

Dendrochronological dating of the Tracy Cabin, East Union Ohio

Sampled February 6th, 2017 by the Climate Change class

Wooster Tree Ring Lab
Department of Geology
The College of Wooster
Wooster, OH 44691
Tel: 330-263-2445
nwiesenberg@wooster.edu
<http://treering.voices.wooster.edu/>



Objective:

To provide a calendar date using dendrochronology for the felling of timber used to build the Tracy Cabin in East Union, Ohio. Core samples and tree-ring data is archived at the Wooster Tree Ring Lab, housed in the Department of Geology, The College of Wooster.

Methods:

Core samples were taken from hand hewn beams using hand-powered tree corers and an electric drill with a specialized core drill bit. The cores were then glued to wooden sticks and sanded so that the rings could be viewed clearly. Using a microscope, the rings of the cores were counted and measured to the nearest 0.001 mm. The ring series were then cross-dated with each other to create a “floating” chronology. This chronology is floating in time with each series internally cross-dated with one another (Figure 1). Using the computer program COFECHA, the floating ring-width chronology was then compared to a calendar-dated northeast Ohio (NEO) regional tree ring series to obtain calendar years for the Tracy Cabin ring-width chronology. Outer ring dates were assigned to each ring and the felling dates of the timbers were determined.

Analysis and Results:

All core samples were taken from white oak logs; the primary species used throughout the cabin. Special care was taken to obtain the outermost rings and in some cases bark. Cross dating of the Tracy Cabin core samples with the NEO master series allowed calendar dates to be assigned to each ring. The analysis results show that the cut dates were 1826 (Table 1). The outer ring dates indicated that all of the core samples had a fully formed outer ring (latewood transitions to a darker brown). This indicates that the trees were felled after the growing season of that year. Quite often trees were harvested during the winter months when the ground was frozen and outside temperatures were more conducive to hewing and converting trees to timber. Timber was much more difficult to work and assemble once it began to dry and the need for an immediate structure would lead us to say with confidence that the Tracy Cabin was built in 1827.

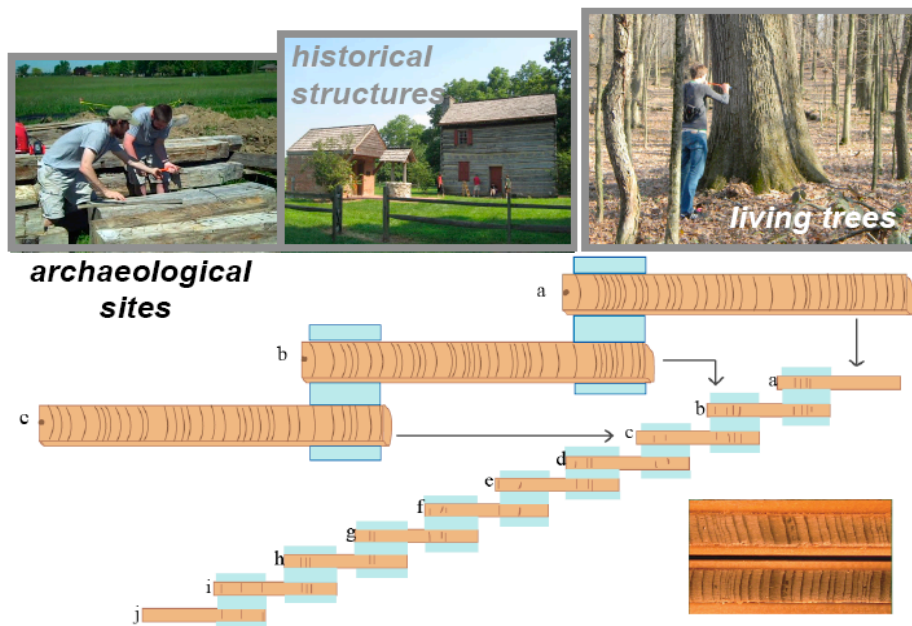


Figure 1. Diagram illustrating tree-ring cross-dating. Patterns in ring widths from archaeological and historic structures are compared to living tree ring chronologies in order to assign calendar dates to each ring.

Sample #	First Year	Last Year	Outer Ring?	Beam Description
Tracy01	1645	1826	yes	Oak Floor Joist
Tracy02	1647	1740	no	Oak Floor Joist
Tracy03	1667	1826	yes	Oak Wall Log
Tracy04	1635	1826	yes	Oak Floor Joist
Tracy05	1672	1826	yes	Oak Wall Log
Tracy06	1668	1826	yes	Oak Wall Log
Tracy07	1639	1826	yes	Oak Floor Joist
Tracy08	1644	1826	yes	Oak Floor Joist
Tracy09	1634	1764	no	Oak Wall Log
Tracy10	1658	1800	no	Oak Wall Log
Tracy11	1658	1826	yes	Oak Wall Log
Tracy12	1659	1826	yes	Oak Wall Log
Tracy13	1647	1826	yes	Oak Wall Log
Tracy14	1657	1826	yes	Oak Wall Log
Tracy15	1666	1826	yes	Oak Wall Log

Table 1. Tree-ring data from the Tracy Cabin.