

6-2-2016

Dendrochronological Analysis of the Bixler House

Follow this and additional works at: <http://openworks.wooster.edu/historicstructures>

 Part of the [Geology Commons](#)

Recommended Citation

"Dendrochronological Analysis of the Bixler House" (2016). *Historic Structures*. 5.
<http://openworks.wooster.edu/historicstructures/5>

This Book is brought to you for free and open access by the Geology Data Archive at Open Works, a service of The College of Wooster Libraries. It has been accepted for inclusion in Historic Structures by an authorized administrator of Open Works. For more information, please contact openworks@wooster.edu.

6-2-2016

Dendrochronological Analysis of the Bixler House

Follow this and additional works at: <http://openworks.wooster.edu/historicstructures>

 Part of the [Geology Commons](#)

Recommended Citation

"Dendrochronological Analysis of the Bixler House" (2016). *Historic Structures*. 5.
<http://openworks.wooster.edu/historicstructures/5>

This Book is brought to you for free and open access by the Geology Data Archive at Open Works, a service of The College of Wooster Libraries. It has been accepted for inclusion in Historic Structures by an authorized administrator of Open Works. For more information, please contact openworks@wooster.edu.

Dendrochronological dating of the Bixler House, Sonnenberg Village, Kidron, Ohio

Sampled: June 2, 2016

Wooster Tree Ring Lab
Department of Geology
The College of Wooster
Wooster, OH 44691
Tel: 330-263-2445, gwiles@wooster.edu

<http://treering.voices.wooster.edu/>



Objective:

To provide a calendar date using dendrochronology for the felling of timbers used to build the Bixler house located at Sonnenberg Village in Kidron, Ohio. The 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 beams that were being used to reconstruct the Bixler house using increment corers and an electric drill with a specialized 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 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. Using the computer program COFECHA, the floating ring-width chronology was then compared to a calendar-dated northeast Ohio (NEO) regional ring series to obtain calendar years for the Bixler house ring-width chronology. Outer ring dates were assigned to each ring and the felling dates of the timbers were determined (Figure 1; Table 1).

Results and Analysis:

All core samples were taken from white oak beams; the primary species used throughout the structure. Crossdating of the Bixler house core samples with the NEO master series allowed calendar dates to be assigned to each ring. The results yielded cut dates for three beams were CE 1831 for the house (Table 1). Three of the core samples had a fully formed outer ring (BIX08, BIX09, and BIX11; Table 1). This indicates that the trees were felled in 1831 or shortly after fall of 1831 perhaps into early 1832. Another core did have an outer ring but dated to 1830 meaning that tree could have been felled earlier than the others (BIX06; Table 1). Two of the core were broken at the end and did not possess outer rings; therefore their exact felled dates could not be determined (BIX05 and BIX12; Table 1). Quite often trees were harvested during the winter months when the ground was hard 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 each structure was likely built the year following its cut date, in this case CE 1832.

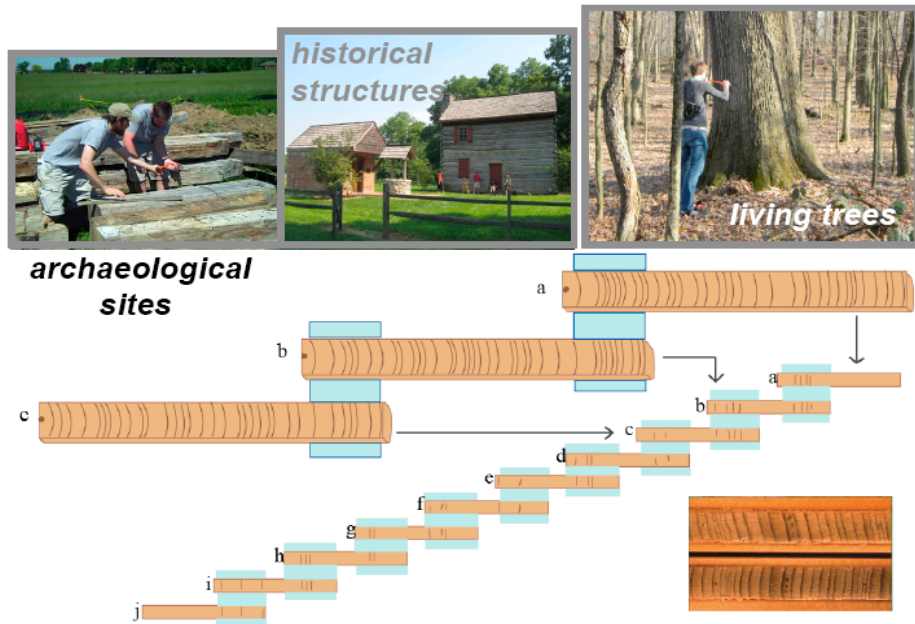


Figure 1. Diagram illustrating tree-ring cross-dating. Patterns in ring widths from archaeological and historic structures are compared to living tree ring chronologies in order to assign calendar dates to each ring.

Table 1. Tree-ring data from the Bixler house.

Core	Inner-ring Year	Outer-ring Year	Species	Beam Description	Presence of an Outer-ring
BIX05	1713	1818	White Oak	brace	No
BIX06	1708	1830	White Oak	brace	Yes
BIX08	1667	1831	White Oak	ceiling tie	Yes
BIX09	1756	1831	White Oak	joist	Yes
BIX11	1668	1831	White Oak	post	Yes
BIX12	1684	1826	White Oak	tie beam	No