Rep-A 2729

Exe Bridge: dendrochronological results

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Eight samples were examined; all were from the foundations of the medieval bridge except 39, which came from a nearby weir and which was thought might be of similar age to the bridge. Documentary evidence placed the date of the timbers at c. A.D. 1200 - 1215.

The samples were prepared exactly as those from Trichay Street (Hillam, this volume). Several were found to be useless for tree-ring work since they only had 20 - 40 rings (Table 1). 39 was unfortunately one of these so that the contemporaneity of the weir and the bridge could not be proved or disproved.

The three samples with more than 50 rings were 34 (measured by Mrs R. Morgan), 41, a narrow-ringed sensitive timber ideally suited for dendrochronology, and 42, a wide-ringed piece of wood with complacent rings. No crossmatching was found between these timbers, suggesting that they were not of the same date. Further comparisons with the dated chronologies from Trichay Street (this volume, p. 00), Dublin (Baillie, 1977) and London (Fletcher, 1977; Ref 6) gave significant results for 34 and 41 but not for the complacent 42. The t-values are given in Table 2; they signify (without doubt, since they were checked visually) that timber 34 covers the years A.D. 1039 - 1127 whilst 41 belongs to the period 799 - 941. Neither sample had any sapwood preserved so that a terminus post quem only could be given in each case by adding the estimated number of sapwood years to the date of the outer ring. Thus, the felling dates were 1159 ± 9 and 973 ± 9 or later for 34 and 41 respectively.

These do not correspond with the expected date. Even allowing for more than 32 ± 9 sapwood rings, which would be

exceptional (see Trichay report, p.00), the trees could not have been felled in the early 13th century; nor could seasoning account for the discrepancy since timber for building purposes was not seasoned in medieval times (Hollstein, 1965). The most probable explanation is that the wood was re-used. Possibly the timbers were part of an earlier bridge (or bridges) since it is unlikely that the 13th century bridge was the first to cross the Exe at that point. 34 and 41 are the two largest samples (Table 1): it may be that any substantial timbers were re-used from the previous bridge whilst the smaller material was freshly cut from the surrounding area.

References:

Baillie M.G.L. (1977), Dublin Medieval Chronology. Tree Ring Bulletin 37, 13-20.

Fletcher J.M. (1977), Tree-ring chronologies for the 6th to 16th centuries of Southern and Eastern England. Journal of Archaeological Science 4, 335-352.

Hillam J. (19), Tree-ring analysis of Trichay Street timbers, Exeter, (this volume, pp.00-00).

Hollstein E. (1965), Jahrringchronologische Datierung Eichenhölzern ohne Waldkante. Bonner Jahrbuch 165, 12-27.

No.	No. of rings	Sapwood	Years spanned	Sketch	Dimensions (cm)
+34	89	-	A.D.1039-1127		43 x 45
*36	29	-	-		9-11 x 11
*37	31	-	-		7-8 x 12
*38	23	-	-		7-10 x 13
*39	42	17	-		9 x 10
*40	26	11	-		10 x 12
41	143	-	A.D. 799-941		4-6 x 20
42	67	-	?		14-15 x 18

Table 1: details of Exe Bridge samples. + - sample measured by Mrs R. Morgan; * - samples rejected because of insufficient number of rings.

	Exeter	Dublin	London
34	3.07	3.10	-
41	4.63	-	3.81

Table 2: examples of the t-values, by which samples 34 and 41 were dated.