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Ancient Monuments Laboratory
Report 24/2000

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Summary

This house presents a Georgian facade to the outside world, but is built around an earlier core. Records suggest that it was built for a barber-surgeon, Joseph Fenton c AD 1620. There are remnants of the original roof and floor in one part of the house. It had been suggested that the layout of the house could suggest an even earlier origin and dendrochronological study was employed to date the few remaining timbers. One timber was felled in summer AD 1622, and a second had twenty sapwood rings with the outermost ring being formed in AD 1613, suggesting that they were contemporaneous. A third timber was dated but had no sapwood, only allowing a date after which it must have been felled (AD 1594). It appears therefore that the earliest surviving parts of this structure were indeed built in the early AD 1620's.

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TREE-RING ANALYSIS OF TIMBERS FROM 'THE PRIORY', CHURCH LANE, TOTTENHAM, LONDON BOROUGH OF HARINGEY

Introduction

'The Priory', also known as All Hallows Vicarage, (NGR TQ 3331090800; Fig 1) appears to the road elevation as a Georgian house, but is thought to have been built for the barber-surgeon Joseph Fenton *c* AD 1620. The shape of the north wing (Fig 3) is thought by some to suggest an even earlier origin (Wittrick pers comm). At least four main phases are evident in the house today. Few old roof timbers survive, but amongst them are one complete truss and an integrated floor from what is thought to be the primary building phase, and a frame from an extension of the main hall range to the west. The style of the oldest truss is thought to perhaps be earlier than the *c* AD 1620 date attributed to the building. There is some evidence that the timbers in the frame of the extension are re-used, possibly from the first phase.

A proposal has been made to demolish a chimney stack, which would necessitate alterations to the roof structure. Dendrochronological dating was requested in order to confirm the date of the remains of the earliest extant roof truss and the extension and assess the importance of these remains in relation to the proposed works.

Methodology

The site was visited in August AD 1999, when the timbers were assessed for their potential use in dendrochronological study. Timbers identified as suitable during the assessment were cored.

Core samples were obtained using a 15mm auger attached to an electric drill. The cores were glued to wooden laths, labelled, and stored for subsequent analysis. The cores were prepared for measuring by sanding using an electric belt-sander with progressively finer grit papers down to 400 grit. Any further preparation necessary, eg where bands of narrow rings occurred, was done manually. Only samples with more than 45-50 rings were measured and used in subsequent analyses as sequences with fewer than this number of rings rarely give reliable crossmatching. Suitable samples had their tree-ring sequences measured to an accuracy of 0.01 mm using a specially constructed system utilizing a binocular microscope with the sample mounted on a travelling stage with a linear transducer linked to a PC. The software used in measuring and subsequent analysis was written by Ian Tyers (1999).

Ring sequences were plotted to allow visual comparisons to be made between sequences on a light table. This activity also acts as a measure of quality control in identifying any errors in the measurements when the samples crossmatch. Statistical comparisons were made using Student's *t*-test (Baillie and Pilcher 1973; Munro 1984). The *t*-values quoted below were derived from the original CROS program (Baillie and Pilcher 1973). Those *t*-values in excess of 3.5 are taken to be indicative of acceptable matching positions provided that they are supported by satisfactory visual matches, and give consistent matching positions.

When crossmatching between samples is found, their ring-width sequences are meaned to form an internal site mean sequence which is then compared with a number of reference chronologies (multi-site chronologies from a region) and dated individual site masters in an attempt to date

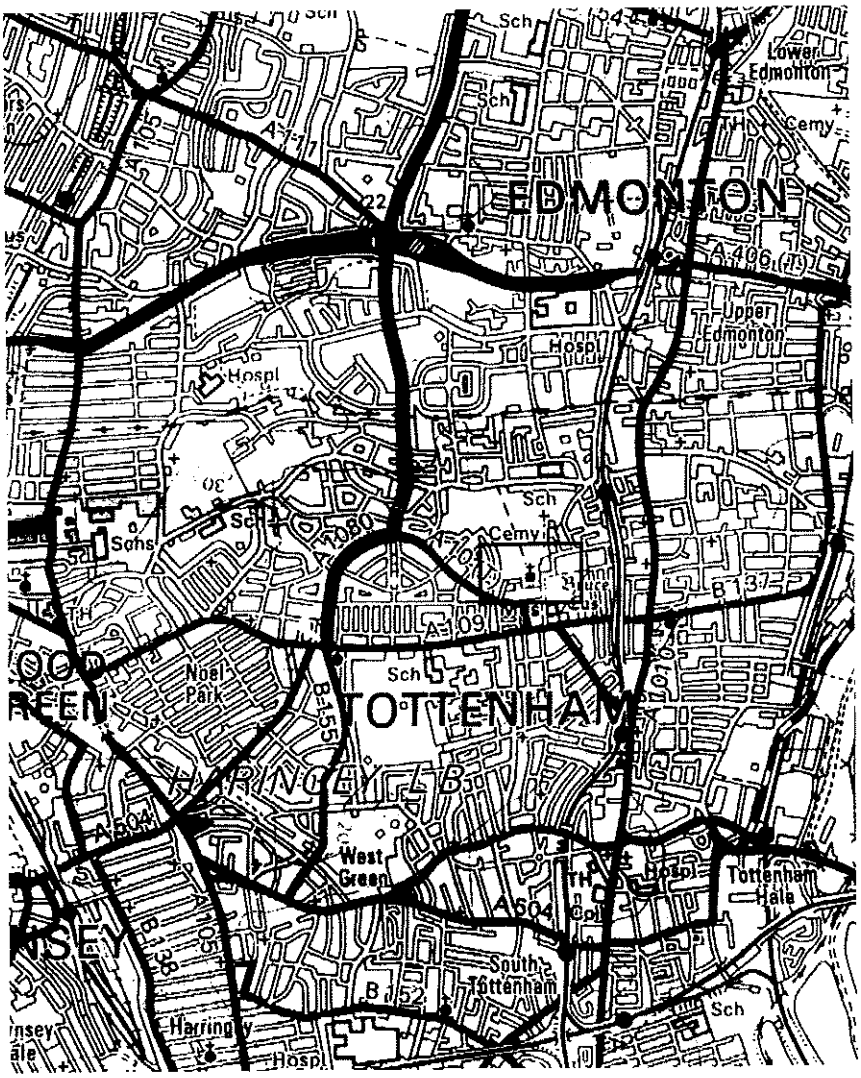
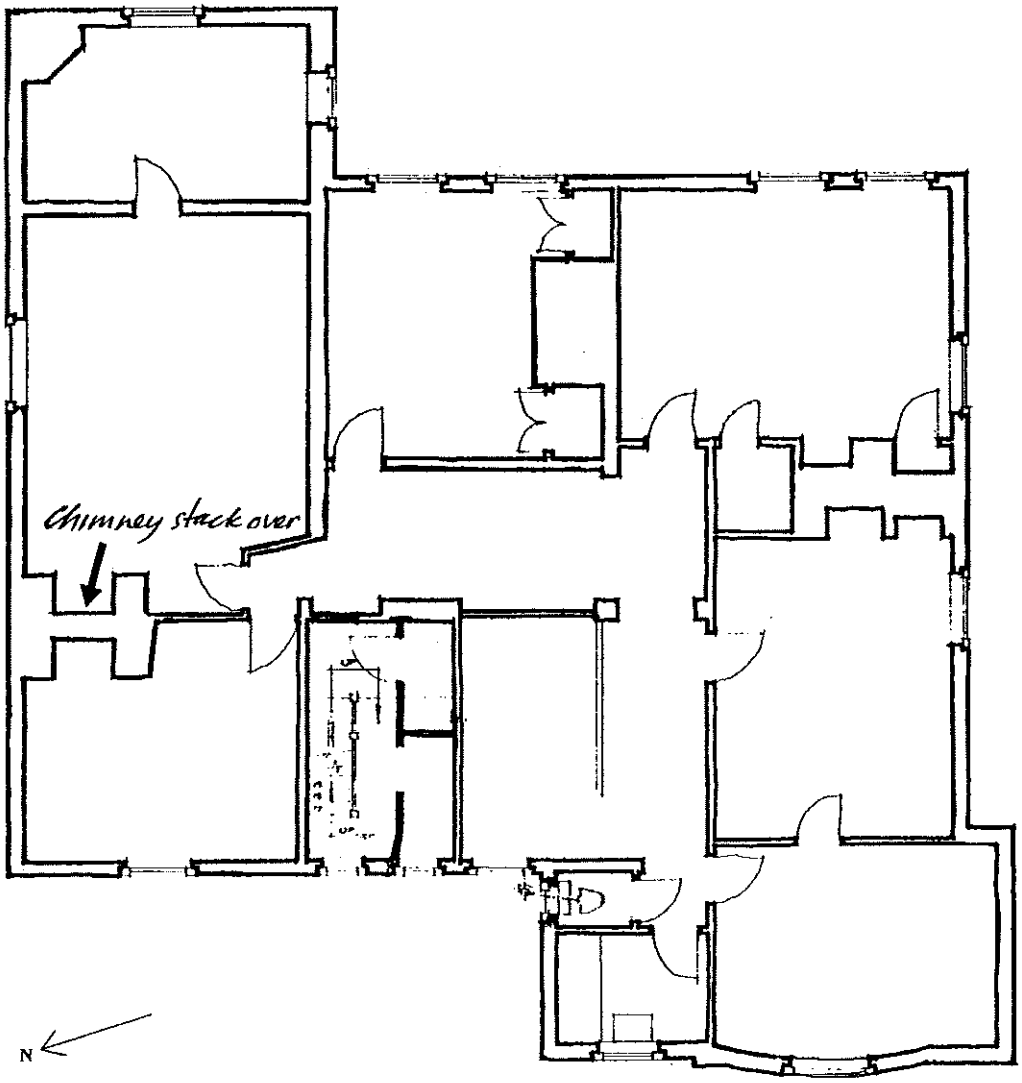
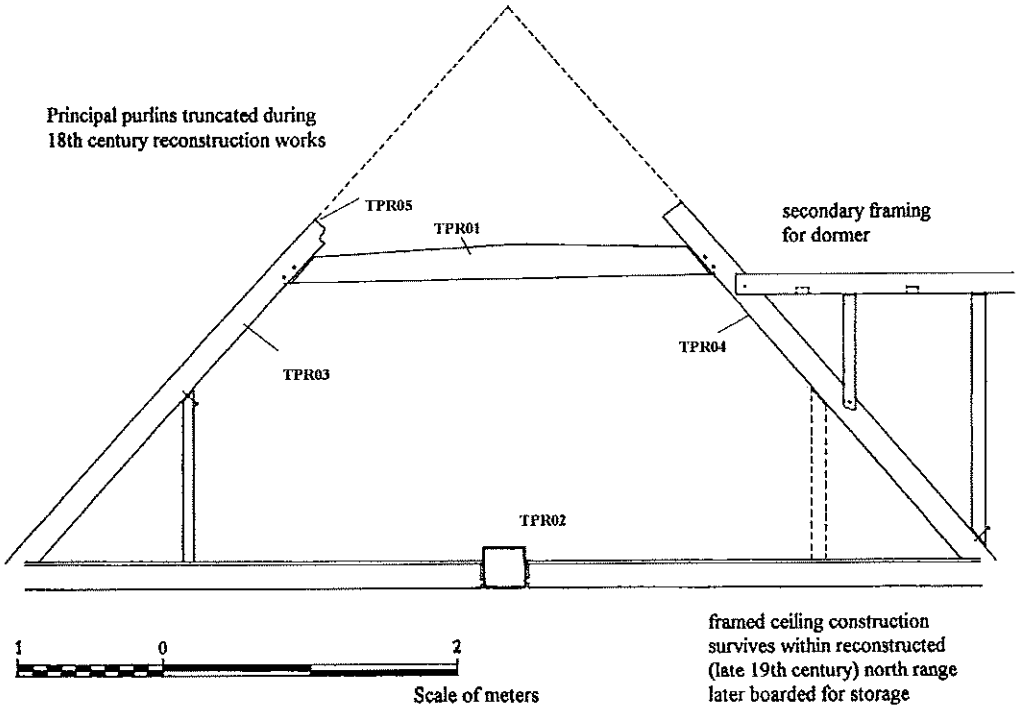


Figure 1: Map showing the location of 'The Priory', Tottenham, London Borough of Haringey.



SKETCH PLAN – FIRST FLOOR LEVEL.

Figure 2: Sketch plan of the first floor of 'The Priory', Tottenham, the surviving truss is in the roof space over the marked chimney



Surviving roof truss arrangement over main Hall range to north

A R Wittrick

Figure 3: Drawing of the surviving truss showing the timbers sampled for dendrochronology, based on an original by Andy Wittrick (English Heritage)

it. Individual long series which are not included in the site mean(s) are also compared with the database to see if they can be dated.

The dates thus obtained represent the time of formation of the rings available on each sample. Interpretation of these dates then has to be undertaken to relate these findings to the construction date of the phase under investigation. An important aspect of this interpretation is the estimate of the number of sapwood rings missing. In this instance, the sapwood estimates are based on those proposed for this area by Miles (1997), in which 95% of samples are likely to have from 9 to 41 sapwood rings. Where bark is present on the sample the exact date of felling of the tree used may be determined.

The dates derived for the felling of the trees used in construction do not necessarily relate directly to the date of construction of the building. However, evidence suggests that, except in the re-use of timbers, construction in most historical periods took place within a very few years after felling (Salzman 1952; Hollstein 1965).

Results

None of the timbers of the later extension phase were thought to be suitable because of the lack of rings evident in the timbers. Figure 2 shows the first floor plan of the property, and the locations sampled in the oldest truss are illustrated in Figure 3. Very few timbers of the earliest phase of the house remained, and of those several were found on close inspection to contain too few rings to be of use in dendrochronological analysis. The second phase, a westward extension of the hall range, was not sampled at all, because the timbers exhibited too few rings. Although this left only a few timbers to sample, it was felt worthwhile to sample these, particularly because of the wealth of local chronologies available with which to compare them. All the timbers cored were oak (*Quercus* spp.).

The collar to the oldest remaining truss was made from a quartered tree, with bark still evident on the upper surface. The sequence of 107 years from this timber was far longer than for any of the other samples (Table 1). The principal rafters contained very few rings, although one common rafter was cored after inspection revealed that it had more rings than its neighbours.

Sample TPR01 did not crossmatch the other samples, but was dated (Table 2). TPR02 and TPR05 crossmatched (t = 4.4; 42 years of overlap). The short overlap and lack of replication meant that the two samples were dated separately in the first instance. Crossmatching with the reference material (Tables 3 and 4) confirmed the link between the two samples which were then combined into a single sequence TPR0205M, the crossdating evidence for which is in Table 5. The ring-width data for the sequences is given in Table 6.

The relative positions of overlap and felling dates of the samples are shown in Figure 4.

Interpretation and Discussion

Although few timbers were available for study, and many of these were judged not to be suitable for dendrochronological analysis because of the lack of rings in them, on this occasion three samples yielded sufficiently useful series that the few remnants of the primary phase of the building could be dated. One reason for this is that one series was 107 years long and retained the bark. Another reason is that there are sufficient data with which to compare the series in this instance. The three dated timbers were thought to be contemporaneous from structural

Table 1: Oak (*Quercus* spp.) timbers sampled at 'The Priory', Tottenham.

Sample No	Origin of core	Total No of years	Average growth rate (mm yr^{-1})	Sapwood details	Date of sequence AD	Felling date of timber AD
TPR01	Collar to phase I truss	107	1.26	24 + bark	1515 - 1621	Summer 1622
TPR02	Bridging beam	70	1.50	20	1544 - 1613	1614 – 1634
TPR03	East principal rafter	< 45	not measured	-	unknown	unknown
TPR04	West principal rafter	< 45	not measured	-	unknown	unknown
TPR05	Common rafter, east side	50	3.14	-	1536 - 1585	After 1594

Table 2: Dating of the oak sample TPR01

	TPR01 AD 1515 - 1621	
Dated reference or site master chronology	*t*-value	Overlap (yrs)
Oxon93 (Miles pers comm)	4.0	107
Warborough, Oxfordshire (Haddon-Reece *et al* 1989)	6.1	60
Reigate floorboards, Surrey (Tyers pers comm)	6.1	76
Whitchurch Hill, Oxfordshire (Miles and Haddon-Reece 1995)	4.9	45
Broomfield, London (Bridge 1997)	4.8	48

Table 3: Dating of the oak sample TPR02

	TPR02 AD 1544 - 1613	
Dated reference or site master chronology	*t*-value	Overlap (yrs)
Oxon93 (Miles pers comm)	6.3	70
East Midlands (Laxton and Litton 1988)	6.3	70
Hereford and Worcester (Siebenlist-Kerner 1978)	5.9	70
Wimpole1, Cambridgeshire (Bridge 1998)	7.4	70
Chawton, Hampshire (Miles and Haddon-Reece 1996)	5.7	49

Table 4: Dating of the oak sample TPR05

	TPR05 AD 1536 - 1585	
Dated reference or site master chronology	*t*-value	Overlap (yrs)
Oxon93 (Miles pers comm)	5.5	50
Anglia98 (Bridge unpubl)	4.8	50
London1175 (Tyers pers comm)	4.6	50
Wimpole1, Cambridgeshire (Bridge 1998)	4.2	50
Oriel College, Oxford (Miles and Haddon-Reece 1994)	4.0	50

Table 5: Dating of oak chronology TPR0205M

	TPR0205M AD 1536 - 1613	
Dated reference or site master chronology	*t*-value	Overlap (yrs)
Anglia98 (Bridge unpubl)	6.0	78
Oxon93 (Miles pers comm)	6.0	78
Hereford and Worcester (Siebenlist-Kerner 1978)	5.3	78
East Midlands (Laxton and Litton 1988)	4.8	78
Wimpole1, Cambridgeshire (Bridge 1998)	6.4	78
Chawton, Hampshire (Miles and Haddon-Reece 1996)	4.0	56

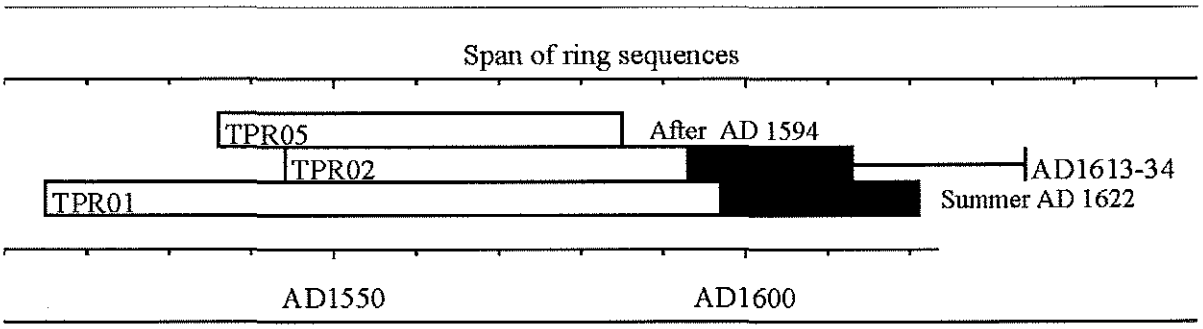


Figure 4: Bar diagram showing the relative positions of overlap of the dated timbers from 'The Priory', Tottenham, London Borough of Haringey. The shaded bars represent sapwood

considerations. Although crossmatching between them was weak, they dated individually against reference material, and were indeed found to be of the same period. The presence of bark on one timber and 20 rings of sapwood on a second allows one to be reasonably confident in suggesting that the felling date obtained for sample TPR01 is likely to be representative of the felling date for all the timbers in this phase. TPR01 was felled in the summer of AD 1622. This agrees well with the records which suggest that the house was built for Joseph Fenton *c* AD 1620.

It is often difficult to suggest a geographical origin for the oak used (Bridge forthcoming), but it is of interest that many of the best crossmatches for these timbers were with oak from sources well outside London, mostly to the west, but also to the north.

Acknowledgements

I am grateful to English Heritage for funding this work, and Andy Wittrick (English Heritage) for his useful on-site discussion and assistance, and for providing a sketch of the truss.

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Table 6: Ring-width data for TPR01 and TPR0205M

Year	ring widths (0.01mm)	No of trees
TPR01		
AD1515	200 233 87 242 299 208	
	147 203 107 130 89 104 103 131 118 59	
	107 75 103 81 177 150 201 193 392 218	
	177 99 242 147 297 167 177 246 193 176	
AD1551	203 75 62 52 37 53 51 65 79 66	
	70 50 63 58 49 34 37 131 83 96	
	65 88 50 63 56 103 71 61 77 132	
	131 134 112 108 133 131 156 159 122 195	
	176 143 180 250 259 269 264 246 213 99	
AD1601	38 38 32 32 50 58 60 104 80 97	
	84 88 60 125 100 111 136 110 111 167	
	96	
TPR0205M		
AD1536	404 317 276 346 277	1 1 1 1 1
	355 323 382 319 255 215 238 352 357 317	1 1 1 2 2 2 2 2 2 2
AD1551	300 256 281 248 364 203 145 193 209 306	2 2 2 2 2 2 2 2 2 2
	217 387 229 249 259 169 191 264 274 316	2 2 2 2 2 2 2 2 2 2
	249 179 141 101 146 139 257 181 178 256	2 2 2 2 2 2 2 2 2 2
	206 147 161 184 278 134 137 126 185 124	2 2 2 2 2 1 1 1 1 1
	141 97 98 110 150 192 138 113 98 140	1 1 1 1 1 1 1 1 1 1
AD1601	167 162 206 218 146 111 124 111 87 113	1 1 1 1 1 1 1 1 1 1
	116 148 129	1 1 1