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TREE-RING ANALYSIS OF OAK TIMBERS FROM THE CORNMILL STREAM, WALTHAM ABBEY, ESSEX, 1990.

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Summary

The four samples submitted from the Cornmill Stream, Walthham Abbey, Essex, were all oak. None contained enough growth rings for dating purposes.

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Tree-ring analysis of oak timbers from the Cornmill Stream, Waltham Abbey, Essex, 1990

Prior to the construction of a footbridge over the Cornmill Stream at Waltham Abbey, Essex, an archaeological excavation was carried out by Essex County Council Archaeology Section. Two timbers, 12 and 19, were revealed during the excavation and two other timbers were recovered by the constructors of the footbridge. The alignment of the timbers suggested that they may have been part of the Cornmill Stream's first bank (Wallis pers comm). All four timbers were sampled for tree-ring dating with a view to obtaining more precise dating evidence.

The samples were prepared by freezing them for a minimum of 48 hours and then cleaning their cross-sectional surface with a surform plane so that each annual growth ring is clearly defined. The size of the cross-section and the number of rings and their orientation on each sample was noted (Table 1).

All four timbers were untrimmed whole oak trunks. Samples 12 and 42 were double centred indicating that the samples had been removed from near a fork in the trunk. The ring patterns of the other two samples (19, 41) were also distorted, possibly by the close proximity of knots. The outermost sapwood ring of samples 12, 19 and 42 was complete indicating that they were felled whilst the trees were dormant during winter or early spring. The bark edge was also present on 41 but the sapwood was damaged so it was not possible to determine the season of felling. The average ring widths vary from 3.3mm to 4.8mm suggesting that the timbers grew in a relatively open environment rather than dense woodland where competition would have been more severe.

The samples all had less than 50 rings and were therefore unsuitable for dating purposes. Ring patterns with fewer than 50 rings are generally

unsuitable for absolute dating as they may not be unique (Hillam *et al* 1987). Consequently the dendrochronological analysis of the timbers from the Cornmill Stream at Waltham Abbey has been unable to provide any additional dating evidence.

Acknowledgements

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References

Hillam J, Morgan RA & Tyers I 1987 Sapwood estimates and the dating of short ring sequences. In RGW Ward (ed), *Applications of tree-ring studies: current research in dendrochronology and related areas*, BAR S333, 165-85.

Table 1: Details of the timbers; cross-sectional sketches are not to scale.

Sample number	Total number of rings	Sapwood rings	Mean ring width (mm)	Sketch	Maximum dimensions (mm)	Comments
12	23	10	3.3		145x110	pith; felled winter
19	32	12	3.6		175x150	pith; felled winter
41	44	12	3.4		255x130	pith; bark edge; sapwood crushed
42	24	13	4.8		205x130	pith; felled winter