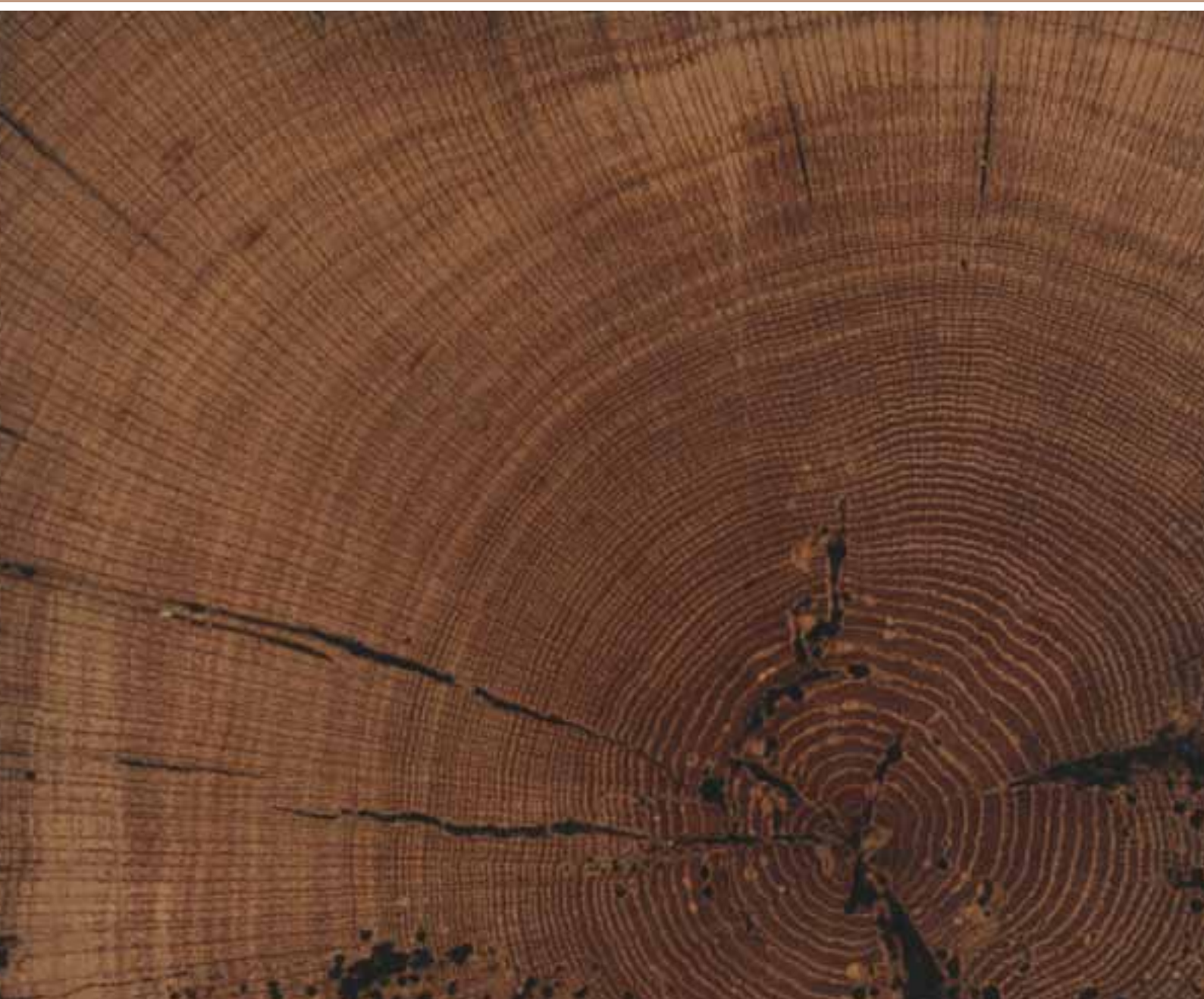


CHURCH OF ST PETER AND ST PAUL, EYE, SUFFOLK TREE-RING ANALYSIS OF TIMBERS FROM THE TOWER

SCIENTIFIC DATING REPORT

Martin Bridge



**CHURCH OF ST PETER and ST PAUL,
EYE,
SUFFOLK**

**TREE-RING ANALYSIS OF TIMBERS
FROM THE TOWER**

Dr M C Bridge

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SUMMARY

An initial assessment of the timbers in the tower ruled out dendrochronological investigation of the bellframe on the grounds that the timbers did not contain sufficient numbers of rings to warrant sampling and analysis. The primary timbers of the belfry floor, along with their supporting framework and the secondary joists, were considered worthy of further investigation. A total of ten timbers was sampled, of which one sample was found to have too few rings to analyse, and one timber did not date. The remaining eight series matched each other and were found to form a group of timbers most likely felled at the same time, probably in the period AD 1466–c.70, showing that the supporting framework, primary beams, and secondary joists are all part of the same phase of construction.

CONTRIBUTOR

Dr M C Bridge

ACKNOWLEDGEMENTS

I would to thank the captain of the bells, Mr St John Perry, for his kind assistance in removing ceiling boards and providing a ladder, as well as giving access to the tower. I also thank Graham Pledger (English Heritage) for his introduction to the site and discussion about the work to be undertaken. The work was commissioned by Dr Peter Marshall (EH). Cathy Tyers (Sheffield University) and John Meadows (EH) are thanked for their comments on an earlier draft of this report.

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Suffolk County Council Archaeology Service
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2010

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INTRODUCTION

The church of St Peter and St Paul sits on the eastern side of the market town of Eye (Fig 1), where its exceptionally large tower dominates the skyline. The church is a grade I listed building comprising flint with ashlar dressings and brick. It is of mainly early fourteenth-century date, although it was heightened and reroofed in the late-fifteenth century. The tower and south porch were both added in the late-fifteenth century. The tower is of four stages, stepping down in size at each higher level, and is supported by diagonal polygonal buttresses. The belfry stage has two two-light Perpendicular openings to each face. Much of the church was restored in AD 1869. Proposed repair work to the bellframe led to the English Heritage bellframe specialist Graham Pledger requesting that the bellframe and associated elements within the tower be investigated dendrochronologically to establish their construction dates and hence inform the proposed work.



Figure 1. Map to show the location of the church (based on the Ordnance Survey map with permission of the Controller of Her Majesty's Stationery Office, ©Crown Copyright)

METHODOLOGY

The site was visited in March 2010. In the initial assessment, accessible oak timbers with more than 50 rings and where possible traces of sapwood were sought, although slightly shorter sequences are sometimes sampled if little other material is available. Those building timbers judged to be potentially useful were cored using a 15mm auger attached to an electric drill. The cores were glued to wooden laths, labelled, and stored for subsequent analysis. The cores removed were polished on a belt sander using 60 to 400 grit abrasive paper to allow the ring boundaries to be clearly distinguished. The samples had their tree-ring sequences measured to an accuracy of 0.01mm, using a specially constructed system utilising a binocular microscope with the sample mounted on a travelling stage with a linear transducer linked to a PC, which recorded the ring widths into a dataset. The software used in measuring and subsequent analysis was written by Ian Tyers (2004). Cross-matching was accomplished by a combination of visual matching and a process of qualified statistical comparison by computer. The ring-width series were compared for statistical cross-matching, using a variant of the Belfast CROS program (Baillie and Pilcher 1973). Ring sequences were plotted to allow visual comparisons to be made between sequences on a light table. This method provides a measure of quality control in identifying any potential errors in the measurements when the samples cross-match.

In comparing one sample or site master against other samples or chronologies, t -values over 3.5 are considered significant, although in reality it is common to find t -values of 4 and 5 that are demonstrably spurious because more than one matching position is indicated. For this reason, dendrochronologists prefer to see some t -value ranges of 5, 6, and higher, and for these to be well-replicated from different, independent chronologies with both local and regional chronologies well represented, except where imported timbers are identified. Where two individual samples match together with a t -value of 10 or above, and visually exhibit exceptionally similar ring patterns, they may have originated from the same parent tree. Same-tree matches can also be identified through the external characteristics of the timber itself, such as knots and shake patterns. Lower t -values do not preclude same-tree derivation, however.

Ascribing felling dates and date ranges

Once a tree-ring sequence has been firmly dated in time, a felling date, or date range, is ascribed where possible. With samples which have sapwood complete to the underside of, or including bark, this process is relatively straightforward. Depending on the completeness of the final ring, ie if it has only the spring vessels or early wood formed, or the latewood or summer growth, a precise felling date and season can be given. If the sapwood is partially missing, or if only a heartwood/sapwood transition boundary survives, then an estimated felling date range can be given for each sample. The number of sapwood rings can be estimated by using an empirically derived sapwood estimate with a given confidence limit. If no sapwood or heartwood/sapwood boundary survives, then the

minimum number of sapwood rings from the appropriate sapwood estimate is added to the last measured ring to give a *terminus post quem* (*tpq*) or felled-after date.

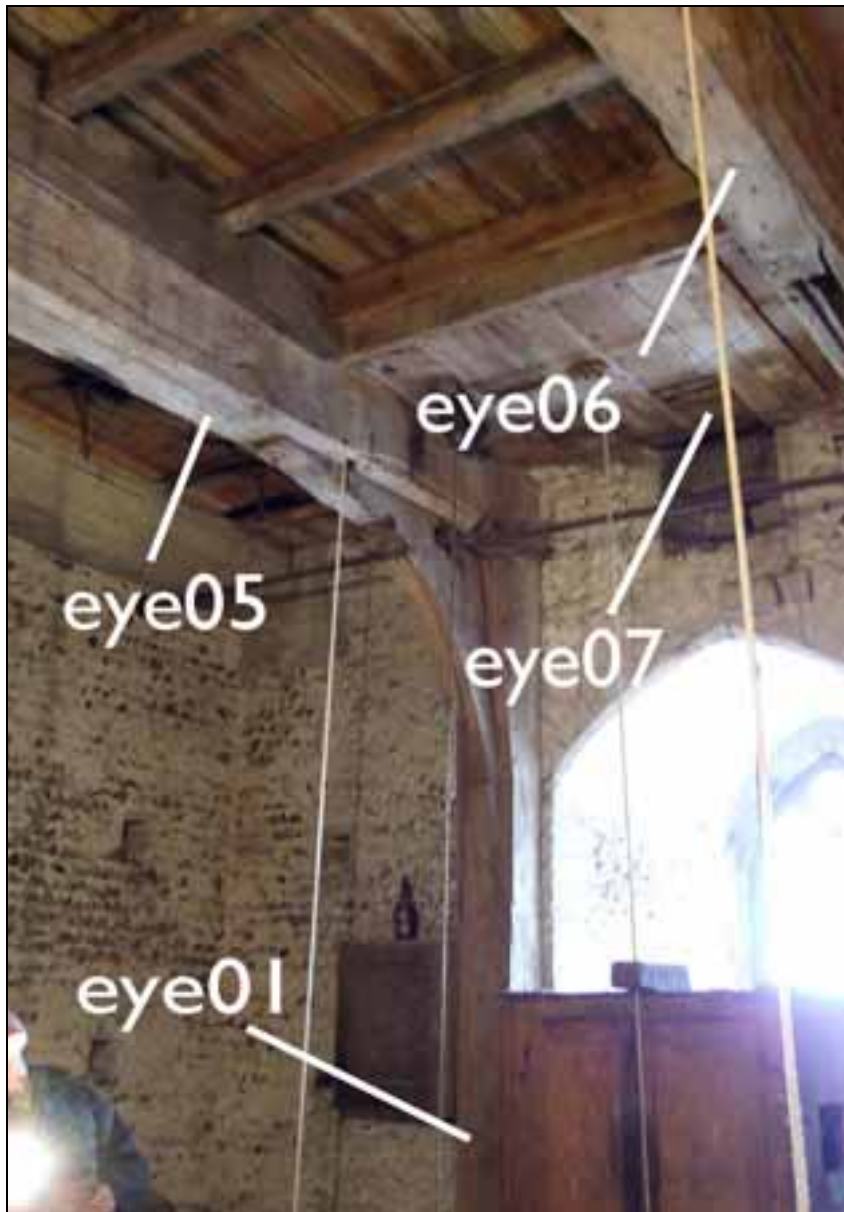


Figure 2. View of the belfry floor and supporting structure, looking south-west, showing some of the timbers sampled for dendrochronology

A review of the geographical distribution of dated sapwood data from historic timbers has shown that a sapwood estimate relevant to the region of origin should be used in interpretation. For this region, the sapwood estimate used is 9–41 (Miles 1997). It must be emphasised that dendrochronology can only date when a tree has been felled, not when the timber was used to construct the structure or object under study.

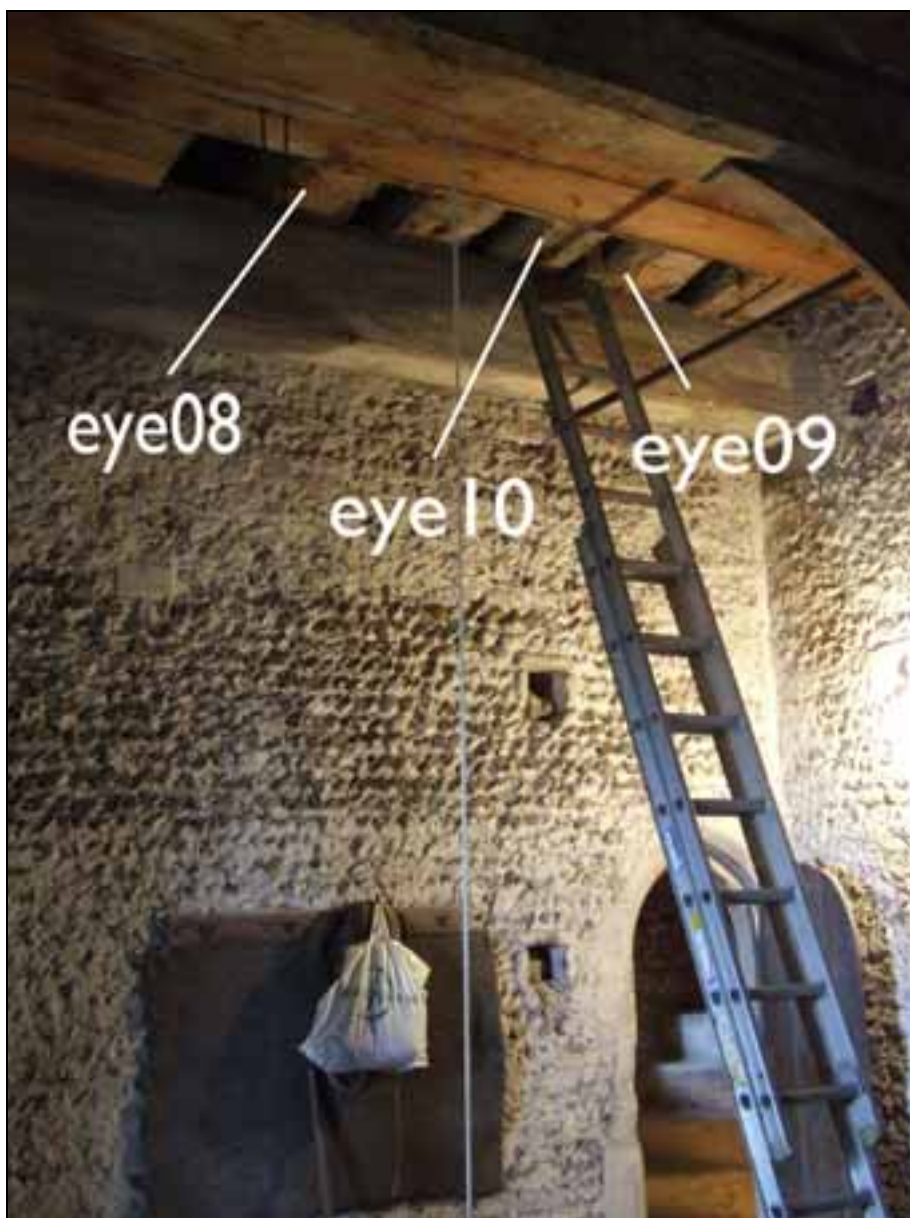


Figure 3. View of the belfry floor, looking north-east, showing some of the timbers sampled for dendrochronology

RESULTS AND DISCUSSION

The key element of this investigation, the bellframe was assessed and rejected for sampling and analysis as all its timbers were judged to have too few rings to make dating by dendrochronology likely, although other associated elements within the tower were assessed as suitable. After confirmation with Graham Pledger and the Scientific Dating Team, timbers from the belfry floor and its supporting structure were sampled, including the two main east-west beams, some of the secondary joists resting on these beams, and

the posts supporting the primary beams (Figs 2–4). Table 1 details the timbers sampled and basic information about the ring series derived from them. Sample eye08 was found to have bands of very narrow rings in the inner section and was truncated so that only the outer 58 rings were used in further analysis, the edited series being called eye08o. The data for each sample are given in the appendix. One sample, eye04, was rejected from the analysis as it contained too few rings for reliable dating purposes. The remaining nine samples were compared. There was good cross-matching between eight of the samples (Table 2). Sample eye04 did not match the other series, nor could it subsequently be dated independently.

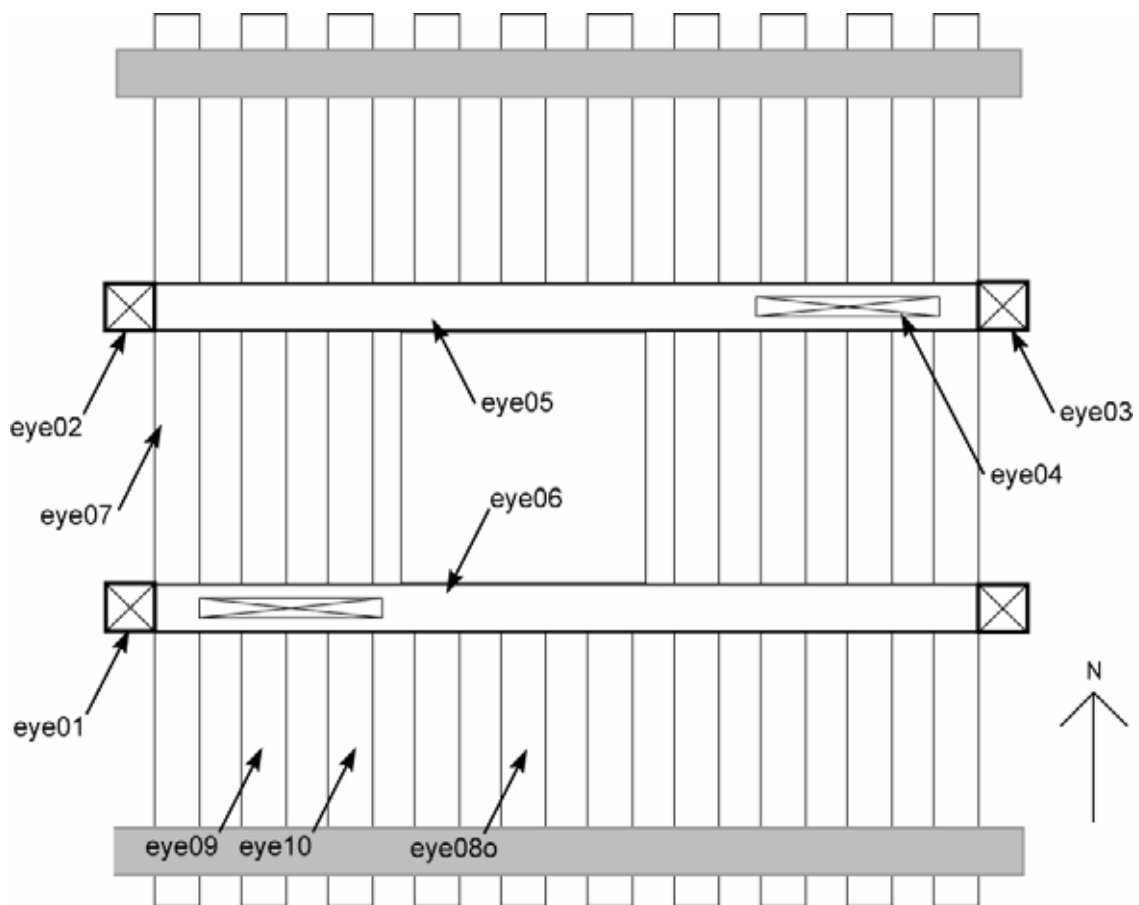


Figure 4. Plan of the belfry floor, from below, showing the positions of the sampled timbers; shaded beams are in concrete

Eight series were therefore combined at the relative positions of overlap indicated in Figure 5 to form the 106-year site chronology, EYE. This was subsequently dated to the period AD 1356–1461, the strongest matches being detailed in Table 3. The matches indicate that the timbers used were most likely from trees grown close to the location of Eye.

All the dated series retained the heartwood-sapwood boundary, and several had sapwood rings as well. They appear to form a single group of timbers most likely felled at

the same time, since they have overlapping felling date ranges and the structure appears to have been built as a single phase. Two samples were particularly useful in narrowing the range of likely felling dates. Sample eye01 retained 16 sapwood rings including the outermost ring below the bark, but these were detached from the main core, and thus it is possible that a few rings were lost from the start of the sapwood. Sample eye02 retained 26 sapwood rings, and a further five outer rings that broke off during coring. It was noted at the time of sampling that very little sapwood was lost from this core, and the outermost sapwood ring under the bark was present on the timber. Therefore it is possible to suggest a narrow range for its likely felling date. The other timbers, which retain less significant amounts of sapwood, have likely felling date ranges which agree well with these two samples (Fig 4; Table 1), and thus a narrow range of AD 1466–c.70 is proposed for the felling of the timbers investigated.

This result confirms that the primary and secondary members of the belfry floor and its support framework are all contemporaneous and that they were indeed felled in the late-fifteenth century, providing support for the accepted understanding of the chronological development of the church and also more precise dating evidence for the work in the tower. Further interpretative survey work may ascertain whether or not this late-fifteenth century date can also be applied to the actual bellframe.

Table 1. Details of oak (*Quercus spp.*) timbers sampled from the tower, Church of St Peter and St Paul, Eye, Suffolk

| Sample | Timber and position | No of rings | Mean width (mm) | Mean sens (mm) | Spanning Dates AD | H/S bdry AD | Sapwood | Felling seasons and dates/date ranges (AD) |
|-------------------------|---|-------------|-----------------|----------------|-------------------|-------------|-------------|--|
| Supporting framework | | | | | | | | |
| eye01 | South-west post | 81 | 2.27 | 0.28 | 1367–1447 | 1447 | h/s (+16NM) | 1463–c70 |
| eye02 | North-west post | 106 | 1.25 | 0.28 | 1356–1461 | 1435 | 26 (+5NM) | 1466–c70 |
| eye03 | North-east post | 60 | 1.86 | 0.33 | undated | - | 10 (+4NM) | unknown |
| eye04 | Brace to north-east post | <45 | NM | - | undated | - | - | unknown |
| Primary east-west beams | | | | | | | | |
| eye05 | North beam | 68 | 2.11 | 0.25 | 1380–1447 | 1447 | h/s | 1456–88 |
| eye06 | South beam | 55 | 2.12 | 0.27 | 1399–1453 | 1445 | 8 | 1454–86 |
| Secondary joists | | | | | | | | |
| eye07 | West-most joist in middle section | 46 | 3.42 | 0.27 | 1399–1444 | 1444 | h/s (+9NM) | 1453–85 |
| eye08o | 5 th joist from west end, southern section | 58 | 1.98 | 0.21 | 1393–1450 | 1450 | h/s | 1459–91 |
| eye09 | 2 nd joist from west end, southern section | 92 | 2.94 | 0.25 | 1368–1459 | 1452 | 7 | 1461–93 |
| eye10 | 3 rd joist from west end, southern section | 71 | 2.95 | 0.27 | 1384–1454 | 1454 | h/s | 1463–95 |

Key: NM = not measured; h/s = heartwood-sapwood boundary; uses sapwood estimate 9–41 from Miles (1997)

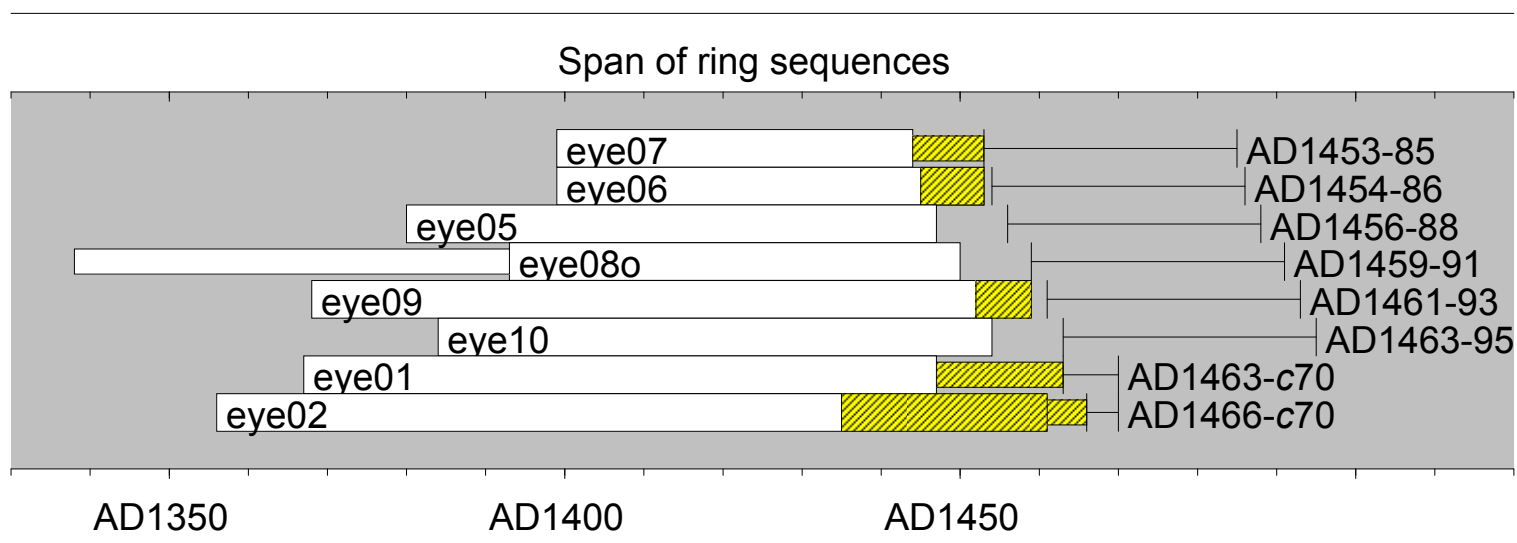


Figure 5. Bar diagram showing the relative positions of overlap between the dated series, along with their derived likely felling date ranges. Hatched sections represent sapwood rings and narrow sections represent additional unmeasured

Table 2. Cross-matching between the dated series; t-values over 3.5 are considered significant

| <i>t-values</i> | | | | | | | |
|-----------------|-------|-------|-------|-------|--------|-------|-------|
| SAMPLE No | eye02 | eye05 | eye06 | eye07 | eye08o | eye09 | eye10 |
| eye01 | 5.8 | 7.8 | 5.1 | 3.1 | 4.6 | 5.1 | 6.5 |
| eye02 | | 4.9 | 4.9 | 5.1 | 4.1 | 7.6 | 5.4 |
| eye05 | | | 3.7 | 3.1 | 4.4 | 3.6 | 4.7 |
| eye06 | | | | 3.2 | 6.0 | 3.4 | 6.5 |
| eye07 | | | | | 7.5 | 2.0 | 4.5 |
| eye08o | | | | | | 2.2 | 6.4 |
| eye09 | | | | | | | 4.7 |

Table 3. Dating evidence for the series EYE, AD 1356–1461, file names in **BOLD represent regional chronologies**

| County/region: | Chronology name: | Short publication reference: | File name: | Spanning: (yrs AD) | Overlap (yrs) | t-value |
|----------------|------------------------------|------------------------------|-----------------|-----------------------|------------------|---------|
| East Anglia | ANGLIA03 | (Bridge 2003) | ANGLIA03 | 944–1789 | 106 | 8.8 |
| Essex | Falconer's Hall, Good Easter | (Bridge 1996) | FALCONER * | 1324–1457 | 102 | 7.9 |
| Essex | St Mary's, Saffron Walden | (Bridge 2001) | SAFFRONI * | 1305–1475 | 106 | 7.0 |
| Suffolk | Otley Hall | (Bridge 2001) | OTYHALLI * | 1415–1587 | 47 | 7.0 |
| Norfolk | Abbey Farm, Thetford | (Howard <i>et al</i> 2000) | THTASQ01 | 1332–1536 | 106 | 6.8 |
| Suffolk | 12 Aspall Road, Debenham | (Miles <i>et al</i> 2009) | ASP03 | 1379–1445 | 67 | 6.8 |
| Berkshire | 8 Canon's Cloisters, Windsor | (Howard <i>et al</i> 2005) | WINDSOR4 | 1342–1467 | 106 | 6.4 |
| London | London Master Chronology | (Tyers pers comm) | LONDON | 413–1728 | 106 | 6.4 |
| Essex | Thaxted Church Chancel | (Bridge 2005) | THXTDCH | 1212–1404 | 49 | 6.1 |

* = constituent of **ANGLIA03**

BIBLIOGRAPHY

- Baillie, M G L, and Pilcher, J R, 1973 A simple cross-dating program for tree-ring research, *Tree Ring Bulletin*, **33**, 7–14
- Bridge, M C, 1996 List 69 - Tree-ring dates, *Vernacular Architect*, **27**, 91–2
- Bridge, M C, 2001 List 115 - Tree-ring dates, *Vernacular Architect*, **32**, 70–4
- Bridge, M C, 2003 Compilation of master chronologies from East Anglia, unpubl computer file ANGLIA03, University College London Dendrochronology Laboratory
- Bridge, M C, 2005 *Tree-ring analysis of timbers from the church of St John the Baptist, Thaxted, Essex*, Centre for Archaeol Rep, **35/2005**
- Howard, R E, Laxton, R R, and Litton, C D, 2000 *Tree-ring analysis of timbers from the barn and cottage, Abbey Farm, Thetford, Norfolk*, Anc Mon Lab Rep, **48/2000**
- Howard, R E, Litton, C D, and Arnold, A J, 2005 *Tree-ring analysis of timbers from Number 8 Canon's Cloisters, Windsor Castle, Windsor, Berkshire*, Centre for Archaeol Rep, **49/2005**
- Miles, D, 1997 The interpretation, presentation, and use of tree-ring dates, *Vernacular Architect*, **28**, 40–56
- Miles, D H, Worthington, M J, and Bridge, M C, 2009 Tree-ring dates, *Vernacular Architect*, **40**, 122–8
- Tyers, I, 2004 *Dendro for Windows Program Guide 3rd edn*, ARCUS Report, **500b**

APPENDIX

Ring width values (units of 0.01mm)

eye01

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 160 | 345 | 347 | 279 | 232 | 334 | 304 | 321 | 222 | 244 |
| 158 | 252 | 174 | 259 | 181 | 144 | 96 | 87 | 226 | 215 |
| 295 | 203 | 216 | 234 | 119 | 77 | 196 | 238 | 256 | 255 |
| 198 | 266 | 338 | 270 | 237 | 223 | 174 | 394 | 267 | 340 |
| 181 | 417 | 406 | 363 | 303 | 301 | 510 | 338 | 334 | 301 |
| 248 | 333 | 209 | 283 | 311 | 243 | 232 | 219 | 191 | 125 |
| 93 | 177 | 123 | 104 | 158 | 226 | 157 | 126 | 130 | 101 |
| 139 | 212 | 237 | 120 | 139 | 151 | 212 | 112 | 135 | 154 |
| 155 | | | | | | | | | |

eye02

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 365 | 275 | 168 | 104 | 58 | 44 | 105 | 125 | 121 | 163 |
| 116 | 77 | 97 | 204 | 187 | 91 | 132 | 90 | 104 | 90 |
| 79 | 56 | 94 | 49 | 64 | 70 | 90 | 135 | 112 | 225 |
| 235 | 188 | 189 | 163 | 167 | 113 | 61 | 96 | 95 | 159 |
| 165 | 146 | 246 | 212 | 157 | 161 | 220 | 209 | 323 | 180 |
| 270 | 179 | 248 | 171 | 165 | 211 | 157 | 135 | 127 | 127 |
| 111 | 96 | 110 | 109 | 149 | 140 | 87 | 147 | 130 | 70 |
| 56 | 61 | 85 | 112 | 79 | 162 | 206 | 124 | 78 | 64 |
| 33 | 41 | 49 | 43 | 52 | 60 | 77 | 79 | 56 | 75 |
| 96 | 72 | 73 | 124 | 72 | 53 | 70 | 112 | 115 | 112 |
| 114 | 87 | 82 | 76 | 113 | 126 | | | | |

eye03

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 495 | 465 | 369 | 239 | 192 | 243 | 205 | 242 | 133 | 123 |
| 168 | 177 | 406 | 467 | 130 | 141 | 147 | 304 | 269 | 216 |
| 177 | 132 | 74 | 53 | 64 | 98 | 126 | 134 | 191 | 121 |
| 110 | 54 | 32 | 29 | 39 | 94 | 159 | 152 | 205 | 105 |
| 237 | 300 | 124 | 102 | 123 | 280 | 158 | 140 | 101 | 117 |
| 192 | 133 | 173 | 138 | 191 | 154 | 278 | 249 | 305 | 357 |

eye05

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 357 | 232 | 188 | 171 | 112 | 232 | 175 | 199 | 275 | 324 |
| 363 | 179 | 121 | 246 | 222 | 262 | 439 | 255 | 257 | 315 |
| 284 | 285 | 246 | 255 | 315 | 342 | 367 | 213 | 338 | 351 |
| 147 | 203 | 192 | 258 | 279 | 234 | 142 | 108 | 176 | 170 |
| 174 | 201 | 217 | 202 | 242 | 136 | 91 | 89 | 138 | 159 |
| 142 | 195 | 255 | 145 | 155 | 117 | 111 | 163 | 236 | 270 |
| 148 | 185 | 169 | 163 | 103 | 110 | 97 | 112 | | |

eye06

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 441 | 381 | 245 | 320 | 234 | 454 | 396 | 350 | 351 | 523 |
| 420 | 308 | 232 | 174 | 402 | 213 | 313 | 244 | 138 | 144 |
| 159 | 181 | 221 | 179 | 204 | 203 | 144 | 86 | 102 | 122 |
| 182 | 125 | 141 | 219 | 200 | 135 | 172 | 105 | 209 | 194 |
| 148 | 158 | 164 | 160 | 212 | 103 | 130 | 138 | 144 | 106 |
| 146 | 98 | 78 | 117 | 165 | | | | | |

eye07

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 242 | 162 | 301 | 425 | 465 | 571 | 549 | 563 | 449 | 585 |
| 438 | 568 | 401 | 324 | 384 | 337 | 328 | 200 | 193 | 436 |
| 342 | 395 | 419 | 263 | 448 | 406 | 340 | 236 | 186 | 197 |
| 322 | 205 | 472 | 565 | 327 | 295 | 348 | 234 | 294 | 235 |
| 174 | 211 | 185 | 293 | 242 | 192 | | | | |

eye08

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 129 | 116 | 134 | 121 | 89 | 96 | 127 | 82 | 133 | 238 |
| 186 | 62 | 50 | 34 | 24 | 35 | 58 | 77 | 101 | 70 |
| 119 | 106 | 44 | 33 | 34 | 33 | 71 | 136 | 141 | 134 |
| 69 | 46 | 48 | 38 | 33 | 39 | 62 | 36 | 30 | 30 |
| 46 | 67 | 49 | 85 | 42 | 29 | 42 | 65 | 83 | 112 |
| 159 | 101 | 100 | 51 | 65 | 134 | 159 | 268 | 298 | 245 |
| 393 | 331 | 321 | 262 | 276 | 275 | 341 | 337 | 340 | 292 |
| 386 | 392 | 358 | 328 | 212 | 309 | 249 | 263 | 182 | 120 |
| 197 | 178 | 167 | 204 | 166 | 195 | 241 | 208 | 142 | 112 |
| 166 | 241 | 139 | 188 | 225 | 172 | 115 | 134 | 119 | 171 |
| 156 | 111 | 105 | 89 | 91 | 64 | 59 | 45 | 41 | 51 |
| 41 | 40 | 55 | | | | | | | |

eye08o

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 134 | 159 | 268 | 298 | 245 | 393 | 331 | 321 | 262 | 276 |
| 275 | 341 | 337 | 340 | 292 | 386 | 392 | 358 | 328 | 212 |
| 309 | 249 | 263 | 182 | 120 | 197 | 178 | 167 | 204 | 166 |
| 195 | 241 | 208 | 142 | 112 | 166 | 241 | 139 | 188 | 225 |
| 172 | 115 | 134 | 119 | 171 | 156 | 111 | 105 | 89 | 91 |
| 64 | 59 | 45 | 41 | 51 | 41 | 40 | 55 | | |

eye09

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 317 | 430 | 351 | 181 | 286 | 190 | 243 | 251 | 222 | 169 |
| 288 | 202 | 236 | 250 | 330 | 344 | 188 | 341 | 346 | 329 |
| 339 | 366 | 313 | 276 | 209 | 277 | 220 | 364 | 362 | 313 |
| 472 | 410 | 456 | 304 | 353 | 294 | 494 | 503 | 506 | 370 |
| 527 | 341 | 267 | 374 | 415 | 523 | 310 | 389 | 259 | 323 |
| 214 | 188 | 267 | 303 | 227 | 333 | 257 | 199 | 210 | 162 |
| 156 | 162 | 109 | 216 | 331 | 255 | 229 | 215 | 365 | 300 |
| 310 | 361 | 186 | 209 | 249 | 284 | 202 | 243 | 259 | 304 |
| 227 | 431 | 264 | 184 | 283 | 311 | 286 | 295 | 367 | 219 |
| 212 | 243 | | | | | | | | |

eye10

| | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 230 | 288 | 318 | 581 | 530 | 379 | 255 | 297 | 194 | 262 |
| 309 | 411 | 354 | 315 | 269 | 258 | 195 | 177 | 233 | 220 |
| 380 | 360 | 469 | 215 | 400 | 396 | 386 | 423 | 384 | 641 |
| 417 | 326 | 195 | 147 | 232 | 240 | 301 | 402 | 272 | 259 |
| 329 | 267 | 178 | 214 | 307 | 365 | 258 | 391 | 399 | 310 |
| 125 | 174 | 158 | 209 | 304 | 265 | 192 | 212 | 239 | 249 |
| 126 | 200 | 242 | 290 | 214 | 408 | 207 | 187 | 325 | 342 |
| 34 | | | | | | | | | |



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