

Spring 5-4-2007

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**Dendrochronological Analysis of Oak (*Quercus*) Tree cores and cross-sections from the Larry Reed Log Barn, Noble County, Ohio**

**June 4, 2007**

Report submitted to Dr. Nigel Brush.

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Two cores and one cross-section were extracted from the Larry Reed Log Barn in Noble County, Ohio. They were processed and crossdated at the Wooster Tree Ring Lab using standard dendrochronological techniques (Stokes and Smiley, 1968). These include preparing the core surfaces by sanding, counting, and measuring ring-widths to the nearest 0.001 mm. Crossdating was performed visually and using the computer routine COFECHA (Holmes, 1983).

The oak trees (*Quercus*) (Table 1) were internally crossdated with one another to construct a floating 217 ring-width series. The floating chronology from the Larry Reed Log Barn was then absolutely dated against calendar-dated, living, ring-width chronologies from the region including Johnson Woods, Sigrist Woods, and Browns Lake Bog (ITRDB, 2005; Wooster Tree Ring Lab, unpublished data, 2005). The floating ring-width chronology when adjusted to calendar dates ranges from AD 1694-1858.

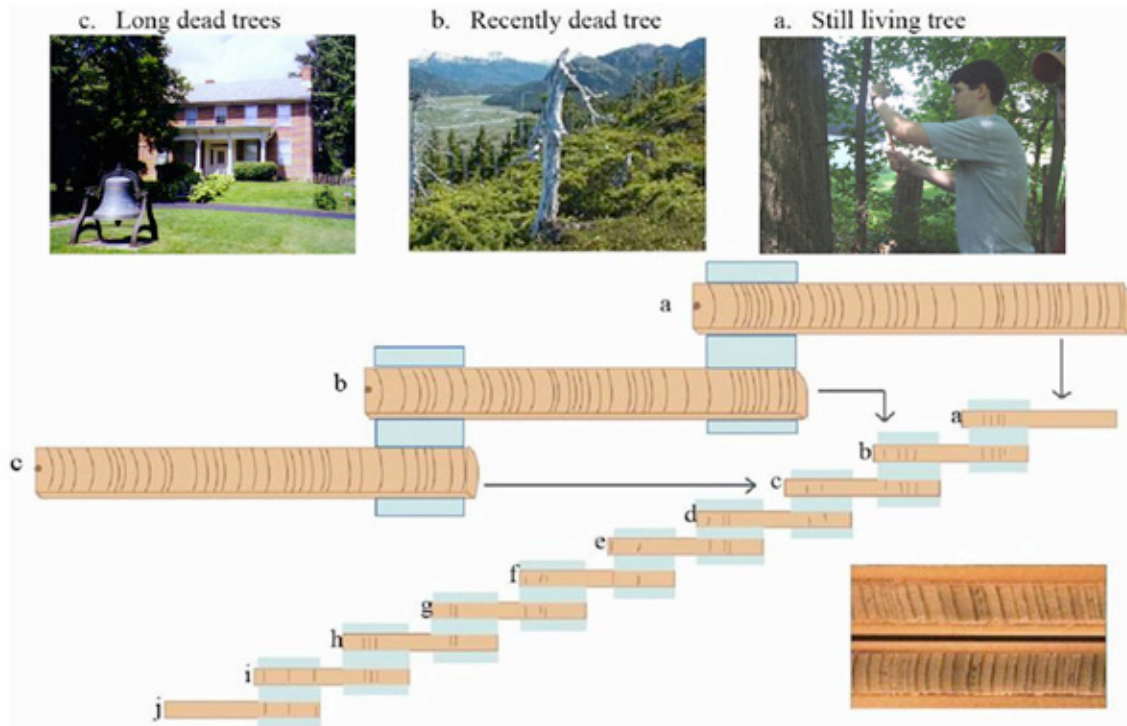
Table 1 summarizes the calendar dates of each sample and total number of years for each of the samples.

**Table 1.** Calendar-dated tree ring series from the Larry Reed Log Barn

| Sample number | First Year of growth | Last Year of Growth | Total Years |
|---------------|----------------------|---------------------|-------------|
| LRNC1A        | 1694                 | 1787                | 93          |
| LRNC2A        | 1701                 | 1841                | 140         |
| LR01          | 1641                 | 1858                | 217         |

None of the samples from the Larry Reed Log Barn have bark present therefore the calendar date does not accurately represent the last year of growth for the tree. Since the last year of growth for each sample differs it is hard to determine when the Larry Reed Log Barn was built. In order to accurately find out the year of construction for the Larry Reed Barn, more samples would need to be taken. The possible cut date of the Larry Reed Log Barn is 1858 AD.

This chronology will contribute to tree-ring data in Northeast Ohio as well as be included in climate studies, especially those concerned with drought variability in the region and our efforts to date historical structures. All cores and data are archived at the Wooster Tree Ring Lab, which is housed in Scovel Hall in the Department of Geology at The College of Wooster. We would be happy to discuss the results with you; specific information can be found on the TRL website ([www.wooster.edu/geology/tr/trl.html](http://www.wooster.edu/geology/tr/trl.html)).



**Figure 1:** Tree-ring crossdating relies on matching overlapping ring-width patterns. If matches are made to living tree then calendar dates can be assigned to the outer rings of the tree.

**References:**

Holmes, R. L. 1983. Computer-assisted quality control in tree-ring dating and measurement. *Tree Ring Bulletin*, **43** (1), 69-78.  
 Stokes, M. A., and Smiley, T. L., 1968: *An Introduction to Tree-Ring Dating*. Chicago: University of Chicago Press. 73 pp.  
 International Tree-Ring Data Base (ITRDB), 2005, [www.ncdc.noaa.gov/paleo/paleo.html](http://www.ncdc.noaa.gov/paleo/paleo.html).