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Excerpt

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## The Treatise

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## Introduction

Never in the history of music has so much been said about instrumentation as at the present time. The reason perhaps lies in the very recent development of this branch of the art and perhaps too in the profusion of criticism, discussion and widely differing opinions held and judgments passed, both sane and insane, written and spoken, about even the most trivial works of the obscurest composers.

Much value seems now to be attached to this art of instrumentation, which was unknown at the beginning of the last century, and whose advancement even sixty years ago faced resistance from numerous so-called lovers of music. They now do all they can to raise obstacles to musical progress elsewhere. Things have always been like that and we should not be surprised. At one time music was only permitted as a series of consonant harmonies interspersed with a few suspended dissonances. When Monteverdi tried to introduce the unprepared dominant seventh, scorn and abuse was hurled at him. But once this seventh had been accepted as an addition to the repertory of suspended dissonances, it became a point of honour among those who regarded themselves as musically aware to disdain any composition whose harmony was simple, mild, clear-sounding or natural. They were only content with music stuffed with minor and major seconds, sevenths, ninths, fifths and fourths, applied without any rhyme or reason whatsoever, unless making harmony as unpleasant on the ear as possible can be said to be a reason. These composers had developed a taste for dissonant chords, just as certain animals do for salt or prickly plants or thorn-bushes. It was an over-reaction.

Beneath all these fine sonorities melody disappeared. When it did appear they all said the art had been cheapened and debased, that hallowed rules had been forgotten, etc, etc. All was lost, evidently. But then melody made its way and the reaction in favour of melody was not long in coming. There were fanatical melodists who could not endure anything in more than three parts. Some wanted the solo part to be accompanied most of the time just by the bass line, *leaving the listener the pleasure of guessing the*

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*filling-out notes of the harmony.* Others went even further and opposed any kind of accompaniment whatever, declaring harmony to be an uncivilised invention.

Then it was modulation's turn. In the days when modulation was normally just to closely related keys, the first person to shift to an unrelated key was decried. He should have expected that. Whatever effect this new modulation had, his superiors criticised it sharply. It was no good our pioneer saying: 'Listen to it carefully. Notice how it's correctly prepared, well structured, cleverly joined to what precedes and follows it, see what a superb sound it makes!'

'THAT'S NOT THE POINT,' came the reply. 'This modulation is forbidden, so it must not be done.'

But since on the contrary that *is* the point, the *whole* point, modulations to unrelated keys quickly made their appearance in serious music with results as agreeable as they were unexpected. Almost at once a new pedantry was born: people felt it was a disgrace to modulate to the dominant and slipped playfully in the most unassuming little rondos from C to F † major.

Time has restored all these things one by one to their proper place. Force of habit and the reactionary vanity of folly and obstinacy are seen for what they are, and people are now more generally disposed to accept that in harmony, melody and modulation what sounds good *is* good and what sounds bad *is* bad; not even the authority of a hundred old men, not even if they were all 120 years old, would make us regard fair as foul or foul as fair.

For instrumentation, expression and rhythm it is a different matter. Their turn to be discovered, rejected, accepted, imprisoned, freed and exaggerated came much later, so they have not yet reached the stage other branches of the art reached before them. Instrumentation, let me say, is ahead of the other two: it is at the exaggeration stage.

It takes a long while to discover the Mediterraneans of music, longer still to learn to navigate them.

Berlioz's Introduction invokes history and plunges into a résumé of historical trends too coloured by beliefs and prejudices of his own day to be taken seriously as history. A similar historical preface had served to introduce his essay on rhythm provoked by the visit of Johann Strauss *père* to Paris in November 1837. Monteverdi's introduction of the dominant seventh, repeatedly cited by Fétis as the cornerstone of the invention of tonality itself, was also referred to there.<sup>1</sup> The date when the Bohemians 'first permitted the use of the unprepared dominant seventh' is offered as an example of pointless historical enquiry in the *Memoirs*.<sup>2</sup>

<sup>1</sup> *Jd*, 10 November 1837; *Cm*, 3, p. 332.

<sup>2</sup> *Memoirs*, 'Travels in Germany', II/4.

In the *Rgm* version of this passage Berlioz named Rousseau as one who 'opposed any kind of accompaniment' and who declared harmony to be an 'uncivilised invention'.

Every sounding object employed by the composer is a musical instrument. We may thus divide the resources at his disposal in the following way.

### 1 Strings

- a bowed: violin, viola, viola d'amore, cello, double bass
- b plucked: harp, guitar, mandolin
- c with keyboard: piano

### 2 Wind

- a with reeds: oboe, cor anglais, bassoon, tenoroon, contrabassoon, clarinet, basset horn, bass clarinet, saxophone
- b without reed: flute, piccolo
- c with keyboard: organ, melodium, concertina
- d brass with mouthpiece: horn, trumpet, cornet, bugle, trombone, ophicleide, bombardon, bass tuba
- e woodwind with mouthpiece: Russian bassoon, serpent
- f voices: men, women, children, castrati

### 3 Percussion

- a fixed, audible pitch: timpani, antique cymbals, jeu de timbres, glockenspiel, keyboard harmonica, bells
- b indeterminate pitch, making noises of different types: side drum, bass drum, tambourine, cymbals, triangle, tamtam, Turkish crescent

'Every sounding object employed by the composer is a musical instrument.' I wonder if Berlioz would have clung to this maxim if closely questioned on it. He was normally less liberal in his approach to composition and orchestration and did indeed contradict the principle in an essay on imitation in music published in 1837:

Several composers have made fools of themselves imitating certain noises by using the very noises themselves in all their anti-musical reality. An Italian composer, for example, whose name escapes me, wrote a symphony on the death of Werther and decided he could best imitate the suicide's pistol shot by having an actual pistol discharged in the orchestra; this is the height of absurdity. When Méhul and Weber wanted to render gunfire, the one in the overture to *Le jeune Henri*, the other in the infernal hunting scene in *Der Freischütz*, they found the solution in a simple timpani stroke carefully placed without transgressing the rules of their art.<sup>3</sup>

<sup>3</sup> *Rgm*, 1 January 1837; *Cm*, 3, p. 5; Condé, p. 102.

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Berlioz himself then called for a 'feu de peloton', a volley of musketry, in his *Marche pour la dernière scène d'Hamlet*, composed in 1844, to represent the salute to the dead (NBE 12b: 115). The pistol shot Berlioz referred to was fired by Gaetano Pugnani when conducting a performance of his twenty-two-movement suite on Goethe's *Werther* in Turin in the 1790s. Pugnani, for realistic effect, conducted in his shirtsleeves. The story was told by Blangini in his *Souvenirs*, published in Paris in 1834 and doubtless read by Berlioz. He must also have been aware that Musard used to enliven his Opéra balls with pistol shots.

In the *Rgm* version of this passage the order of the string groups was different, namely: plucked, with keyboard, bowed. The lute was included with the other plucked strings. In the list of wind instruments the *Rgm* omitted tenoroon, bass clarinet, saxophone, bugle, bombardon, bass tuba and all woodwind with mouth-piece; under 2b it included the flageolet. The melodium and concertina were added in 1855. In the list of percussion instruments the *Rgm* omitted the antique cymbals, the jeu de timbres, the glockenspiel and the tambourine (although they were discussed in a later article of the series). The keyboard harmonica was added in 1855.

The use of these various sonorities and their application either to colour the melody, harmony or rhythm, or to create effects *sui generis*, with or without an expressive purpose and independent of any help from the other three great musical resources, this is the art of instrumentation. From the poetic point of view this art can no more be taught than the writing of beautiful melodies or beautiful chord progressions or original or powerful rhythmic patterns. What suits the various instruments best, what is or is not practicable, easy or difficult, muffled or resonant, this can be taught. One can also say that this or that instrument is more suitable than another for producing certain effects or certain feelings. When it comes to combining them in groups, small ensembles or large orchestras, and the art of mixing them in order to modify the sound of one with that of another and produce from the whole a particular timbre unobtainable on any instrument on its own or with another of its own kind, one can only point to the example of great composers and draw attention to the way they did it; their practice will doubtless be altered in a thousand different ways for better or for worse by composers who wish to imitate them.

The purpose of the present work is first, therefore, to show the range and certain essential details of the mechanism of each instrument, and then to examine the nature of the tone, particular character and expressive potential of each – a branch of study hitherto greatly neglected – and finally to consider the best known ways of grouping them effectively. Beyond that we would be stepping into the domain of inspiration, where only genius may make discoveries and where only genius is allowed to tread.

## 1

## Bowed strings

## THE VIOLIN

The four strings of the violin are normally tuned in fifths, with the fourth string tuned to *g*, the third to *d'*, the second to *a'* and the first to *e''*. The top string, the *e''* string, is also known as the 'chanterelle'. When the left-hand fingers are not modifying the pitch by shortening the portion of string set in motion by the bow, the strings are termed 'open' strings. Notes to be played open are indicated by an 'o' marked above them.

Certain great players and composers have not felt under any obligation to tune the violin in this way. Paganini tuned all the strings a semitone higher, to *ab*, *eb'*, *bb'* and *f''*, to give the instrument more brilliance. So by transposing the solo part he would be playing in D when the orchestra was in Eb, or in A when they were in Bb, thus keeping most of the strings open with their greater sonority without having to apply the fingers. This would not have been possible with normal tuning. De Bériot often tunes the *g* string up a tone in his concertos; Baillot, on the other hand, used to tune the *g* string down a semitone for soft, low effects. Winter even used *f* instead of *g* for the same purpose.

Paganini's Violin Concerto in Eb, op. 6, was intended to be played on a violin tuned up a semitone; the soloist is thus playing in D (Mozart used the same scordatura for the viola in his *Sinfonia concertante*, K. 364). This scordatura is also found in Paganini's variations on 'Di tanti palpiti' from Rossini's *Tancredi*.

In his *L'art du violon* (1834) Baillot mentions Paganini's scordatura and also de Bériot's tuning, *a-d'-a'-e''*.<sup>1</sup> He explains his own tuning of the *g* string to *f#* and his trick of tuning it slowly down to *d* while still bowing.

The only composition by Peter von Winter (1754–1825) Berlioz seems to have known is *Marie von Montalban* (Munich, 1800), whose overture he commended in 1841.<sup>2</sup> It does not require any retuning of the *g* string. Not even in his concertos

<sup>1</sup> Pierre-Marie-François de Sales Baillot, *The Art of the Violin*, ed. Louise Goldberg (Evanston, 1991), pp. 417–18.

<sup>2</sup> *Jd*, 11 August 1841.

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does Winter ever seem to have called for scordatura; Berlioz's claim could be pure hearsay, otherwise the remark remains unexplained.

In view of the great agility which our young violinists display today, the range that the violin in a good orchestra may be expected to cover is from *g* to *c'''*, with all chromatic intervals. The great players add a few more notes at the top of the range, and even in orchestral writing one may obtain much higher pitches by means of harmonics, of which more will be said later.

Berlioz respected *c'''* as the violin's top note (except with harmonics, and except for a high *d'''* in Ex. 41b of this *Treatise*). He reached this on several occasions, for example at bar 472 of the first movement of the *Symphonie fantastique* (*NBE* 16: 40) and throughout the *Septuor* in Act IV of *Les Troyens* (*NBE* 2b: 566–74).

Trills are practicable throughout this vast range of three and a half octaves, although one should have due regard for the extreme difficulty of trills on the top *a'''*, *b'''* and *c'''*. My view is that in orchestral writing it would be prudent not to use them. One should also, if possible, avoid the semitone trill on the fourth string, from open *g* to *ab*, this being harsh and rather unpleasant in effect.

Chords of two, three or four notes which can be struck or arpeggiated on the violin are very numerous and quite different in effect one from another. Two-note chords, produced by what is called 'double-stopping', are suitable for melodic passages, sustained phrases either loud or soft, also for all kinds of accompaniment and tremolo. Three- and four-note chords, on the other hand, produce a poor effect when played *piano*. They only seem rich and strong in *forte*, otherwise the bow cannot attack the strings with enough impact to make them vibrate simultaneously. Do not forget that of these three or four notes two at the most can be sustained, the bow being compelled to quit the others as soon as it has struck them. At a moderate or slow tempo it is therefore useless to write Ex. 1a. Only the upper two notes can be sustained, so it would be better in this case to notate the passage as in Ex. 1b.

Ex. 1

(a) or

(b) or

All chords contained between low *g* and *d'* are obviously impossible, since there is only one string (the *g* string) with which to produce two

notes. When you need harmony at this extreme end of the range it can only be obtained in orchestral music by dividing the violins, shown by the Italian term 'divisi' or the French terms 'divisés' or 'à deux' written above the notes. The violins then divide so that some play the upper part, the others the lower part, as in Ex. 2.

Ex. 2



Above  $d'$ , the third string, all intervals of a second, third, fourth, fifth, sixth, seventh or octave are practicable, except that they get progressively harder the further up the top two strings you go:

	easy	progressively harder from
seconds	$c'-d'$ up to $g''-a''$	$a''-b''$ upwards
thirds	$b-d'$ up to $f''-a''$	$g''-b''$ upwards
fourths	$a-d'$ up to $e''-a''$	$f''-b''$ upwards
fifths	$g-d'$ up to $e''-b''$	$f''-c'''$ upwards
sixths	$g-e'$ up to $f''-d'''$	$g''-e''$ upwards
sevenths	$g-f'$ up to $e''-d'''$	$f''-e'''$ upwards
octaves	$g-g'$ up to $e'-e'''$	$f''-f'''$ upwards

The double-stopped unison is sometimes used, but although it can be executed on many other notes it is as well to confine its use to the following three –  $d'$ ,  $a'$  and  $e''$  – since only these are sufficiently easy to sound well and produce a variety and strength of sound resulting from the fact that one of the two strings in each case is open (see Ex. 3a). In other unisons, such as  $e'$ ,  $f'$ ,  $g'$ ,  $b'$ ,  $c''$  and  $d''$ , there is no open string; they are rather difficult to play and so are very rarely played in tune.

A lower string may cross a higher open string going up the scale while the open string acts as a pedal (see Ex. 3b). The  $d'$  here remains open while the rising scale is played throughout on the fourth string.

Intervals of a ninth or tenth are feasible but much less straightforward than narrower intervals. It is better not to write them at all in orchestral parts unless the lower string is open, in which case there is no risk (see Ex. 3c). Double-stopped leaps requiring large shifts of the left hand should be avoided, being exceedingly difficult, if not impossible (see Ex. 3d). In general one should not write such leaps unless the upper two notes belong to a four-note chord which could be struck as one. Ex. 3e is feasible because the chords in Ex. 3f can be struck as single four-note chords. In the next example, Ex. 3g, on the other hand, the four notes of each group (except the last) could only be played simultaneously



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with some difficulty, yet the leap from lower pair to upper pair is actually straightforward, the lower two notes being played open and the other two with the first and third fingers.

Ex. 3

(a) 

(b) 

(c) 

(d) 

(e) 

(f) 

(g) 

The best and most resonant three-note and particularly four-note chords are always those containing the most open strings. In my view, in fact, it is better to make do with a three-note chord if no open string is available for a four-note chord. Ex. 4a–c sets out the commonest chords. These are the most resonant and the least difficult. For all chords marked \* it is better to leave out the bottom note and make do with three notes. All these chords are straightforward, provided they follow one another in this way.

## Ex. 4

(a)

(b)

(c)

These can be played as arpeggios, that is to say with each note heard in turn, and the result is often very satisfactory, especially *pianissimo* (Ex. 5a); yet there are certain arpeggio passages similar to these whose four notes could not be played simultaneously except with great difficulty, but which are playable as arpeggios by passing the first or second finger across from the fourth string to the first to produce both the bottom and the top note (Ex. 5b).