

Author: Doni, Giovanni Battista

Title: On the di-harmonic violin

Title: Sopra il Violino Diarmonico

Source: Florence, Biblioteca Marucelliana, MS A.CCXCV.7., f.<1r>-<5r>

[<f.1r>-] On the di-harmonic violin

In order to complete this discourse, it is left for me to illustrate another sort of instrument that can play together with the aforesaid pan-harmonic violone and from which Music can achieve sublime perfection. This instrument is the di-harmonic violin, which is easy to make, but of great usefulness and ease in playing. In fact, with small alterations it will be able to produce a very extensive variety of music and it shall be able to accompany itself not only with the aforesaid violone and with di-harmonic and tri-harmonic harpsichords, but also with the di-harmonic viols and other sorts of instruments commonly used. So, since there are these six tones, namely, Hypolydian, Dorian, Iastian, Phrygian, Aeolian Lydian, or these seven, with the addition of the Mixolydian (as the others are not too suited to voice of instruments, because they are too high or low) three sizes of violin will be comfortably of use. They shall have six strings each divided into two systems, since they can be coupled two by two. The ones that are at the distance of a major semitone, which have more than half of the notes in common, will be more used than those [<f.1v>-] that are at the distance of a minor semitone, such as the Iastian and the Phrygian, which, since they have no note in common, are less suited to reciprocal modulations from one to the other. The least used are the ones that are at the distance of a tone, such as the Dorian and the Phrygian, which are the least suited to moving from one to the other and vice versa because they have no notes in common. They are less suited to do so than those that are at the distance of a tone, such as the Dorian and the Phrygian, which have three notes in common out of seven and can be played, with some precaution, within the same system. The strings will be tuned in fifths as per normal to avoid restricting the systems too much and in order that one may play an thirteenth comfortably in each at least and arrive to a fifteenth, if one so wishes. Thus, the main notes of each one of them will fall on the open strings. Therefore, we shall tune the first one of the Dorian to D. la , sol. Re, the second to A la mi, re and the third one to E. la mi. In fact, if we tuned the first two to E and [sqb], the third one will fall on F fa ut with the sharp sing, which is a foreign note. We shall place the Dorian and the Iastian in the first sort of violin, which one will be able to apply to quiet and ordinary music. For this reason, as to the thickness and tension of the strings it will not depart from ordinary practice. The second one shall contain the Phrygian and Aeolian [<f.2r>-] harmony, and, because it is connected with spirited and cheerful music, one shall choose for it a shape rather shorter than the ordinary one with slightly thick strings, so that they may become tenser than the ordinary. In the third one shall be able to join the Hypolydian and the Lydian not at the distance of a semitone, but of a fourth, taking care of the shortness of those systems, since, as for the rest, both could be practised within a single one. One may chose this violin of a slightly large size with strings a little less tense than usual, so that it may be used in the kind of music that is languid and relaxed. It may also be better to place only four strings on this violin, as in usual instruments, and to practise both those tones within the same system. Similarly, the Hypolydian and the Hypoaeolian may be used with two systems, although they are so unbalanced with each other as to intervals and notes. However, if one wants to save the symmetry with the others in order

to have six tones within three instruments, the Lydian may be united with the Mixolydian in the following way.

[Doni, On the di-harmonic violin, <2r>; text: Dorio, Iastio, Frigio, Eolio, Lidio, Missolidio, a, b, c, d, e, f, g, [sqb]]

[-<f.2v>-] One ought make a few observations on these illustrations, so that they me be understood correctly; firstly, that in the external part, or towards the high register, one has placed the most principal and commonly used systems, although they are lower than their accompanying ones, by taking into account the ease of playing the instrument; secondly, that, since we started the Dorian system on D. la, sol, re and the Phrygian on C, sol, fa, ut, thus it was convenient to start the Lydian on b fa, so that it would maintain its distance of a tone from the Phrygian with no adverse effect, since this note is natural in the Lydian and in the Hypolydian; thirdly, that besides the two tones arranged naturally on the same violin, it is possible to play others with the aid of accidentals, [-<f.3r>-] namely, by using the four dieses. For instance, one can play the Phrygian in the Dorian system and the Aeolian in the Iastian. Therefore, with two violins, one with six strings and two systems and the other one with four strings, as per normal, one shall be able to practise normally six tones or harmonies; fourthly, that all the notes must be placed at the same distance, although in the two illustrations rather more space is placed between the two systems. Moreover, in order to tune each one of them we shall be able to use either the pan-harmonic violone or the tri-harmonic harpsichord. In order to have a better recollection of the correspondence between one and the other, one should have the following tables at the ready.

[Doni, On the di-harmonic violin, <3r>; text: Ipolidio, Dorio, Iastio, Frigio, Eolio, Lidio, Missolidio]

All the notes that appear to be parallel to each other in these illustrations are understood to be unisons. However, because some notes that are not natural but transposed are difficult to produce, especially on the violin that has no frets, also because one should only must compare in it only the notes produced by the open strings, since this cannot be [-<f.3v>-] done in the tones that have little in common with each other, consequently, we must capitalise on the ones that have more notes in common. For instance, after we have placed the Dorian system on its tone, we shall be able to adjust the Phrygian by tuning its first not C. sol, fa, ut, an octave below that one (Dorian). After we tuned the Phrygian, we shall arrange the Lydian in a similar way, so the the b fa, which is the first not of this one, corresponds an octave under the D la, sol, re, which is the third not of that one (Phrygian). We shall be able then to lay out the Dorian in a similar way by placing the E la, mi, which is the second note of that one or the [sqb] mi, its third note, at the octave above the da la sol re or of the a la mi re, which are respectively the first or second note of this one (Dorian). After these four tones are tuned, we shall be able to tune the Aeolian very easily through the Mixolydian, as they use the same system and they do not differ one from the other (however, we shall have to assign to them the same species of division, which the ancients did not do) except in the same way that the eight modern ecclesiastical tones [-<f.4r>-] differ from each other. This is the way to do it. We shall tune the third note of the Aeolian (a, la, mi, re) an octave above the first one of the Mixolydian (also a, la, mi, re). Thus, the Aeolian system will be placed a tone

lower than the Mixolydian, and each note of that one shall be in the same relation with the corresponding one of this one. Finally, we shall be able to arrange the Iastian with the Aeolian by tuning the [sqb] mi, which is the third note of that one an octave above the g sol, re, ut, which is the first note of this one. So, we shall have tuned all of them with little effort. However, since the Mixolydian is placed also in the Aeolian system without any variation, as it was said, it will be better, in my opinion, to lay out the third violin with four strings and to use it for the two modes, Hypolydian and Lydian (without worrying about the ease afforded by said Mixolydian tone to be able to tune the Aeolian system through it) by placing its lowest note as E la mi with the flat sign in order to preserve the distance that it must have from the Dorian, in this way:

[Doni, On the di-harmonic violin, <4r>; text: Lidio, Ipolidio, c, f, b E, b].

[-<f.4v>-] Thus, without resorting to any mutation, one shall be able to avail oneself of the Lydian tone on the second string a fifth higher, or, if one wants to preserve the correct distances, only a fourth, starting from a la mi re with the b sign in the first string itself. In this way with only two violins, one of six strings and two systems containing two tones (Dorian and Iastian) in the natural notes and another two (Phrygian and Iastian) in the transposed ones, and another violin with four strings containing in the first, second and third string the Hypolydian using natural notes and in the second, third and fourth one the Lydian transposed, one shall be able to practise all the most beautiful and important varieties of music. As to stringing those instruments and systems, one must consider the distance from a tone to another one as to an octave with an octave, rather than as to a note with a note. For instance, if we have a violin tuned to the choral tone of Rome (to which we accommodate the Phrygian tone) whose first and lowest note is d, la, sol, re, if we want to string it the Dorian tone, we must remember that its first note must be an [-<f.4v>-] E, la, mi, which it will not matter that to us it is a ditone under the Phrygian E, la, mi, but we shall look at the fact that said note is in unison with

c, sol, fa ut of the Phrygian, and, therefore, only a tone lower than said note d. la sol re. This, however, shall be the distance that the first and initial note, which is the lowest, in relation to the Phrygian. This will result higher than if it was taken a ditone or major third lower, as it is from the E la mi of the Dorian to the E la mi of the Phrygian. This has to be understood in the case of the others as well. Consequently, the enlargement, as to lowness or depth of sound, of the Dorian system under the Phrygian is of a whole tone, while the one of the Iastian under the same is of half a tone and, finally, the one of the Hypolydian is of a tone and a half. It is appropriate to separate the means of this enlargement by ascribing it proportionally to the thickening of the strings on one hand and to the lengthening of them on the other, as it was mentioned above and as it is discussed in the *Compendium* with regards to the pipes of the organ. As to the way these instruments should be used in theatres and in stage performances, it is clear that a single player is not [-<f.5r>-] able to practise all of those tones alone, because all the mutations or changes of tone do not allow time to change the instrument. Instead, two players are needed and will be sufficient overall, so that, if the tempi of the compositions are measured, the words sung are followed and both the right and left hand are kept ready, the mutations from a tone to another one shall be able to be executed with the same speed with which a single player can enact them on a di-harmonic or tri-harmonic harpsichord.

