

Using dendrochronology to date old musical instruments

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Dendrochronologists, Paolo Cherubini with the Swiss Federal Institute for Forest, Snow and Landscape Research, has published a Perspective piece in the journal *Science* outlining the use of dendrochronology to determine the approximate age of old wooden stringed instruments. In his paper, Cherubini notes that analysis of tree rings of some instruments can be used to determine the terminus post quem—the year in which the last ring was formed.

Over the years, the value of some old wood stringed musical instruments has grown due to the reputation of the person or group who made them. Antonio Stradivari, a maker of fine violins, is perhaps the most famous. But dating such instruments has proven to be rather tricky—the most accurate method, using [radiocarbon dating](#), requires a sample, and owners of prized instruments are not willing to allow researchers to scratch away wood samples for testing—not only would it mar the surface, it might impact the sound. As a backup, scientists have turned to dendrochronology, which is the science of dating wood items by comparing their tree ring patterns with other objects that have already been dated.

As Cherubini notes, cross-sections of a tree trunk reveal rings, one for every year of its life—their thickness varies depending on the climate during any given year. Thus, all of the trees in a given region will have similar ring patterns. Dating an instrument, then, means figuring out where the wood was grown and then comparing ring patterns with [trees](#) that are still growing there, or against other wood objects known to have originated in the same place and time. In either case, the best estimate a

dendrochronologist might make regarding a wood instrument will depend on when the last rings were formed—its terminus post quem. As an example, if an instrument believed to have been made by luthier Gasparo da Salò was found to have a terminus post quem of sometime during the 17th century, and it is known that the craftsman died in the 16th century, it is clear that he did not make that instrument.

Cherubini concludes by noting that dendrochronology is an inexact science because [wood](#) can be stored before it is used to make an instrument. Thus, collectors need to take into consideration the circumstances around which an instrument has been dated.

More information: Paolo Cherubini, Tree-ring dating of musical instruments, *Science* (2021). [DOI: 10.1126/science.abj3823](https://doi.org/10.1126/science.abj3823)

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