Tree-Ring Analysis of a Timber from St Nicholas' Church, Brushford, Somerset

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Summary

A tree-ring dating programme was commissioned by English Heritage on three timbers removed during repairs from the nave roof of the church of St Nicholas, Brushford. Unfortunately tree-ring analysis provides no dating evidence for these timbers.

Keywords

Dendrochronology
Standing Building

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Introduction

This document is a technical archive report on the examination and tree-ring analysis of three oak timbers that had been removed during repairs to the nave roof at the church of St Nicholas, Brushford, Somerset (NGR SS 9194 2574). It is beyond the dendrochronological brief to describe the timbers in detail or to undertake the production of detailed drawings. Elements of this report may be combined with detailed descriptions, drawings, and other technical reports at some point in the future to form either a comprehensive publication or an archive deposition on the building.

Brushford lies just outside the southern end of Exmoor National Park close to the Somerset/Devon border, 30 km north of Exeter, and 30 km west of Taunton (Figs 1 and 2). During repairs to the nave roof and ceiling in AD 2001-2002 a number of pegged boards were observed. Although most remain *in situ*, four were removed and were subject to archaeological recording (Blaylock 2002). Three were made available for dendrochronological assessment. Tree-ring analysis was commissioned by Rebecca Child, the local English Heritage Historic Buildings Architect.

Each board is of sawn timber, with holes drilled through. There are numerous square pegs driven through the holes. The holes are distributed in a variety of regular intervals. There are photographs of each board in Blaylock (2002, figs 3 and 4). The interpretation currently favoured is that they were boards supporting a shingle roof (Blaylock 2002, 7-8) and that they may derive from anywhere between the date of the construction of the nave roof, which is perhaps late medieval, through to perhaps the eighteenth century (Blaylock 2002, 5-6).

Methodology

The general methodology and working practices used at the Sheffield Dendrochronology Laboratory are described in English Heritage (1998). The methodology used for this material was as follows.

The three boards were examined in company with Stuart Blaylock and an assessment of the dendrochronological potential of each was undertaken. This assessment aimed to identify whether the timbers contained suitable ring sequences for analysis. This assessment identified that one board (board 4 of Blaylock 2002) contained a suitable sequence, and that a second board (board 3 of Blaylock 2002) potentially contained a suitable sequence. A discussion of the possible methods of obtaining the tree-ring sequences from these boards confirmed that it was considered appropriate to section the material. The third board (board 2 of Blaylock 2002), which was more complete, clearly contained too few rings and was left with Stuart Blaylock. The other two boards were taken to the laboratory in Sheffield.

Board 4 was sampled by sectioning using a handsaw at a point where the board was widest and there were few knots, holes, and pegs. The ring sequence of the shorter section was revealed by sanding. Examination of the board 3 revealed that it also contained a reasonable number of rings. It is, however, a remarkably knotty timber with a whole series of small clusters of knots, usually known as epicormic or epiphytic

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growth. These characteristics were particularly prevalent in the area where the most rings were present. Discussion with colleagues suggested that this board was probably unsuitable for analysis.

The complete sequences of growth rings in board 4 was measured to an accuracy of 0.01mm using a micro-computer based travelling stage (Tyers 1999). The ring sequence was plotted onto semi-log graph paper to enable visual comparisons to be made. A cross-correlation algorithm (Baillie and Pilcher 1973) was employed to search for correlating positions against a range of independent reference chronologies.

Both boards were subsequently returned to Stuart Blaylock.

Results

All three examined boards are oak (*Quercus* spp.). The tree-ring series from board 4 was measured (Table 1). This sequence was then compared with dated reference chronologies from throughout the British Isles and northern Europe. No replicated matching position has been identified for this series. This material is thus undated by the analysis reported here. Table 2 lists the series.

Discussion

No tree-ring results were obtained from the examination of three boards, possibly associated with a shingle roof in the nave of St Nicholas' church, Brushford. This may be because of the lack of contemporaneous reference sequences from this part of Somerset and Devon, or may be due to the lack of replication because only one tree-ring sequence was recovered. The recovery of some material suitable for analysis does suggest that if more of the boards, and the structural timbers, prove accessible at some stage it may be possible to provide dating evidence for the structure and the boards.

Acknowledgements

References

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Figure 1 Location of Brushford, Somerset, within England and Wales.

Figure 2 Location of the church of St Nicholas, Brushford, Somerset
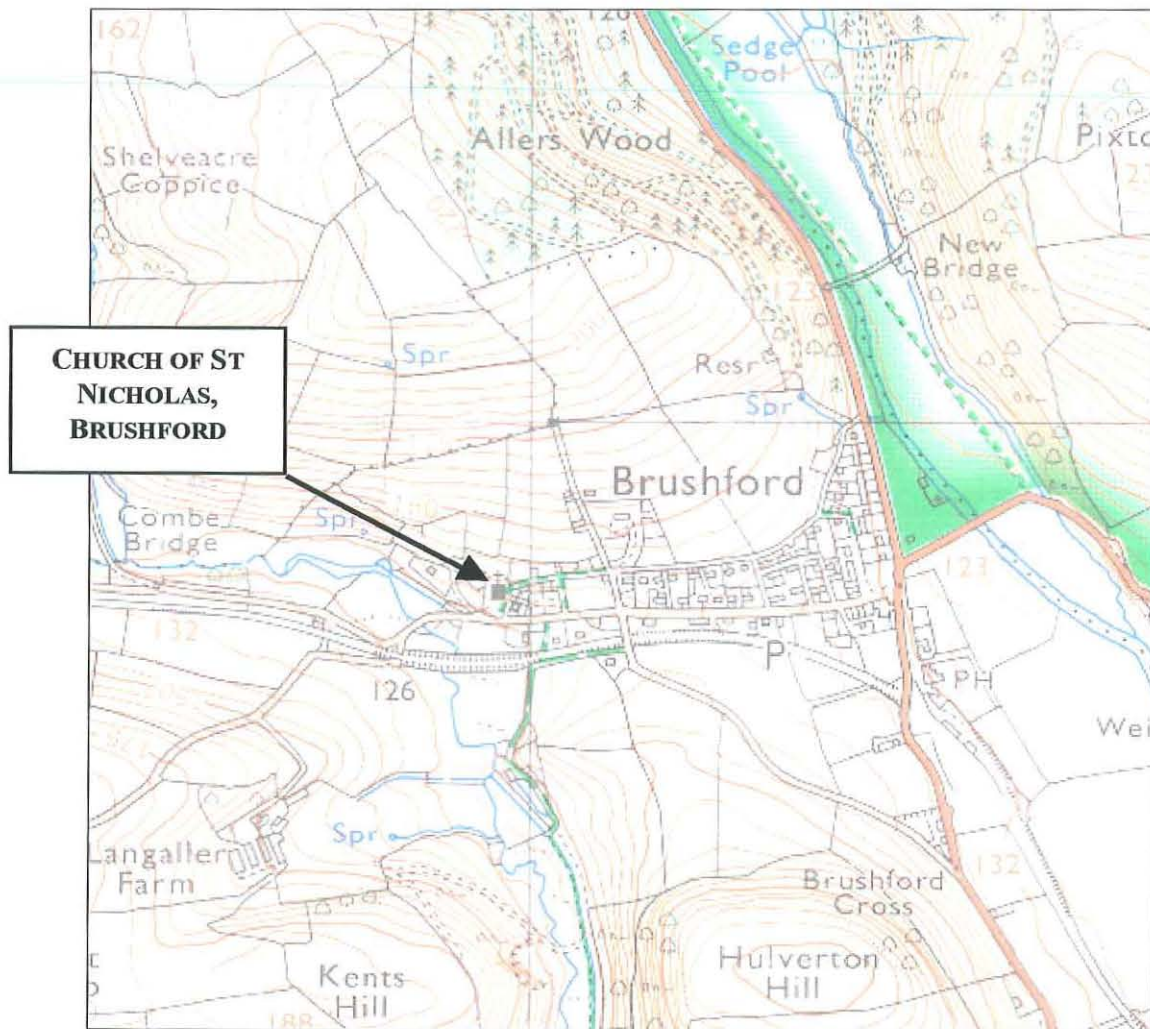

CHURCH OF ST
NICHOLAS,
BRUSHFORD

Table 1 List of boards from the church of St Nicholas, Brushford, Somerset, following the board numbering scheme of Blaylock (2002)

Board No	size (mm)	Total rings	ARW (mm/year)
1	1060 x 330 x 25	Not seen	-
2	1595 x 320 x 25	Not sampled	-
3	1090 x 265 x 22	Not sampled	-
4	1020 x 240 x 22	113	2.09

KEY for Table 1 Total rings = all measured rings. ARW = average ring width of the measured rings

Table 2 Ring width data for board 4 from the church of St Nicholas, Brushford, Somerset, 100 = 1mm

Brushford4

208	176	211	182	89	101	110	72	94	71
61	87	45	190	259	201	262	261	326	257
263	345	235	138	238	141	167	143	211	266
246	275	177	169	127	120	142	145	148	131
160	157	214	209	224	229	273	251	352	191
210	180	169	264	269	217	239	156	160	85
165	234	218	240	136	232	169	188	214	289
394	370	297	289	358	281	267	281	313	238
233	270	258	246	299	299	229	199	265	287
219	205	233	273	253	295	307	226	151	188
112	156	196	173	259	103	205	110	180	105
146	198	233							