

# BLOOD BROTHERS

What can the study of a 1710 Rogeri tell us about the making of the 'Messiah'? ARJAN VERSTEEG reports

**I**N JULY 2009 I HAD THE OPPORTUNITY TO MAKE A dendrochronological analysis of a violin which has been authenticated by experts as having been made by P.G. Rogeri in 1710. It belongs to the Anne-Sophie Mutter Foundation in Munich and is currently played by the young Korean soloist Ye-Eun Choi. Analysing the wood of the top and comparing my measurements with my database, I discovered that the top of the Rogeri violin has to have been made from the same tree as the top of the 'Messiah' Stradivari (using Henry Grissino-Mayer's data on the 'Messiah').

Dendrochronology cannot determine the authenticity of instruments, but rather states, for our purposes, the *terminus post quem*: the earliest possible building date of the top of a violin. To state that wood of two violins is from the same tree, dendrochronologists rely on the empirical study of the spacing of the annual rings (ring width). The criteria for two samples from different instruments to be considered as coming from the same tree (according to Micha Beuting, 2003, *Holzkundliche und dendrochronologische Untersuchungen an Resonanzholz als Beitrag zur Organologie*) are as follows:

The treble side of the 1710 Rogeri (left) and the bass side of the 'Messiah' (right) significantly cross-match



- t-value (based on the correlation coefficient, taking into account the overlap of data) is greater than 8.0
- G-score (the proportion of years in which, compared to the prior year, two tree ring widths increased or decreased together) is greater than 70%
- Visually similar graphs (see figures 1–5), with similar beginning and end rings
- Similar ring width
- Minimum of 70 years overlap of the annual rings

The criteria for the samples to be considered as coming from adjacent pieces of the same tree, (according to John Topham & Derek McCormick's 1998 study, *A Dendrochronological Investigation of British Instruments of the violin family*) include a t-value greater than ten.

As can be seen in the table on page 44 and Figure 3 on page 43, the results of cross-matching the Rogeri and the 'Messiah' indicate that the 'Messiah' bass and the Rogeri treble are from wood of the same tree. The very high T-value of 11.6 when cross-matching the Rogeri treble and the 'Messiah' bass additionally suggests that both pieces originated from adjacent sections (perhaps in different

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## RING WIDTHS YEAR BY YEAR

FIGURE 1

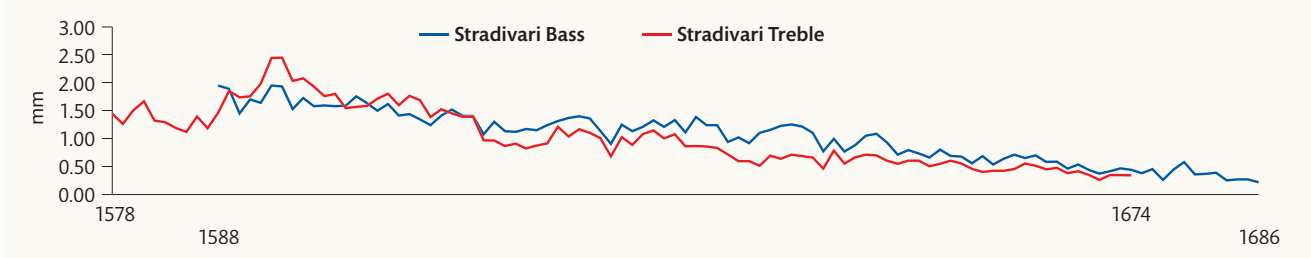


FIGURE 2

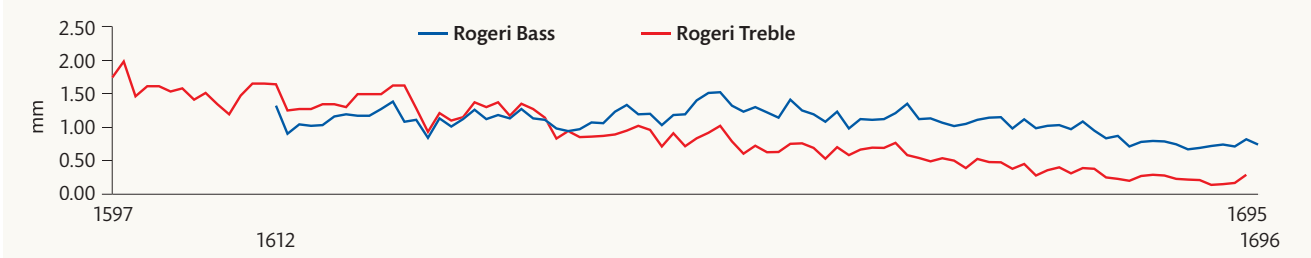


FIGURE 3

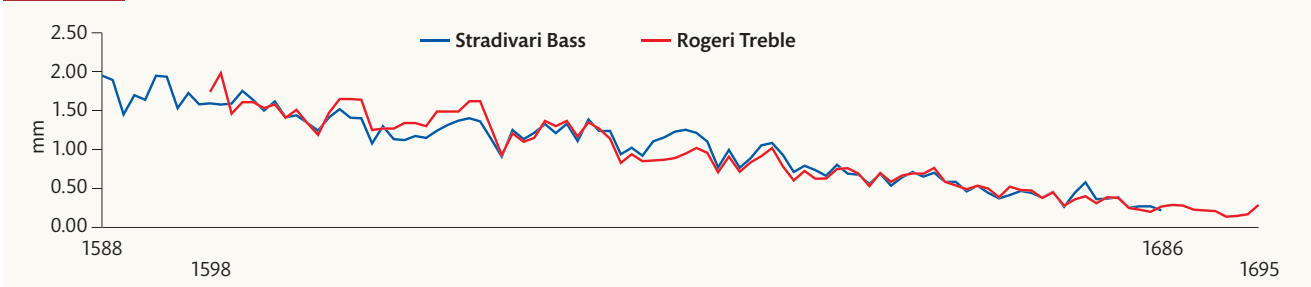


FIGURE 4

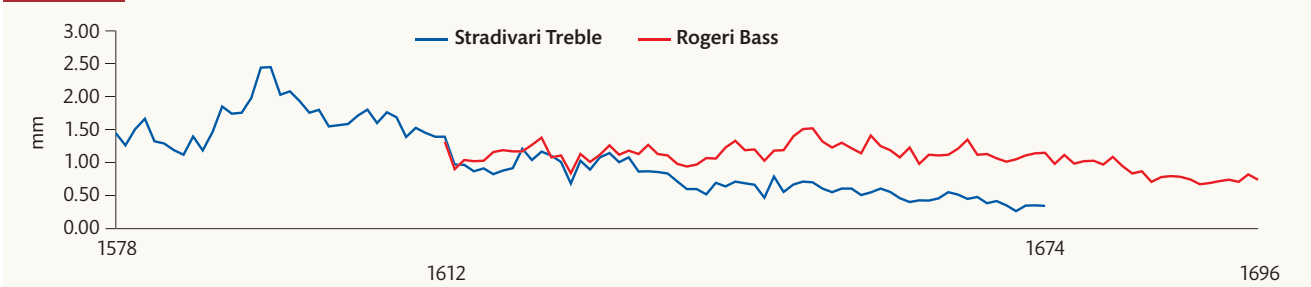
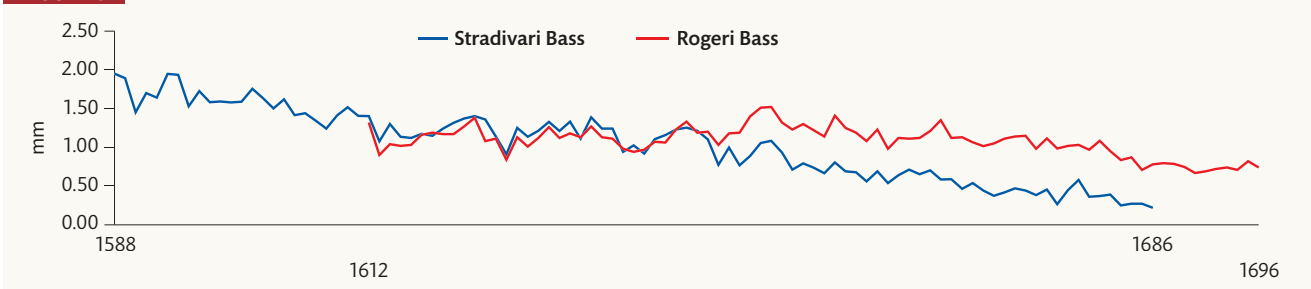


FIGURE 5



levels of the trunk). Also, the strong match between the ‘Messiah’ bass and treble suggests that Stradivari used wood from just one tree for both the treble and bass halves of the top plate.

The links do not stop there. John Topham also discovered that the treble side of the 1724 Stradivari known as the

‘Wilhelmj’ very significantly cross-matched the front of the ‘Messiah’, suggesting that it too came from the same tree (see table on page 44).

Because the Rogeri bass side cross-matches with the treble side with a t-value of only 6.8 and does not match with the >

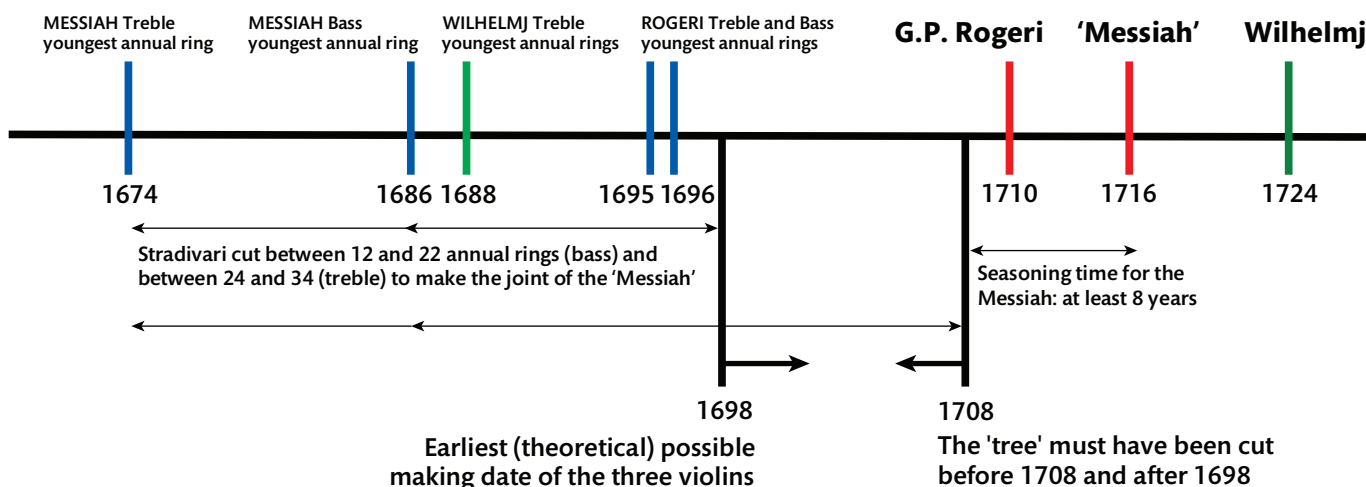
## T-VALUES

Table of correlation values between the fronts of the Stradivari violins (Messiah and Ex-Wilhelmj) and the Rogeri violin

	'Rogeri' bass	'Rogeri' treble	'Wilhelmj' treble	'Messiah' treble
'Messiah' bass	5.2	11.6	6.1	8.1
'Messiah' treble	2.8	8.3	8.4	
'Wilhelmj' treble	3.5	8.8		
'Rogeri' treble	5.7			

t-value (Baillie and Pilcher)

## TIMELINE



'Messiah' treble side, it is possible that the Rogeri bass side could be made from a different tree. But the use of non-adjacent pieces or eccentric tree-growth could also explain high and low T-values within the same trunk.

The 'Messiah' top plate has been dendrochronologically dated by John Topham and Henry Grissino-Mayer. They independently came up with the same dates: 1686 for the bass and 1674 for the treble. My analysis of the Rogeri top plate has the bass at 1696 and the treble at 1695.

What could the fact that the tops of the 'Messiah' and the Rogeri are made from the same tree teach us about the 'Messiah' tree?

Classical Italian violin makers made no systematic attempt to remove sapwood – the outermost, youngest part of the wood. Neither was a long seasoning period common practice, according to Topham and McCormick's 2000 study, *A Dendrochronological Investigation of Stringed Instruments of the Cremonese School (1666-1757)*. To prepare the wood to make the joint, at least one annual ring is lost by planing. Further to this, the seasoning time is at least one year. Therefore, theoretically, the earliest possible building date of an instrument is at least two years after the youngest annual ring measured on the top. From my experience as a violin maker, I would say that, depending on the ring width, at least five annual rings are removed before making the joint.

Experts have dated the Rogeri as being completed in 1710, so the tree would theoretically have been cut in or before 1708. The

'Messiah' violin was completed in 1716, so Stradivari used wood that was stored for at least eight years.

The youngest annual ring measured from the 'Messiah' tree is the Rogeri bass side, dated 1696. Taking into consideration the theoretical seasoning time and the loss of wood in making the joint, this gives the earliest possible manufacturing date of all three violins as 1698 (two years after the Rogeri bass date of 1696).

If the 'Messiah' tree was growing until at least 1698, and the youngest annual ring from the 'Messiah' on the bass side was grown in 1686 (as described above), one can tell that Stradivari cut at least 12 annual rings (1698 – 1686 = 12) on the bass side in order to plane the wedges for fitting the joint. The maximum number of annual rings Stradivari cut away is limited by the latest possible cutting date of the tree: 1708. This gives 22 rings (1708 – 1686). For the treble side Stradivari must have cut away between 24 and 34 annual rings: 1698 – 1674 = 24 and 1708 – 1674 = 34).

Near the joint, the wood is densely grown; the mean value of the annual ring width is around 0.5mm. The wood Stradivari has cut away is therefore equivalent to 3–6mm on the bass side and 12–17mm on the treble side.

As one can see, string instruments from wood of the same tree can teach us something about the seasoning time of tonewood and the process of making the joint. In this case, it is also significant and highly interesting that the Cremonese violin maker used wood from the same tree as the Brescian. ■