

Fingerprints Under the Varnish: Comparing Thickness Graduations of the "Messiah" Violin to Golden Age Strads

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ABSTRACT

Thickness graduation maps of the "Messiah" violin show similar characteristics to those of the Betts (1704), Cremonese (1715), Tuscan-Medici (1716), and other Golden Age Stradivarius violins. Top plates are generally thin (2-3 mm), with the thickest areas (3-4 mm) occurring between the c-bouts and the f-holes. Back plates have a central concentric zone of greatest thickness (4-5 mm), in which the center of thickness lies distinctly left of the centerline in the Cremonese, Tuscan-Medici, and Kashininov violins. The thickness pattern on the back of the Messiah violin is almost identical to that of the Cremonese violin, including asymmetrical center of thickness points located more than 30 mm left of center. These characteristics do not prove the Messiah's authenticity, although such a hypothesis seems permissive because of the similarity of these commonly hidden, highly personal traits.

INTRODUCTION

The process of carving and adjusting thickness graduations of violins is very personal, and the distinctive patterns and thickness distributions that characterize a particular maker might even be considered a "fingerprint". Historically this internal "fingerprint" has been largely overlooked, as multitudes of copyists of violins by Antonio Stradivari concentrated on outward appearances. A comparison of thickness graduation maps of the controversial "Messiah" violin [1,2] with those of several of Stradivari's "Golden age" violins provides additional perspective on the question of the Messiah's authenticity.

A graduation thickness contour map of the Messiah violin (Fig. 1) was made based on measurements taken by John Pringle in 1980 [3]. This map is compared with contour maps of the "Betts" (1704), the "Cremonese" (1715, [4]) and the "Tuscan-Medici" (1716 [5]). All maps were constructed using the same method. See [6] for a description of the thickness graduation project, database, and method of construction of thickness contour maps.

RESULTS

Table 1 gives critical dimensions, including descriptive statistics on graduation data, for the violin plates depicted in figures 1 and 2.

Clearly all three violins are slightly different, and the Messiah is slightly longer and wider (especially in the lower bouts). Graduation data for top plates are quite close in range and mean values, although data for back plates show that the Messiah is slightly greater in minimum and maximum thickness.

Table 1. Dimensional data on Golden Age Stradivari violins, and the "Messiah" (all measurements are in millimeters). Lengths are caliper distances. Sources of data are as follows: Betts, U.S. Library of Congress files; Cremonese, [4]; Tuscan-Medici [5]; Messiah, [3].

Violin	Betts	Cremonese	Tuscan-Medici	Messiah
	(1704)	(1715)	(1716)	(1716)
Top plate				
Length	353	355.5	356	358
Upper bouts	167	167.2	166.8	168
Middle bouts	107	110.0	109.4	112
Lower bouts	207	205.5	206.6	213
Arching height	16.3	15.4	15.4	15.5
Graduations	94	22	69	48
Min	2.1	2.3	2.0	2.0
Mean	2.57	2.76	2.74	2.71
Max	3.4	3.5	4.0	4.0
Std dev	0.28	0.34	0.36	0.40
Back plate				
Length	354	357	357.5	358
Upper bouts	168	168.0	167.5	168
Middle bouts	108	112.0	109.2	112
Lower bouts	207	208.0	207.5	213
Arching height	16.3	15.4	14.7	16.5
Graduations	92	26	72	23
Min	2.2	2.4	2.2	2.75
Mean	2.99	3.63	3.20	3.67
Max	4.0	4.9	4.6	5.25
Std dev	0.46	0.80	0.64	0.81

Figure 1. Contour maps of top plates of Golden Age Stradivari violins, and the “Messiah”. Contour interval 0.25 mm; data point locations are shown by small black dots.

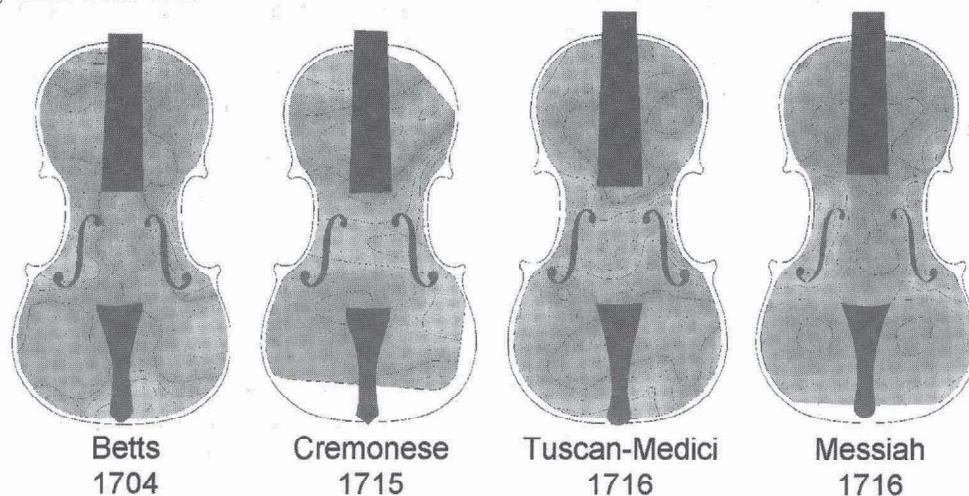
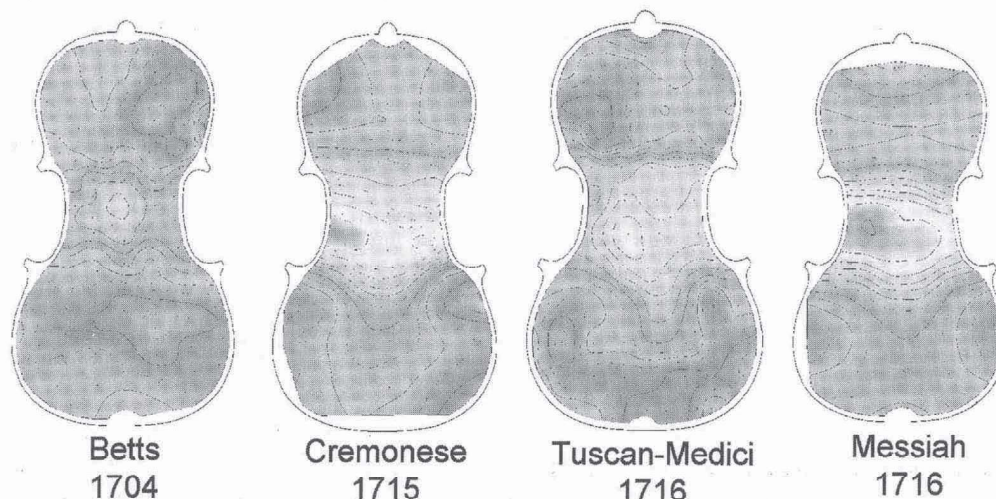


Figure 2. Contour maps of back plates of Golden Age Stradivari violins, and the “Messiah”. Contour interval 0.25 mm; data point locations are shown by small black dots.



Top plates

The Messiah top plate shows similar thickness distributions to top plates of Golden Age Strads (Fig. 1). Top thickness is within the range of 2.0 to 4.0 mm, and the patterns show similar overall “membrane-like” graduation systems, with moderate degrees of asymmetry. A thick area between the f-holes and the edge of the C-bouts on the Messiah is similar to that of the Betts and the Tuscan-Medici (data points are lacking in that area for the Cremonese violin).

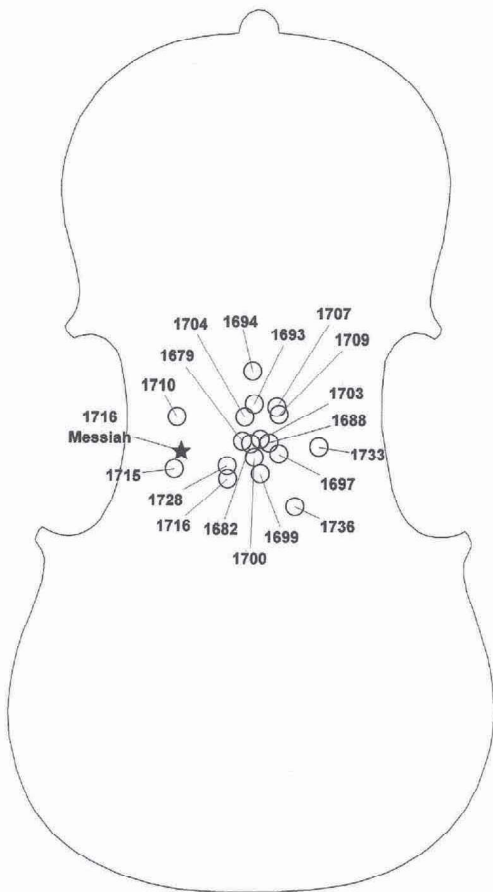
Back plate

Back plates (Fig. 2) show the distinctive “bulls eye” pattern characteristic of Stradivari violins, violas, and cellos [7, 8]. On the

violin backs shown, the thick portion of the back plate forms a concentric zone, in contrast to the practice of other makers who construct a longitudinal backbone, or some other shape [7]. Overall the graduation maps for back plates of the Messiah and Cremonese are strikingly similar, which is significant because the degree of detail of these two maps is similar (the number and distribution of thickness data points are comparable; Cremonese, 26 points; Messiah, 23 points).

The center of thickness on the back plate of the Messiah occupies an asymmetrical position about 30 mm left of center. A similar asymmetry appears in back plates for the Cremonese and Tuscan-Medici violins (Fig. 2), and Fig. 3 shows that such asymmetry is not

Figure 3. Center of thickness of 18 Stradivari violin back plates (showing date), and the Messiah violin (shown with black star), projected onto the back outline of the Cremonese violin of 1715. Centers of thickness locations are based on centroids of maximum thickness contour polygons generated on a geographic information system using natural neighbor interpolation (see [7]). Positions are adjusted for differing plate lengths.



unusual for Stradivari's violin backs (note: it also occurs in Strad's cellos). The Messiah center of thickness plots at the left side of the cluster defined by 18 Stradivari backs, and falls between two Golden Age Strads, the Kashininov (1710) and the Cremonese (1715). The center of thickness for the Messiah back plate is slightly more than half (51.4%) of the distance from bottom to top edge. The average distance from bottom to top edge of the center of thickness for 18 Stradivari backs is 52.1% (range, 44.5-59.4%).

DISCUSSION

The data presented on dimensions, graduations, and center of thickness seem permissive regarding the authenticity of the “Messiah” violin. Such evidence does not prove that the Messiah is a genuine Stradivari, although there appear to be no inconsistencies, particularly in graduation “fingerprints” between the Messiah and the Betts, Cremonese, and Tuscan-Medici violins. Graduation patterns are highly individualistic. Indeed, evaluation of such graduation thickness maps may be as close as we will ever come to discovering “the fingerprints of Stradivari under the varnish” of the “Messiah” [9].

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