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Dendrochronological dating of the Austin House, 1663 Austin Rd, Dayton Ohio

Sampled: June 2014

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Objective:

To provide a calendar date using dendrochronology for the felling of timber used to build the Austin House in Dayton, Ohio. All cores and data are archived at the Wooster Tree Ring Lab, housed in the Department of Geology, The College of Wooster.

Methods:

Eight core samples were taken from beams within the Austin House using hand augers and electric drills with hollow bits. 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 using standard dendrochronological techniques. Rings were then cross-dated with each other to create a “floating” chronology. Using the computer program COFECHA, the site’s ring-width data was 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:

Cross dating of the Austin House samples with the NEO master series determined that the trees were cut in 1857 to build the main portion of the house (Table 1). This indicates that the main portion of the house was likely built in 1858. The samples from the kitchen portion of the house indicate that the trees were cut in 1859 which points to a likely build date of 1860 (Table 1). Upon our initial visual inspection of the beams in both structures, they appeared to be built at the same time or within a very close time span, as the styles were quite similar. Circular saw marks were observed on the floor joists and rafters, which generally indicate that the structure was built during or after the Civil War. Both circular sawn materials and hand-hewn beams were used in the construction of the Austin House.

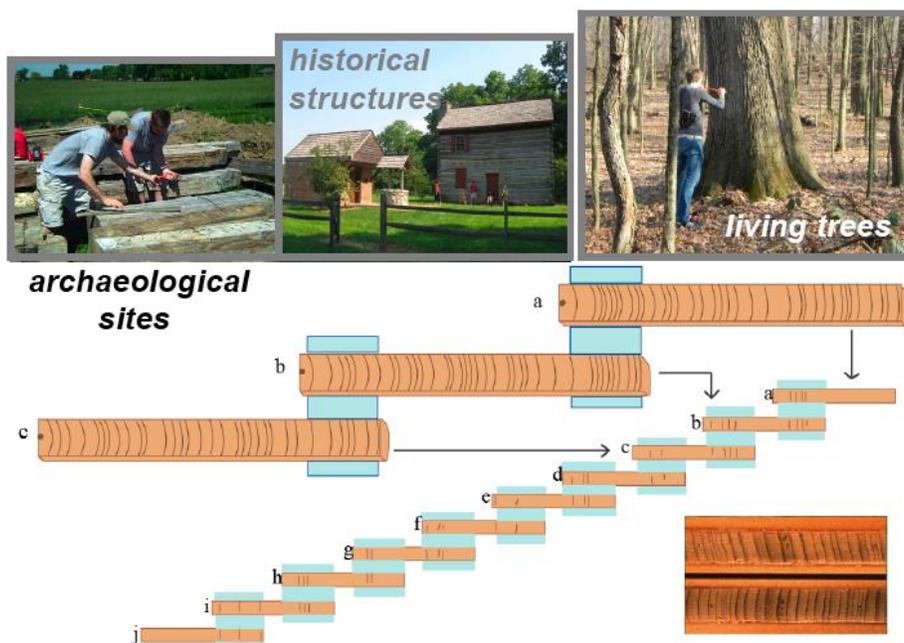


Figure 1. Diagram illustrating tree ring cross dating. Patterns in ring widths from archaeological and historic structures are compared to living tree ring chronologies in order to assign calendar dates to each ring.

Core	Inner Year	Outer Year	Total Years	Observations
Main House				
AH1-beam	1768	1852	85	no outer ring
AH2-beam	1779	1859	81	outer ring present
Kitchen				
AH3-beam	1811	1857	47	outer ring present
AHB2-rafter	1811	1857	47	outer ring present
AHB3-rafter	1800	1857	58	outer ring present
AHB4-rafter	1816	1857	42	outer ring present

Table 1. Tree ring data from the Austin House. All but one core contained the outermost ring. Cores AH1&2 were taken from the kitchen. AH3, AHB2,3,&4 were taken from the main house.