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Tree Ring Dating of the Kline Barn, Fredericksburg, OH

Sampled: 20 October 2008

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Objective:

To provide a calendar date for the felling of timbers from the The Kline Barn using dendrochronology. The tree-ring data will be added the ongoing student project underway that will analyze the climate significance of the Kline Woods ring-width tree-ring chronology. All cores and data are archived at the Wooster Tree Ring Lab, housed in the Department of Geology, The College of Wooster.

Methods and Analyses:

Before coring, wood was marked with a red pen to indicate whether the sample provided an outer ring. The best way to know if an outer ring is present is if there is remaining bark. Four ring-width series were measured from four wood cores from beams (Table 1). The cores were prepared and sanded, annual rings were counted, measured to the nearest 0.001 mm, and then crossdated using standard dendrochronological techniques (Stokes and Smiley, 1968) (Fig. 1). All four ring-width series were crossdated against each other, developing a “floating” site chronology before crossdating with the calendar dated chronologies from northeastern Ohio. Crossdating is strong with all the regional masters (Figure 2). All of the cores were oak; two provided true outer rings (cut dates), important in determining the year of felling (Table 1, Figure 3). Both samples with outer ring dates of 1836 had fully formed rings; therefore the trees were cut after the 1836 growing season and before spring growth in 1837.

Table 1 – Tree ring data from Kline Barn.

Series	Years	Inner Ring	Outer Ring	Outer Ring Present
KB1	58	1779	1836	Yes (fully formed outer ring)
KB2	129	1694	1822	No
KB3	42	1795	1836	Yes (fully formed outer ring)
KB4	159	1676	1834	No

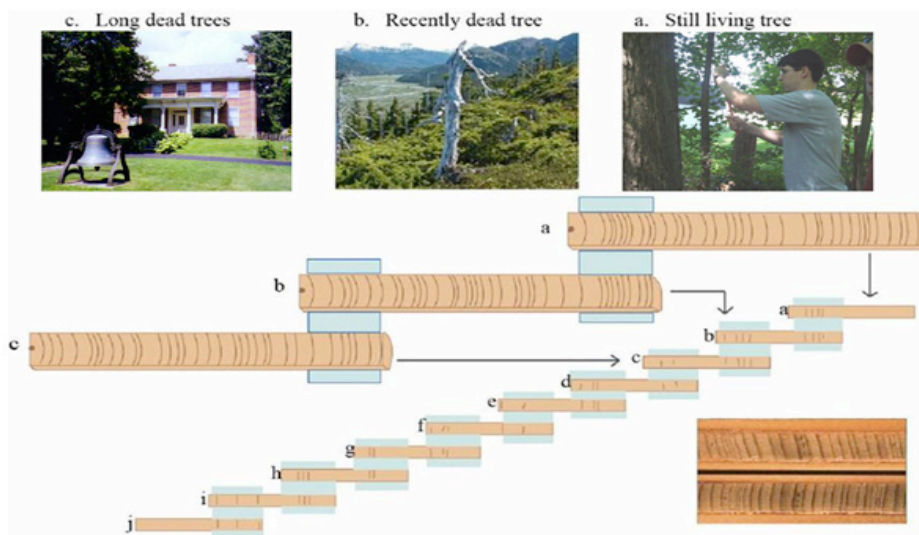


Figure 1: Dendrochronological principle of crossdating used for all site studies. Crossdating allows the crossover and linking of rings from many cores that span similar years, creating a continuous annual record covering more years than a single core could provide.