

Dendrochronological date for the Babcock Barn, Gowanda, Erie County, New York

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We received 6 sections of *Tsuga canadensis* (eastern hemlock) of this barn from Charles Babcock, owner (cbabcock72@yahoo.com), with his request for a date. His estimate was that the barn was built sometime around 1850. Two samples were from squared beams, about 8in x 8in, and the rest were from beams or joists with more rectangular x-sections (11.4in x 4in to 8in x 3in). I prepped the samples, measured the ring widths, and matched the patterns, constructing a 200-year Babcock Barn Chronology (Figure 1). The chronology was then compared with our established regional New York hemlock chronology to match growth patterns to date the chronology from 1683 to 1882 (Figure 2). For the actual building date, none of the samples contains bark, but the EGB-3 sample, containing the outermost rings in the sequence, may have a waney edge (only bark removed). Its outer incomplete ring dates to 1883. The barn was thus built sometime during or after 1883.

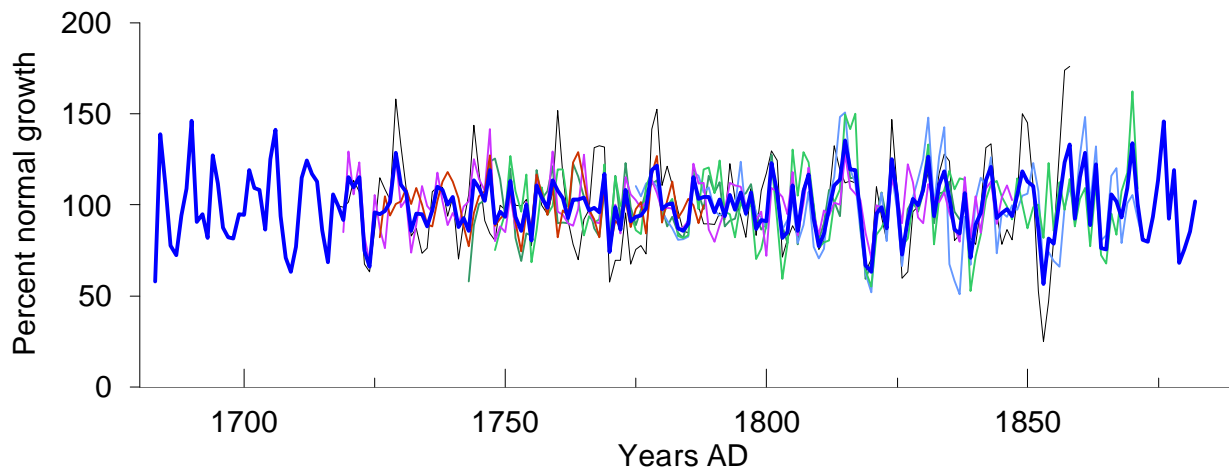


Figure 1. The sequences of tree-ring widths in the six samples and their average (heavy line). Their natural growth trends have been removed, and they are placed in time by the similarity in their growth patterns to each other, and subsequent correlations that placed them in calendar time (Figure 2).

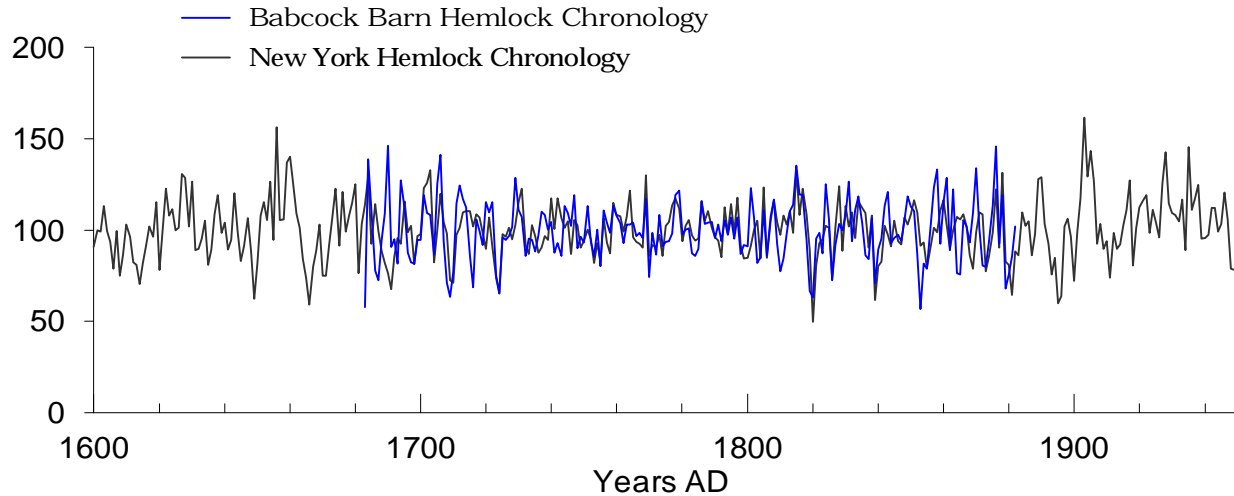


Figure 2. Pattern matching and placement in time of the Babcock Barn hemlock chronology with the regional New York hemlock chronology. Student's t -score is 8.02, $r = 0.50$, $t.c.=71\%$ for overlap of 200 years; all are significant at the 95% level..

Sample list. All are *Tsuga canadensis*. "p" = pith; v = close to bark; vv = unknown number of rings missing between outer ring of sample and bark; "+1" incomplete ring present.

Sample	Description	Length	Dates
1	Three-quarter cross-section, 8in x 8in.	A = p+ 176+1vv	1682p -1859+vv
2	Cross-section, interior, 8in x 8in.	A = p+ 95+1vv	1742p – 1838+vv
3	Cross-section, outer rings, 11.5in x 4in. Possible waney edge.	A = +1+108+1v	1774 – 1883+v
4	Cross-section, mid-section of tree, including pith, 11.5in x 4in.	A = p+2+124vv	1748+p –1871vv
5	Cross-section of center part of half-section, 8in x 2.7in.	A = p+ 129+1vv	1718p-1848+vv
6	Cross-section of middle of half-section, 8in x 4in.	A= +p+1+63+3vv	1724+p-1791++vv
Babcock Barn Hemlock Chronology		N=200v	1683-1882v