

# We Just Got Dendro'd

By Elliott Bristol and Donna Brown, September 6, 2022

Bristol and Brown are longtime HRH members. Bristol serves on our board of trustees, as well as volunteering on the Collections Committee. This article originally appeared in our August 2022 Member Newsletter.

You might ask: is dendro contagious? Well, no, it isn't, and it doesn't cause any pain. Dendrochronology, or the short version dendro, is the science of dating wood. We all learned in grade school that counting the rings tells us how old a tree is, but how could the number of rings identify the year it was cut? As we came to understand, the pattern of the width of annual tree rings corresponds to annual climate variations, establishing a pattern of dry seasons and wet seasons. Comparing wood cores to known profiles allows for precise dating of when the tree was growing. And having the bark edge in the sample identifies when the tree was cut.

We have lived in Red Hook for over 41 years and in a very old stone house that we have painstakingly restored to our satisfaction. However, when we tried to date the house, we just could not do it, not being able to read the old deeds and such. So, in 2003 we hired local experts Neil Larson and Jill Fisher to do research on our house. The end result was a wonderful genealogy of all the previous residents and the modifications that had been made to our house over the years. The house was originally a Dutch stone house with a kitchen in what is now the basement and two jambless fireplaces at either end on the first floor. In the 1780s a major modification was done, and the house was "Anglicized," updating the interior and exterior to give a more English appearance. We do know that the first recorded owner of the house was Petrus Hoffman in the 1750s. Neil's best guess as to the date was 1752 with a possibility of the house being built earlier between 1720 - 1750. It was not likely that it was built later in the century.

However, we really did want to narrow down the date so we might be



*Bristol and Brown's c. 1753 house in Tivoli, NY.*



*The process of dendrochronology requires taking a core sample from a piece of lumber.*

able to apply for a historic road marker to honor the family that built the house. Arrangements were made in early 2022 to have some experts come up and see if they could really nail down the possible date of the house. We hired William J. Callahan and Dr. Edward R. Cook to undertake a dendrochronological analysis of the beams in our house to help confirm which scenario was valid. Bill and Ed have been doing dendrochronology analysis together for 35 years and have built up “master chronologies” -- profiles of trees of different species from different regions. Wood core samples were collected from our seven white oak cellar beams, of which four actually had bark edges. They were processed in Dr. Cook’s Tree-Ring Laboratory at the Lamont-Doherty Earth Observatory of Columbia University following well-established dendrochronological methods. The core samples were carefully glued onto grooved mounts and were sanded to a high polish to reveal the annual tree rings clearly. The rings’ widths were measured under a microscope to a precision of  $\pm 0.001$  mm.



*Core sample taken from the Petrus Hoffman House.*

The results were that two beams were cut the winter of 1751/52, numbers 5 and 6, and are at the south end of the basement. Two were cut the winter of 1752/53, numbers 1 and 4, and are in the north end. You might ask why the winter? Well, the trees were at that season dormant with no leaves, and everything around was hibernating for the winter. That simplified moving these massive beams especially when there was snow on the ground which made it easier for the horses to pull to the home site. It is worth a note that one of our beams has 216 rings. Although it did not have a bark edge and therefore it was hard to pin point the exact date it was felled, we can surmise that the tree was massive and began its growth in the 1500s.

Was the house built in multiple sections over multiple seasons? Looking at the basement, there is no indication of the house being built in more than one stage, although it may have taken that long to construct it. So, we can now say with some certainty that scenario one, above, is confirmed, that the house was built ca. 1753. Petrus died August 15, 1754, at the age of 27. One piece of the puzzle remains to be explained. Was it a construction accident that killed him at such a young age? We’ll probably never know. What we do know is that his daughter and only child, Jannetje (Jane) Hoffman, had possession of the farm consisting of 265 acres, through two marriages, until her death in 1809 at the age of 56.

The full dendrochronology report can be found here:

- <https://hmvarch.org/dendro/ny-dutchess-petrushoffman-tivoli-dendro.pdf>