

# *“Boring” History*

## *How Dendrochronology is Helping Refine the Belmont Story* by Scott Harris, Executive Director, UMW Museums

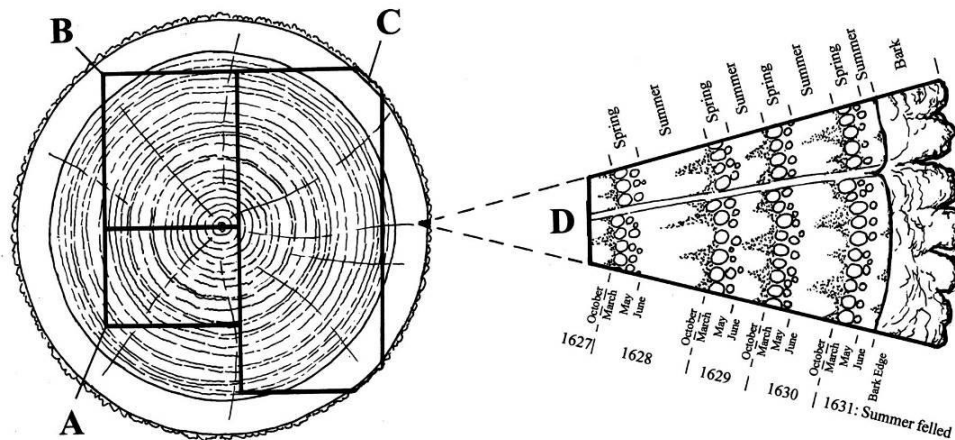
In October 2023, Gari Melchers Home and Studio utilized **dendrochronology**, a complex and fascinating scientific method, to help establish a definitive date of construction of the historic house Belmont. Results of this work were reported in March 2024 and research is ongoing, but it can now be said with a high degree of confidence that the oldest portion of the house dates to 1800.

Because the original deed of ownership for Belmont is lost, the year in which the house was built and the identity of its first owner is not precisely known. The original plan of the house consisted of a first and second floor side passage and two rooms upstairs and down to the north (the present dining room, library and two guest bedrooms) which were thought to date to the late 1790’s. Surviving documents inform us that the Horner and Vass families owned the property between 1785 and 1804, so one of those two families were thought to have constructed the earliest section of the current structure.



*Dr. Daniel Miles extracts a core sample from an historic framing timber in the Belmont cellar. [Oxford Dendrochronology Lab photo.]*

Dendrochronology makes use of the annual pattern of growth shown by most tree species in temperate regions. Examination of the annual growth rings of a tree will reveal not only its age, but also the fluctuating climatic conditions during its lifetime. Within restricted geographical units, trees of the same species growing at the same time will show similar trends in tree-ring growth. This can be seen by measuring the widths of the rings from different trees, plotting them against time in years, and superimposing the plots, known as tree-ring curves.

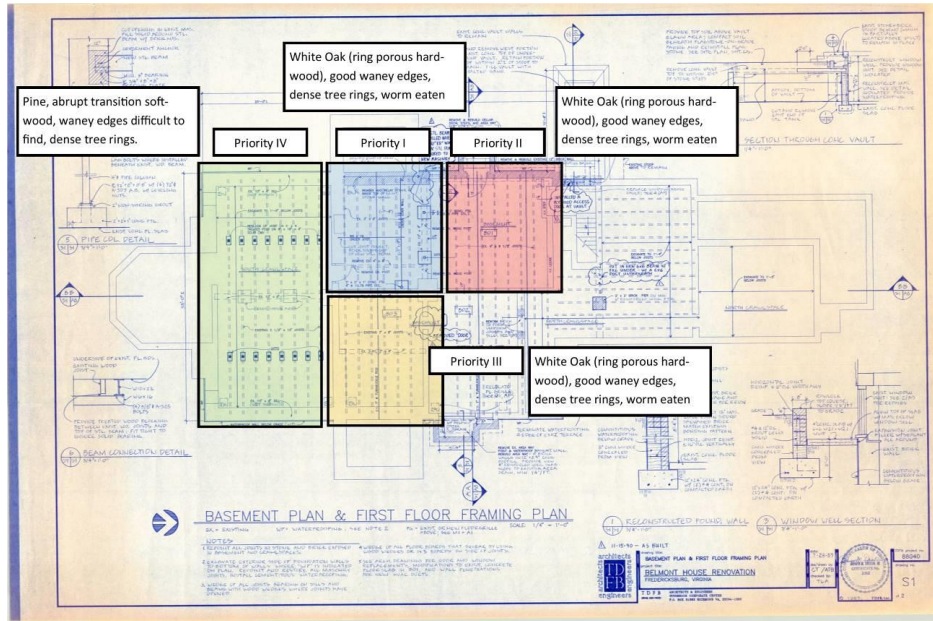


Representative section of oak tree with conversion methods showing three types of sapwood retention resulting in **A** terminus post quem, **B** a felling date range, and **C** a precise felling date. Enlarged area **D** shows the outermost rings of the sapwood with growing seasons. [Illustration by Daniel Miles]

Dendrochronology is an accurate and precise dating method and, since the production of tree-ring dates relies solely on the similarity between ring patterns, the results are completely independent of other dating evidence, history, or theory. The dates, provided they are produced by an experienced dendrochronologist and are from a secure context, should take precedence over those produced by any other means.

The investigation of Belmont was conducted by Oxford Dendrochronology Laboratory (ODL) of Oxfordshire, England. Dr. Daniel Miles was the principal investigator, assisted by Michael Cuba of Transom Historic Preservation Consulting in Philadelphia, PA. ODL has some 50 years of experience in the measurement and analysis of tree-ring data. In addition to other clients worldwide, Dr. Miles and his associates have worked in numerous American sites. Among their Virginia clients are the Colonial Williamsburg Foundation, Montpelier, Monticello, Mount Vernon, and the Mary Washington House in Fredericksburg.

Initially two main areas of Belmont were selected for sampling: Priority 1 and Priority 2 – as shown on the plan and annotated exterior photo below by Professor Michael Spencer of the UMW Department of Historic Preservation. Priority 1 is located in the southern part of the cellar under the primary phase of the house, while Priority 2 is under the adjoining part of the house to the north. A third priority was the rear, or eastern half of the cellar behind Priority 1, the southern part of the cellar. A fourth area, not prioritized, lies to the eastern part of the cellar behind Priority 2. It was traditionally considered that the southern cellar (Priority 1) predated the northern part of the cellar (Priority 2). Sampling was therefore proposed to be split equally between the two front cellars.



Plan of Belmont showing primary areas of dendrochronological investigation prepared by Michael Spencer, UMW Department of Historic Preservation.



Belmont northwest elevation showing priority areas for dendrochronological investigation, prepared by Michael Spencer.

On assessing the structure, it was believed that the front (western half) of the cellars was likely of the same age as the rear (eastern half) of the same cellars, and the investigation was expanded to distribute the sampling over both the front and rear parts of the cellars. Therefore, sampling was distributed equally throughout the entire cellar.

**Of twenty timbers sampled, eighteen can be ascribed precise felling dates. These range from two of winter 1798/9, one of spring 1799, and fifteen of winter 1799/1800. This strongly suggests that both center sections of the house were constructed during 1800.**



*Floor joist, Belmont basement, photographed in May 2023 by Michael Spencer.*

Verifying the composition and age of materials used to build Belmont not only means telling a more accurate story, but also, potentially, a more meaningful one in terms of who the actual builders were. The date reference provided by dendrochronology can be compared with US census records, including schedules of enslaved persons. If a correlation can be established between the likely date of the house's construction and the property owner at that time, it may be possible to attribute construction to the enslaved Black persons associated with the White owner.

While it is virtually impossible that enslaved Black builders of Belmont can be identified individually, any data that points to their collective activity helps illustrate the vital role played by persons of color in creating this historic resource. Subsequent periods of construction at Belmont, including the era of the Ficklen family's ownership, are informed in larger part by existing documentary evidence. Dendrochronology, as noted above, is a way to let the building tell some of its own origin story and could lead to further conclusions when combined with other sources of information.

Traditionally, the main interpretive focus of Gari Melchers Home and Studio is the association of the Belmont estate after 1916 with the namesake artist. While the Melchers legacy will remain a crucial core, the whole history of the site, including the stories and contributions of enslaved and free Black people over nearly 200 years, warrants greater attention. The data derived from the dendrochronology project is a first step toward realizing this goal.

[NOTE: This article was adapted from *The Tree-Ring Dating of Belmont, Gari Melchers Home and Studio*, 224 Washington Street, Falmouth, Stafford County, Virginia, by Dr. Daniel W. H. Miles, March 4, 2024.]