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A Suitable Model: making a reduction of the 1620 A & H Amati viola

Helen Michetschläger explains the choices and processes involved in making a 17-inch viola for a recent commission

Late last year I received an interesting commission for a viola. Stephanie, the player, a tall woman with large hands, had tried a number of instruments and found anything under 17 inches (432mm) too small; many of the violas were also not particularly comfortable to play. So my brief was an interesting one; rethinking my existing work which is firmly centred on trying to make violas which sound good but feel small.

Stop and Neck Length

An initial exchange of letters established some ideas. I was intrigued that my client seemed to have found so many instruments to be too small. Knowing that the variations in stop and neck length can be considerable even with a given body length, I asked if it would be possible for her to measure these on those of her friends' instruments which she found the most comfortable. This was done with enthusiasm and I was sent a chart giving all the relevant information plus comments on the sort of sound they had. The most comfortable viola had a neck length of 165mm and stop of 229mm. I wanted to maintain the standard neck:stop proportions of 2:3 so rearranged this figure to give a neck length of 157.5 and a stop of 236.5.

I now had enough information to start work on the viola design prior to a meeting with Stephanie. I have long been interested in tenor violas and find them a rich source of inspiration for my own work, having made a number of smaller instruments based on reductions of Andrea Guarneri and Gaspar da Salo. Taking the required stop length and the dimensions of three existing tenor violas I did the following simple sum on a calculator: desired stop length (236.5mm) divided by original stop length (247) gives a figure which multiplied by the original back length (452mm) gives a new back length (433mm) which is in proportion with the shorter stop; the reduction of the outline (new back length divided by original back length) was then expressed in percentages and simply scaled down on a photocopier.

Matching Dimensions

At our meeting, I went through this carefully with Stephanie, and we decided that a reduction of the A & H Amati of 1620 belonging to the Royal Academy of Music would be the most suitable model, since it reduced closely to the required dimensions. As I did not have complete information for it, David Rattray kindly put me in touch with the current player, Paul Silverthorne, in order to measure it fully.

I decided to keep the scroll the original size. Stephanie had complained that several of the scrolls of violas she had tried 'got in the way'; so it seemed important to bring the nut as far forward as possible by making a dummy nut over the shoulders of the scroll, and also to space the pegs well away from the nut. I kept the soundholes the original size and the spacing between them only 2mm short of the original very wide 66mm. When I discussed the instrument with David Rattray, he suggested that keeping f-hole size and spacing the same as the original went a long way to maintaining the quality of sound in a reduced size copy, so I was keen to try this out.

Stephanie wanted a viola with a rich and warm sound, but also with some edge. She was also concerned that many of the larger violas she had played had poor A strings, with the upper and lower registers sounding like two different instruments. The original A & H Amati has a fabulous sound: incredibly focused but deep and rich at the same time, and very even. For my reduced copy, I was anxious to avoid the boomy sound of some large violas. So I kept the rib heights relatively shallow, 36-38mm, with arching heights close to the original at 19mm for the back and 19.5mm for the front.

Slab Sawn Back

For the back we chose a slab sawn piece of wood, departing from the quarter sawn original, but as the best piece of wood I had in the workshop, it cried out to be used. I have often used slab backs and find that they contribute to warmth of sound, particularly in conjunction with a reasonably high arching. The front was a very old piece of split spruce with a lovely medium width grain and just a suggestion of hazel figuring.

Arching shapes were kept close to the original, a fairly scoopy figure-of-eight shape on the back and a strop barrel shape on the front. I had been able to measure the original thicknesses and tried to generally reproduce the idea of a thicker band down the central section of the back, 5.5mm in the centre down to 3mm close to the block areas and 2mm on the flanks. The front I left around 3mm, thinning down slightly on the flanks. I left both back and front thicker at the edges of the C bouts than the original. The bass bar was set with its outer edge 24mm from the centre joint, which I hoped would give me sufficient leeway to try a selection of bridge widths. I set the neck with an elevation of 33mm, with a correspondingly high overstand of 8mm.

Bridge Experiments

Once the viola was varnished, I made some experiments with different widths of bridge. The first bridge I tried was 48mm wide, and the sound, though good, seemed to be slightly lacking in depth. The 50mm bridge made a definite improvement, but I felt there was little to choose between that and the 52mm bridge. I set the soundpost well in from the treble bridge foot, about 4mm.

The viola has a very rich, even, silky sound on the top three strings, but is as yet not quite so focused on the C although it is improving with playing. Stephanie seems pleased with it, saying that it 'fits me perfectly'.