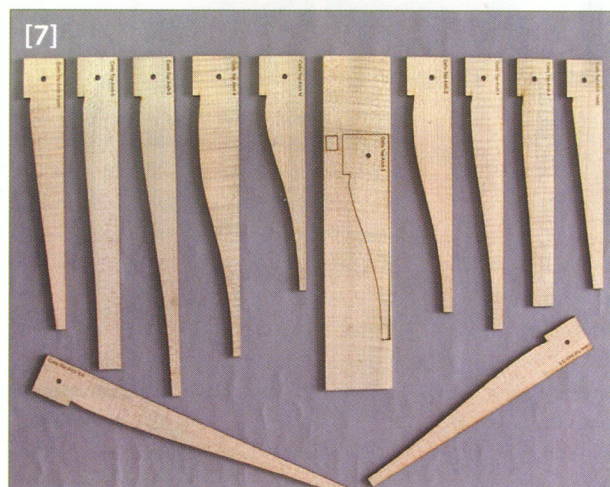
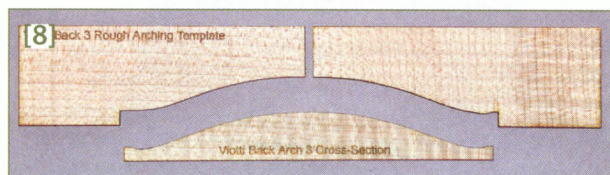


STEPS 7-10



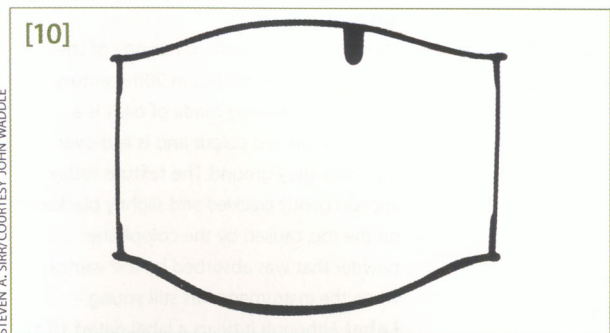
A complete set of corrected cello templates



The corrected 'Viotti' Stradivari violin arching templates



A cello template being used to shape a back



The CT scan of a Montagnana cello taken at the C-bout

[7] The benefits of digital lines over traditional pencil tracings lie in their accuracy and adaptability, and these are passed on to the finished templates.

This is a complete set of templates for my cello top arching, made recently using this technique: eight cross arches, two end longitude arches and two diagonal arches. It is interesting to note that when the laser has burnt the template from 2mm quarter-sawn maple sheets, all of the edges have a dark-brown finish which is sealed like varnish by its own sugar and resin.

[8] In this picture you can see that my corrected Stradivari arch can now be used to make a positive axial section. I have also found it useful to create templates without fluting for rough arching work (see upper left template), which is easily done in AutoCAD without destroying the original.

[9] When using a finished template, I position it at the correct point and remove wood from the high spots until the template no longer rocks. If the top or back plates deflect upwards in the bouts (especially with cellos) I clamp the edges to a working board to get a true reading of the arching compared with the template. This deflection could result in quite a big difference in arching shape. In my working notes I record the finished weights of the completed tops and backs. This gives me direction to revisit the recurves and insight into how the cross archings blend into each other at the upper and lower bouts. It is also useful to make a couple of diagonal arching templates.

[10] The potential of this system is huge, especially with developments in the use of CT scans. An instrument can go through a CT scan without any invasiveness: with all other forms of castings, there is always a potential risk of something happening to these valuable instruments, and the results are not always accurate. This is a CT scan of a 1730 Montagnana cello at the axial scan (cross section) of arching no.3, the narrowest measurement in the C-bout. It shows not only the top of the arches, but also the thickness of the plate. The arching profiles from this scan will be corrected for distortion in AutoCAD and templates will then be cut with the laser. ■