

# The Working Methods of Guarneri del Gesù and their Influence upon his Stylistic Development

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## The Selection and Preparation of the Back and Belly Woods

Throughout his working life, Del Gesù used materials of the finest quality.<sup>55</sup> Only in his earliest and transitional period was he occasionally obliged to use second-class maple: The “Lenau”, attributed to 1727, has a back made from two unmatched pieces of maple, and one instrument from around 1728 has a wild root maple back and a beech head. In fact, Del Gesù’s maple was superior to that used by the Stradivari family, who at this time were resorting more and more to a poorer quality, local Italian maple, known as oppio.<sup>56</sup>

Del Gesù preferred quarter-sawn mountain grown maple, *Acer pseudo platanus*. Although two-piece backs appear to outnumber one-piece backs, he used both, apparently at random. There are a modest number of one-piece slab-cut backs, of which the “King Joseph” and the “Stern” of 1737 are fine examples. Throughout his working life, Del Gesù regularly cut several backs from the same log. Hardly surprisingly, instruments thus related tend to be found in close chronological groupings. The backs of the “Stretton” (c.1729) and the “Kreisler” (c.1730) appear to be from the same log. The Xames on the backs of the “Haddock” (1734), the “Diable” (1734) and the

“King” (1735) bear a close resemblance, even occurring in virtually the same position on each instrument, indicating that the billets were just long enough. In 1737, the “Turkish” and the “Joachim” obviously came from the same wedge, and the slab backs on the “King Joseph” and the “Stern” are almost identical. Such observations suggest that Del Gesù was receiving and using his back wood in small batches. Similar observations can be made about the maple used by his father: Between 1710 and 1718 Giuseppe Filius Andreæ made several backs from wood with a bird’s-eye figure which, when quarter sawn, produced characteristic narrow streaks in the Xames. However, there is no sign of a family stock of maple (or spruce), and Del Gesù’s own maple bears no particular resemblance to that of his father or any other maker in Cremona.

Dendrochronological analysis has shown that Del Gesù’s belly wood was often no more than three or four years old when the violins were constructed. At the time of writing, maple cannot be subjected to such analysis, and any assumptions about its seasoning should not be based on data concerning the fronts. Nevertheless, circumstantial evidence suggests that Del Gesù’s back wood was also quite fresh when worked. The bodies of his instruments often underwent extreme twisting – more so than those of

any of his Cremonese contemporaries: Invariably the figures of the backs have a strong corrugated texture when the fingertips are run lightly across them, and even the year rings can feel slightly rippled. Furthermore, Del Gesù's centre joints frequently show signs of having moved and separated, a rare occurrence in the work of the classical makers. Such details, coupled with the notion that the back wood was used in batches and the implications of the unquestionably fresh belly wood, suggest that Del Gesù had no large stock of old well-seasoned back wood.

Until the 1730s fine maple was common in Cremona. Thereafter, only Del Gesù appears to have had regular access to high-quality and probably expensive maple, while the Stradivaris and Carlo Bergonzi turned increasingly to oppio and plainer cuts. Clearly any fresh wood could not have been inherited and Del Gesù was not a wealthy man.<sup>57</sup> Count Cozio refers to Del Gesù's wood as being select and foreign, but further documentary or scientific evidence is needed before we can identify the source of his prime maple.

There are two theories which attempt to explain the source of Del Gesù's wood. Scientific analysis has shown that his mountain-grown belly wood was almost certainly harvested in the Alps. This type of wood has also been identified in instruments made in Hamburg, Antwerp and London before the eighteenth century; it would be logical to assume that Del Gesù's mountain-grown back wood came from the same region. However, it is equally possible that his source of fine maple was his brother Pietro, who had been living in Venice since about 1717. Wood of the kind used by Del Gesù was certainly imported into Venice from the Balkans,<sup>58</sup> and it is possible that from time to time Pietro may have brought or sent shipments of such wood to his brother. There is some indication that Pietro himself used back wood of a similar nature to that of Del Gesù, but not enough research has been done to substantiate this.

Del Gesù's belly wood has been identified as spruce (*Picea abies*, also known as *Picea excelsa*). In fact this is the only wood so far associated with classical Cremonese bellies. Del Gesù's belly wood is of consistently good quality: The grain structure is always superb, with no hint of the excessively tight growth noticeable of Stradivari's belly wood in the 1690s. It is more in keeping with that used by Stradivari for his later instruments. In rare cases, such as the early "Dancla" and the later "Cannon", the wood is marked by a hazel or bear-claw figure.

Del Gesù's bellies were made up of two pieces cut

from quarter-sawn or split wedges. As mentioned, the dendrochronological evidence shows that most of his belly wood was little more than two or three years old when the instruments were made, which implies that little if any of it was stored, and that it was acquired in small quantities. Even those instruments which appear to have been made with somewhat older wood may still have been constructed with fresh timber, as the youngest available year ring can be much older than the date at which the tree was felled: The youngest year rings on the wedge may simply have been removed.<sup>59</sup> On all Del Gesù's bellies, the sap, or latest growth wood, is found in the centre of the belly: This confirms that they were cut from wedges and jointed at their outer edges, and disproves the theory that the sapwood was removed for tonal reasons, or for practical reasons of preservation.<sup>60</sup>

As with the backs, there are a number of bellies made from the same wood. The "Baltic" (1731), the "Diable" (1734) and the "Haddock" (1734) are all taken from a log cut down no earlier than 1720. For many instruments, Del Gesù used even fresher wood: The "Lord Wilton" (1742) and the "Carrodus" (1743) were both taken from a log cut down no earlier than 1739, while the belly wood for the "King Joseph" (1737) was cut no earlier than 1734 – possibly a year or two later, if we take into account the amount of wood which normally needs to be removed for the joint. The master must have heard the echo of bird-song ringing through it as he cut the outlines. The "Stern" (1737) has a belly made from two unmatched pieces, one of which comes from the same fresh log as the "King Joseph", the other from a marginally older log. Unmatched bellies are common among Del Gesù's later instruments, the "Heifetz" (c.1740), the "Sauret" (c.1743) and the "Ole Bull" (1744) being notable examples. However, all three have half-bellies in common. This may have been a deliberate strategy, or perhaps the stock had become hopelessly mixed up.<sup>61</sup> Although the centre joints often appear badly made, there is as yet no reliable data about the type of adhesive used.

The one-piece or jointed plates were planed Xat on one side to prepare them for the ribs. The only place where the remains of this planed surface can still be seen is on the underside of the edge overhang. Del Gesù must have carried out this task in some haste, because this narrow surface is often roughly finished. Occasionally, tiny pieces of Xame were torn out by the plane iron; on the "Kreisler" back overhang, several such holes are filled with tiny pools of ruby-red

varnish. Once the backs and bellies were jointed and Xattened, Del Gesù marked the centre lines, and the remains of these lines are still visible on some one-piece backs under the blocks.<sup>62</sup> On two-piece backs and bellies, this usually corresponded with the centre joint. Until recently, it was assumed that the back and belly outlines were finalized from the rib structure at this stage. This was almost certainly not the case. Del Gesù and all the other classical Cremonese violin makers must have initially put the belly to one side.

At this point, one final operation was carried out on the back. This involved the use of two tiny pins, one positioned at each end, close to or directly on the centre line (figure 27). Stradivari's are usually partially concealed by the purfling with something less than half of the pin protruding, usually on the inside. Del Gesù set less store by such accuracy. His pins are frequently to be found peeping from under the purfling, sometimes on the outside, sometimes on the inside and sometimes even on both sides. Often, especially in his later period, they are not covered by the purfling at all.

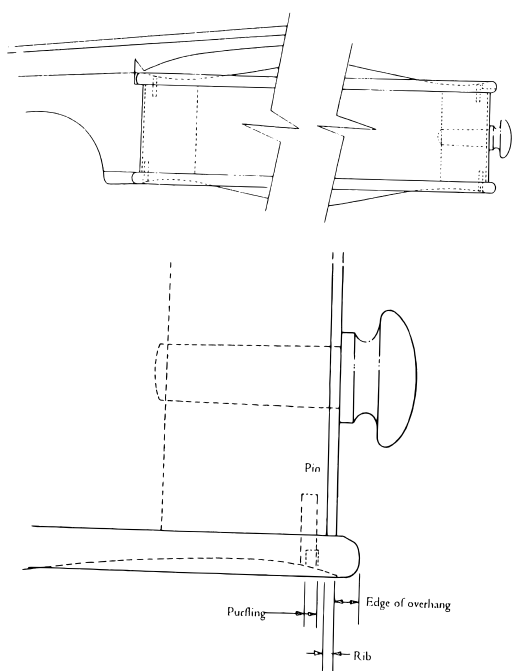


Figure 27. The positioning of the locating pins on the back and belly. The back pins required more careful placing in relation to the purfling, the belly pins being covered by the fingerboards and tailpiece..

The first purpose of these pins was to relocate the ribs on the back. Before the mould was removed, two holes about 1.75 mm in diameter were drilled on the centre line of the instrument, into the top and bot-

tom blocks of the rib structure, to begin with only on the side which was to receive the back. The eventual overhang of the plate and the position of the pin relative to the purfling had to be taken into consideration. From these holes in the top and bottom blocks, two corresponding holes were marked and drilled through the back plate. This was probably achieved by setting two sharpened metal pins, points protruding, into the block holes. Impressed into the scribed centre line of the back, they served as a guide for drilling.<sup>63</sup> The position of the top and bottom blocks was thus established for the time when the ribs were free of the mould. In most cases this second pair of holes was spaced identically to the original pair in the top and bottom blocks. However, it is possible that in order to lengthen the body of the instrument, Del Gesù (and perhaps other Cremonese makers) simply set the holes in the back further apart. Depending on how much further, this extension would inevitably have narrowed the body to some degree.<sup>64</sup> This technique also provides an alternative explanation for the outlines of the "Vieux-temps" of 1741 and the "Fontaine" pochette of 1740.

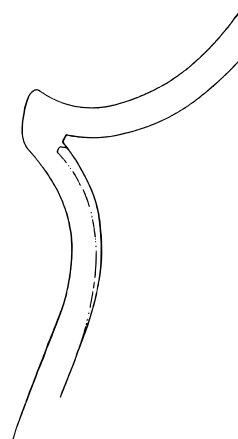


Figure 28. Simplified drawing of the remains of a scribe line at the corner, on the back overhang.

Once both sets of holes had been drilled into the blocks and through the back, the whole rib structure, with the mould still inside, was probably located on the Xattened back plate with the help of two pins. It was then possible to mark the rib outline onto the back with a scribed line. Traces of these initial rib outlines can be found on several Cremonese instruments. It is important to note that they do not always conform with the actual rib outline, and were presumably only a guide for the final marking of the back outlines (figure 28).<sup>65</sup> At this stage no attempt was made to record a belly outline from the ribs or to drill holes for the belly locating pins.

## Fixing the Neck and Marking the Back Outline

Once the provisional back outline had been marked out from the ribs, the ribs were removed from the mould. This involved releasing all the blocks and springing the corner blocks away from the form, an operation made easier with the specially shaped Cremonese corner blocks.<sup>66</sup> In this way the rib structure was “opened” and its interior area became larger than the mould, allowing the mould to be eased out over the linings. The centre bouts in particular were stretched to the limit, justifying the deeply mortised centre bout linings.<sup>67</sup>

The blocks would eventually be shaped on the inside. The upper and lower blocks of Del Gesù were closer to being semicircular than those of Stradivari, which were more rectangular, with radiused ends. The corner blocks were chopped back to form almost straight lines across the corners. Generally they were not scooped or finished deeper than the level of the linings, but occasionally in cutting the corner blocks back Del Gesù broke into the deep, roughly chopped mortise into which the centre bout linings were set. On the earlier works, the blocks were finished with a small gouge;<sup>68</sup> later they were often split back.

The neck and neck root were now almost complete, and it only remained to fit the neck root against the top curve of the rib. The one surviving neck root known to the author with any relevance to this study belongs to an Andrea Guarneri violin. It has been shaped with a gouge to fit the top rib curve, and although the joint can hardly be deemed praiseworthy, it was evidently sufficient.

With the blocks shaped, several holes were drilled through the rib and top block into the neck root for the nails which would hold the neck. From surviving top blocks, we know that Stradivari generally used three nails for a violin and five for a cello.<sup>70</sup> The original neck roots of the “Alard” and the “Cannon” violins appear to have five nail holes each; their presence is marked by black iron staining on the neck root. The neck blocks themselves have only three nail holes. Five nails seems somewhat excessive for such a small area, and it may be that Del Gesù was using a system of locating pins. Two nails could have been driven into the neck root, and their heads clipped off. The neck root could then be located optimally against the rib and pressed home. This would have made drilling the pilot holes for the nails much easier, especially if they were to be drilled at various an-

gles. It would also have made perfect sense to leave them in place while the final nailing and gluing was taking place. Here again it is clear that, given Del Gesù’s use of coarse spruce blocks, three or five nails would have made the one-piece top rib practically indispensable.<sup>71</sup> With the holes drilled and the neck root shaped to the ribs, or vice versa, glue was applied and the nails were hammered home.

The overhanging neck root was then planed flush with the lower surface of the ribs, and the whole structure relocated on the flattened back wood with the help of the previously mentioned locating pins. The second and most important reason for the locating pins was to allow the rib structure to twist and turn upon them until the neck came into line with the centre of the lower block. For Del Gesù and the other Cremonese makers, it was vital that at the same time the direct line of the neck should bisect the centre bouts at a point level with the top circles of the soundholes (figure 29).

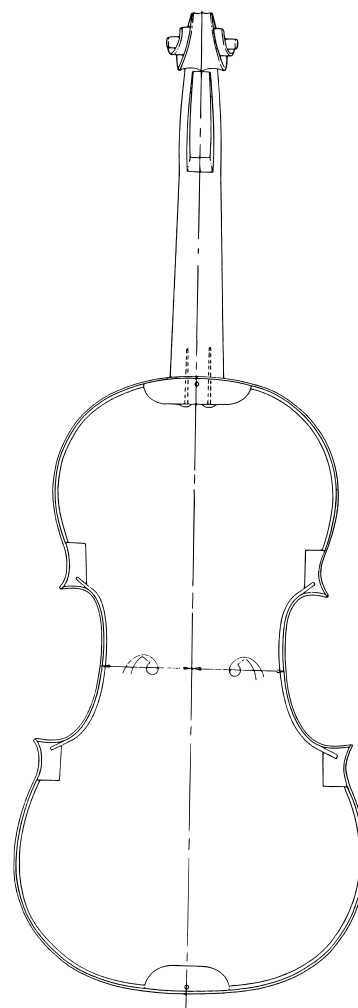


Figure 29. The line of the neck bisects the centre bouts level with the upper circles of the soundholes.



Extensive research has shown that even the wildest Cremonese outlines and soundholes must have conformed to this simple rule. No matter how much the neck twisted or slipped while being nailed, the swivelling process achieved perfect accuracy every time (figure 30).<sup>72</sup> It is this constructional feature which gives Cremonese instruments their special character and it allowed Del Gesù much apparent freedom of expression.

Theoretically, if the neck required shifting towards the right, then the top left bout became slightly fuller and the right side slightly flatter. At the same time, the lower right bout became fuller and the lower left flatter. The centre bouts may also have shown some distortion, usually resulting in one bout becoming straighter and the other more curved, or one becoming higher than the other. If the neck needed shifting towards the left, then the opposite reaction occurred. In practice the result was usually somewhat different as there were many other factors which could influence the outcome. As we have seen, the ribs were often already slightly distorted from the mould; in addition, the neck root could have slipped off-centre during the nailing process. There is no doubt that an unfavourable combination of these factors would occasionally have deformed the rib outline, and in particular the centre bouts, quite severely. Nevertheless, in spite of the potential dangers, experiments have shown that even vigorous movement of the neck need not disturb the ribs too much. Besides, Cremonese makers (including Del Gesù) usually worked with such precision when fitting and aligning the neck that even the inevitable corrections were usually minor. As a result, most Cremonese outlines were only marginally altered by this process.

As shall be demonstrated, any asymmetry in the ribs, particularly of the centre bouts, would have had a direct effect upon the outlines and eventually on the positioning and shape of the soundholes. This is particularly apparent on the later violins of Del Gesù, where centre bout asymmetry is as conspicuous as the soundholes are extraordinary. Nevertheless, this asymmetry may not have been entirely due to the twisting of the neck; an equally important culprit was probably his method of positioning the corner blocks on the back plate.

Once the neck had fallen in line, bisecting the centre bouts, all six rib blocks were clamped firmly to the back plate so that the back outline could be finalized. As a guide for re-establishing the position of the corner blocks, the Cremonese makers used the

outline which had previously been taken while the ribs were still on the mould (see p. 143). Del Gesù's clamps were no doubt similar to those housed in the Shrine to Music Museum, which reputedly came from Stradivari's workshop:<sup>73</sup> the tapered heel allowed for a flattened, but otherwise unshaped back wedge to be held firmly against the ribs, while the leg of the clamp lifted the entire structure away from the working surface – very efficiently leaving the head and neck free to swivel from side to side (figure 31). The domed end of the clamp screw also allowed the pressure on the blocks to be released slightly so that they too could be twisted into line. At this stage the corner blocks may not have been trimmed back, in which case the larger surface area would have made the clamping process somewhat easier.

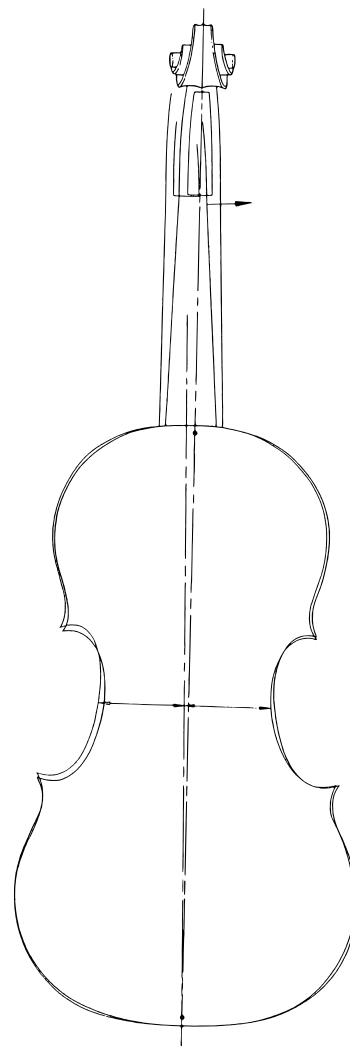


Figure 30. The line of the neck bisects the centre bouts (and the soundhole top circles) even when the neck has been fitted off centre.

The positioning of Del Gesù's corners, if not their cut, was in general fairly consistent until his later years. On instruments dating from the 1740s it is not

uncommon to find that one of the corner blocks has moved out of position, distorting the outline considerably, and the changes wrought by this process may well have played a major role in concealing the consistent use of a single mould. On the “Ole Bull”, not one but three corners appear to have slipped from their original position, with consequent effects upon the outline and the positioning of the soundholes. On the other hand, Del Gesù may have deliberately experimented with the width of the outline as he had with the length, by setting the blocks slightly wider apart.

Having clamped the ribs in place, Del Gesù scribed three outlines onto the back plate. The first was the inside line of the ribs and marked the point from which the hollowing of the back commenced. The second was the outside line of the ribs, and was used for positioning the back once the arching and hollowing were complete. The third was the final back outline, which included the margin by which the plate overhung the ribs. With these lines defined, Del Gesù sawed and rasped the back to its final outline. Rasp marks can still be found on the outside edges of several violins, especially in the corner areas. The “Alard” is a good example of such markings, which are found on the remaining unrounded portion of the edges. With the exception of the button, the back outline was now completed. The width of the button was automatically established by the width of the neck root, but the actual button outline was completed at a later stage.

The beautiful long corners of the Amatis were largely formed by the overhang of the back and belly outlines following the long rib corners. Occasionally, in order to achieve the desired optical effect, small adjustments were made to the overhangs at the ends of the centre bout curves. On some of Stradivari's later instruments, where the edgework and consequently the overhang are substantial, these adjustments are very obvious (figure 32). Del Gesù's rib corners were always short, but the overhang of his edges varied considerably. At the beginning of his career it was usually moderate, between 2 and 2.5 mm. Between about 1730 and 1735 it became very small, frequently between 1 and 1.5 mm. This combination of short rib corners and small overhangs led to noticeably smaller instruments and small, elegant back and belly corners. The overhangs certainly presented Del Gesù with further opportunities to alter the appearance of his instruments. He clearly was not committed to keeping an even margin all around; on the “Alard” of 1742 for example, the overhang is in-

creased substantially around the upper block, creating a slightly lengthened upper bout. This again contributes to the illusion that Del Gesù used many different sized and shaped moulds to produce his various forms.

In the 1730s, as he gradually increased the size of his overhangs again, he was faced with another choice. He could have adopted heavier corners, similar to those of Stradivari's later period, but he chose instead to retain some elegance by lengthening them, often giving them a hook-like appearance at the extreme end, as on the “Leduc” – practically a caricature of Nicolò Amati.<sup>74</sup> Normally this would also have involved lengthening the corner blocks to provide support. Probably for reasons of convenience Del Gesù usually avoided this. Although, as described earlier, he occasionally extended the overlap of the rib mitres to provide extra support, generally he simply opted to extend the overhang at the ends of the back and belly corners, often by as much as 5.5 mm (figure 32).<sup>75</sup> By altering the overhangs of his plates and correspondingly the lengths of his corners, Del Gesù was once more able to give the impression that he had many different models at his disposal.

Having finalized the outline of the back, he took a knife and cut a chamfer on the underside of the edge. This feature can be found on almost all Cremonese instruments, and the absence of any cuts running into the ribs themselves suggests that the chamfer was made before the back was attached to the ribs.<sup>76</sup> The nature of Del Gesù's chamfers would seem to support this theory: They are of varying width and angle, latterly very crudely cut and always fashioned with some urgency (the “Lord Wilton” is the best example). A similar chamfer would be applied to the underside of the belly edge, but not at this stage: The back plate was almost certainly arched, hollowed to the required thickness and glued permanently onto the ribs before the belly outline was finalized.

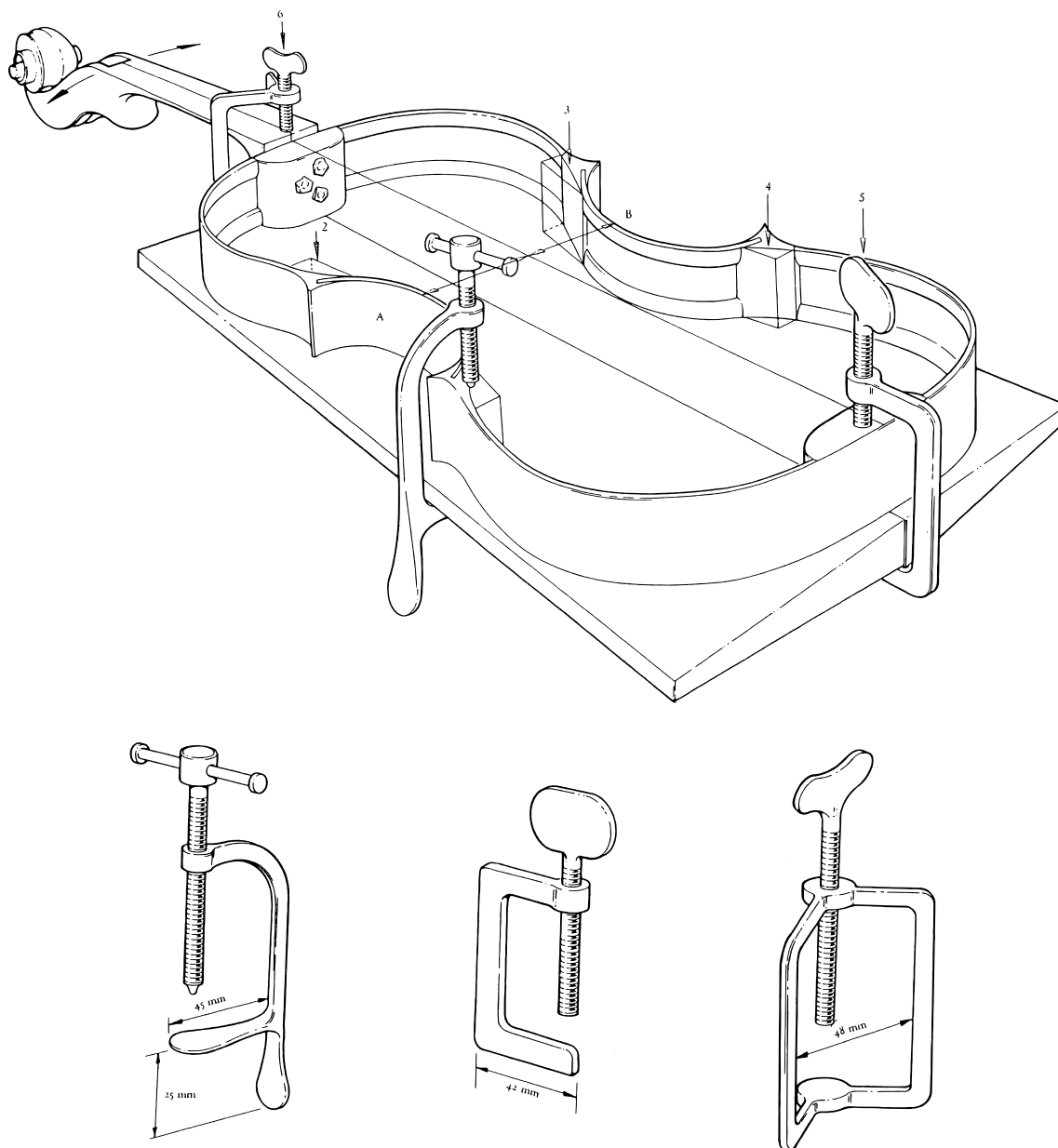


Figure 31. Several surviving Cremonese clamps and their possible use in aligning the neck and centre bouts. 1, 2, 3 and 4 show the blocks before and after they have been cut back. Clamps similar to that illustrated in position 1 were probably used on all four corner blocks. A simpler clamp was probably used for the end block, position 5. Examples of these types of clamps are housed in the Shrine to Music Museum in South Dakota. The neck clamp, illustrated in position 6, is in the collection of Charles Beare of London. It was clearly intended solely for the position shown, and fits both violin and viola necks, with and without the fingerboard.

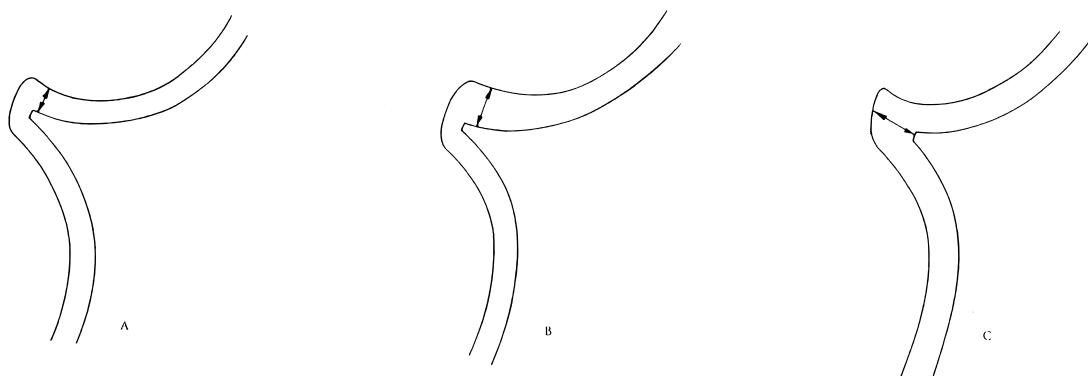


Figure 32. Usual type of increase in the overhangs of a) Amati, b) Stradivari and c) Guarneri del Gesù.