to have been an original external doorway in the north-east corner of this room giving access to the rear of the property; this had been blocked. There was a casement window in the west wall, identical to that in bay 1. There was also a blocked doorway of uncertain date in this wall.

Bays 2 and 3 were open on the ground floor, the lower part of truss T3 having been removed at some stage. Bay 3 may originally have been a service area. There was a blocked 19th century window in the east wall and adjacent to this a 19th century door opening. In the west wall, adjacent to a blocked door, was a wide modern window inserted in 1962 (see below). Another blocked door was located in the south wall, the blocking here consisted of clay-bonded field stones between lacing courses of 19th century brick. Adjacent to this an area of hacked and scorched brickwork marked the former position of a fireplace, presumably that

served by the cranked chimneystack seen in the Henton photographs of 1911 (Plates 9 & 10); the stack had been removed by 1962.

At first floor level the bay 1 chamber was dominated by the massive chimney hood of the fireplace below. A tiny fireplace was inserted in the 19th century to heat this room. A dormer on the front admitted light, the window frame was modern. In the north wall was a small, early fixed window of 4 leaded panes; this predated the construction of the range to the north in the 19th century. An inserted doorway in the north wall gave access to this addition. The rafters were underdrawn with lath and plaster and the room was ceiled at collar height in the same manner, presumably when the roof over this bay was renewed.

Bay 2 was originally unheated, but subsequently had a fireplace inserted. It was lit by a small 2-light casement window below the wall-plate on the west side. A plaster on reed ceiling at purlin height had been largely removed. Below this level the underside of the thatch was plastered, with this and the exposed rafters whitewashed. A similar arrangement was recorded in bay 3, where the plaster on reed ceiling survived intact. This bay was again lit by a two-light casement below the wall-plate on the front. There was a blocked inserted doorway in the south wall.

### 2.3 19th century remodelling

The building was remodelled in the early or mid 19th century, to judge from the brick that was used, brick dimensions:  $8\frac{3}{4} \times 4\frac{1}{4} \times 2\frac{1}{2}$  inches (222 x 114 x 64mm). A brick-built façade was added replacing much of the framing on the Main Street elevation; this was stepped in line with the truss T2 front wall post, which was retained for some reason. The bond pattern of the orange-brown coloured brickwork differed either side of this break: to the south English bond and to the north a variant of Flemish stretcher bond, with courses comprising of headers separated by two, occasionally three stretchers, alternating with stretcher courses.

A  $1\frac{1}{2}$  storey extension was added on the north side of the timber-framed range. The dimensions of the bricks used for this were identical to those of the façade described above, the colour varied however, being more pinkish-brown with a distinctly mottled appearance; these were laid in a somewhat irregular Flemish garden wall bond pattern. The roof covering of the extension was flat clay tiles. A fireplace in the south wall evidently heated the ground floor room, though this and the flue were subsequently removed, leaving only the vestigial stack surviving at the junction of the two roofs. The ground floor window in the west wall may have replaced an earlier doorway in this position, as there was a vertical joint in the brickwork below the sill. There was a small blocked window in the north wall. The upper floor room was lit by a window in the north wall, again subsequently blocked.

Internal alterations such as the insertion of the ground and first floor fireplaces in bay 2 of the timber-framed range may be tentatively associated with this remodelling.

### 2.4 Early 1960s alterations

An article in the Leicester Advertiser on Friday July 13th, 1962 provides a context for a number of features noted in the course of the survey. The newspaper article records that the then owners Mr. and Mrs. T.S. Nicholls converted part of the building into a shop, opened at Easter 1962. It is stated that the building was formerly:

*'three old cottages which Mr Nicholls converted into one large cottage, the shop (which he fitted out himself), and a workshop for himself.'*

It continues:

*'The neat little store opens off the lounge, which has been modernised by Mr. Nicholls, who has built a brick fireplace instead of the old iron range there previously.'*

From the accompanying photograph it is apparent that the shop was entered by way of the inserted door in bay 3 of the timber-framed range. The adjacent display window was presumably installed at the same time.

## 2.5 Later modifications

The last occupant of The Old Cottage, John Lakin, carried out various alterations, including construction of the large extension along the rear of the building c. 1978, installation of a large dormer window on the east side spanning bays 2 & 3 of the timber-framed range, addition of the concrete roof tiles, and re-location of the porch from the house across the road. The southern end of the timber-framed range was demolished after 1962 and before 1981 based on the map evidence, this may also have been part of the late 1970s remodelling (see Figures 13 & 14).

## 3. Dating evidence

Dendrochronological dating of the timber-framed structure was carried out by Robert Howard of Nottingham University Tree-Ring Dating Laboratory. A full report on the results is presented as an Appendix. To summarise, seven core samples were taken, of which five were suitable for analysis; dates were obtained from three of these. One of the sampled timbers was pine and several other principal framing members were rejected on site as being unsuitable for dating as they were of species other than oak. The three dated timbers were all from truss T2. The T2 tie-beam included complete sapwood and was felled in 1733. The other two dated timbers, a principal rafter and the collar, were significantly earlier in date and were evidently reused in this building. A date in or after 1733 is indicated for the construction of The Old Cottage.

The brick façade to the timber-framed range, the brick-built extension on the north side of this and certain other alterations are attributed to the early or mid 19th century, based on the brickwork that was used. Map evidence indicates that the northern extension was certainly in existence by the 1860s (Figure 9).

The early 1960s alterations are dated by an article in the Leicester Advertiser in 1962, a copy of which is included in the Leicestershire, Leicester and Rutland Record Office archives (DE 2148/78). The chronology of more recent alterations is based on the oral testimony of current Cotesbach residents.

A stone bearing the date 1705 and the initials  $\tau^M C$  was leaning up against the front wall of The Old Cottage when the survey was made. The Harborough District Conservation Officer noted that since this was detached, large, in a different material (sandstone) and elaborate it may have had nothing to do with The Old Cottage and may have been imported from elsewhere. This suggestion is supported by local information.

## 4. Discussion

Although fragmentary, enough of the timber frame remained to arrive at a reasonable understanding of its original form. The main uncertainty is the number of bays of framing that originally existed. Joint evidence indicated that there was certainly a fourth timber-framed bay, to the south of bay 3. It is not clear, however, whether the fifth bay, visible in the photographs of 1911 and 1962, was also of timber-framed construction or whether this was a later brick-built addition. The continuous thatched roofline tends to suggest that it was part of the timber-framed structure rather than a later addition, particularly when compared with the lower roofline of the 19th century extension at the north end of the building.

The original plan form is uncertain, given the missing southern bays and the extent of alterations to the remaining structure. A single dwelling consisting of four or five bays of

framing is not impossible but is perhaps unlikely, particularly given the late construction date. A semi-detached pair of cottages of relatively modest proportions seems more likely. Only one original opening was identified, the door in the rear wall of bay 2. A corresponding door in the front wall forming a cross-passage backing onto the principal fireplace would be a common enough arrangement, however peg hole evidence in the T2 front wall post indicates that there was not a doorway in this position on the front elevation (Figure 6): whatever the original plan, it was evidently not a cross-passage arrangement.

A clear and reasonably consistent pattern was evident in the arrangement of the framing members. A coherent sequence of carpenter's assembly marks points to prefabrication of the frame and also confirms that the three remaining bays were of one build, despite detail differences such as the collar to principal joints in the cross-frames, and the variety of timber species used. The side-wall framing is directly comparable with that of 'The Nook', Mowsley, a Mud and Frame building which, when recorded in 2000, retained some original mud walling up to the level of the lower rail (Lacey n.d.).

There are various details which point to The Old Cottage, Cotesbach being a Mud and Frame structure, although none of the solid mud lower walling had survived. The absence of stave holes in the underside of the *in situ* lower rail in the bay 1 rear wall frame (Figure 7) points to a disparity in the walling material above and below this rail – presumably solid mud walling below and mud on lath above. The post pad below the truss T2 front wall post and the absence of evidence for a sill beam are also characteristics of the Mud and Frame tradition: compare for example Toad Hall, Walton by Kimcote (Thomas 2005) and Onion Cottage, Dunton Bassett (Buckley 1998). The form of the truss T2 cross-frame with its central stud and single order of rails defining four large panels can be paralleled at a number of certain or probable examples of Mud and Frame building. At Fargate Farmhouse, Tur Langton, a cross-frame of this form retained both the solid mud lower walling up to rail level and mud on lath infill above this (Hill 2000).

Major alterations, including construction of the brick-built north range and addition of the brick façade are attributed to the early or mid 19th century. Map evidence confirms that the north range was in existence by the 1860s. At that time The Old Cottage (including the southern part demolished between 1962 and 1981) had been subdivided into 3 separate dwellings, each of two bays - including the brick-built addition on the north side. The 1962 Leicester Advertiser article records that prior to the Nicholls' alterations it had been three cottages. Several of the maps show small rear extensions, probably lean-to additions, no evidence of which remained at the time of the survey.

Two early photographs of Cotesbach showing The Old Cottage have come to light. One is in the LLRRO collections in the DE3736 series, taken in 1911 by the local artist and photographer George Moore Henton (Plate 9). The second is almost certainly another Henton photograph probably also taken in 1911 (Plate 10), this was loaned for copying by a Cotesbach resident, Mr Burgoine. These show that the northern part of the building was then in use as the village Post Office. The 1925 edition Ordnance Survey 1:2500 map shows that it was still the Post Office at that time (Figure 12). On the first and second edition OS maps a house further to the south is identified as the Post Office (Figures 10 & 11); The Old Cottage evidently only became the village Post Office some time after 1904. It is unclear when it ceased to function as such, but certainly before the 1960s.

There are several historic maps of Cotesbach, the earliest of which is the Bennett estate map of 1720; a copy of this is in the LLRRO collections (ref: Misc. 326/1). This map includes sketches of the village houses, typically showing the front elevation and in some cases a gable end also (Figure 8). The illustrations of the church and one or two of the larger houses that have survived to the present are reasonably accurate depictions and it may be supposed that the other sketches are also relatively accurate.

The sketches are out of proportion with the base map, making direct comparison difficult, however a building bearing more than a passing resemblance to The Old Cottage is shown in about the right location. This is a 1½ storey structure with one upper floor window set beneath the wall-plate. A single ridge stack is located towards the north end of the building (Figure 15).

If this is indeed an illustration of The Old Cottage then it presents a problem: the map is dated 1720 but tree-ring dating suggests that the building was not constructed until 1733 at the earliest. There are a number of possible explanations. One or more of the sketches may have been added to the map at a later date. It might be possible to verify this with reference to the original map, differences in the ink used may be expected if this was the case; unfortunately the original map is in private ownership. There are, however other indications that the map has been altered, for example a wall and gate piers in front of Cotesbach Hall, opposite the church, have been scratched out at some time.

A second possibility is that the sketch represents a building which occupied the site prior to construction of The Old Cottage. This could also provide a convenient explanation of the timber reused in the construction of The Old Cottage, as revealed by the tree-ring dating programme.

With this last point in mind, a brief summary of the turbulent history of Cotesbach in the early 17th century seems appropriate. In 1596 John Quarles, a London citizen and draper, purchased the manor of Cotesbach; he was looking for a profit. His motive and method were later recorded at a Court of Star Chamber hearing into his activities at Cotesbach. Quarles admitted that if his tenants would not agree to renew their leases on terms more profitable to him, then he, in order to recoup himself, would enclose the manor for the rearing of sheep (Parker 1948, 57-9). Quarles' tenants refused to pay the inflated rents and, at length, he set about the business of enclosing the manor, buying out some freeholders and striking deals with others. The tenants petitioned James I in an attempt to prevent the proposed enclosure, but were unsuccessful due to Quarles influence at Court (ibid. 63-4). Cotesbach was eventually enclosed in 1603.

In September 1607 Quarles was charged with the depopulation of the manor. The accusation ran that he was responsible for the decay of 16 houses in the village (out of a total of 18 households before enclosure) and the displacement of most of the population (ibid., 65). Parker demonstrates that in fact only one house had certainly become ruinous by 1607, while the fate of a second house was unknown (ibid., 65-9). Although the other houses remained standing, these now had either very little or no land at all attached to them. Quarles admitted to the eviction of three tenants but claimed that others had left of their own free will. Presumably they left because without land they had no means of supporting themselves and their families. Although Quarles clearly profited from the enclosure of Cotesbach this was not sufficient to stave off bankruptcy and in 1606 he sold the manor. His stock, at least 1300 ewes and lambs, was sold off to pay his debts (ibid., 71).

Discontent with the progress of enclosure across the Midlands flared up into open revolt in 1607, with Cotesbach being the focus of resistance to the movement in Leicestershire. Ditches were infilled and hedges thrown down; ultimately, however, this attempt to reverse the enclosure was unsuccessful. By 1612, if not before, the whole manor had been re-enclosed (ibid., 75).

After Quarles sold it the manor passed quickly through the hands of various London speculators who would have had little interest in the plight of the villagers. Some time between 1618 and 1626 John Bennett, another Londoner, purchased the title. Cotesbach remained in the possession of his descendents for the next century (ibid., 75).

It is clear then that the early 17th century was a period of considerable upheaval for the residents of Cotesbach. It is not known how many people ultimately left the village as a result

of its enclosure, or how many houses fell into decay or were taken down during this period. It seems unlikely that significant sums were spent on the maintenance of tenanted houses for a period of 30 years or more, which would have left the remaining housing stock in a poor state. The situation evidently improved under the more stable conditions of the Bennett family ownership, however by 1720 there was still only a maximum of 14 houses in the village, compared with 18 households before enclosure.

Against this backdrop it is perhaps not surprising to find 16th century timbers reused in the construction of The Old Cottage. These may have derived from neighbouring houses taken down in the 17th century. This said, the liberal use of timber converted from trees other than oak reflects a wider national trend, as oak became increasingly scarce and therefore expensive in the 17th century. The lack of availability or expense of new oak must have encouraged the recycling of old timber from dismantled buildings.

## 5. Archive

The site archive consists of:

6 x A3 permagraph sheets of annotated field survey drawings

Notes

Approx. 75 colour slides and 50 monochrome negatives and contact prints

Copies of early maps, photographs, newspaper article etc.

A copy of this report

## 6. Publication

A summary of the results of the project will be submitted to the editor of the local archaeological journal *Transactions of the Leicestershire Archaeological and Historical Society* for inclusion in the next edition of that publication.

## 7. Acknowledgements

The survey was commissioned by X4 Limited in the person of Mr K. Simms. Fieldwork was undertaken by N. Finn, S. Clarke and G. Speed of ULAS. Tree-ring dating was undertaken by R.E. Howard. The assistance of R. Willatts and L. Walton is gratefully acknowledged. Particular thanks are extended to Mr. Burgoine of Hillside, Main Street, Cotesbach for the loan of the photograph reproduced here as plate 10 and for providing much useful local information.

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Plate 1. Main Street elevation of The Old Cottage, looking E



Plate 2. Rear elevation of The Old Cottage, looking NW



Plate 3. Truss T2 post-pad as revealed by excavation. Scale: 20cm





Plate 4. Bay 1 ground floor interior, looking S towards fireplace



Plate 5. Bay 2 ground floor interior, looking W towards staircase



Plate 6. Bay 1 first floor interior, looking SE showing part of T2 and upper part of rear wall frame



Plate 7. Detail of Truss T2 intact mud on lath infill below tie-beam, note reused timber for brace.



Plate 8. Bay 3 first floor interior, looking S towards truss T4





Plate 9. 1911 Henton photograph of The Old Cottage, looking SW. Note plaque over Post Office door.



Plate 10. c.1911 Henton photograph with The old Cottage left of centre, looking SW.

## **Appendix**

**Tree-Ring Analysis of Timbers from The Old Cottage,  
Main Street, Cotesbach, Leicestershire**

**R E Howard**

**TREE-RING ANALYSIS OF TIMBERS FROM  
THE OLD COTTAGE  
MAIN STREET,  
COTESBACH,  
LEICESTERSHIRE**

**R E HOWARD**

**Summary**

Core samples were obtained from seven different timbers at this cottage on Main Street, Cotesbach, in Leicestershire. The analysis by tree-ring dating of five of these samples (a sixth sample not only having too few rings, but distorted rings as well, the seventh sample being of pine) resulted in three of them being dated.

The first sample, from the tiebeam of truss T2, has 100 rings dated as spanning 1634 to 1733. Interpretation of the sapwood would indicate that the timber was felled in 1733.

The second sample, from the east principal rafter of the same truss, has 58 rings dated as spanning 1447 to 1504. Interpretation of the sapwood would suggest a felling date in the range 1505 - 29.

The third sample, from the collar of truss T2, has 54 rings. These were dated as spanning 1520 - 73. The felling date of the timber represented cannot be accurately determined because this sample does not have any sapwood, nor the heartwood/sapwood boundary. It is unlikely, however, to have been felled before 1588.

The remaining samples could not be reliably dated.

The interpretation of the results would suggest that truss T2, at least, is made up of timbers with different felling dates, the latest certain felling represented being 1733.

## **Introduction**

The Old Cottage, standing on the east side of Main Street in Cotesbach (NGR: SP 5362 8227), is a low building with a brick façade beneath a covering of thatch. Within is the much altered and added-to remnant of a timber-framed structure with the fragmentary remains of four trusses. The trusses originally probably consisted of principal wall posts, principal rafters, tiebeams and collars. Most of the lower frame timbers are now lost or hidden by later walls, and only the upper timbers survive, each truss being slightly different in the form of its framing. Sadly the building is now dilapidated and due for demolition.

## **Sampling**

Sampling and analysis by tree-ring dating of the timbers of The Old Cottage were commissioned by Neil Finn of University of Leicester Archaeological Services, the purpose of this being to establish, if possible, a construction date for the main timber-framed element of the building. It was hoped that tree-ring dating, in conjunction with a drawn survey and interpretation, would help determine the development of this building, this work being undertaken prior to demolition and the redevelopment of the site.

The trusses seen at this site all appear to be of slightly different forms of timber framing, with one truss having backing rafters, another having the principal rafters set well in along the tiebeam, and a third having struts. Only trusses T2 and T4 are of oak, truss T2, along with the purlins between the trusses, as well as some other timbers, are of pine. A number of the timbers show some possible evidence for re-use, or for resetting within the frame.

Thus, from amongst those available, seven different timbers were sampled by coring. Each of the seven samples obtained was given the code COT-A (for Cotesbach site "A") and numbered 01 – 07. Details of the samples are given in Table 1. In this Table, all timbers are identified on a north - south or east - west basis as appropriate. The positions of these samples are marked on Figures 2, 4 & 5.

## **Tree-ring dating**

Tree-ring dating relies on a few simple, but quite fundamental, principals. Firstly, as is commonly known, trees (particularly oak trees, the most frequently used building timber in England) grow by adding one, and only one, growth-ring to their circumference each, and every, year. Each new annual growth-ring is added to the outside of the previous year's growth just below the bark. The width of this annual growth-ring is largely, though not exclusively, determined by the weather conditions during the growth period (roughly March – September). In general, good conditions produce wider rings and poor conditions produce narrower rings. Thus, over the lifetime of a tree, the annual growth-rings display a climatically influenced pattern. Furthermore, and importantly, all trees growing in the same area at the same time will be influenced by the same growing conditions and the annual growth-rings of all of them will respond in a similar, though not identical, way.

Secondly, because the weather over any number of consecutive years is unique, so too is the growth-ring pattern of the tree. The pattern of a short period of growth, 20, 30 or even 40 consecutive years, might conceivably be repeated two or even three times in the last one thousand years. A short pattern might also be repeated at different time periods in different parts of the country because of differences in regional micro-climates. It is less likely, however, that such problems would occur with the pattern of a longer period of growth, that is, anything in excess of 54 years or so. In essence, a short period of growth, anything less than 54 rings, is not reliable, and the longer the period of time under comparison the better.

The third principal of tree-ring dating is that, until the early- to mid-nineteenth century, builders of timber-framed houses usually obtained all the wood needed for a given structure by felling the necessary trees in a single operation from one patch of woodland, or from closely adjacent woods. Furthermore, and contrary to popular belief, the timber was used "green" and without seasoning, and there was very little long-term storage as in timber-yards of today. This fact has been well established from a number of studies where tree-ring dating has been undertaken in conjunction with documentary studies. Thus, establishing the felling date for a group of timbers gives a very precise indication of the date of their use in a building.

Tree-ring dating relies on obtaining the growth pattern of trees from sample timbers of unknown date by measuring the width of the annual growth-rings. This is done to a tolerance of 1/100 of a millimeter. The growth patterns of these samples of unknown date are then compared with a series of reference patterns or chronologies, the date of each ring of which *is* known. When the growth-ring sequence of a sample "cross-matches" repeatedly at the same date span against a series of different relevant reference chronologies the sample can be said to be dated. The degree of cross-matching, that is the measure of similarity between sample and reference, is denoted by a "*t*-value"; the higher the value the greater the similarity. The greater the similarity the greater is the probability that the patterns of samples and references have been produced by growing under the same conditions *at the same time*. The statistically accepted fully reliable minimum *t*-value is 3.5.

However, rather than attempt to date each sample individually it is usual to first compare all the samples from a single building, or phases of a building, with one another, and attempt to cross-match each one with all the others from the same phase or building. When samples from the same phase do cross-match with each other they are combined at their matching positions to form what is known as a "site chronology". As with any set of data, this has the effect of reducing the anomalies of any one individual (brought about in the case of tree-rings by some non-climatic influence) and enhances the overall climatic signal. As stated above, it is the climate that gives the growth pattern its distinctive pattern. The greater the number of samples in a site chronology the greater is the climatic signal of the group and the weaker is the non-climatic input of any one individual.

Furthermore, combining samples in this way to make a site chronology usually has the effect of increasing the time-span that is under comparison. As also mentioned above, the longer the period of growth under consideration, the greater the certainty of the cross-match. Any site chronology with less than about 55 rings is generally too short for satisfactory analysis.

### **Analysis**

In the case of the seven samples from The Old Cottage, each one was prepared by sanding and polishing to clearly reveal its annual growth rings. It was seen at this time that four of the samples were not suitable for analysis.

In two cases, samples COT-A04 and A05, the number of rings present is less than the minimum of 54 required for reliable analysis. In a third case, COT-A06, the rings, whilst not only being too few, are distorted. Unfortunately only a small part of the timber was visible for coring and further sampling was not possible. In the fourth case, COT-A07, the timber, a principal joist from the ground-floor ceiling, is of pine, a material currently less suitable for tree-ring analysis. This sample, in any case, also has too few rings for reliable analysis.



The widths of the annual growth rings of the three suitable samples were then measured and compared with each other. Unfortunately there was no cross-matching between any of the samples. Each sample was therefore compared individually with an extensive range of oak reference chronologies. This indicated dates for all three as summarised below:

Sample	Date span
COT-A01	1634 -1733
COT-A02	1447 -1504
COT-A03	1520 -1573

The evidence for the dating of these three samples is given in the *t*-values of Tables 2 - 4, where a selection of matches with various reference chronologies is given for each. It will be seen from these Tables that while the values are not particularly high, they are above the statistically reliable minimum of  $t=3.5$ . The cross-matches are also consistent at the dates given with a range of other reference chronologies not shown, and no other better, or even equally good, cross-matching dates can be found for any of the three samples.

### **Interpretation and conclusion**

Although analysis by dendrochronology has not produced a site sequence, it has been able to date three samples individually. The first dated sample, COT-A01, from the tiebeam of truss T2, has 100 rings dated as spanning 1634 to 1733. This sample retains complete sapwood, that is, it has the last ring produced by the tree represented before it was felled. This felling, therefore, took place in 1733.

The second sample, COT-A02, from a principal rafter of truss T2, has 58 rings dated as spanning 1447 to 1504. This sample has 15 sapwood rings. Using a 95% confidence limit of 16 - 40 rings for the amount of sapwood the tree might have had would give the timber represented a felling date estimated to be in the range 1505 - 29.

The third sample, COT-A03, from the collar of truss T2, has 54 rings. These were dated as spanning 1520 - 73. The felling date of the timber represented cannot be accurately determined because this sample does not have any sapwood, nor the heartwood/sapwood boundary. It is unlikely, however, to have been felled before 1588, this date again being based on the timber having a minimum of 15 sapwood rings.

Thus, whilst tree-ring dating has not been able to date any timbers from truss T4 at the south end of the building, nor truss T3 (which is made entirely of pine), it has been possible to date three timbers from truss T2. One of these was certainly felled in 1733, the others were probably felled in the sixteenth century. These dates would suggest that this truss at least contains timber felled at different times, and whilst there is some sixteenth century material represented, the latest certain felling is dated to 1733. If it can be shown that the timber with this latest date, the tiebeam, is integral with the truss (as it appears to be), and not simply a piece added to it, it would indicate that the truss was not framed until 1733 at the earliest, and that it reused timber originally felled in the early sixteenth century.



Table 1: Details of samples from the Old Cottage, Main Street, Cotesbach, Leicestershire

Sample number	Sample location	Total rings	*Sapwood rings	First measured ring date	Last heartwood ring date	Last measured ring date
COT-A01	Tiebeam, truss T2	100	35C	1634	1698	1733
COT-A02	East principal rafter, truss T2	58	15	1447	1489	1504
COT-A03	Collar, truss T2	54	no h/s	1520	-----	1573
COT-A04	West principal rafter, truss T4	46	16	-----	-----	-----
COT-A05	East principal rafter, truss T4	33	15	-----	-----	-----
COT-A06	East main wall post, truss T2	nm	---	-----	-----	-----
COT-A07	Principal ground-floor ceiling joist, bay 2	nm	---	-----	-----	-----

C = complete sapwood retained on the sample, the last measured ring date is the felling date of the timber

h/s = the heartwood/sapwood boundary is the last ring on the sample

nm = sample not measured

Table 2: Results of the cross-matching of sample COT-A01 and relevant reference chronologies when first ring date is 1634 and last ring date is 1733

Reference chronology	<i>t</i> -value
Southwell, Notts	5.4
Quenby Hall, Leics	4.7
Bretby Hall, Derbys	4.2
Snenton Mill, Nottm	3.8
Leics Bell Frame (H)	3.7
East Midlands	3.6
Stoneleigh Abbey, Warwicks	3.6
Cosby, Leics	3.5

Table 3: Results of the cross-matching of sample COT-A02 and relevant reference chronologies when first ring date is 1447 and last ring date is 1504

Reference chronology	<i>t</i> -value
SFF-B01M	4.7
Southern England	4.5
Castle Donnington, Leics	4.1
Leics Bell Frame (E)	3.7
MC10---H	3.7
Nevile Holt, Leics	3.7
Lowdham, Notts	3.6
Hedon, Notts	3.5

Table 4: Results of the cross-matching of sample COT-A03 and relevant reference chronologies when first ring date is 1520 and last ring date is 1573

Reference chronology	<i>t</i> -value
Mansfield Woodhouse, Notts	4.9
Stoke on Trent, Staffs	4.7
Astley Castle, Warwicks	4.4
Cheddleton, Staffs	4.3
East Midlands	4.2
West Midlands	4.1
Leics Bell Frame (A)	4.0
Darley Abbey, Derbys	3.7



Figure 1. Location Plan Scale 1:1250. The Old Cottage hatched, the site shaded.  
Based on Ordnance Survey digital data. © Crown copyright. Licence AL10002186.

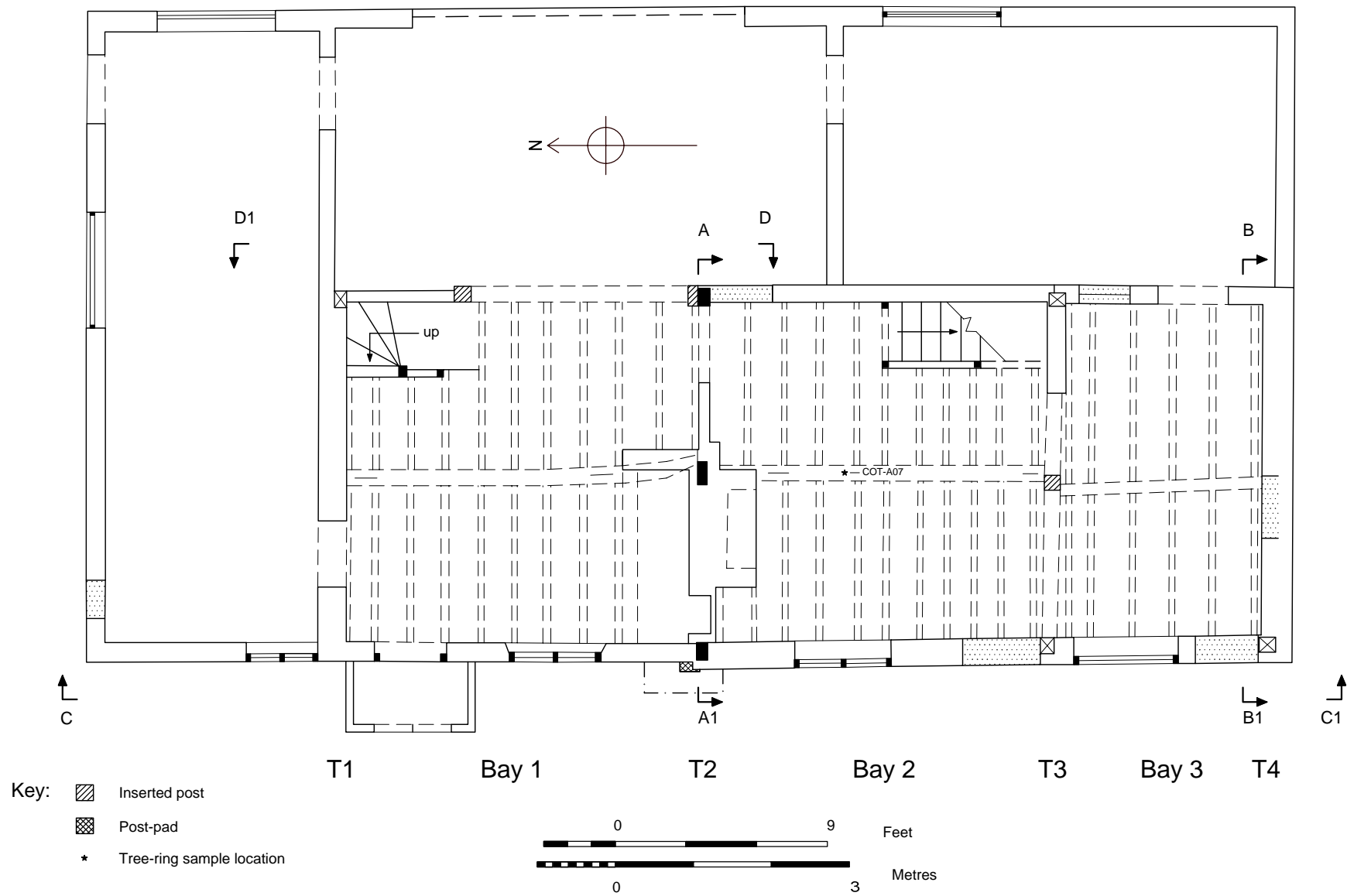


Figure 2. The Old Cottage, Main Street, Cotesbach. Ground Floor Plan, with locations of sections/elevations A - D.

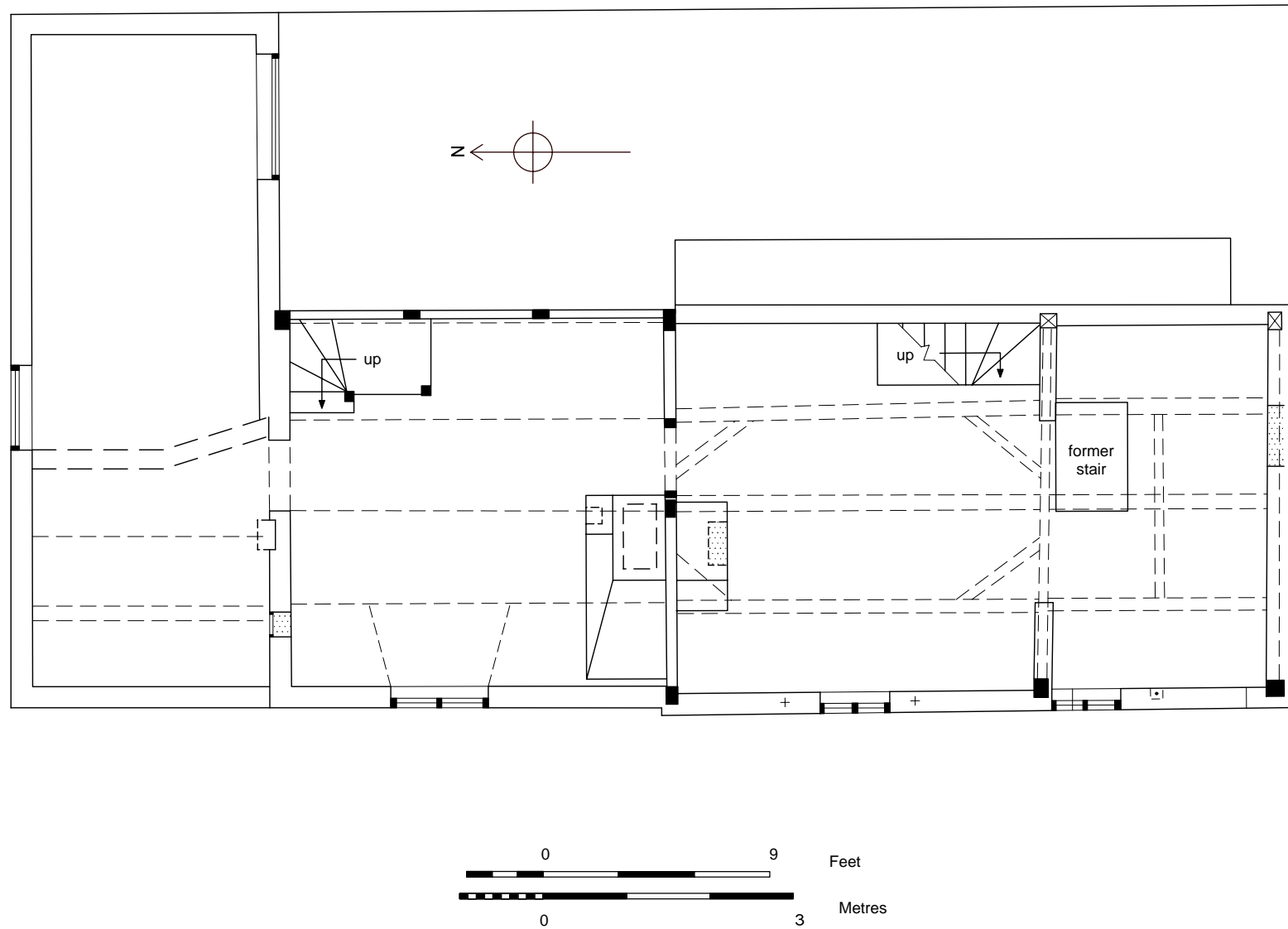


Figure 3. The Old Cottage, Main Street, Cotesbach. First Floor Plan.



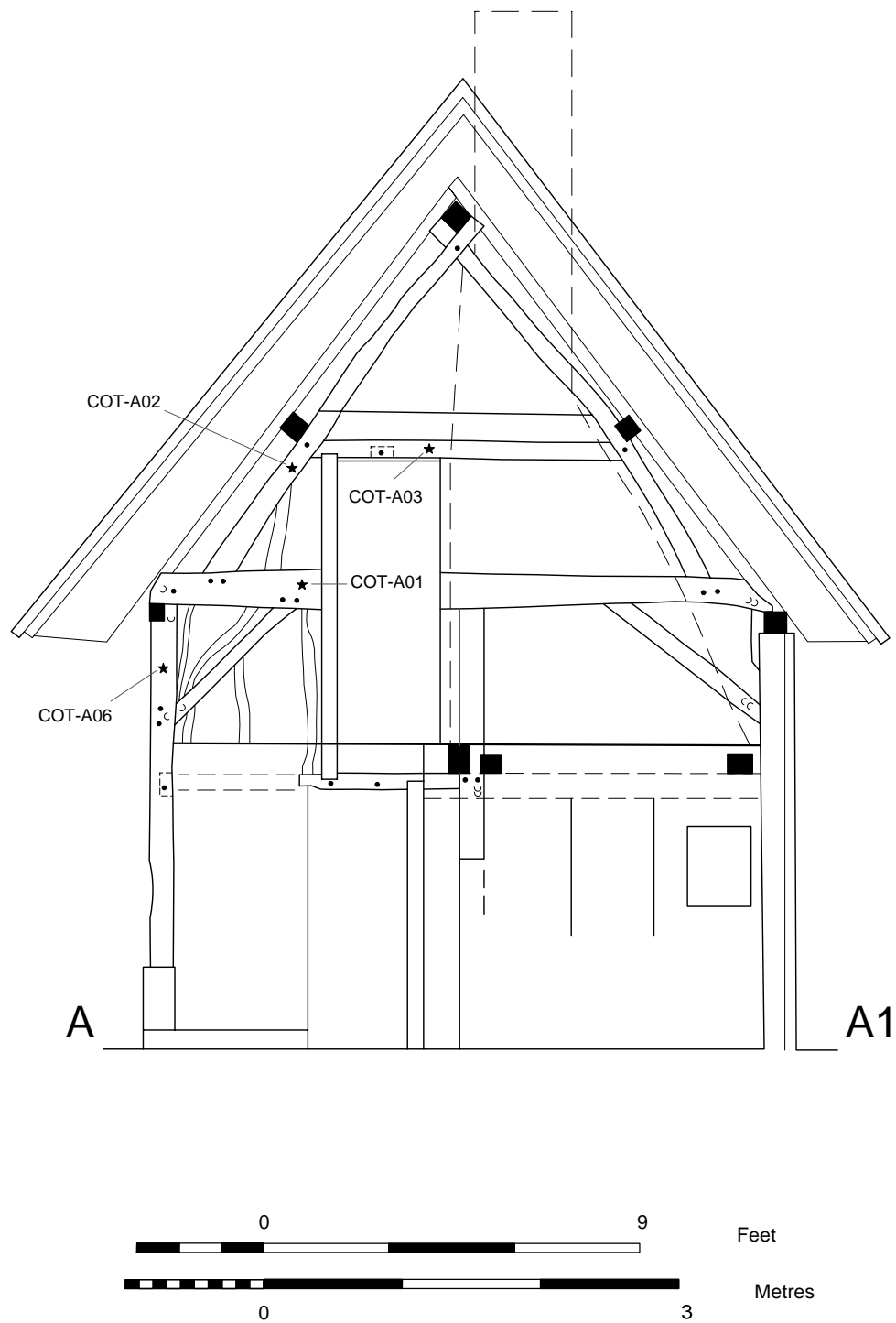


Figure 4. The Old Cottage, Main Street, Cotesbach. Truss T2, with tree-ring sample locations.

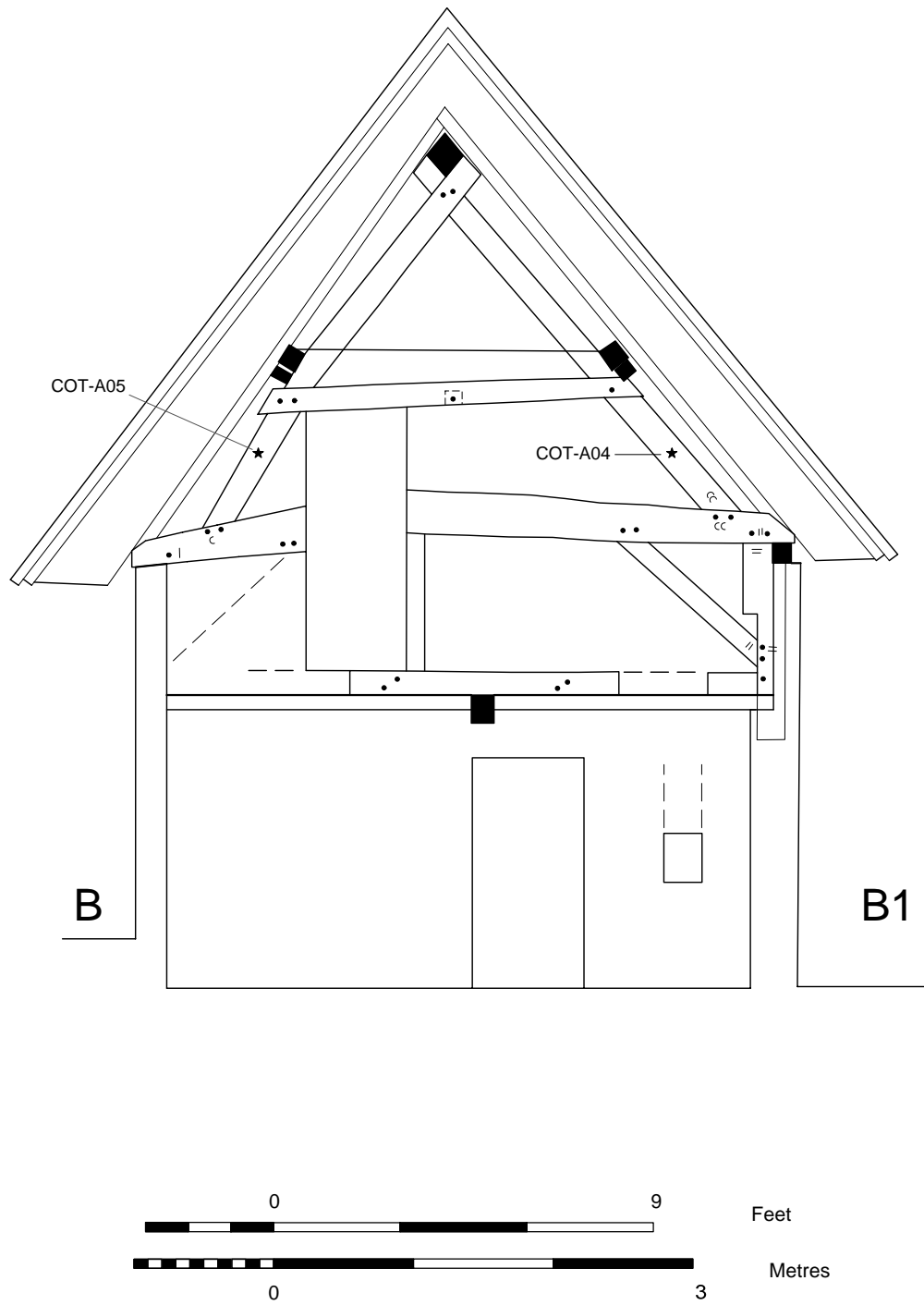


Figure 5. The Old Cottage, Main Street, Cotesbach. Truss T4, with tree-ring sample locations.



Figure 6. The Old Cottage, Main Street, Cotesbach. Front Elevation C - C1.

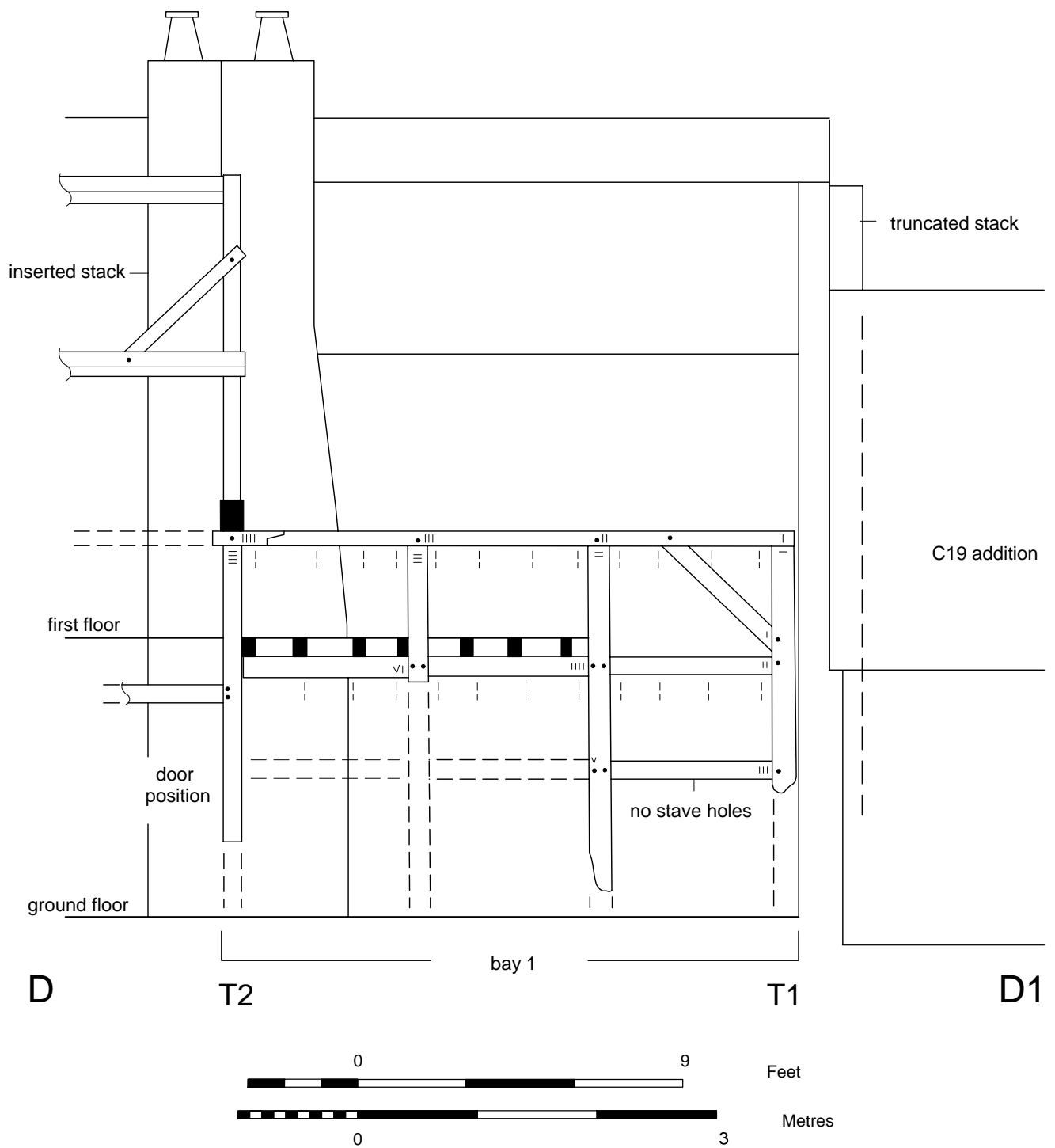


Figure 7. The Old Cottage, Main Street, Cotesbach. Rear Elevation Detail of Bay 1 Framing D - D1.

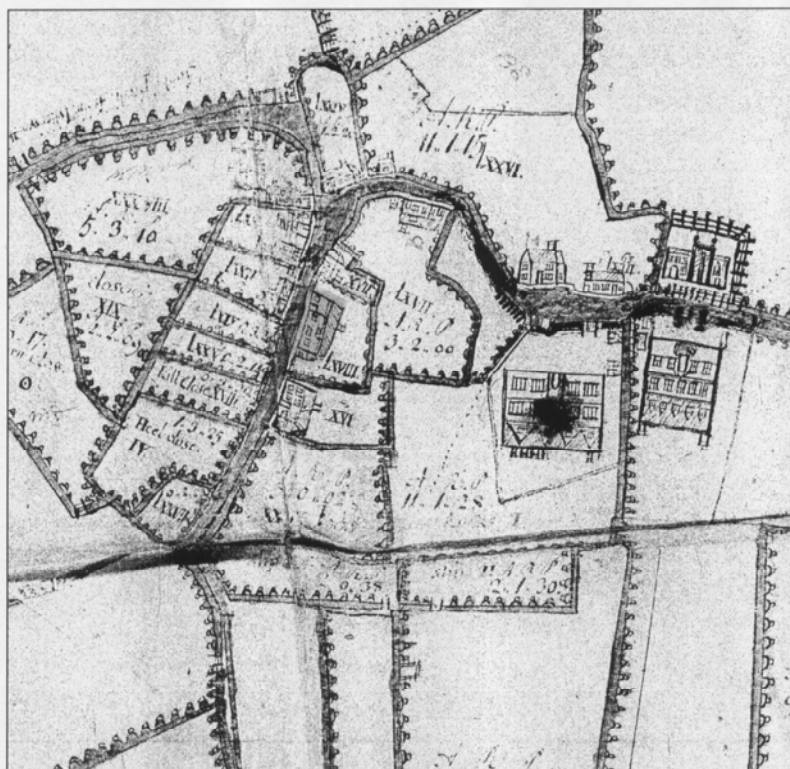


Figure 8. Extract from Bennett Estate Map of 1720 (not to scale).





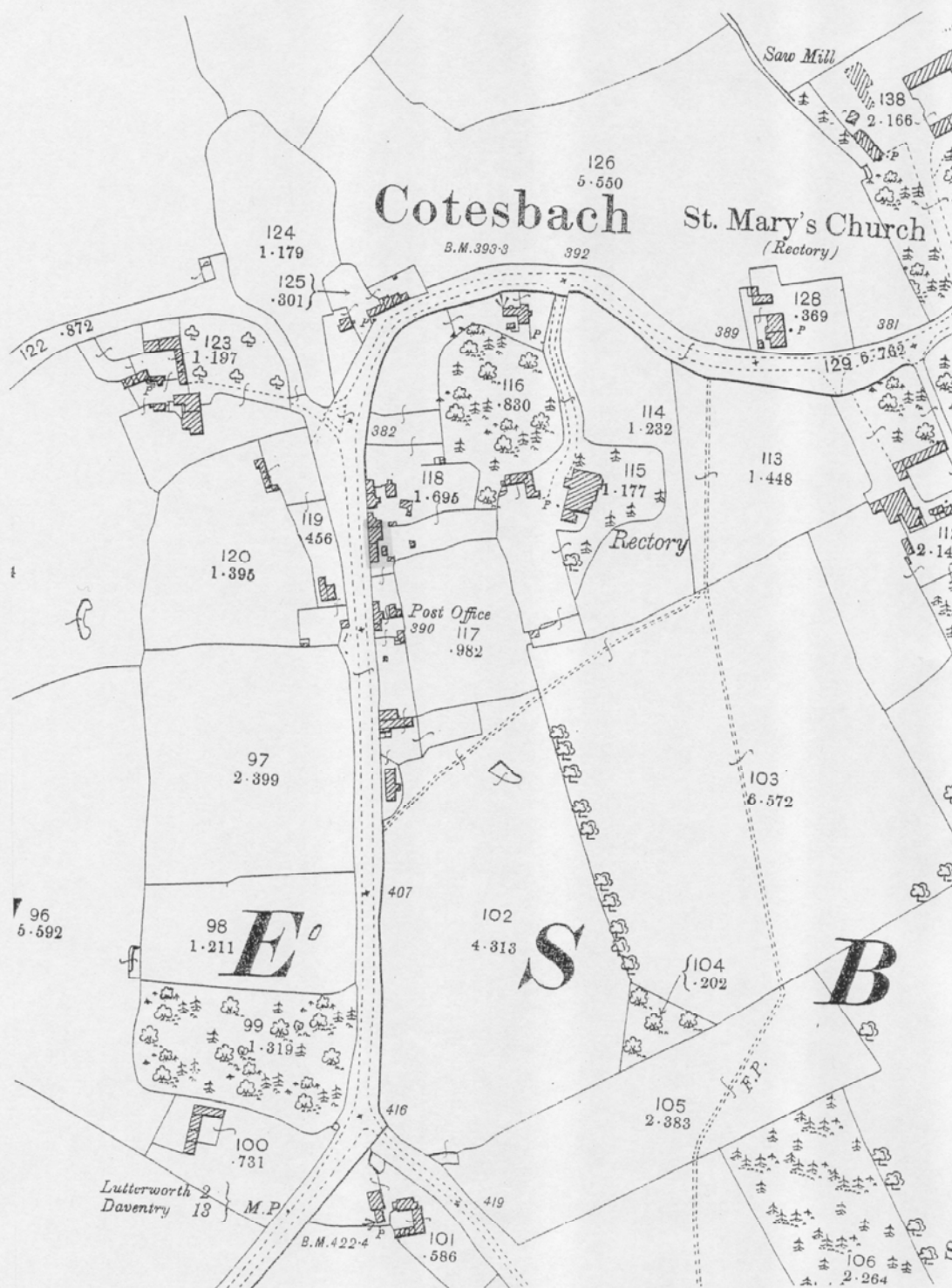


Figure 11. Extract from 1904 Second Edition OS Map Sheet LII.4. Scale 1:2500



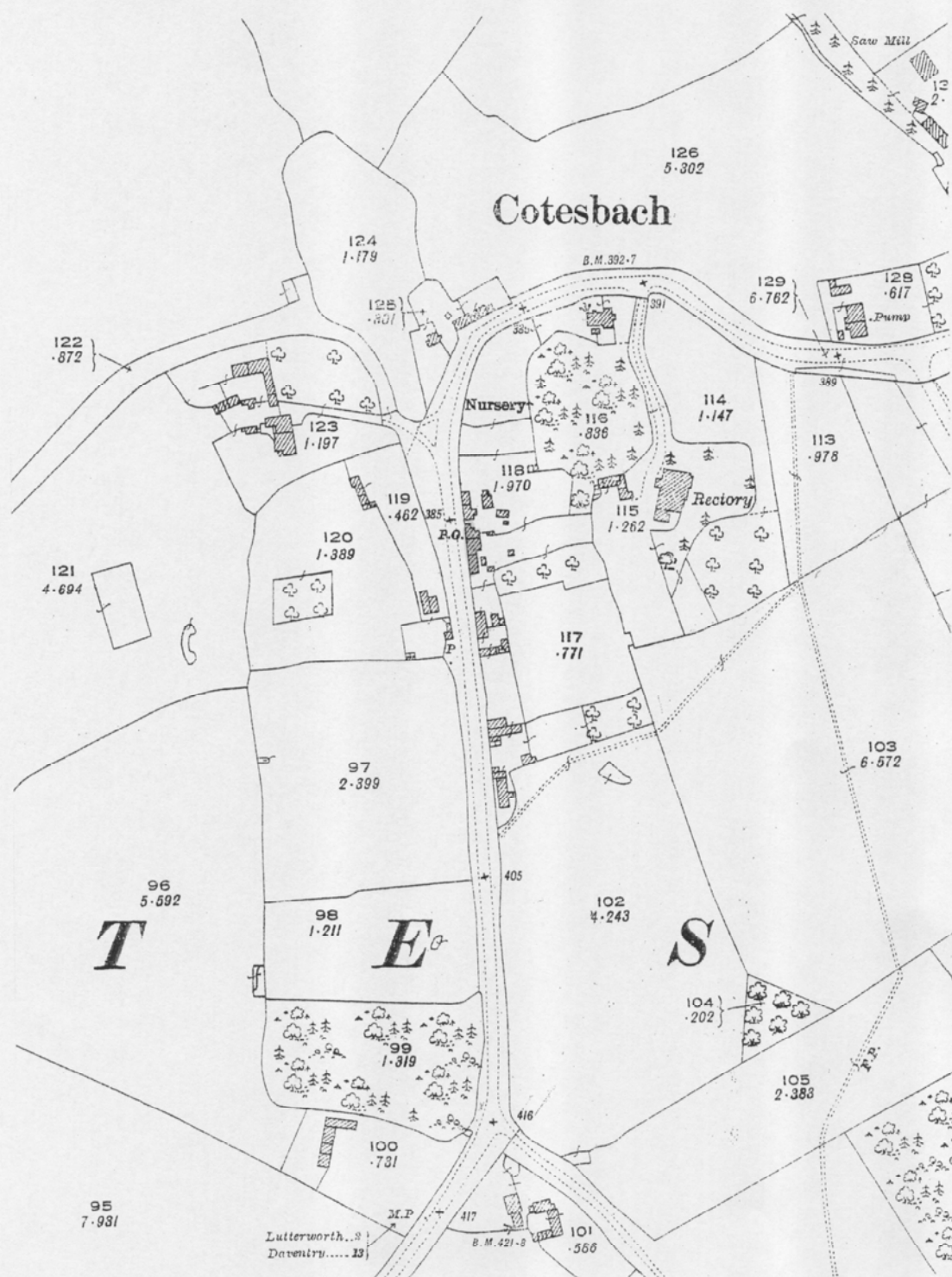


Figure 12. Extract from 1925 Edition OS Map Sheet LII.4. Scale 1:2500



Figure. 13. Extract from 1962 OS Map Sheet SP5382. Scale 1:2500



Figure 14. Extract from 1981 OS Map Sheet SP5382. Scale 1:2500

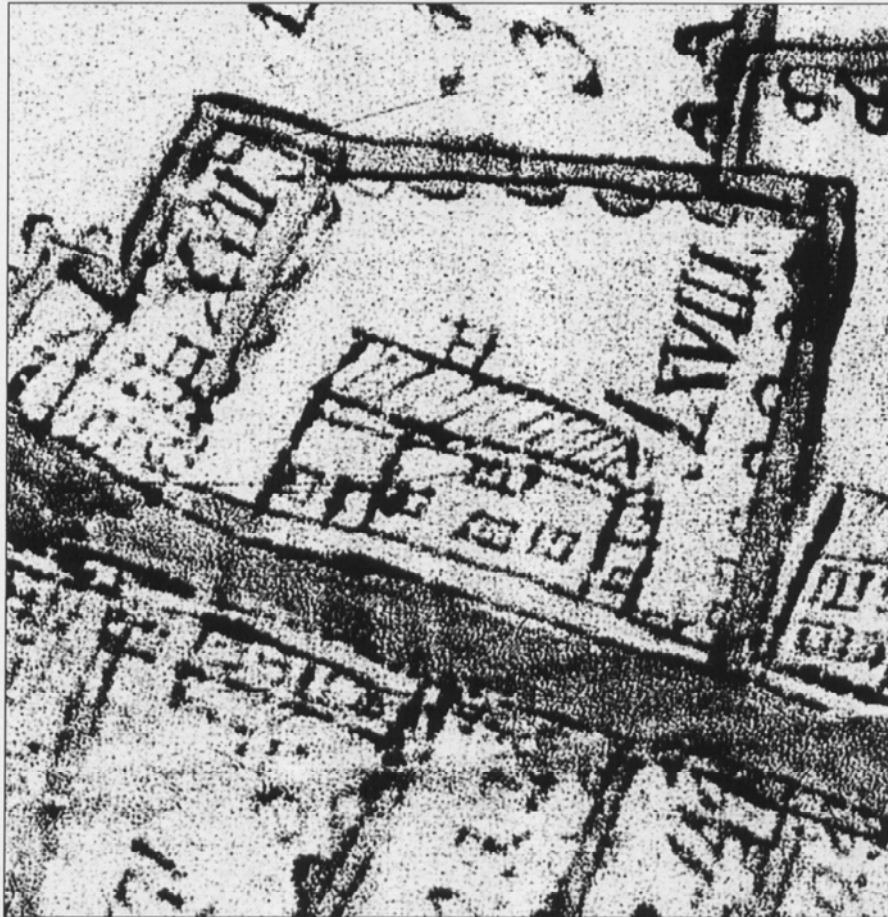


Figure 15. Detail of Bennett Map of 1720 showing house resembling The Old Cottage