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http://treering.voices.wooster.edu/about-2/

Objective:
To provide a calendar date using dendrochronology for the felling of timber used to build the Orange Johnson House in Worthington, Ohio. Results show that trees for main house were felled in 1810 and 1811, whereas beams from the back portion of the house date to 1818.

Methods:
Fifteen cores – seven white oak, seven beech, and one ash – were taken from beams in the Orange Johnson House using hand augers and electric drills with hollow bits. Using a microscope, rings of the cores were counted and measured to the nearest 0.001 mm using standard dendrochronological techniques. Rings were then crossdated against each other to create a "floating" chronology for each tree species (the ash was included with the beech) from the site based on correlations between ring patterns. This site's ring-width data is then compared to the calendar-dated Northeast Ohio (NEO) regional ring series to obtain calendar years for the felling of the timber (Fig. 1).

Results and Analysis:
Crossdating of the chronologies with the NEO master series determined that the beech trees were cut in 1811, the oak data was insufficient and an accurate date could not be determined. Three cores, OJ01, OJ03, and OJ07, have complete outer rings that date to 1811. Core OJ09 has a possible outer ring and dates to 1810, as well as the ash sample, OJ06.

The oak beams from the basement in the section behind the main date to 1818. These beams were white oak and because of the way they were split it was difficult to determine if they had outer rings. However two samples OJ11 and OJ14 had what appear to be outer rings dating to 1818. Calendar dates for all the cores are listed in Table 1. The sample numbers in the table correspond to the numbers on the plugs in the beams.

Archive Statement:
All cores are archived at the Wooster Tree Ring Lab, housed in the Department of Geology, at The College of Wooster.

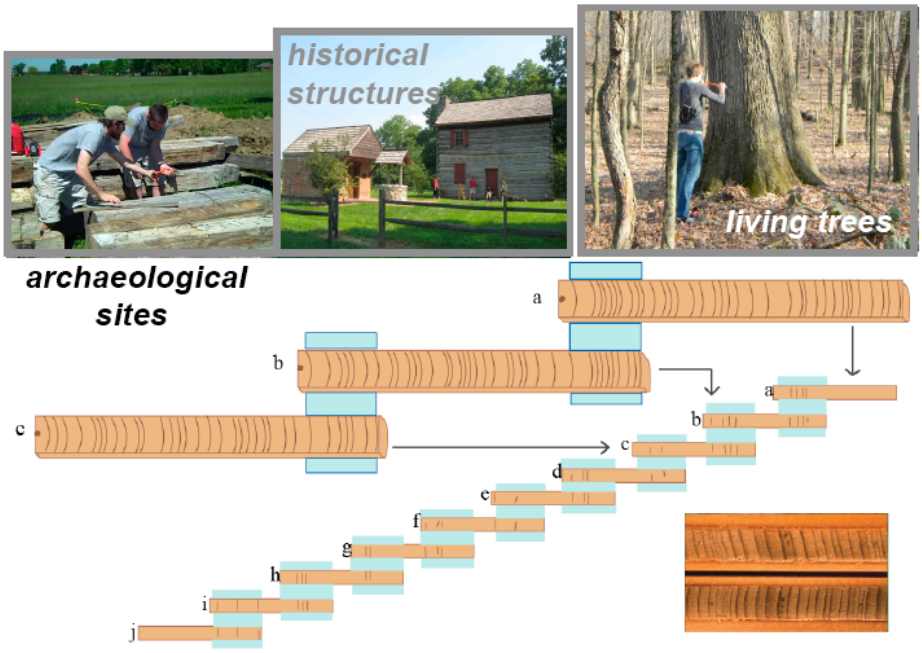

Figure 1. Diagram illustrating tree ring crossdating. Patterns in ring widths from archaeological and historic structures are compared to living tree ring chronologies in order to assign calendar dates to each ring.

Table 1. Tree ring data from Orange Johnson House. Three cores display outer rings, four have possible outer rings.

Core	Inner Year	Outer Year	Total Years	Observations
OJ01	1730	1811	81	Outer ring
OJ02	1676	1797	120	No outer ring
OJ03	1617	1811	194	Outer ring
OJ04	1720	1807	87	No outer ring
OJ05	1603	1808	205	No outer ring
OJ06 (ash)	1716	1810	94	Possible outer ring
OJ07	1650	1811	161	Outer ring
OJ09	1692	1810	118	Possible outer ring
Oak Beams				
OJ10	1631	1803	173	No outer ring
OJ11	1624	1818	195	Possible outer ring
OJ12	1654	1772	119	No outer ring
OJ13	1673	1812	140	No outer ring
OJ14	1582	1818	237	Possible outer ring
OJ15	1706	1802	97	No outer ring