

**Dendrochronological dating of the brick Sternberg House,
on NYS Route 30A, Schoharie, NY**

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Bart Finegan asked for a date of the construction of his house, located on the north side of NY Route 30A, east of interstate I-88 before the town of Schoharie, New York. At the same time, we were asked by his neighbors, Bob and Arlene Price, to date their house, just off of Route 30A on NYS Route 30, with no more than ¼ mile distance between the two. Finegan's house is similar in design to the Prices' house, and both were [are thought to have been] constructed by Abraham Sternberg, whose grave is near the two properties. The Prices' house is believed to have been originally a tavern; it is completely constructed of wood. The Finegan house is more sturdily built, with larger dimension beams, and a brick exterior. The available historic record says that this house was built either pre-revolution, or in the 1790s, according to Finegan, and that the Prices' house was also pre-1800, but the Prices doubted theirs was pre-1800 due to its design.

We visited the two homes in April 2010. In the basement of the Finegan House, we took four samples from four floor beams in the basement, several with sapwood and possible waney edges (only bark removed). We then took two samples from the attic collar ties, both with bark present. The cellar beams are all oak (*Quercus* sp. – oak species are hard to distinguish from wood alone); the roof construction is eastern white pine (*Pinus strobus*). The rings in all samples are very narrow, showing the impact of primary forest growth.

All samples are cores, taken with a dry-wood borer and stored in plastic tubes for transport to the lab. At the lab the cores were glued to specially-made core holders and sanded down progressively with 80 to 300 grit sandpaper to show their cellular structure and ring boundaries. The ring-widths were then measured on a moving table under a microscope, the measurements repeated to check ring count and relative ring-widths, and the reconciled measurements stored in our data archives. The ring-width patterns in each species' sequences were compared to each other ("crossdating"), relatively-dated

according to these comparisons, and a chronology was built for the oak and a tree-ring series for the pine from their securely-crossdated sequences (Figures 1 and 2).

The similarities of the patterns in the pine collar beams in the attic indicate that they came from the same tree (Figure 1); those sequences were relatively dated to each other, and combined into a single-tree sequence, with length of 159 years. Neither core contains the pith, though SBF-6 goes closest to the center of the tree. There are incomplete rings (not measured) at both ends of both cores.

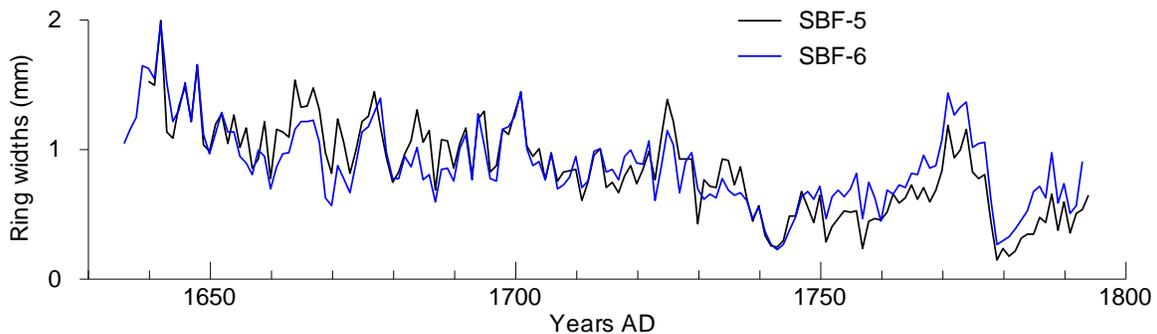


Figure 1. Here are the two pine tree-ring sequences from the attic collar beams. The two sequences are so similar that the beams definitely were cut from the same tree. The years included here were determined by the crossdating shown in Figure 3.

The oak samples from the four basement beams all came from different trees, and with very narrow rings the pattern-matching was more difficult. The sample SBF-3 has small rings in the last ~100 years of growth, and its ring patterns do not match as well with the others statistically, but visually it is secure. The younger half of that ring sequence dates very securely with the others. Three out of the four samples, SBF-2, 3, and 4, crossdate securely and end in the same year. The fourth sample (SBF-1) does not contain sapwood – a case where a beam that looks like it should contain a waney edge does not. Its outer ring dates to 1699, nearly a century before the tree was felled, which is an indication that a very large tree had been felled, and at least three beams were cut from across the diameter of that log. The basement beams were approximately 25cm in width, so an oak at least a meter in diameter is a good estimate. The ring-width patterns of the four beam samples and their relative placement to each other are shown in Figure 2; total length is 255 years.

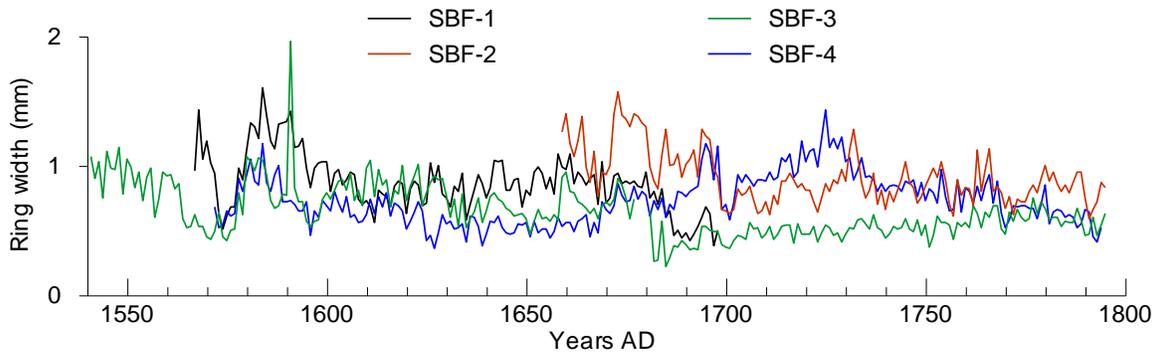


Figure 2. The oak tree-ring sequences from the four basement beams are shown here. None of these beams came from the same tree. Years indicated were determined by the match of their average to a regional oak sequence, as shown in Figure 4.

The oak chronology and the pine sequence were then compared respectively with oak and eastern white pine chronologies from sites around the Hudson and Mohawk River valleys and the central New York region. The lengths of the sequences made them easy to crossdate securely with the regional chronologies (Figures 3 and 4); the pine sequence dates from 1636 to 1795, with an incomplete outer ring (1795) plus bark, and the oak chronology from 1541 to 1795 with a waney edge (= only bark removed). The end dates of these sequences indicate when the trees were felled for construction.

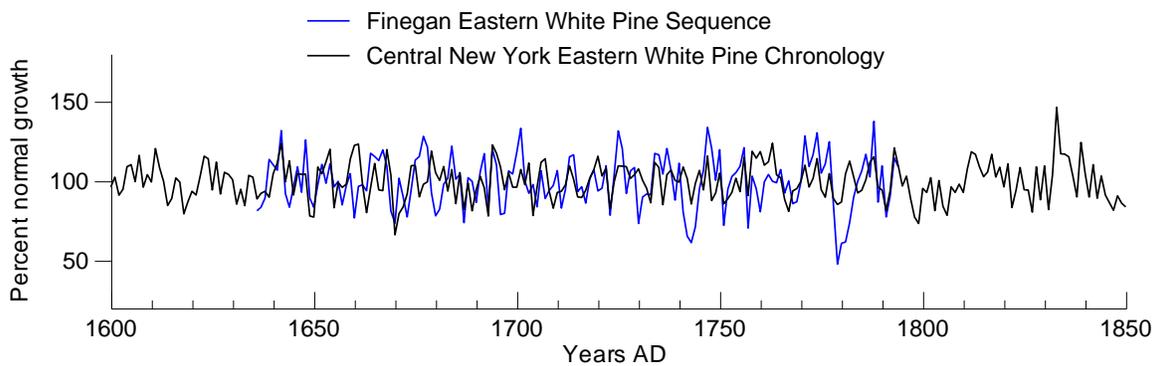


Figure 3. Here is the pine sequence compared to my regional central NYS pine chronology. Supporting statistics are Student's t of 5.83, correlation of 0.42, and trend coefficient of 64.2%, with 159 years of overlap. All are significant at the 95% level.

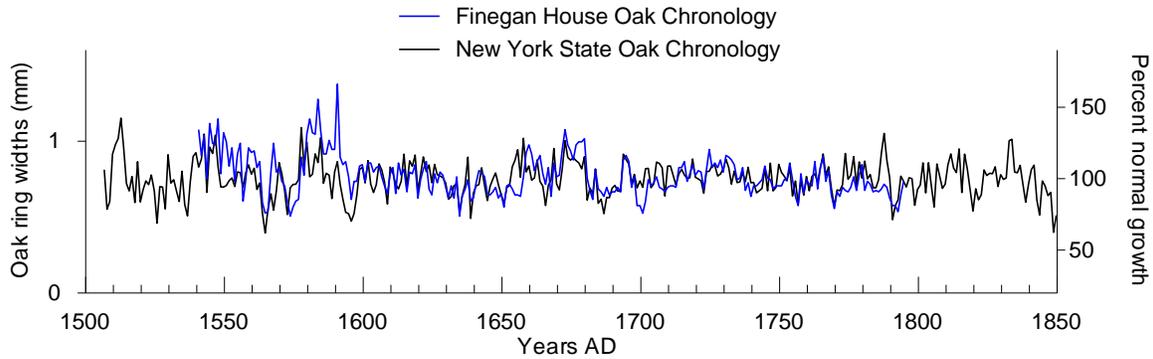


Figure 4. Here is the Finegan oak chronology compared to my regional NYS oak chronology. Supporting statistics are Student's t of 9.25, correlation of 0.50, and trend coefficient of 68.0%, with 255 years of overlap. All are statistically significant at the 99% level. These statistics are higher values because the average of the four tree sequences removed the individual growth idiosyncrasies of each tree.

The sequences of three oak samples and the pine samples end in 1795. The 1795 ring was complete in the oaks, giving a felling date of the oaks as early as August 1795 and as late as March 1796. The pine sequence likewise ends in 1795, but the ring just below the bark is not quite complete, indicating it was cut down at the end of its growing season in 1795. I do not know if pines generally grow xylem later in the growing season than oaks, but together, the nearly complete outer rings of the pines and the complete outer rings of the oaks do indicate a very precise felling date of August-September 1795. Allowing time for the logs to dry was unusual in colonial America, so the house probably was constructed soon after, in the fall of 1795; but if the timbers were given a few months to dry, the construction could have occurred in 1796.

Sample List

Notations used below: “+1” – incomplete ring before or after the measured sequence; “vv” - unknown number of rings between outer ring of sample and bark; “v” – outer ring of sample was close to the bark when felled; “W” – waney edge, the outer ring directly under the bark when the tree was felled; “B” – bark present.

Sample	Number Description	Number of rings	Dates included
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Samples from the basement beams:

SBF-

- | | | | |
|---|---|--------------------------------|-----------------------------|
| 1 | Core from first N-S beam west of east (main) basement door; possible waney edge; <i>Quercus</i> sp., minimum radius 13.5cm. No sapwood. | A = +1 +132 +1vv | 1566 – 1699+vv |
| 2 | Core was taken from sixth N-S beam from east basement door. It has a definite waney edge with 20 sapwood rings and the outer ring is complete. <i>Quercus</i> sp., minimum radius 13.5cm. | A = +1 +137W | 1659-1795W |
| 3 | Core from fourth N-S beam from east basement door, was recovered in two sections, due to damage of three rings by the borer between the sections. It has a definite waney edge with 23 sapwood rings; the outer ring is complete. <i>Quercus</i> sp., minimum radius of XXX cm. | A = +1+137+2++vv
B= +1+115W | 1540-1679++vv
1680-1795W |
| 4 | Core from seventh N-S beam from east wall, next to west wall. Outer rings slightly damaged from borer; outer ring incomplete due to damage. Contains 25 sapwood rings, with waney edge indicated by the similar end dates of SPB-2 and 3. <i>Quercus</i> sp., minimum radius of 16mm. | A = +1+223+1 | 1571-1795+W |

The Finnegan House Oak Chronology: contains samples from four trees; the outer ring of three contained the waney edge and date to 1795; the outer rings in two intact samples are complete, so the trees were cut down from August 1795 to March 1796.

N = 255W	1541-1795W
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Sample Number	Description	Number of rings	Dates included
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Two samples from two attic collar ties:

SBF-

- | | | | |
|---|--|---------------|-------------|
| 5 | Core from the second tie from the west wall. Core is 14 cm in length but does not extend to the pith; contains bark. <i>Pinus strobus</i> , from same tree as SBF-6. | A = +1+155+1B | 1639-1795+B |
| 6 | Core from first tie from the west wall. Core is 14.5 cm in length but does not contain pith; the tie does contain bark, but the outer rings were damaged by the borer. <i>Pinus strobus</i> , from same tree as SBF-5. | A = +1+158+1v | 1636-1794+v |

The Finnegan House Eastern White Pine Sequence: the outer incomplete ring contains the majority of a ring's cell structure, so tree was cut in mid to late summer, 1795.

N = 159+1B	1636-1795+B
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