

## **Dendrochronological dating, Watermead country park (Accession no. A57.1996)**

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### **Methodology and results**

Ten 2 - 3 cm thick water-logged cross-sectional sliced samples from the Watermead site, Leicestershire were presented to the Laboratory for examination. Each sample came with its own context code of A57.1996, but was then given the further Laboratory code of "T" (for "timber"), and numbered 01 - 10. Initially the Laboratory believed that all the samples were of alder but examination by a wood identification expert (name) showed them all to be of oak.

Most of the slices represented small whole timbers, though a few, sample A57.1996.T01 for example, represented a timber cut, or more likely split, in half. Three samples were smaller quadrants of a cross-section. The complete cross-sectional sliced samples were of generally similar size with their diametres varying from approximately 110 to 130 mm. One sample, A57.1996.T03, had a diametre of approximately 85 mm. Although it is difficult to be certain, the quadrant samples probably represented trees with slightly smaller diametres. The samples would thus superficially appear to represent small trees of very modest growth, mostly not much more than poles or small trunks.

Each of the ten slices were initially deep frozen to harden them and make them easier to prepare. From these ten samples six of the larger slices, those most likely to reveal some information, were selected for analysis. The surfaces of these six slices were then prepared by a small amount of further sawing and some light planing. Unfortunately during this preparation stage one of the smaller slices, A57.1996.T06, disintegrated into a number of pieces, each one too small to be useable. The remaining five useable samples were then frozen again before final preparation with a scalpel or other sharp blade.

The widths of the annual growth rings on each of the five samples was then measured, starting at the center ring of the tree, where it existed, or the centre-most ring of the sample where it did not. These measurements are in increments of 1/100 of a millimetre. It was seen at this time that all the measured samples had far less than the minimum of 54 rings necessary for reliable analysis by dendrochronology. The numbers of rings on the samples vary from as few as 9 on sample A57.1996.T03, to a maximum of 17 rings on sample A57.1996.T04. Such low numbers of rings cannot produce reliable cross-matching and dating by comparison to reference chronologies.

Although having very low numbers of rings the data of the samples were compared with each other in an attempt to see if any of the samples had similar growth patterns and thus show that they might be from the same tree, or from trees that were contemporary with each other. Unfortunately, again as might be expected with samples with such low numbers of rings, there was no cross-matching between them. This lack of cross-matching between the samples does not, however, mean that they are not all of the same or similar date; it is possible that they are, but this cannot be demonstrated by tree-ring

analysis.

It is a feature of the samples that they all have very wide annual growth-rings, with each sample having at least one ring in excess of 5 millimetres, with some other rings being wider than this. The widest ring, at just over 8 millimetres, is found on sample A57.1996.T02, with the narrowest ring, at just over 8/10 of a millimetres is found on sample A57.1996.T01. The consistent width of these growth rings might suggest that the trees are growing under non-competitive, open-aspect conditions, rather than under a closed canopy where growth might expect to be more restricted. Such an interpretation is not, however, certain. The trees are generally young when felled, and it is known that trees grow more quickly in their earlier years than they do later, when annual growth reduces.

However, despite their generally wide nature the rings do show at least a noticeable, though not extreme, variation in their year on year growth. The rings are thus not complacent, with little annual variation, but show some response to their growing conditions. This might say something further about their immediate environment in that it was not completely open aspect (partly wooded, but not densely so).

In conclusion it would appear that the samples represent a group of timbers cut as poles, or small trees, none of them having grown for more than twenty years. Some of them may have been cut or split in half. They appear to have been growing in a generally open aspect environment, hence their wide rings, but to have been affected by their growing conditions. It has not been possible to date them by tree-ring analysis, or to show that they are contemporary with each other.

A57.1996: Watermead Country Park.      DENDRO. DATA

Bridge Timber 01

A571996-A01A 14

228 279 192 116 156 128 185 446 552 481 547 660 443 376

A571996-A01B 14

242 296 141 86 158 136 216 397 579 467 569 650 432 394

Half timber. 130mm dia?. 14 rings. Alder?

Bridge Timber 02

A57.1996-T02A 12

364 451 445 382 542 533 817 609 643 680 539 467

A571996-T02B 12

458 458 426 368 550 567 797 607 656 665 528 509

Round/whole timber. 130mm dia. 12 rings. Alder?

## Bridge Timber 03

A57.1996-T03A 9

527 489 381 544 294 568 516 318 260

A57.1996-T03B 9

571 464 386 560 323 585 595 338 309

Round/whole timber. 85mm dia. 9 rings. Alder?

## Bridge Timber 04

A57.1996-T04A 17

493 507 402 703 483 331 238 222 180 164 452 326 468 273 441 400 281

A57.1996-T04B 17

467 502 404 695 494 316 234 210 196 170 429 343 465 270 430 403 298

Round/whole timber. 130mm dia. 17 rings. Alder?

## Bridge Timber 10

A57.1996-T10A 15

614 532 490 397 557 602 312 432 358 438 331 461 385 309 290

A57.1996-T10B 15

640 690 396 336 561 659 382 332 379 448 339 441 379 310 277

Round/whole timber. 110mm dia. 15 rings. Alder?