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# ESSAY

## on Fingering the VIOLONCELLO, and on the Conduct of the Bow;

DEDICATED TO  
*Professors of the Instrument*

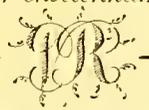
BY  
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*(of Cheltenham.)*

*Printed at the* **Sta. Hall.**



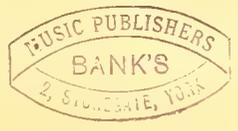
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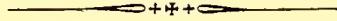
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## AUTHOR'S PREFACE.



Upwards of twenty years have elapsed since I was first solicited by friends, professors, and amateurs, to write on the fingering of the Violoncello. It was not then possible for me to undertake such a task, although so perfectly in accordance with my own feelings. I was too much occupied and, it may be, too much given to pleasure, while I resided in Paris, to expect to finish a work which would require so much time and research: but as I never lost sight of it, I prepared materials by occasionally making notes of what I might have to say, in case I should ever set about it. At length I have found leisure to devote myself entirely to the work, and this I have done with pleasure, having been always passionately fond of studying the Violoncello. I shall be happy if my work should meet the approbation of the public and the masters of the art, whose suffrage will be always flattering to me; and particularly if it should help to abridge the immense labour of those who are engaged in the study of the instrument.

I have confined myself to treat on fingering, because that branch is the least known and yet the most useful; and although I am aware there are professors who finger extremely well, it is nevertheless true that the rules for fingering the Violoncello are still so slightly established, that the most skilful justly complain there exists not a method sufficiently developed and complete, but every professor of the instrument fingers in a manner peculiar to himself. If it be said that every performer has also his own mode of expression, I reply it is very natural this should be so; but as fingering is purely a mechanical operation it appears to me it should be the same with every individual.

It is certain that hitherto nothing satisfactory has been written on fingering the Violoncello. There are even some professors who still affirm there exist unavoidable contradictions in fingering which it would be futile to endeavour to correct, and that it would be almost impossible to answer satisfactorily all questions on this subject without apparent contradiction arising &c: but let me assure them that, if the Violoncello is not susceptible of a regular method of fingering, it must

be an inferior instrument, and this is not the rank which it holds among those at present in use

My design in writing this treatise is not to produce one of those books called a Метод— books in which the principles are lightly touched on, and in which are given an immense number of progressive airs in every key, that become old almost as soon as written. Every master can find such things ready to his hand, or can compose them for his pupils if necessary.

I purpose to treat the subject of fingering in its full extent, and in so convincing a manner, as to reconcile even professors who may differ in opinion on certain points, and endeavour through the force of reason to lead them to unity of principles. Perhaps this may be a lofty pretension; but I shall not think I have produced a passable work, and one which is in the smallest degree useful, unless I attain that end.

I have gone considerably into detail in the article on double stopping, for two reasons: *first*, because it has not hitherto been treated on, although I consider it very useful to a great player; and *secondly*, because it has often served as a proof of the correctness of my views, for double stops become impracticable when not fingered with great regularity.

Some things will be met with in the course of this work which will appear difficult, but I have taken care to avoid such as are impracticable.— This is not a vain theory. Not a scale, a passage, or piece has been inserted, until I have frequently tried it myself, and until it has been also tried by my brother, (who was, is, and always will be my master,) and even by some talented pupils of mine at Berlin and Potsdam. This has fully convinced me that nothing will be found here-in which cannot be easily, neatly and accurately executed; for what at first sight may appear impracticable, will become perfectly easy, if the learner have patience to practise it, and also to finger it regularly, as it is marked.

## EXPLANATION

### RESPECTING THE CLEFS USED IN THIS WORK.

---

For the sake of the greatest facility, as well as to comply with the usage now established, I have employed only two clefs; that of **F**, or the Bass clef, and that **G**, or the Violin clef.

I do not use the **G** clef as it employed in the general system of clefs, but according to the method adopted during the last thirty years for the Violoncello; so that the **G** here given in the **F** clef  and that which follows in

the **G** clef  are the same, or in other words, a unison.

## EXPLANATION

### OF THE SIGNS USED FOR THE FINGERING.

---

o, Signifies the open string.

φ, Signifies the thumb,\* and the figures 1, 2, 3, 4, the four fingers.

When a line is drawn after 2<sup>nd</sup> *string*, it implies that the playing is to be continued on that string, as far as the line extends; and so as regards the other strings.

When a line is drawn after *same position*, it implies that all the notes within the range of the line must be played in the same position.

When the words *same position* occur after φ, which indicates the thumb, they signify that the thumb is to remain in the same place.

If I should require to use other signs, I will explain them when the occasion presents itself for their employment.

---

\* In the original French edition of this work a is used to indicate the open string, and 0 to indicate the thumb. The above changes have been made in accordance with general practice. ED. 9746

## CHAPTER I.

## THE TUNING OF THE VIOLONCELLO.



I shall offer some remarks on the manner of tuning, after having spoken of the revision of unisons and octaves by the open strings.

## CHAPTER II.

## MANNER OF HOLDING THE VIOLONCELLO.

The manner of holding the Violoncello between the legs varies greatly according to the habits and different stature of persons. A man may play very well, although holding his instrument somewhat higher or lower than ordinary. The following method is the most usual, and is perhaps the best.

The player must first seat himself on the fore part of the chair, extend his left foot forward, and draw in his right; then place the instrument between his legs, so that the lower left hand corner of the back may fall into the hollow of the left knee, and the weight of the instrument be borne on the calf of the left leg, the foot being turned outwards. If, on the contrary, the left knee were placed in the concave part of the sides, it would impede the free passage of the bow when playing on the first string. The right leg must be placed against the lower side of the instrument to keep it steady.

## CHAPTER III.

### OF THE POSITION OF THE HAND.

The position of the hand being one of the most essential things in playing well on the Violoncello, I think it my duty to enlarge a little on this subject.

*First*, the thumb must be placed in a natural manner quite at the back of the neck, parallel to, and between, the first and second fingers, when these are placed on the finger-board. For instance, in the first position, when the first finger is put on the note E of the second string, and the second finger on the note F of the same string, the thumb at the back of the neck should come exactly between these two fingers; and in all four positions of the hand on the neck, the thumb should be always opposite the interval formed by these two fingers, in order that the hand may constantly preserve the same appearance.

*Secondly*, the fingers must be well rounded on the string, so that they may fall down upon it like little hammers.

In order to see the form which the hand should assume on the neck, we have only to take the following chord, and it will then be properly placed.

First Position.

By moving the hand a semitone lower, the following chord may be taken, and yet the hand will retain its proper form; and notwithstanding this descent of a semitone we shall still be in the first position. This will be explained hereafter.

First Position.

I have given the preference to these two chords, although they are not in the scale of C, which is the first, because I wished at once to have the distance of two tones between the first and fourth fingers. It will be seen hereafter, that there is alternately the distance of a tone and a half, and of two tones, between the first and fourth fingers; but it is requisite that the hand be so placed, that the stretch of two tones between these fingers can be easily made.

There are many persons who, in playing the following passage, always jerk the hand in taking the E flat.

First Position.



But only the first finger should advance and recede; that is, advance in order to take the E natural, and recede to take the E flat; the whole hand however must always preserve the same form. The second, third, and fourth fingers, must not suffer the least alteration nor experience the least movement from the change of place of the first finger; and the thumb also must remain quite immovable during this exercise. Here follows another example of this movement of the first finger, without deranging the position of the hand. It will be the more striking, because the second and fourth fingers remain stationary, and only the first finger moves.

First Position.



The fourth finger which takes the C on the third string, and the second finger which takes the other C on the first, must remain stationary throughout; it is only the first finger which moves from E flat to E natural, and *vice versa*. The other fingers remain steady in their places.

In the next example, the second finger takes the place of the third; while the first finger remains immovable.

First Position.



If the thumb be placed at the back of the neck, exactly opposite the interval between the first and second fingers, every facility will be afforded of moving the second finger into the place of the third, and consequently the third and fourth will have advanced a semitone; and the extension between the first and fourth, which was only a tone and a half, will now be that of two tones.

Here follows another example of the same movement, but with double stops.

First Position.



In this instance, the first finger remains firm in its place; the third, which takes the B on the third string, gives place to the second finger, and, by this procedure, enables the fourth, which took G natural on the second string, to ascend to G sharp on the same string.

The above chords are certainly not rich in harmony, but they have been chosen in preference to others, as being the best adapted to elucidate the position of the hand.

Double stops have been used, because they oblige the hand to take its proper position; for, those who hold their hand badly when playing single notes, always hold it well when they play in double stops; so that it may be said of them, they have two positions of the hand.

What we call a bad position of the hand, is, grasping the neck as in playing on the Violin, which contracts the fingers, and renders the extension of two whole tones by the first and fourth fingers almost impracticable, unless the hand be very large: so that those who adopt this position are obliged to jerk the hand every moment, even in playing such a passage as the following, in E flat.

First Position.

If those who grasp the neck are open to conviction, they must admit that they cannot play this example without jerking the hand.

In passing from the first position to the second, from the second to the third, and then to the fourth, the hand should always preserve the same form; and the thumb, which should be held lightly at the back of the neck, should follow the hand, and be always placed in a parallel direction between the interval formed by the first and second fingers, as already remarked.

There are some who begin by moving the fingers from one position to another, and then making the thumb follow. This method subverts the perpendicular pressure of the fingers, and even alters their respective distance, which gives rise to false intonation. In each position, the hand must preserve the same form as it took in the first; and the fingers must likewise maintain their same respective distance, except their insensible and necessary approachment to each other, in moving towards the bridge, owing to the stops becoming gradually closer. These approachments of the fingers can only be determined by the ear: a well practised performer makes them, as it were, mechanically.



In the following example, the second and third fingers should fall and rise together, as if they were one.

First Position.

To perform this, place the first finger firmly on the string, and the second and third fingers moving together will not only impart strength, but also much greater facility, than if the third finger acted alone.

The shake is made in this way,

First Position.

In the next example, the third and fourth fingers are those which must act together.

First Position.

The shake is made in the same way, and thereby becomes more marked and brilliant.

First Position.

Here the second finger must be placed very firmly on the string, and the beating made with the fourth finger, accompanied in its movements by the third, which will greatly improve the shake. Perhaps it will be asked, why should these two fingers be used together in shaking? Would it not ensure greater neatness to keep the third a little raised, as many persons do? because it is possible that both fingers may not move well together. To which I reply, it will be very difficult to prevent their acting together. Let any one try, even without an instrument, to open and close the little finger as is done in making a shake, and he will see if the third finger does not naturally make the same movement; which indeed it will be found very difficult to prevent. Hence it follows that, in forcibly impeding the movement of the third finger, the fourth is subjected to much restraint; by which also it is deprived of all the strength that the third would impart to it, if both moved together as nature indicates.

This chapter will perhaps be thought rather too long and complex to be placed at the beginning of this work; but I could not easily have been more concise, as I desired to express myself in as clear and intelligible a manner as possible: for, the acquirement of a good position of the hand presents the greatest difficulty to the pupil, especially if he has previously contracted a bad position. Indeed, I have met with some who have never been able to attain it. As to complexity, I have endeavoured to my utmost to avoid it: however, I considered myself not as speaking to young beginners who are wholly ignorant of music, (for a knowledge of the scales is necessary for a thorough comprehension of this chapter,) but to amateurs considerably advanced, and to professors who can explain my meaning to their pupils, if they should adopt my method of fingering. Hence, I deemed the beginning of the book the most suitable place for what I have here said.

## CHAPTER IV.

### OF THE SCALES ON THE NECK.

---

I shall give these scales in the chromatic order, leaving it to masters to present them to their pupils in whatever order they may deem the most suitable.

A difficulty occurs in regard to the succession of sounds in the minor scales, some persons desiring the major sixth in ascending, and others the minor sixth. But, as this is a treatise on fingering, and not on composition, I shall not attempt to decide the question. Besides, ever since I have played the Violoncello and composed musical pieces, I have sought in vain, in the works of the best authors, whether it could be determined by the fact of general practice; and all I could discover was, that, in ascending, the sixth degree is sometimes major, and at others minor. Still, however, I have observed that in slow scales it is most frequently minor, and in quick scales generally major, in ascending. Occasionally also, the seventh degree is major in descending, though it is more commonly minor.

As the player should perform the music as it is written, I shall give the minor scales in two ways: first, with the major sixth in ascending, and with the minor seventh and minor sixth in descending, as ordinarily used: secondly, with the minor sixth in ascending, and the major seventh in descending, as occasionally employed.

SCALE OF  
C MAJOR.

C MINOR.

C MINOR.  
ascending with the Minor  
Sixth, and descending with  
the Major Seventh.

For the Scale of C# Major, see Chapter VII. p. 38.

C# MINOR.

C# MINOR.  
ascending with the Minor  
Sixth, and descending with  
the Major Seventh.

For the Scale of Db Major, see Chapter VII. p. 38.

D MAJOR.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

D MINOR.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

D MINOR.

ascending with the Minor Sixth, and descending with the Major Seventh.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

E<sup>b</sup> MAJOR.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

E<sup>b</sup> MINOR.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

E<sup>b</sup> MINOR.

ascending with the Minor Sixth, and descending with the Major Seventh.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

**E MAJOR.**

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

**E MINOR.**

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

**E MINOR.**  
ascending with the Minor Sixth, and descending with the Major Seventh.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

**F MAJOR.**

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

**F MINOR.**

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

**F MINOR.**  
ascending with the Minor Sixth, and descending with the Major Seventh.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

For the scale of F# Major, see Chapter VII. p. 38.

**F# MINOR.**

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

**F# MINOR.**  
 ascending with the Minor Sixth, and descending with the Major Seventh.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

For the scale of G Major, see Chapter VII. p. 39.

**G MAJOR.**

3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String.

**G MINOR.**

3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String.

**G MINOR.**  
 ascending with the Minor Sixth, and descending with the Major Seventh.

3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String.

For the scales of G# Major and Minor, and A b Major and Minor, see Chapter VII. p. 39.

**A MAJOR.**

3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.  
 1 2 4 0 1 2 4 0 1 3 2 1 2 1 2 3  
 1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String.  
 3 4 2 1 4 3 1 0 4 2 1 0 4 2 1

**A MINOR.**

3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.  
 1 3 4 0 1 2 4 0 1 2 1 2 1 2 3  
 1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String.  
 3 4 2 1 4 2 1 0 4 2 1 0 4 3 1

**A MINOR.**  
 ascending with the Minor Sixth, and descending with the Major Seventh.

3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.  
 1 3 4 0 1 2 4 0 1 2 1 3 4 2 3  
 1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String.  
 3 2 4 3 1 2 1 0 4 2 1 0 4 3 1

**Bb MAJOR.**

3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.  
 2 4 0 1 2 4 0 1 2 4 1 2 1 2 3  
 1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String.  
 3 2 4 2 1 4 2 1 0 4 2 1 0 4 2

**Bb MINOR.**

3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.  
 1 3 4 1 2 4 0 1 3 4 1 2 1 1 2 3  
 1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String.  
 3 2 4 3 1 4 3 1 4 2 1 4 2 1 2

**B $\flat$  MINOR.**  
 ascending with the Minor Sixth, and descending with the Major Seventh.

3<sup>rd</sup> String      2<sup>nd</sup> String      1<sup>st</sup> String

1 3 4      1 3 4      0 1 3 4 1 3 4 2 3

1<sup>st</sup> String.      2<sup>nd</sup> String.      3<sup>rd</sup> String.

3 2 4 3 1 4 3 1 0      4 3 1 4 3 1

For the scale of B Major, see Chapter VII. p. 40.

**B MINOR.**

3<sup>rd</sup> String.      2<sup>nd</sup> String      1<sup>st</sup> String.

2 4      0 1 2 4      1 2 1 2 1 2 1 2 3

1<sup>st</sup> String.      2<sup>nd</sup> String      3<sup>rd</sup> String.

3 2 4 3 1 4 3 1 0      4 3 1 0 4 2

**B MINOR.**  
 ascending with the Minor Sixth, and descending with the Major Seventh.

3<sup>rd</sup> String.      2<sup>nd</sup> String.      1<sup>st</sup> String.

2 4      0 1 3 4      1 2 1 2 1 3 4 2 3

1<sup>st</sup> String.      2<sup>nd</sup> String.      3<sup>rd</sup> String.

3 2 4 3 1 2 1 2 1      4 3 1 0 4 2

For the scale of C $\flat$  Major, see Chapter VII. p. 40.

It will perhaps be thought extraordinary that, in these scales, I have taken the greatest care to avoid playing two notes with the same finger, which has been done in all the instruction books hitherto published. My opinion is that it is a vicious method and produces a bad effect. Every one knows that a fine style of playing can only be produced by a good touch, and certainly this cannot exist in sliding a finger from one semitone to another; for, if the bow do not act on the string at the instant when the finger is slid, a very disagreeable sound will be heard. It is true that, in a rather slow time, two notes may be taken with the same finger; and even an interval of a third, a fourth, or a fifth &c. may be thus played by a forcible sliding of the finger, which produces a very good effect, and is called the *portamento*.

EXAMPLE.

*Adagio.*

These slidings, if I may so designate them, are made more or less rapidly, according to the expression required by the melody; but, in a quick movement, where neatness forms the greatest merit, two notes played with the same finger are, in my opinion, indefensible, as being wholly opposed to such neatness. If, in playing at first sight, it should so happen that we cannot at once determine on the best position, it would then certainly be better to take two notes with the same finger, than not to play them at all; but in a well-studied *solo*, it will be far preferable to avoid doing so. For instance, in a slurred run, two notes with the same finger are indefensible.

**EXAMPLE**  
In B Major; with two notes played by the same finger.

There is no one possessing the slightest knowledge of the Violoncello, but must admit that this run is very badly made; and yet such a mode of fingering is very usual.

Here follow different ways of making this run, without using the same finger for two notes in succession.

First way.-  
3rd & 2nd Strings.

Second way.  
3rd & 2nd Strings.

Third way  
3rd 2nd & 1st Strings.

The same run in A<sup>b</sup>, with two notes played by the same finger.

By avoiding the use of the same finger for two notes in succession.

We will now give these runs, both in ascending and in descending, with the application of the same finger to two notes in succession, and they will be found still more vicious.

EXAMPLE.

in B Major

in A $\flat$  Major

in B Major

in A $\flat$  Major

By avoiding two notes with the same finger.

These examples might be repeated in different keys, but I think enough has been said to prove that the method of taking contiguous notes with the same finger is vicious, and that it should by all means be avoided. The fingering of a passage is sometimes changed on account of the mode of bowing it; for instance, if I had to play the scale of B flat through two octaves with the *detached* bowing, I should finger it simply as in the following example:

But if I had the same scale to play *slurred*, I should finger it as below; because it seems to me that, by avoiding the open notes, the tone become much more equal.

The ear must be well exercised before these methods of fingering can be adopted, because the open notes serve as rallying points for the intonation.

I shall not farther enlarge on the choice of fingering, as that will always depend on the taste and ability of the performer.

There are some passages in which we must necessarily take two notes with the same finger. These I shall give in a subsequent part of this work.

## CHAPTER V.

### OF THE SCALES PLAYED ON ONE STRING.

We will commence by giving the scales of C major and C minor, on the first string, and will then continue them from tone to tone.

#### SCALE OF C, ON THE FIRST STRING.

C. MAJOR.	
C. MINOR.	

Great attention should be given to the fingering of these scales, as it serves as a model for the others: for, as the degrees of the scale are the same in all the keys, the corresponding degrees in all of them should be taken with the same fingers.

In the key of C, for example, C is the first degree, D the second, E the third, F the fourth, G the fifth, A the sixth, B the seventh, and C the octave or eighth.

EXAMPLE of the Degrees.

	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>
	Octave.							

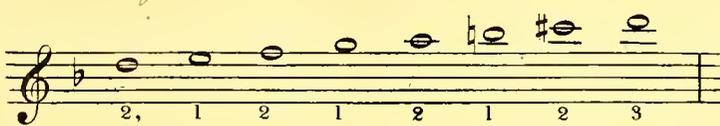
We will now examine some examples with the degrees and the fingering marked; the former above, and the latter below.

	Degrees.	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>
Scale of C. MAJOR.									
	Fingering.								
Scale of C. MINOR.									
	Fingering.								

Here, it is perceived, the tonic C, or first degree, is taken with the second finger, which naturally happens in the first position of the hand; but it is the second degree which chiefly demands attention, that having to be taken with the first finger in every key, and then the succession of fingers will be always the same as we have given in the above scale of C.

It must also be observed, that it is not the same notes, but the same degrees of the scale, which have to be taken with the same fingers, which regular manner of ascending the scale on one string might be called mathematical. We give the scale of D, to prove this assertion.

D MAJOR. 

D MINOR. 

In the key of D, the tonic is D, and consequently the first degree, E is the second, F the third, G the fourth, A the fifth, B the sixth, C the seventh, and D the octave or eighth

Here is a comparative example of the degrees and fingering; the former indicated above, and the latter below the notes, as before.

	Degrees.	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>	7 <sup>th</sup>	8 <sup>th</sup>
D MAJOR.									Octave.
	Fingering.	2,	1	3	1	2	1	2	3
D MINOR.									Octave.
	Fingering.	2,	1	2	1	2	1	2	3

This shows that the scale of D is played, in ascending, with the same fingers as that of C; placed, however, not on the same notes, but on the same degrees.

From this regularity of fingering, there result two great advantages: the first is, that, as the degrees of the scale are always at the same respective distance from each other, it greatly facilitates purity of intonation; the second, that the octave being always taken with the same finger, we are naturally led into the most advantageous position; for, in descending the scale, by placing the thumb behind the first finger, (which it is natural to do,) we shall have a compass of two octaves, in the key in which we are playing, directly under the hand.

To prove this, let us take again the two scales of C and D. The mark for the thumb will be *q*; and it must also be observed, that the two heads of notes indicated below the highest C are not meant to be played, but are merely intended to show that the thumb is to be placed on the two strings where those notes are stopped, at the same time as the third finger is placed on the highest note, C.

C MAJOR.

2, 1 3 1 2 1 2 3 2 1 *q* 3 2 1 *q* 3 2 1 *q* 3 2 1 *q* 3 2 1

This method of placing the thumb is to be adopted in all the scales; and by taking care not to raise the first finger, the thumb will naturally fall in its right place immediately behind it: but if the first finger be lifted up, the thumb will most frequently take a false position, for want of a point of support.

D MAJOR.

2, 1 3 1 2 1 2 3 2 1 *q* 3 2 1 *q* 3 2 1 *q* 3 2 1 *q* 3 2 1

I have not given these scales in the minor mode, because the eighth degree being always taken with the same third finger, everything remains precisely the same, so that further comment would be useless. It may be said that the scale of D is more simple, and easier of performance, with the following fingering.

4 1 3 4 *q* 1 2 3 2 1 *q* 3 2 1 *q* 3 2 1 *q* 1 *q*

To this I reply, that I do not at all disapprove of this method of ascending the scale, as I frequently adopt it myself, because it is very convenient and admits of the harmonic A being readily taken with the thumb: but as it is only applicable to certain keys, those persons who are only acquainted with this method of placing the thumb, know not what fingering to employ when they are not playing in the open keys, namely, in D, A, C, or G; whilst the method of fingering which has been advocated above, is precisely the same in every key, and always produces the same results.

We will transpose this scale into the Major and Minor keys of 23 D flat and E flat, still continuing on the first string.

**D $\flat$  MAJOR.** 1<sup>st</sup> String. 2<sup>nd</sup> String. *tr*  
 2, 1 3 1 2 1 2 3 2 1 0 3 2 1 0 1

**D $\flat$  MINOR.** 1<sup>st</sup> String. 2<sup>nd</sup> String. *tr*  
 2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

**E $\flat$  MAJOR.** 1<sup>st</sup> String. 2<sup>nd</sup> String. *tr*  
 2, 1 3 1 2 1 2 3 2 1 0 3 2 1 0 1 0

**E $\flat$  MINOR.** 1<sup>st</sup> String. 2<sup>nd</sup> String. *tr*  
 2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

As the little finger is not used beyond the G sharp and A flat on the first string, the third finger is no longer employed on the third degree in Major scales; but the second finger, as in the Minor scales; the player must therefore advance it to its place.

**E MAJOR.** 1<sup>st</sup> String. 2<sup>nd</sup> String. *tr*  
 2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

**E MINOR.** 1<sup>st</sup> String. 2<sup>nd</sup> String. *tr*  
 2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

**F MAJOR.** 1<sup>st</sup> String. 2<sup>nd</sup> String. *tr*  
 2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

**F MINOR.** 1<sup>st</sup> String. 2<sup>nd</sup> String. *tr*  
 2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

**F $\sharp$  (or G $\flat$ ) MAJOR.** 1<sup>st</sup> String. 2<sup>nd</sup> String. *tr*  
 2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

**F $\sharp$  MINOR.** (G $\flat$  Minor is not used) 1<sup>st</sup> String. 2<sup>nd</sup> String. *tr*  
 2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

**G MAJOR.** 1<sup>st</sup> String. 2<sup>nd</sup> String. *tr*  
 2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

G MINOR

1st String. 2nd String. *tr*

2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

A♭ MAJOR.

1st String. 2nd String. *tr*

2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

G# MINOR.

1st String. 2nd String. *tr*

2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

A MAJOR.

1st String. 2nd String. *tr*

2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

A MINOR.

1st String. 2nd String. *tr*

2, 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

These scales might be carried yet higher, but the principle and the fingering of them would still remain the same.

As I commenced with the scale of C on the first string, with the second finger placed on the first note, there remain, to complete the scales on the first string, those of A (beginning with the open string), B flat, and B natural.

A MAJOR.

1st String. 2nd String. *tr*

0 1 3 1 2 1 2 3 2 1 0 3 2 1 0 1 0

A MINOR.

1st String. 2nd String. *tr*

0 1 2 1 2 1 2 3 2 1 0 3 2 1 0 1 0

In this Key we may ascend to the double octave on the same string.

A MAJOR.

1st String. 2nd String. *tr*

0 1 3 1 2 1 2 3 1 2 1 2

through two octaves.

3 2 1 0 3 2 1 0 1 0

I have now to give the scales of B flat and B natural, but must first observe that in these, there occurs an exception to the general rule which I have sought to establish, and which has hitherto been strictly followed; namely, that the first finger should always be placed on the second degree; but, in the scale of B, this is not practicable, because the tonic or first degree must necessarily be taken with the first finger, and hence it would be impossible to take the second degree also with it, except by playing two notes in succession with the same finger, which would produce a very bad effect. The following is the way of fingering these scales on one string.

The image displays four musical examples of scales on one string, each with its own 1st and 2nd string parts. Fingerings are indicated by numbers 1-4 and '0' for open string. A trill (tr) is marked at the end of each scale.

- B $\flat$  MAJOR:** 1st String: 1 2 4 1 2 1 2 3 2 1 0; 2nd String: 3 2 1 0. Trill on 2nd string.
- B $\flat$  MINOR:** 1st String: 1 3 4 1 2 1 2 3 2 1 0; 2nd String: 3 2 1 0. Trill on 2nd string.
- B $\flat$  MAJOR (through two octaves):** 1st String: 1 2 4 1 2 1 2 3 1 2 1 2 1 2 3 2 1 0; 2nd String: 3 2 1 0. Trill on 2nd string.
- B MAJOR:** 1st String: 1 2 4 1 2 1 2 3 2 1 0; 2nd String: 3 2 1 0. Trill on 2nd string.
- B MINOR:** 1st String: 1 2 3 4 1 2 1 2 3 2 1 0; 2nd String: 3 2 1 0. Trill on 2nd string.

It is here seen that, instead of the first finger being on the second degree, it is the second finger which takes its place; and that, on the third degree, the fourth finger takes the place of the third: but after this, the first finger is placed on the fourth degree, and so on, as in the other scales.

Here, then, are all the scales on one string. They may be repeated on the second, third and fourth strings, if desired, which will impart a considerable knowledge of the finger-board.

The great advantage of this method of fingering lies in its regularity; so that he who is able to play one ascending scale properly, can play all the rest. By it, also, the thumb always falls in its right place. There are persons who at once place the thumb where it should be, but this mode of procedure is very hazardous; because, in this case, the whole hand must skip; whilst, in following immediately after the fingers, the thumb is placed much more naturally and with greater certainty, as its distance is already measured.

At the commencement of this article, it has been remarked that great attention should always be given to the employment of the first finger for the second degree; and having now taken a review of all the scales, we should be convinced of this. But it is not absolutely necessary that the tonic or first degree should be taken with the second finger. It is true that I have done so in all the foregoing scales, because it appeared to me desirable to adopt a starting point, but it will be seen from the examples which follow, that the tonic is taken by the second or fourth finger according to circumstances. Let us begin an octave lower, and we shall then see that the employment of the second or fourth finger often depends on the key, or on the turn of the passages. In the key of C, for example, the tonic or first degree is found under the second finger:—

EXAMPLE.

In D, it is found under the fourth finger.

EXAMPLE.

In E flat, it is taken with the second or the fourth finger, according to the turn of the passage which precedes it.

EXAMPLE.

E $\flat$  Major

Tonic with the 4<sup>th</sup> Finger.

F Major.

Here follows a kind of variation on the scale, which is played with the same fingering as the scales themselves.

C Major.

same Position.

This passage may be played in all the keys. The following is an example of it in E $\flat$  major.

E $\flat$  Major.

same Position

Passages of the kind here given are not always to be met with together; sometimes they are shorter and, at others, longer: but he who duly practises them in the different keys, and in the manner shown above, will never find himself perplexed.

The passage just given would naturally lead us to investigate many others which can be played from one end of the finger-board to the other, without using the thumb. These, however, will be noticed in Chapter XII.

## SUPPLEMENT

## TO THE SCALES ON ONE STRING.

Although this article is a continuation of the preceding, I have considered it desirable to give it separately, in order to render it clearer and more intelligible.

There are two methods of ascending the scales on one string, after the thumb has taken its place; and although somewhat different from each other, both are very good. I shall not venture to decide which is the best, as so much depends on habit. Some persons find the first way the easier, while others succeed better with the second.

Suppose the thumb is placed on F and B flat.

## EXAMPLES

Thumb Position.

First way F Major.

Thumb Position.

Second way F Major.

Now take a tone higher, in the key of G.

First way.

Second way.

The same fingering is employed both in the major and in the minor; I here give a few notes before the scale to prove this more fully.

First way F Major.

2<sup>nd</sup> String.



EXAMPLE  
in A Major.

EXAMPLE  
in D Major.

EXAMPLE  
in G Major.

EXAMPLE  
in C Major.

These examples might be given in a thousand different ways, and greater elegance be imparted to them: but I have preferred keeping closely to the scales, as these are what I had to treat of; which I have done at greater length, from the conviction in my own mind that they cannot be too perfectly known.

## CHAPTER VI.

### OF THE FOUR POSITIONS ON THE NECK.

There are four positions on the neck, and it is in these that the fourth or little finger is used; but after they are passed it is no longer employed.

#### EXAMPLE OF THE FIRST FOUR POSITIONS.

The image displays four musical staves, one for each string of a violin, illustrating the first four positions. Each staff begins with a treble clef and a common time signature. The notes are grouped into four positions, indicated by dotted lines above the staff. Fingerings are written below the notes: 0 for the open string, 1 for the first finger, 2 for the second, 3 for the third, and 4 for the fourth (little) finger. The first string starts at C (0), the second at D (0), the third at G (0), and the fourth at C (0). The positions are labeled '1st Position.', '2nd Pos.', '3rd Pos.', and '4th Pos.' above the staves.

Thus, from the lowest C to the first G on the first string, the little finger is used, even if the G be sharp; but when we have arrived at A, the octave of the first string, at D on the second string, at G on the third and at C on the fourth, which are respectively the octaves to the open strings, the little finger is rejected and the third employed instead of it, because the thumb can then come behind, and we shall have a compass of two octaves under the hand.

Let us take again the first four positions on the first string, in A major, and add to them the fifth position, in order to see that the little finger is discontinued and that the thumb can very naturally be placed on the fifth, E and A.

EXAMPLE.

I have merely given this example to show that the little finger is disused at the octave of the open string, where the fifth position occurs; but, as there is no rule without an exception, I now proceed to show that the little finger may be employed in the fifth position, though only where the A of the first string is *flat*, for then the octave of the open string will not have been reached.

Let us return to the first four positions on the four strings, and we shall see that, in the key of D flat, the A flat on the first string is taken by the little finger, at the fifth position.



Another short Exercise in D, from one String to another

1<sup>st</sup> Position 2<sup>nd</sup> 3<sup>rd</sup> 1<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup>  
 0 1 3 1 2 4 1 2 4 0 1 3 1 2 4 1 2 4  
 4<sup>th</sup> Pos: 2<sup>nd</sup> 3<sup>rd</sup> 4<sup>th</sup> 5<sup>th</sup> 3<sup>rd</sup> 4<sup>th</sup> 2<sup>nd</sup> 3<sup>rd</sup> 1<sup>st</sup> 2<sup>nd</sup> 1<sup>st</sup>  
 1 3 4 1 2 4 1 2 4 1 3 4 1 2 3 1 2 4 1 3 4 1 2 4 1 2 4 1 2 4 1 3 4 1 2 4 1 2 4 1 3 4  
 3<sup>rd</sup> 4<sup>th</sup> 2<sup>nd</sup> 3<sup>rd</sup> 1<sup>st</sup> 2<sup>nd</sup> 1<sup>st</sup> 3<sup>rd</sup> 4<sup>th</sup> 0 2<sup>nd</sup>  
 1 2 4 1 2 4 1 2 4 1 2 4 1 2 4 0 1 1 2 4 1 2 4 1 3 4  
 3<sup>rd</sup> 1<sup>st</sup> 2<sup>nd</sup> 1<sup>st</sup> 3<sup>rd</sup> 4<sup>th</sup> 2<sup>nd</sup> 3<sup>rd</sup> 1<sup>st</sup> 2<sup>nd</sup> half Pos:  
 1 2 4 1 3 4 0 1 2 4 1 2 4 1 3 4 1 2 4 1 3 4 1 2 4 1 3 4 1 2 4 1 3 4

The last group of notes is taken in what is called the half-position, or half-shift, which certainly forms a part of the first position; but in order to avoid a change of terms, I give it under the name by which it is known. Here is an example:

Half Position. 4<sup>th</sup>String. 3<sup>rd</sup>String. 2<sup>nd</sup>String. 1<sup>st</sup>String.  
 # 1 2 4 2 # 1 2 4 2 1 2 4 2 1 2 4 2

The 19<sup>th</sup> Exercise of Part II of this work must be played throughout in this half-position, without removing the hand.

Another EXAMPLE, in E Major

1<sup>st</sup> Position 2<sup>nd</sup> Pos: 3<sup>rd</sup> Pos: 1<sup>st</sup> Pos: 2<sup>nd</sup> Pos: 3<sup>rd</sup>  
 1 2 4 1 3 4 1 2 4 0 1 2 1 2 4 1 3 4 1 2 4  
 4<sup>th</sup> 1<sup>st</sup> 3<sup>rd</sup> 2<sup>nd</sup> 1<sup>st</sup> half Pos: 3<sup>rd</sup>  
 1 2 4 0 1 2 1 2 4 1 2 4 1 3 4 1 3 4 0 1 2 1 2 4 1 2 4 1 3 4  
 2<sup>nd</sup> 1<sup>st</sup> Pos: half Pos 3<sup>rd</sup> 2<sup>nd</sup> 1<sup>st</sup> 2<sup>nd</sup>  
 1 3 4 1 2 4 1 2 4 1 2 4 1 3 4 1 3 4 1 2 4 1 2 4 1 2 4 1 2 4 1 2 4  
 1<sup>st</sup> Pos: half Pos:  
 1 1 2 4 1 0 1 2 2 1 2 4 4 1 2 4 2 2 1 4 1 4 4 2 4

The foregoing examples are sufficient to illustrate the manner of playing in the first four positions; and it will be well to practise them, as it is indispensable to be able to shift the hand on the Violoncello. Indeed, it must have been already observed, that we cannot even play the first scale of C minor without shifting, on account of the A flat which occurs therein, and it is the same with many others.

This leads us to present the scales played by successions of three fingers, without the use of the open strings, as the previous exercises will have prepared both for the comprehension and for the performance of them.

## CHAPTER VII.

OF SCALES PLAYED BY SUCCESSIONS OF THREE FINGERS,  
WITHOUT THE USE OF THE OPEN STRINGS.

In order to understand these scales perfectly, a little calculation is requisite. The scale consists of eight degrees, including the octave which completes it. The double scale contains fifteen degrees, including its double octave; and the triple scale, twenty two degrees, its triple octave included.

The lowest note of these scales must always be taken with the first finger; and as this mode of fingering is suitable to all scales in which the number of sharps or flats prevent the use of the open strings, we shall give the first example in D flat. In commencing a single scale with the first finger, the last note will be under the second finger, because twice three are six, and two more make eight.



In this scale, the stop of the octave by the second finger is very advantageous, as we are thereby enabled to do many things relative to the key in which we are playing.

Example, in playing the scales of D flat and A flat.

The tonic being taken with the first finger, its octave will always come under the second, in whatever key we may be playing, even in the open keys, if we avoid the open strings.

We will now proceed to the double scale, in the same key. This, I have before said, contains fifteen degrees, including the double octave; so that, in ascending by successions of three fingers, there will be five movements of the hand, and the double octave will come under the little finger.

EXAMPLE.

4<sup>th</sup> String

3<sup>rd</sup>

2<sup>nd</sup>

1<sup>st</sup>

1 2 4 1 2 4 1 2 4 1 2 4 1 3 4

1 -1 1 1 1

✓ If we desire to ascend the triple octave in the same key, by similar successions of fingers, the second string must be used farther up.

It has been already observed, that the triple scale, including its triple octave, contains twenty-two degrees. Seven movements of the hand by successions of three fingers make twenty-one degrees, and as the thumb is placed between the sixth and seventh movement, and reckons for one, it completes the number twenty-two.

EXAMPLE of the triple Scale.

4<sup>th</sup> String.

3<sup>rd</sup> String.

2<sup>nd</sup> String

1<sup>st</sup> String.

same Pos: 1<sup>st</sup> String

1 2 4 1

1 2 3 4 1 2 3 0 1 2 3

1 2 4 1 3 4 4 1 2 3 0 1 2

3 0 0 0 0 1 0 0

This method of fingering the double scale brings us at last to the fourth finger, which is proper. In the triple scale, the like method finally brings us to the third finger, and the thumb being placed behind, we have a compass of two octaves under the hand, in the key in which we are playing. The same thing occurs in all the keys.

The same result will be attained in the open keys, by avoiding the use of the open strings. I will give one example only, in the key of C.

Triple SCALE of C. without the open strings.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

I do not consider it necessary to multiply these examples, as I am here only writing for professors, or very advanced amateurs. Beginners should not even look at this, as it requires much practice in playing the Violoncello, to be able to understand and perform it; otherwise it is liable to give rise to a false intonation, which the open strings serve as rallying points to avoid.

If we do not wish to ascend the triple scale entirely by successions of three fingers; then, after the fourth finger, at the end of the double scale, it is only requisite to play the scale on one string, as I have before given it (see p. 20 & after) and the same result will be attained.

EXAMPLE in D $\flat$ .

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

This double scale being finished, the E is taken with the first finger, as in the scale on one string.

1<sup>st</sup> String.

And so it is in every key.

It should be observed that these different methods of fingering, instead of proving injurious to each other, combine very well together.

The double scale of E flat, as it is given in the following example, may be performed with great facility.

2<sup>nd</sup> String. 1<sup>st</sup> String. Same Pos: 2<sup>nd</sup> String. 3<sup>rd</sup> String. tr

Having said enough, I think, to show how these scales are to be played, I shall now give in due order those which I promised in Chapter IV; and which, being in keys that have many sharps or flats, cannot be easily played except in this way.

SCALE OF D $\flat$  MAJOR.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1 2 4 1 2 4 1 2 4 1 3 4

4 3 1 4 2 1 4 2 1 4 2 1

SCALE OF D $\flat$  MINOR.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String.

1 3 4 1 2 4 1 2 4 1 3 4

4 2 1 4 2 1 4 2 1 4 3 1

SCALE OF D $\flat$  MINOR, ascending with the Minor Sixth, and descending with the Major Seventh.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String.

1 3 4 1 2 4 1 2 4 1 3 4

4 3 1 4 2 1 4 2 1 4 3 1

SCALE OF C $\sharp$  MAJOR.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1 2 4 1 2 4 1 2 4 1 2 4

4 2 1 4 2 1 4 2 1 4 2 1

SCALE OF F $\sharp$  MAJOR.

4<sup>th</sup> String. 3<sup>rd</sup> String. 2<sup>nd</sup> String. 1<sup>st</sup> String.

1 2 4 1 2 4 1 2 4 1 3 4

4 3 1 4 4 4 4 4

SCALE OF  
G<sup>b</sup> MAJOR.

The scale of G flat minor is never used, on account of the double flats B and E.

SCALE OF  
G<sup>#</sup> MAJOR.

SCALE OF  
G<sup>#</sup> MINOR.

SCALE OF  
G<sup>#</sup> MINOR,  
ascending with the Minor  
Sixth, and descending with  
the Major Seventh.

SCALE OF  
A<sup>b</sup> MAJOR.

SCALE OF  
A<sup>b</sup> MINOR.

SCALE OF  
A<sup>b</sup> MINOR,  
ascending with the Minor  
Sixth, and descending with  
the Major Seventh.

SCALE OF  
B MAJOR.

3<sup>rd</sup> String 2<sup>nd</sup> 1<sup>st</sup>

SCALE OF  
C<sup>b</sup> MAJOR.

3<sup>rd</sup> 2<sup>nd</sup> 1<sup>st</sup>

The scale of C flat minor is never used, on account of the double flats B, E and A.

## CHAPTER VIII.

### OF THE CHROMATIC SCALE, WHICH IS SUITABLE TO ALL KEYS.

This scale is the same both in the major and in the minor mode; since, in ascending or descending from a tonic to its octave, we pass through the twelve chromatic degrees, whether the mode be major or minor. The mode, therefore, can only be determined by what precedes or follows this scale. It is neutral in itself, and may be placed indifferently either in major or in minor.

The fingering, too, is the same in every key, because the key can only be determined by the point of departure and that of termination; therefore, it will be seen, when I present the examples of the scale in the twelve chromatic keys, that, in respect to fingering, they are all alike.

This scale is ascended by three fingers, the fourth or little finger being suppressed as useless, because the open strings always fall where that would otherwise be necessary. I therefore refrain from giving it with the employment of the fourth finger; and that for two reasons. First, because it is opposed to a regular method of fingering; and secondly, because the open strings are of great assistance as rallying points for the intonation; for, if it be difficult to play a diatonic progression perfectly in tune, a chromatic one must be still more so.

In saying, above, that the fourth finger should be suppressed, I mean in the course of the scale, which is ascended by regular successions of three fingers; but, it may be used to finish the scale, when necessary, as will be seen in the subsequent examples.

It must be carefully observed, the following notes are always taken with the first finger.

The E natural on the fourth string:

The B natural on the third string:

The F sharp on the second string:

The C sharp on the first string.

EXAMPLE



We will now give this scale in all the keys, in order to show that we always ascend with the first finger on the four notes indicated above.

SCALE  
in C.

Musical staff for C major scale. The scale is written in a single line with a C-clef. The notes are C, D, E, F, G, A, B, A, G, F, E, D, C. Fingerings are indicated by numbers 0-3 below the notes.

SCALE  
in D $\flat$ .

Musical staff for D-flat major scale. The scale is written in a single line with a C-clef. The notes are D $\flat$ , E $\flat$ , F, G, A $\flat$ , B $\flat$ , C, B $\flat$ , A $\flat$ , G, F, E $\flat$ , D $\flat$ . Fingerings are indicated by numbers 1-4 below the notes.

SCALE  
in D.

Musical staff for D major scale. The scale is written in a single line with a C-clef. The notes are D, E, F $\sharp$ , G, A, B, C, B, A, G, F $\sharp$ , E, D. Fingerings are indicated by numbers 1-3 below the notes.

SCALE  
in E $\flat$ .

Musical staff for E-flat major scale. The scale is written in a single line with a C-clef. The notes are E $\flat$ , F, G, A, B $\flat$ , C, D, C, B $\flat$ , A, G, F, E $\flat$ . Fingerings are indicated by numbers 2-3 below the notes.

SCALE  
in E.

Musical staff for E major scale. The scale is written in a single line with a C-clef. The notes are E, F $\sharp$ , G $\sharp$ , A, B, C, D, C, B, A, G $\sharp$ , F $\sharp$ , E. Fingerings are indicated by numbers 1-4 below the notes.

SCALE  
in F.

Musical staff for F major scale. The scale is written in a single line with a C-clef. The notes are F, G, A, B, C, D, E, D, C, B, A, G, F. Fingerings are indicated by numbers 2-3 below the notes.

SCALE  
in F $\sharp$ .

Musical staff for F-sharp major scale. The scale is written in a single line with a C-clef. The notes are F $\sharp$ , G $\sharp$ , A, B, C, D, E $\sharp$ , D, C, B, A, G $\sharp$ , F $\sharp$ . Fingerings are indicated by numbers 4-3 below the notes.

SCALE  
in G.

Musical staff for G major scale. The scale is written in a single line with a C-clef. The notes are G, A, B, C, D, E, F $\sharp$ , E, D, C, B, A, G. Fingerings are indicated by numbers 0-4 below the notes.

SCALE  
in A $\flat$ .

Musical staff for A-flat major scale. The scale is written in a single line with a C-clef. The notes are A $\flat$ , B $\flat$ , C, D, E $\flat$ , F, G, F, E $\flat$ , D, C, B $\flat$ , A $\flat$ . Fingerings are indicated by numbers 1-3 below the notes.

SCALE  
in A.

Musical staff for A major scale. The scale is written in a single line with a C-clef. The notes are A, B, C, D, E, F $\sharp$ , G $\sharp$ , F $\sharp$ , E, D, C, B, A. Fingerings are indicated by numbers 1-3 below the notes.

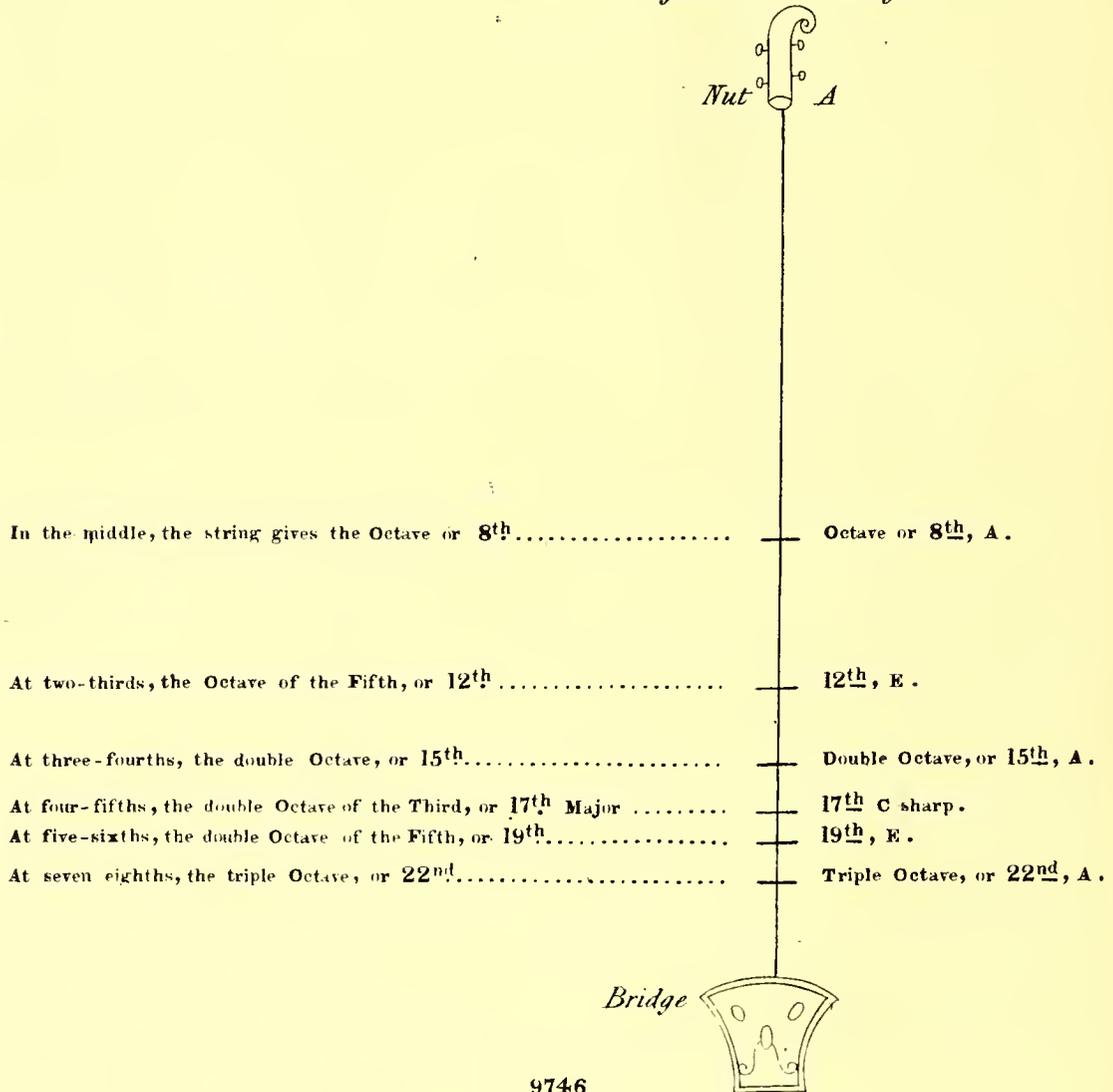


CHAPTER IX  
OF HARMONICS.

A distended string, when put into vibration and lightly touched in the middle by the finger, gives its octave; and from this central point, whether the hand be passed downwards towards the bridge, or upwards towards the nut, the same sounds (called harmonics) are produced, and precisely in the same order, by lightly touching the string. This circumstance, therefore, demands that we should examine it separately under these two relations.

FIRST DIVISION OF THE STRING, proceeding from the centre or octave, and passing the hand downwards towards the bridge. We shall take the A string for an example.

*Figure of the A string.*



The following example shows the manner of writing the sounds in this first division.

Open String	8 <sup>th</sup> or octave of the open string.	12 <sup>th</sup> or octave of the fifth.	15 <sup>th</sup> or double octave of the open string.	17 <sup>th</sup> major, or double octave of the major third.	19 <sup>th</sup> or double octave of the fifth.	22 <sup>nd</sup> or triple octave of the open string.

It should be remarked that, in this first division, the string gives the same sounds at the places indicated whether it is stopped firmly by the fingers in the usual way, or touched lightly by them in order to produce the harmonics; the only difference being, that the harmonics are a little softer. This is the reason why players on the Violoncello, in ascending by the notes of the perfect chord through the whole length of the string, make great use of the harmonics, which produces a pretty effect. We will give an example of this; observing that the notes which are unmarked must be stopped firmly by the fingers, while those which have the sign  $\circ$  (indicating the harmonic) placed over them, must only be lightly touched.

EXAMPLE.

Tonic.

open string 3<sup>rd</sup> 5<sup>th</sup> 8<sup>th</sup> 10<sup>th</sup> 12<sup>th</sup> 15<sup>th</sup> 17<sup>th</sup> 19<sup>th</sup> 22<sup>nd</sup>

It will here be seen that the third, fifth and tenth are not harmonics, and consequently the string must be firmly pressed down to produce these notes. The same thing occurs on the other three strings, and in the same proportions.

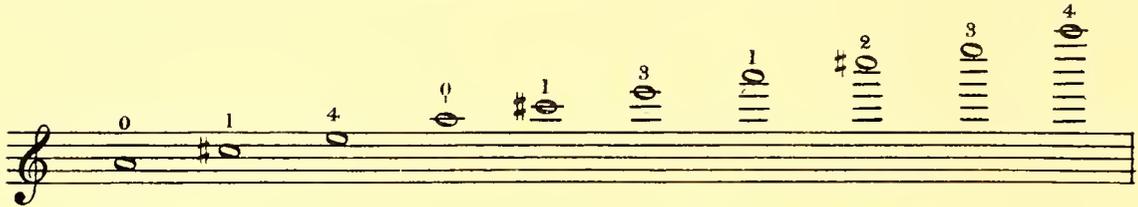
Here follow examples on the 2<sup>nd</sup> 3<sup>rd</sup> & 4<sup>th</sup> strings.

2<sup>nd</sup> String, D.

3<sup>rd</sup> String, G.

4<sup>th</sup> String, C.

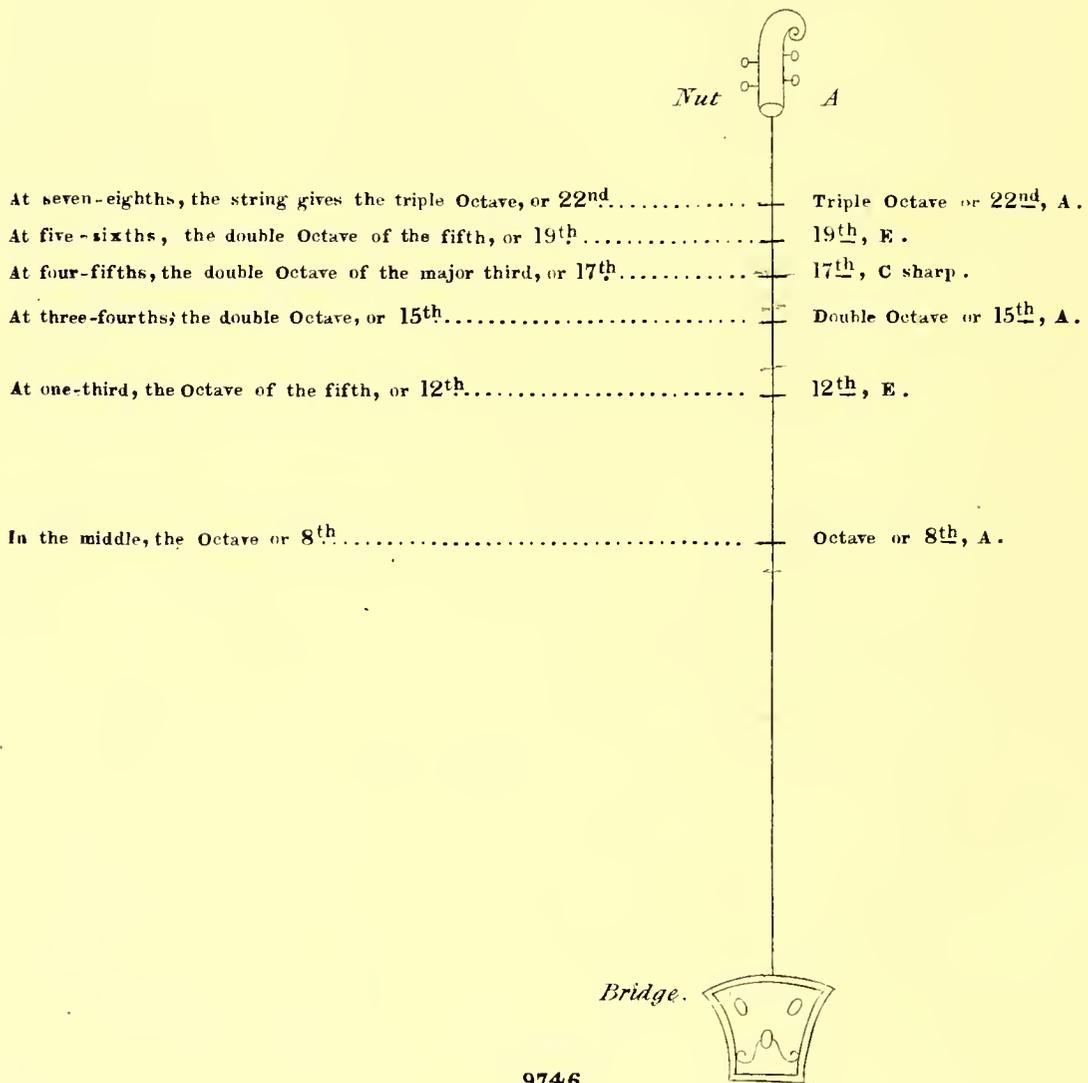
46 The method of fingering the notes before given, on the first string, is as follows; and the same is applicable to the other three strings.



One half of the harmonic string being now known, by this first division, let us pass on to the second; in which the string is similarly divided, but in an inverted direction; that is to say, in proceeding from the centre, and passing upwards towards the nut, we shall find that the same harmonic sounds are produced.

SECOND DIVISION OF THE STRING.

Figure of the A string.



The following example shows the way of writing the harmonics in this second division, the lower stave being added to indicate the effect which these sounds should produce on the ear.

	4 <sup>th</sup> finger.	3 <sup>rd</sup> finger.	2 <sup>nd</sup> finger.	1 <sup>st</sup> finger.	Open String.			
<b>HARMONICS.</b>								
	Octave.	12 <sup>th</sup>	15 <sup>th</sup>	17 <sup>th</sup>	19 <sup>th</sup>	22 <sup>nd</sup>	Tonic.	
<b>EFFECT on the EAR.</b>								Open String.
	Octave.	12 <sup>th</sup>	15 <sup>th</sup>	17 <sup>th</sup>	19 <sup>th</sup>	22 <sup>nd</sup>	Tonic.	

The lower stave will clearly demonstrate, that the sounds obtained from this second division, of the string are precisely the same as those given by the first division, although the procedure is diametrically opposite.

Here, also, two things have to be observed: first, it is absolutely requisite to place the fingers very lightly on the string, in order to produce the harmonics; experience and practice not only proving this, but also that they must be placed nearly flat upon the string, and even near the bend of the first joint, as these sounds are then more easily brought out. Secondly, the manner of noting these harmonics is somewhat faulty, as the last two indicated would not speak if they were taken by the fingers exactly where they are marked. For example, the C natural which gives the nineteenth should be taken rather higher, and also the B which gives the twenty-second, or triple octave. This must be decided by the ear. They have, however, always been written in this manner, without any comment; but I have thought proper to notice the above circumstance, it being incontestably true.

There is another division of the string, which I have not yet spoken of; it is that which gives the major seventeenth, which is always produced when the string is divided into five parts. Without troubling, however, to measure these parts, the harmonic here mentioned can be obtained by taking either of the notes given in the following example.

HARMONICS.

EFFECT.

By trying this example, any one may easily convince himself that the string always gives the same harmonic, no matter on which of the four places indicated the trial is made.

Whoever has made this trial on one string may repeat it on the other three, and the result will be always the same: for which reason, and also in order to save space, I have deemed it unnecessary to transpose the examples.

These two divisions of the string, and that of the major seventeenth, ought to have imparted a sufficient knowledge of the harmonics; nevertheless I should remark that the triple octave harmonic, near the bridge, is but little used, it being so very difficult to produce. Yet I have heard some persons take it admirably; this, however, depends greatly on the excellence of the string, on skill, and on much practice.

ON THE MOST CONVENIENT, AND THEREFORE THE MOST USUAL METHOD OF PERFORMING THE HARMONICS ON THE NECK OF THE INSTRUMENT.

To produce a succession of harmonics on the neck, the hand must be placed in the third position, as they there come out the most easily: besides, in this position, we have the power of producing on each string a harmonic which I shall term *artificial* (*"factice"*); by means of which, it will be found we have several harmonic scales under the hand.

Here are the harmonics which fall naturally under the hand in the third position.

HARMONICS.

EFFECT.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

1<sup>st</sup> String. 2<sup>nd</sup> String. 3<sup>rd</sup> String. 4<sup>th</sup> String.

Here follow the same harmonics, ranged in the best order and succession of which they are susceptible, it being understood that we always remain in the third position.

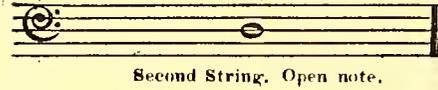
HARMONICS.

EFFECT.

On referring to the lower stave of this example, it will be seen that the scale is not entire. I will write these notes again on another stave; and mark with dots the notes which are required to complete the scale or diatonic succession.

In order, then, to render the diatonic succession complete, the three notes G, C and F are wanted. These can be obtained by what I have designated artificial harmonics, a term which I venture to use because a moveable nut is made of the first finger, as will be presently shown.

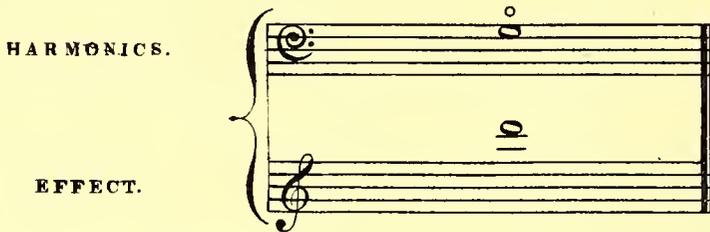
The second string is D.



Second String. Open note.

By placing the first finger on this second string, on its perfect fourth—G, the harmonic produced will be the double octave of the open note.

EXAMPLE.



From this example it may be seen, that a finger placed on the fourth note of any open string produces the harmonic double octave of the string itself; consequently, if we press the above G firmly down, with the first finger, and then touch lightly the C following, with the fourth finger, on the same string, (which C is a perfect fourth higher than the before mentioned G,) we shall obtain the harmonic double octave of the stopped note G.

In the following examples, I shall mark by a dot the note which is to be pressed down, and by a semibreve that which is to be touched lightly in order to obtain the harmonic. It will also be observed that the finger which presses down the note G, in the next example, acts as a moveable nut.

4<sup>th</sup> finger, touching lightly.



HARMONICS.

EFFECT.

This is the first note that was wanted in the preceding diatonic succession. By taking C, on the third string, with the first finger pressed down, and placing the fourth finger lightly on F, the fourth above, we shall obtain the second note required, which is C. Similarly, by taking F, on the fourth string, with the first finger pressed down, and placing the fourth finger lightly on B flat,

the perfect fourth above, we shall obtain **F**, the third note required to complete the diatonic succession.

Here follows an example of the last two notes, as also of the **G** before given, in order to show the three at one view.

The diagram illustrates the production of harmonics for three notes: G, C, and F. It is divided into two horizontal sections: 'HARMONICS' and 'EFFECT'.

- HARMONICS:** This section shows three measures on a treble clef staff. Above each measure, a note is shown with the instruction '4<sup>th</sup> finger.' above it. Below each measure, the text '1<sup>st</sup> finger pressed down.' is written, indicating the technique used to produce the harmonic.
- EFFECT:** This section shows the resulting notes on a treble clef staff. The notes are G, C, and F, each positioned below its corresponding harmonic measure.

Having now obtained the three harmonics which were deficient, we can descend in diatonic order.

#### EXAMPLE.

This diagram shows a sequence of harmonics and their effects. It is divided into two horizontal sections: 'HARMONICS' and 'EFFECT'.

- HARMONICS:** This section shows a sequence of notes on a treble clef staff. Above each note, the text '1<sup>st</sup> finger pressed down.' is written, indicating the technique used to produce the harmonic.
- EFFECT:** This section shows the resulting notes on a treble clef staff, corresponding to the sequence in the harmonics section.

*We may ascend in the like manner.*

It may perhaps be thought that I contradict myself in regard to the fingering; because, instead of a major third, which forms the usual distance between the first finger and the fourth, there is an interval of a fourth between them, in order to obtain the artificial harmonic. This stretch, however, is called in Violoncello playing, the extension of the little finger, and should not be needlessly adopted; but it is sometimes highly advantageous, as in this case, no other means being available. It is also indispensable in playing double stops, of which I shall give some examples; and in arpeggios, where both the fourth finger and the first have to be extended.

Let us return, however, to the harmonics. The natural harmonics (namely, those which arise from the aliquot divisions of a string) are invariable; but the artificial may be varied: since, in pressing down the first finger on any part of a string, and lightly touching the same string with the fourth finger, at the distance of a perfect fourth from the first, we shall obtain the harmonic double octave of the note under the first finger.

For example, if we descend by chromatic degrees with the first finger, as shown in the next example, we shall obtain the harmonics in the same order.

HARMONICS.

4<sup>th</sup> finger. 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup>

1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup>

1<sup>st</sup> finger pressed down; or moveable nut.

First String.

EFFECT.

HARMONICS.

4<sup>th</sup> finger. 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup>

1<sup>st</sup> finger. 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup>

Second String.

EFFECT.

HARMONICS.

4<sup>th</sup> finger. 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup>

1<sup>st</sup> finger. 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup>

Third String.

EFFECT.

HARMONICS.

4<sup>th</sup> finger. 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup> 4<sup>th</sup>

1<sup>st</sup> finger. 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup> 1<sup>st</sup>

Fourth String.

EFFECT.

I have not written the fourth below the last note of each of these examples, that being given, in each case, by the open string.

When we can perform the preceding chromatic successions, we shall easily learn to produce the two chromatic notes in the following exercise. These will be found very useful, as by their means we shall be enabled to play various scales.

EXAMPLES IN THE THIRD POSITION.

HARMONICS.

EFFECT.

This musical example consists of two staves. The upper staff, labeled 'HARMONICS', shows a sequence of notes on a treble clef staff with a C-clef, representing the natural harmonics of the string in the third position. The lower staff, labeled 'EFFECT', shows the corresponding fingering patterns for each harmonic, represented by vertical lines and circles on a treble clef staff.

As soon as we thoroughly understand, and have acquired a certain degree of facility in producing, these artificial harmonics, we may perform the four following scales, without quitting the third position; namely, those of A, D, G and C major.

EXAMPLE OF THESE FOUR SCALES IN THE THIRD POSITION.

HARMONICS.

Scale of A Major.

EFFECT.

HARMONICS.

Scale of D Major.

EFFECT.

HARMONICS.

Scale of G Major.

EFFECT.

This section contains three pairs of musical staves, each pair representing a different major scale. Each pair includes a 'HARMONICS' staff (treble clef, C-clef) and an 'EFFECT' staff (treble clef). The scales shown are A Major, D Major, and G Major. The 'HARMONICS' staves show the notes of the scale with circles above them, and the 'EFFECT' staves show the corresponding fingering patterns with vertical lines and circles.

HARMONICS.

Scale of C Major.

EFFECT.

I refrain from multiplying examples in this place, as any one may supply them at pleasure, and shall therefore only give a passage from BARTHELEMONT which produces a pretty effect. Like the preceding examples, it is in the third position.

HARMONICS.

EFFECT.

*gva*

HARMONICS.

EFFECT.

*gva*

HARMONICS.

EFFECT.

*gva*

We may perform very well on the Violoncello without using the harmonics: indeed, at present, they are much more rarely met with, than formerly; but as he who desires to acquire a thorough knowledge of his instrument should neglect nothing which relates to it, I have thought it right to give this article.

## CHAPTER X.

## OF DOUBLE STOPS.

## ARTICLE I.

## OF THIRDS, AND SUCCESSIONS OF THIRDS.

There is nothing more agreeable to the ear, than diatonic successions of thirds; but, unfortunately, they are very difficult to play on the Violoncello, especially on the neck portion of the finger-board. It is only in the first position that two thirds can be played in succession without moving the hand, because here the open string can be used; but afterwards it is unavoidably requisite to move the hand at each succeeding third, which renders the connection and continuity of the sounds extremely difficult. Nevertheless, they can be performed, after considerable practice; but as some time is always required for moving the hand, they can only be done well, on this instrument, in a rather slow degree of movement. — The second difficulty is, that as the thirds are nearly always major and minor alternately, and can only be played with the first and fourth fingers, it follows that these fingers are at one time found at the distance of a tone and a half, and, at another, at that of two tones from each other, according to the key and the succession, which renders it very difficult to stop the thirds perfectly in tune. See the following scales in thirds.

DOUBLE SCALE  
in C MAJOR.

IN D MAJOR.

IN E♭ MAJOR.

The minor keys are fingered precisely in the same way, except that where the open string cannot be used, we employ the first and fourth fingers, as above. We here give the scale of C minor only, more being unnecessary, as they are all alike.

DOUBLE SCALE  
in C MINOR.

Sometimes these scales in thirds on the neck are played as in the following example, but this is not always practicable; for, if the melody demands equality of tone, the many open notes oppose it, as they always sound louder and more harsh than those which are taken by the fingers. As in this method of fingering, the upper note is sometimes taken on the lower string, and the under note on the higher string, I shall indicate the first string by a single stroke —, the second by two ==, the third by three ≡, and the fourth by four ≡≡

The notes which are not marked by strokes are played in the natural way, like the foregoing scales. When the thumb is brought into use, a greater resource is open to us, as we can then perform two thirds in succession without moving the hand. See the following scale in thirds, in G major, on the first two strings, the thumb being indicated, as usual, by 0

SCALE  
in G MAJOR.

The next scale begins at once with the thumb. It is very easy to perform, and produces a good effect.

SCALE  
in G MINOR.



## EXAMPLE ON THE FIRST AND SECOND STRINGS .



Any one who tries this example will be convinced that it is impossible to play the second chord, A and C, perfectly in tune, with the first and third fingers; unless, as before observed, he has an unusually large hand . These thirds on the neck must therefore be taken with the first and fourth fingers, or with the thumb and second finger, on the second and third strings . These two methods I have indicated in the preceding examples, and have only given the last example because I have met with persons who, finding that successions of thirds are more easily played by using the thumb, have employed this method from one end of the neck to the other, little regarding purity of intonation, which however is by no means a matter of indifference .

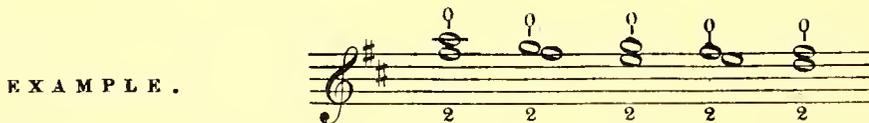
I shall perhaps exhibit some very difficult things, but shall carefully avoid such as are impracticable (although these are occasionally to be met with); for whatever lies awkward for the hand, must always be badly performed, even by the most skilful .

Enough, then, on the subject of thirds, since they are fingered alike in all the keys .

## ARTICLE II.

## THIRDS AND SECONDS.

We shall now present some successions of thirds and seconds, which are frequently employed in passages, and are performed with the thumb and second finger .



## SUCCESSION OF THIRDS AND SECONDS .



Here, the thumb and second finger descend alternately . In descending with the thumb, the interval of the second is formed, and by bringing the second finger nearer to it, we produce that of the third . Great attention must be paid to purity of intonation .



## ARTICLE IV.

## SUCCESION OF THIRDS AND SIXTHS.

Successions of thirds and sixths are also used; which produce a very good effect and are easily performed.

EXAMPLE  
in G MAJOR.

In the preceding, as well as in the following example, a third and a sixth can be taken without moving the hand. The stroke drawn over two succeeding chords indicates the same position of the hand.

EXAMPLE  
in G MINOR.

It may perhaps be thought somewhat complicated, that I have marked the E flat, at \* in the second bar, to be taken with the third finger. I admit that it does appear to deviate a little from the general rule; but it prevents the fourth finger skipping for the next note, which lies a semitone higher on the second string. However, it would not be a fault to take this E flat with the fourth finger, as it is marked at † in the following example.

EXAMPLE.

This I leave to the judgment of professors; but I will now present a case where it is indispensable to finger according to the first method: this is the case of the diminished third, not as a chord, but diatonically.



The distance from C sharp to E flat is called a diminished third. By trying it in double stops, we shall see if we are not compelled to finger in this manner.



This article belongs rather to the sixth than to the third, but I have been constrained to make these remarks. The same fingering will recur again in the scales with minor sixths.

Having sufficiently treated of thirds and seconds, we now pass on to the consideration of the fourth.

#### ARTICLE V. OF THE FOURTH.

The fourth is used as a passing double stop, but rarely in successions, because these are so harsh. They are only sufferable when accompanied, and then they produce a good effect. In general, however, the fourth is but little used as a double stop.

I here present a short succession, just to give an idea of it; but it will be discovered that, apart from the accompaniment, the fourths have nothing agreeable in them.



I carefully refrain from giving scales in fourths, as well as in fifths and sevenths; indeed, those who think proper to practise them, will only succeed in blunting and corrupting their sense of hearing.

ARTICLE VI.

OF THE FIFTH.

The perfect fifth being the tuning of the Violoncello, or (to speak more correctly), the four strings of the Violoncello being tuned by fifths; it follows that, whenever a finger is placed on two strings at once, in a direction parallel to the nut, a fifth is produced. In like manner, the thumb placed on two strings produces a fifth; in which case it may be said to form a moveable nut.

ARTICLE VII.

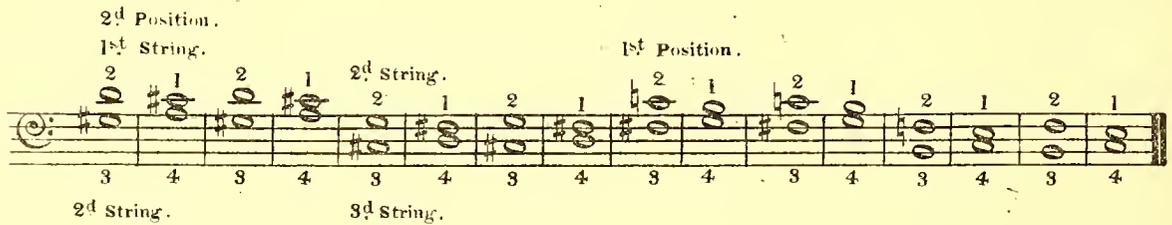
OF THE FALSE FIFTH.

FALSE FIFTH.



The chord of the false fifth is always taken with the second and third fingers crossed over, as in the above example; and it is generally resolved by the major or minor third, as will be seen in the examples following.

FALSE FIFTH RESOLVED BY THE MAJOR THIRD.



FALSE FIFTH RESOLVED BY THE MINOR THIRD.



Thus it appears that the same fingers are always used both in the major and in the minor mode.

A BRIEF REVIEW OF SOME FALSE FIFTHS RESOLVED BY THE THIRD.

The accompaniment has been inserted to render the progression less harsh and monotonous.

The image shows three systems of musical notation. Each system consists of a treble clef staff (melody) and a bass clef staff (accompaniment). The melody features several instances of false fifths, which are resolved by moving the upper note down a third. Fingerings are indicated with numbers 1, 2, 3, and 4, and slurs are used to group notes. The accompaniment provides a harmonic support for the melody.

Having already stated that the false fifth is taken with the second and third fingers, I have deemed it unnecessary to mark the fingering in this place. In short, it will be seen from this review, that all false fifths must be taken with the fingers above-named, and it has therefore appeared to me useless to give every such fifth within the compass of the neck, as it would be only a repetition of the same thing. It is true, there are some exceptions to this rule, but they are extremely rare: the following is an instance of one, where a melody occurs below a sustained part.

EXAMPLE.

The example shows a single treble clef staff. The melody is written in a key with one flat (B-flat) and a 2/4 time signature. It features a false fifth (G4 and D5) which is resolved. The melody is accompanied by a sustained part (pedal point) in the lower register. Fingerings are indicated with numbers 1, 2, 3, and 4.





While, on the contrary, in one like the next, it is taken with the third and fourth fingers.



The above two examples have been written in the major mode, but the fingering is precisely the same in the minor.



The two ways of fingering this chord are applicable to all keys and to all parts of the neck.



These examples might be repeated on every point of the neck-portion of the finger-board, but there would be no change in the fingering.

The three superfluous fourths which can be made by the use of the open strings can only be resolved in the major mode.

ARTICLE IX

OF THE DIFFERENCE IN THE MANNER OF FINGERING THE SUPERFLUOUS FOURTH AND THE FALSE FIFTH.

There are some persons who by their manner of fingering, confound the false fifth with the superfluous fourth, because both these chords embrace a compass of three whole tones, and who take both in the same way, by placing one finger on an upper string, and crossing over the next on the string immediately below.

EXAMPLE  
of the False Fifth.

We here observe that, in placing the second finger on the first string, and crossing over the third on the second string, the false fifth is produced.

In the following example we perceive that, in placing the first finger on the first string, and crossing over the second (which is the next finger) on the second string, the superfluous fourth is produced.

EXAMPLE  
of the Superfluous Fourth.

There is then, certainly, a great resemblance in the fingering of these two chords; but with the slightest practice on the Violoncello, we shall never confound it, as the results are totally different. Thus, the false fifth is resolved by the third, as in the next example.

EXAMPLE.

And if we were to take this chord with the first and second fingers, like that of the superfluous fourth, the above-named third would be no longer under the hand, which would be very awkward.

Now observe the results of the false fifth, beginning on the same D as before.



This naturally leads us into the key of A.

Next observe the results of the superfluous fourth, still commencing on the same D.



This naturally leads us into E flat. — The following is the second way of taking this chord.



For the superfluous fourth can be taken in two ways, but the false fifth in one way only, as before stated.

Here follows an example of two superfluous fourths and a false fifth in the same position, fingered in the manner that I have prescribed.



These three chords, if played as they here stand, sound extremely harsh; but if we resolve them, that is, if after the superfluous fourth we give the sixth, and after the false fifth, the third, they then become agreeable. Here is an example of this; in which, let it be observed, the same position must be maintained throughout.



This can be played in the same position both in the major and in the minor mode; of which I shall give some short examples, and which will show, at the same time, that many things can be done without displacing the hand.

In the two following examples we always remain in the second position

EXAMPLE  
in the MAJOR.

EXAMPLE  
in the MINOR.

The next is a more extended example, in the same position from the beginning to the end.

Chromatic successions of false fifths and superfluous fourths are often met with. Here is one of them.



ARTICLE X.

OF THE SIXTH AND SUCCESIONS OF SIXTHS .

As sixths are easily played on the Violoncello, particularly in major keys, and as they also produce a good effect, I think it desirable to enlarge a little on this article.

In the first position, three sixths in succession may be played without shifting the hand.

EXAMPLE .

But if we would finger sixths regularly, only two in succession should be taken in the same position; because in order to preserve regularity in the fingering, it is often necessary to avoid using the open strings. Of this we may be convinced by the examples following, and still more so by practice.

We will now proceed to the double scale in sixths, in the key of C major.

EXAMPLE .

Different scales in the same key of C .

EXAMPLE .

Similarly in descending .

EXAMPLE .

The minor scales are much more difficult.

DOUBLE SCALE, in C MINOR.

EXAMPLE.

Musical notation for a double scale in C minor. It consists of two systems of staves. The first system shows the 3rd and 4th strings ascending and descending. The second system shows the 2nd and 1st strings ascending and descending. Fingering numbers (1-4) are indicated below the notes.

Different scales in C minor.

EXAMPLE.

Musical notation for different scales in C minor. It consists of two systems of staves. The first system shows the 3rd and 4th strings ascending and descending. The second system shows the 2nd and 1st strings ascending and descending. Fingering numbers (1-4) are indicated below the notes.

Similarly in descending.

EXAMPLE.

Musical notation for descending scales in C minor. It consists of two systems of staves. The first system shows the 2nd and 3rd strings descending. The second system shows the 3rd and 4th strings descending. Fingering numbers (1-4) are indicated below the notes.

SHORT EXERCISE IN ASCENDING AND DESCENDING,

intended to facilitate the performance of sixths.

Musical notation for a short exercise in ascending and descending sixths. It consists of four systems of staves, each showing a different string combination (3rd/4th, 2nd/1st, 2nd/3rd, 3rd/4th) ascending and descending in sixths. Fingering numbers (1-4) are indicated below the notes.

IN C MINOR.

After having thoroughly practised the examples in C, we should pass on to D, when it will be seen that, although the key is changed, the fingering remains precisely the same.

DOUBLE SCALE  
in SIXTHS  
in D MAJOR.

Another.

Similarly in descending.

EXAMPLE.

MINOR  
in ascending.

MINOR  
in descending.

SHORT EXERCISE IN ASCENDING AND DESCENDING.

MAJOR.

The same in  
the MINOR.

These scales in sixths are fingered in the same manner in all the other keys: so that any one who can play them well in C and D, major and minor, will easily accomplish the rest. I shall, however, give the scales of E flat and F major, which will at once show that the process of fingering is always the same.

74 The difference between the minor and the major is similar to that in the preceding examples.

Double SCALE  
in E $\flat$  MAJOR.

Double SCALE  
in F MAJOR.

It will doubtless have been remarked that, in recommencing the scale for the second octave, I change the fingering: for example, in D.

D.	End of the 1 <sup>st</sup> Scale.		Beginning of the 2 <sup>nd</sup> Scale.	
E $\flat$ .	End of the 1 <sup>st</sup> Scale.		Beginning of the 2 <sup>nd</sup> Scale.	
F.	End of the 1 <sup>st</sup> Scale.		Beginning of the 2 <sup>nd</sup> Scale.	

The sixth which completes the octave of the first scale, afterwards becomes the first sixth of the second scale, as we here see, and it is then taken with different fingers, as indicated in the above examples.

It is very essential to observe this, because, in order to preserve regularity, the first sixth of these scales should be always taken with the first and second fingers, whether lying high or low.

EXAMPLE.

D.	1 <sup>st</sup> Sixth of the 1 <sup>st</sup> Scale.		1 <sup>st</sup> Sixth of the 2 <sup>nd</sup> Scale.	
E $\flat$ .	1 <sup>st</sup> Sixth of the 1 <sup>st</sup> Scale.		1 <sup>st</sup> Sixth of the 2 <sup>nd</sup> Scale.	
F.	1 <sup>st</sup> Sixth of the 1 <sup>st</sup> Scale.		1 <sup>st</sup> Sixth of the 2 <sup>nd</sup> Scale.	

The like repetition must be made in all the keys; the reason of which is, that the scale has only seven notes, the eighth being obtained by adding the octave; and as we ascend these scales in sixths by playing two sixths in each position of the

hand, the entire scale including its octave is performed by the hand making four movements . But the double scale, terminated by the double octave, comprises only fifteen notes; from whence it follows, that we could not finger it regularly— two sixths in each position; consequently, we are obliged to change the fingers in commencing the second scale on the octave of the first, (as seen in the preceding examples,) in order that both may be performed alike .

Let us now see how it could be fingered, if the first sixth of the second scale were not repeated, as it has been above .

EXAMPLE  
in D MAJOR .

The ascent from the last sixth of the first scale to the first sixth of the second is then made, as it were, by the same fingers; as here shown .

In this manner, the scales in sixths are rendered very regular, and as easy as possible. The same process must be repeated in every key, on the same degrees .

To make this the more evident, I here give a few double stops before the first sixth of the second scale; first with the repetition of this sixth, as I gave it at the commencement of these remarks, and afterwards in regular succession, as in the preceding example .

EXAMPLE with the repetition of the first sixth of the second scale . To be played on the first and second strings .

D MAJOR .

EXAMPLE without the repetition of the sixth . To be played, as before, on the first and second strings .

D MAJOR .

The same thing should be done in all keys, when these cases occur .

EXAMPLE in E MAJOR  
with the repetition of the sixth.

EXAMPLE in the same Key  
without the repetition.

In F MAJOR  
with the repetition.

In F MAJOR  
without the repetition.

I would willingly have avoided so much tautology, but I desired to be thoroughly understood; and, besides, these scales are excellent for practice. Enough, then, for the perfect comprehension of sixths, and the manner of playing them in succession. We will now pass on to other chords which are alternately combined with them, such as fifths and sevenths.

ARTICLE XI.

SUCCESION OF SIXTHS AND FIFTHS.

EXAMPLE  
IN C.

This method of fingering is so simple, that I consider it unnecessary to repeat it in other keys. We will now proceed to sixths combined with sevenths.



ARTICLE XIV.

RECAPITULATION OF THE DIFFERENT SUCCESSIONS OF CHORDS  
ALREADY GIVEN, AND WHICH I CONSIDER GOOD FOR PRACTICE.

The musical score consists of ten staves of music. Each staff begins with a treble clef and a key signature of one flat (B-flat). The music is written in a style that combines melodic lines with chordal accompaniment. Fingerings are indicated by numbers 1, 2, 3, and 4 above or below notes. Chord diagrams are represented by numbers 0, 1, 2, 3, and 4 placed below the staff lines, indicating the fret positions for each string. The piece concludes with a double bar line at the end of the tenth staff.



## CHAPTER XI.

OF THE FINGERING OF ARPEGGIOS, AND OF THE  
EXTENSIONS WHICH OCCUR IN THEM.

An arpeggio consists of the notes of a chord played in rapid succession, the bow passing alternately from one string to another. Of this, I now purpose giving some examples.

As the bow always touches three strings, and sometimes even four, we are constantly playing in three parts, which renders the fingering complicated. In the earlier examples on fingering and bowing arpeggios, I shall only employ three strings; observing that, in performing arpeggios on the Violoneello, the up-bow is mostly used.

In the following example, the first two notes are played with an up-bow, and the two next with a down-bow, taking care that the strokes of the bow appear detached.

The image shows three staves of musical notation for arpeggios in G major (one sharp). The time signature is 3/4. Each staff contains three measures of music. The first two notes of each measure are played with an up-bow (indicated by a dot above the note), and the last two notes are played with a down-bow (indicated by a dot below the note). The notes are grouped with slurs. Fingerings are indicated by numbers 0-4 below the notes.

While varying the bowings, I shall always preserve the same harmony, in order that those who wish to practise them, may not have their attention diverted either by the fingering or by the harmony. The next example may be played by detaching all the notes, either with a down-bow, or with an up-bow.

EXAMPLE.

The image shows a single staff of musical notation for an example of detached arpeggios in G major (one sharp). The time signature is 3/4. The notation shows a series of arpeggios with slurs and accents, indicating detached notes.

It may also be played by slurring the first two notes and detaching the last two. This method of bowing is used where, the movement being slower, we wish it to be more marked.

EXAMPLE .

Another example, in semiquaver-triplets.

Play the first three slurred notes with a down-bow, and the three following, smartly detached, with an up-bow.

This arpeggio may also be played detached throughout.

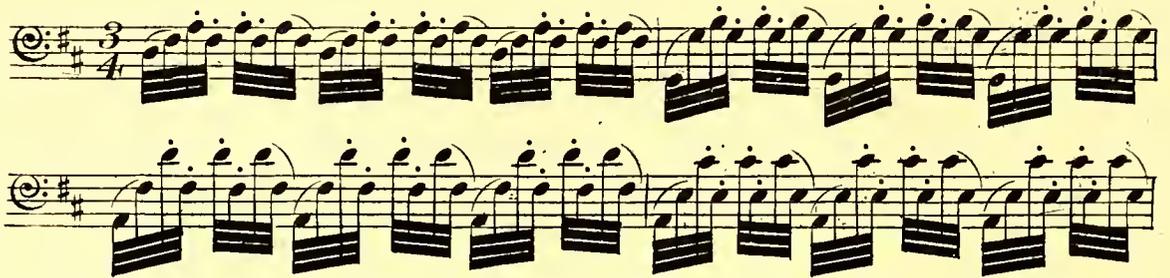
EXAMPLE .

The next may be played by slurring the first three notes with a down-bow, and smartly detaching the three following, with an up-bow.

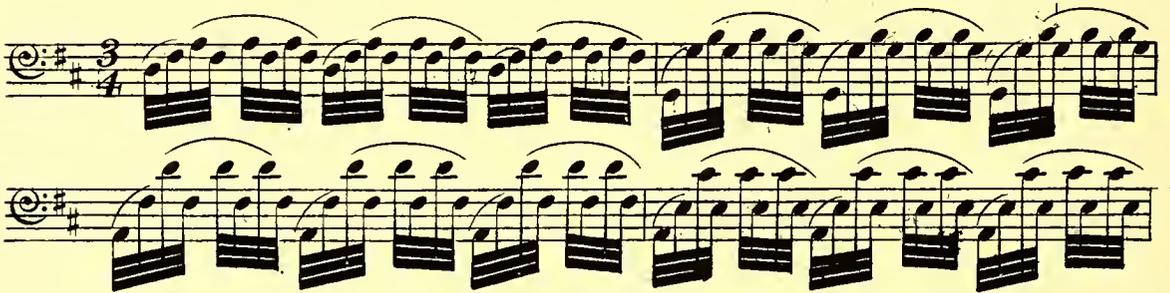
EXAMPLE .

Example in demisemiquavers, with an up-bow.

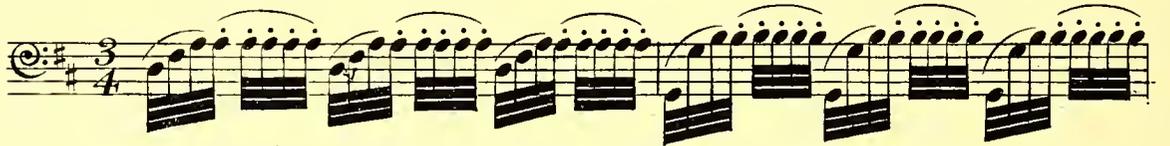
The following produces a pretty effect, when played piano, but it must be done with the point of the bow, with an up-bow.



It may also be played by taking the first two notes with a down-bow, and the next following with an up-bow.

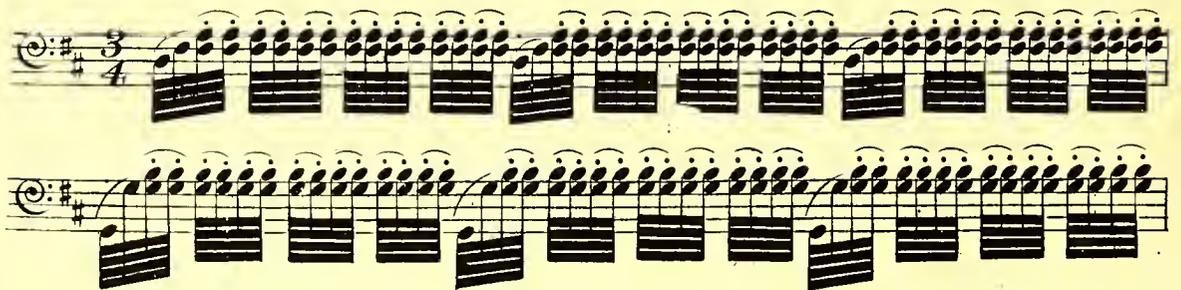


Another way of playing it is, by taking the first three notes with a down-bow, and smartly detaching the five following.



Example in quadruple-quavers, bowed two by two.

These notes must be smartly detached with extreme equality, so as to render the detaching clear to the ear; except the first two, which must be slurred, on account of the force which is required to impart effect to the arpeggio, and to mark the bass notes.



These bowings may be infinitely varied, but I consider it unnecessary to give more of them in this place, as they are to be met with everywhere.

When four strings are employed in an arpeggio, the bow acts in the same manner as when only three are used; with this difference, that the bow takes the fourth string with the third, on the first note of the arpeggio, this is the case in all the varieties of bowing, where the four strings are used.

on 3 strings . on 4 strings .

EXAMPLE .

The musical notation shows two measures of arpeggios. The first measure is labeled 'on 3 strings' and the second 'on 4 strings'. Both are in 3/4 time with a key signature of one sharp (F#). The notes are grouped with slurs and have upward-pointing stems, indicating a specific bowing direction.

We will now pass on to those arpeggios in which the fingering is more intricate. They shall be given with the simplest methods of bowing; as those who practise them may vary the bowings at pleasure.

EXAMPLE N<sup>o</sup> 1.

D MAJOR .

The musical notation for Example No. 1 is in D Major (two sharps) and 2/4 time. It consists of seven staves of music. Each staff contains arpeggios with various fingerings indicated by numbers 1-4 and 0. The first staff has fingerings like 4 1 2 1 and 2 1 1. The second staff has 1 1 2 1 and 1 3 2 3. The third staff has 4 4 and 4 3 4. The fourth staff has 1 2 2 and 1 3 4. The fifth staff has 1 1 3 and 1 3 2. The sixth staff has 2 2 and 0 0 1 0. The seventh staff has 1 3 4 3 and 1 1 3 1. The piece ends with a double bar line.

9746

EXAMPLE. N<sup>o</sup> 2.

A MINOR,  
with a down bow.

0 1 1 0

1 1 2 0 2 4 3 0

3 4 0 1 3 4 2

EXAMPLE. N<sup>o</sup> 3.

A MAJOR.  
with a down bow.

1 2 0

1 1 2 0 3 2 0

2 4 0 1 3 2 4 2 4

EXAMPLE. N<sup>o</sup> 4.

C MINOR.

1 1 2 1 3 2 4 2

1 2 2 2 1 2 1 1 4 3 4

EXAMPLE . N<sup>o</sup> 5.

On '3 and 4 strings .

We have already met with the extension of the fourth finger in the chapter on Harmonics, where I promised to give some examples, in arpeggio, not only of the fourth finger but also of the first. We will commence with that of the first finger.

EXAMPLE. N<sup>o</sup> 6.

D MAJOR .

This musical score consists of eight staves of music in D Major, 2/4 time. Each staff contains a continuous sequence of sixteenth-note patterns. The patterns are primarily eighth-note pairs (beamed sixteenths) and are accented. Fingering numbers (1, 2, 3, 4) are placed below the notes to indicate fingerings. The patterns vary in their starting notes and intervals, often moving up and down the scale. The final staff concludes with a double bar line.

EXAMPLE. N<sup>o</sup> 7. Extension of the fourth finger .

C MINOR .

This musical score consists of two staves of music in C Minor, 2/4 time. The first staff features a sequence of sixteenth-note patterns, primarily eighth-note pairs, with a specific fingering sequence of 1 1 2 1 indicated above the first few notes. The second staff continues the patterns, with a '3' below the first note and '4' below several subsequent notes, emphasizing the extension of the fourth finger. The score ends with a double bar line. The number '9746' is printed at the bottom center of the page.

This musical example consists of four staves of music. Each staff contains a series of arpeggiated figures. The first three staves are in a key with one flat (B-flat major or D minor) and a 2/4 time signature. The fourth staff is in a key with two flats (B-flat major or D minor) and a 2/4 time signature. The music is characterized by rapid, repetitive arpeggiated patterns with various fingering numbers (1, 2, 3, 4) and accidentals (sharps and flats) indicating specific fingerings and pitch bends.

EXAMPLE. N<sup>o</sup> 8. Double extension of the first finger.

D MAJOR.

This musical example consists of six staves of music in D Major (two sharps) and 2/4 time. The music features a series of arpeggiated figures with various fingering numbers (1, 2, 4) and accidentals (sharps and flats). The patterns are repetitive and designed to practice double extension of the first finger.

These examples appear to me sufficient to impart a thorough knowledge of the fingering of Arpeggios. N<sup>o</sup> 7, of the Exercises, in Part II of this work, is written entirely in arpeggios, the fingering of which must not be passed over as indifferent.



Musical score for No. 2, featuring four staves of music. The first staff has a '2nd' marking above it. Fingering numbers are provided for various notes: 1 2 4, 1 3 4, 1 2 4, 1 3 4, 0, 1 3 1, 4 3 1, 1 4 1, 4 2 1, 1 4 1, 4 3 1, 0, 1 3 1, 4, 2, 2.

No 2.

It is well to practise the scale in ascending, on all the strings; and often very advantageous to ascend it by means of the second and third strings, and even by means of the fourth string. The following passage, which is easily played by ascending the first scale on the third string, would be very difficult if done in any other way, particularly in different keys, as I here give it, namely, in G, A flat, B flat, and D flat.

G MAJOR.

Musical score for G Major, 3rd string. It includes string labels: 3rd string, 2nd, 1st, 2nd 1st, 2nd 1st. Fingering numbers: 0 1 3, 1 2 1 2 3 0 1 2, 3 0 1 2, 1 2 1 0, 3 0 1 2, 1 2 1 0, 3 0 same.

Musical score for G Major, 2nd string. It includes the label 'position.' and a '0' below the staff.

Musical score for G Major, 1st string. It includes the label '1st' and the text 'same position.' below the staff.

A b MAJOR.

Musical score for A flat Major, 3rd string. It includes string labels: 3rd string, 2nd, 1st, 2nd 1st, 2nd 1st. Fingering numbers: 1 2 4, 1 2 1 2, 3 0 same position, 0 1 2 1 2 1 0 same position.

Musical score for A flat Major, 2nd string. It includes string labels: 2nd, 3rd 2nd, 1st, 2nd. Fingering numbers: 0 1 2, 1 2 1 2 3 1, 0 same position, 0 1 2 1 2 1 0 same position.

Musical score for A flat Major, 1st string. It includes the label '1st' and the text 'same position.' below the staff.

**B♭ MAJOR.**

3<sup>rd</sup> string. 2<sup>nd</sup> 1<sup>st</sup> 2<sup>d</sup> 1<sup>st</sup> 2<sup>d</sup> 1<sup>st</sup>

2 1 3 1 2 1 2 3 0 same position. 0 1 2 1 2 1 0 same poss.

0 1 2 1 2 1 2 3 1 0 same position.

In the next example, the first scale must be ascended on the fourth string.

**B♭ MAJOR.**

4<sup>th</sup> string. 3<sup>d</sup> 2<sup>d</sup> 3<sup>d</sup> 2<sup>d</sup> 3<sup>d</sup> 2<sup>d</sup>

1 2 4 1 2 1 2 3 0 same position. 0 1 2 1 2 1 0 same position.

same position. 0 1 2 1 2 1 2 3 1 0 same position.

**Nº 3.**

The practice of the scale by successions of three fingers must not be neglected, especially on the neck-portion of the finger-board. Here is a symphony-passage which very often occurs, and which also is frequently missed, through not employing the above fingering, which renders it very easy.

**EXAMPLE.**

2<sup>nd</sup> string. 1<sup>st</sup> 2<sup>d</sup> 3<sup>d</sup> 2<sup>d</sup> 1<sup>st</sup> 2<sup>d</sup> 3<sup>d</sup>

2 4 1 2 4 1 2 4 1 4 1 2 4 1 2 4 1 2 4 1 4

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

1 2 4 1 2 4 1 2 4 1 4 1 2 4 0 1 2 1 2 4 1 4 1 0 1 2 4 1 4

2 1 4 2 2 1 4 2 1 0 9746 2 1 3 1 4 2 2 1 4 2 1

The following is the same passage, modulating into all the keys by a progression of 9<sup>th</sup> sevenths, which will be very good for practice. The same fingering is used throughout.

EXAMPLE.

2<sup>d</sup> String. 1<sup>st</sup> 2<sup>d</sup> 3<sup>d</sup> 2<sup>d</sup> 1<sup>st</sup> 2<sup>d</sup> 3<sup>d</sup>

1<sup>st</sup> Pos. 4<sup>th</sup> Pos. 1<sup>st</sup> Pos.

This passage is very monotonous, but it assists in acquiring a thorough knowledge of the neck-portion of the fingerboard, and the method of fingering here employed is a great resource in unexpected passages containing many sharps or flats; namely, when many runs occur, in keys where the use of the open strings is impracticable.

It should be remarked, that the scale can always be played regularly with the same fingers, in all the keys, and there is nothing else of importance in this passage; for the latter half of the measure may be varied in different ways, which frequently happens. Here are some examples of it.

1<sup>st</sup> EXAMPLE.

2<sup>d</sup> String. 1<sup>st</sup> 4<sup>th</sup> Position. 3<sup>d</sup> String. 2<sup>d</sup> 1<sup>st</sup>

2<sup>d</sup> EXAMPLE.

2<sup>d</sup> String. 1<sup>st</sup> 4<sup>th</sup> Pos. 3<sup>d</sup> String. 2<sup>d</sup> 1<sup>st</sup>

3<sup>rd</sup> EXAMPLE.

2<sup>d</sup> String. 1<sup>st</sup> 2<sup>d</sup> 3<sup>d</sup> 2<sup>d</sup> 1<sup>st</sup> 2<sup>d</sup> 3<sup>d</sup>

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92 The following is another variation of the second half of the measure, which will serve both to exercise the first finger and the bow. Regularity of fingering has compelled me to avoid the open strings, except in two instances, where it would have been absurd not to use them.

2<sup>d</sup> String. 1<sup>st</sup> same position. 3<sup>d</sup> 2<sup>d</sup> 1<sup>st</sup> same position.

2 1 1 1 2 1 2 3 4 4 3 1 1 1 4 1 2 1 4 2 1

2 1 1 1 2 4 1 2 1 4 2 1 2 1 1 2 4 1 2 1 4 2 1

2 1 1 1 2 4 1 1 2 4 1 2 4

2 0 1 3 1 1 2 4 0 1 2 4

2 1 1 2 4 2 1 1 1 2 4

2 1 1 2 4 2 1 1 1 2 4

2 1 1 2 4 1 1 1 2 4

2 1 1 2 4 2 1 1 2 4 2

same position. same position. same position. same Pos: same Pos:

**N<sup>o</sup> 4.**

For the practice of descending on the same string.

EXAMPLE in D.

2<sup>d</sup> String. 1<sup>st</sup> 2<sup>d</sup> String. 3<sup>d</sup>

0 1 3 1 2 4 1 2 4 1 2 3 1 2 3 2 0 3 2 1 2 3 1 2

3 1 2 1 2 2 1 2 1 4 4 3 1 0

1 4 2 1 4 3 1 4 2 3 0 9746 1 1 1 2 3 1 2 3 1 1 0

The double scale of D, in the above example, may be fingered at pleasure, it being very easy and, on account of the harmonics, suiting all kinds of fingering: but if the same passage had to be played in E flat, in D flat, or in B natural, then the method of ascending the double scale by successions of three fingers would be the most convenient.

EXAMPLE  
in E flat.

EXAMPLE  
in D flat.

EXAMPLE  
in B major.  
The same fingering.

N<sup>o</sup> 5.  
For the practice of ascending and descending on the first string.

in B FLAT.

1<sup>st</sup> Position.

3 2 2 2 2 2 2 2 2 2 1 3 2 1 0

1 2 3 1 2 4 1 2 4 1 2 1 2 3 1 2 3 1 2 3

1 2 3 1 2 3 2 1 2 1 2 1 2 1 1 2 1 3 4 4 3 1

1<sup>st</sup> string. 1<sup>st</sup> Position.

2 1 2 1 4 2 4 1 3 4 1 4 2 1 1 3 4 1 4 1

2 1 2 3

1<sup>st</sup> string, same Pos.

2 1 2 3

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N<sup>o</sup> 6.  
Of the same kind as the preceding.

in D FLAT.

3<sup>d</sup> string. 2<sup>d</sup> 1<sup>st</sup> same Position.

4 1 2 4 1 1 1 2 4 1 2 3 1 1 0 0 0

same Pos: 2 2 2 2 1 3

Position. loco 2 2 2 2 1 3

2 1 2 1 2 1 2 1 3 1 3 4 4 4 4 2 1

3<sup>d</sup> 2<sup>d</sup> 3<sup>d</sup> 2<sup>d</sup> 3<sup>d</sup> 2<sup>d</sup> 3<sup>d</sup> 2<sup>d</sup> 3<sup>d</sup> 2<sup>d</sup> 3<sup>d</sup> 2<sup>d</sup> 1<sup>st</sup> 2<sup>d</sup>

0 2 1 4 3 4 1 2 0 2 4 1 4 1 4 1 4 2 1 4 2 1

3<sup>d</sup> 2<sup>d</sup> 1<sup>st</sup> 4 1 1 2 4 1 2 3 1 0 3 0 0 1 0

9746 same Position.



SECOND SHAKE .

By ascending on the second string .

1<sup>st</sup> String.  
same position.

2<sup>d</sup> String.

IN A MAJOR .

2<sup>d</sup> String. 0 1 2 1 1 2 3 1 2 3 0 1 2 3 0

3<sup>d</sup> 4<sup>th</sup> same Position. *hr* 0 0 0 0 1 2 0

0 same Position. 0 same Position.

0 same Position. 0 1 0 1 3 0 1 3 0

2<sup>d</sup> String. 1<sup>st</sup> string. 2<sup>d</sup> String. 3<sup>d</sup> *hr*

0 1 2 1 2 3 1 2 3 same Position. 0 0 0 0 1 2 3 0 0 1 0

THIRD SHAKE .

By ascending on the first string.

IN A MAJOR .

2<sup>d</sup> String. 1<sup>st</sup> String. same Pos:

0 1 2 1 1 1 2 3 1 2 3 0

same Pos: same Pos:

same Position. 0 2 0 0 2 0 0 2 0 0 2 0

1<sup>st</sup> Position. 1 4 1 1 4 1 1 4 1

same Position. *hr*

1<sup>st</sup> String. 1 2 4 1 1 2 3 2 1 0 0

4 1 2 4 1 1 2 3 2 1 0

By ascending the triple octave on the second string.

IN A MAJOR.

The scales in the above four exercises might be ascended differently, on account of the many harmonics and open strings which occur in the key of A major; but if we wished to play the same passages in the key of A flat, we should be obliged to finger them in the way marked below. The preceding examples have only been given to show that this fingering is well adapted to the open keys. I leave those who practise it, to judge whether a method of fingering which adapts itself to many keys, without losing anything of its regularity, does not deserve the preference. Here follow the same exercises in A flat.

FIRST SHAKE.

By ascending on the first string

IN A<sup>b</sup> MAJOR.



By ascending the triple octave on the second string.

IN A<sup>2</sup> MAJOR .

2<sup>d</sup> String.

1<sup>st</sup> String.

2<sup>d</sup> String.

Scale Position.

No 9.

CHROMATIC PASSAGES SLURRED.

To avoid confusion through the use of many figures, I often mark only the first finger, when the second and third are intended to follow it; see the chromatic scale, for further information .

IN D MINOR .

2<sup>d</sup> String. 1<sup>st</sup> Position.

3 0 4 1 4 1 4 1

1 1 0 1 1 1 2 3 4 1 2 3 2

4 3 1 2 1 4 2 3 1 0 4 1 2 4 1 3 4 1 2 4

1 3 3 1 2 4 1 3 4 1 2 4 4 2 1 1 1 1 1

1 4 2 3 1 4 0 1 4 2 0 1 4 3 1 1 4 1 2 1 0 1 1

0 1 1 1 2 3 1 2 3 4 4 tr

Nº 10.

Chromatic passages detached.

IN D MINOR.

0 1 1 2 1 4 3  
 2 1 1 1 0 1  
 2 1 0 1  
 2 3 0  
 0 3 1 4 1 4 1 4 1 4 1 4 1 4  
 2 1 2 3 0 1 1 2 3 0 1 1 2 2 3 1 0

Q same Position. Q 1 1 2 3 0 1 1 2 2 3 1 0

Nº II.

Regular passage, for ascending by the intervals of the diminished seventh.

2<sup>d</sup> String. 1<sup>st</sup>  
 1 4 1 4 1 4 1 3 3 2 1 3<sup>d</sup> 1 4 1 4 1 4 4 3 1 3<sup>d</sup> 2<sup>d</sup> 1<sup>st</sup> 1 4 1 3  
 3 2 1 2<sup>d</sup> 1<sup>st</sup> 1 4 1 4 1 3 1 3 3 2 1 2<sup>d</sup> 1<sup>st</sup> 1 4 1 4 1 4 4 3 1  
 1 4 1 4 1 4 1 3 3 2 1 3<sup>d</sup> 2<sup>d</sup> 1<sup>st</sup> 1 4 1 4 1 4 4 3 1  
 1 4 1 4 1 4 1 3 3 2 1 3<sup>d</sup> 2<sup>d</sup> 1<sup>st</sup> 1 4 1 4 1 4 4 3 1

&c: &c:

Similar to the last; for ascending and descending by the same intervals.

The first system of musical notation consists of two staves. The upper staff is in treble clef and contains a sequence of chords and intervals. Above the notes are labels: 2<sup>d</sup>, 1<sup>st</sup>, 2<sup>d</sup>, 1<sup>st</sup>, 2<sup>d</sup>, 4<sup>th</sup>, 1<sup>st</sup>. Below the notes are fingerings: 1 4 1 4, 1 4 1 4, 1 4 1 4, 1 4 1 4, 2 4, 2 4, 0. The lower staff is in bass clef and contains a corresponding sequence of notes and intervals.

The second system of musical notation consists of two staves. The upper staff is in treble clef and contains a sequence of chords and intervals. Above the notes are labels: 2<sup>d</sup>, 1<sup>st</sup>, 2<sup>d</sup>, 1<sup>st</sup>, 2<sup>d</sup>, 4<sup>th</sup>, 1<sup>st</sup>, 2<sup>d</sup>, 1<sup>st</sup>, 2<sup>d</sup>, 1<sup>st</sup>, 2<sup>d</sup>. Below the notes are fingerings: 1 4 1 4, 1 4 1 4, 1 4 1 4, 1 4 1 4, 2 4, 0 1 4 1 4 2, 1 4 1 4, 1 4 1 4, 1 4 1 4, 1 4 1 4. The lower staff is in bass clef and contains a corresponding sequence of notes and intervals.

The third system of musical notation consists of two staves. The upper staff is in treble clef and contains a sequence of chords and intervals. Above the notes are labels: 2<sup>d</sup>, 1<sup>st</sup>, 2<sup>d</sup>, 1<sup>st</sup>, 2<sup>d</sup>. Below the notes are fingerings: 0, 2, 1 4 1 4, 1 4 1 4, 1 4 1 4, 1 4 1 4, 0. The text "1<sup>st</sup> Position." is written to the right of the staff. The lower staff is in bass clef and contains a corresponding sequence of notes and intervals.

The fourth system of musical notation consists of two staves. The upper staff is in treble clef and contains a sequence of chords and intervals. Above the notes are labels: 3<sup>d</sup>, 2<sup>d</sup>, 1<sup>st</sup>, 2<sup>d</sup>, 3<sup>d</sup>, 4<sup>th</sup>. Below the notes are fingerings: 1 1 1 4, 1 4 1 4, 1 3 4, 4 0, 2 1 4, 1 4 1 4, 1 3 4, 1 4 1 4, 1 4 1 4. The lower staff is in bass clef and contains a corresponding sequence of notes and intervals.

The fifth system of musical notation consists of two staves. The upper staff is in treble clef and contains a sequence of chords and intervals. Above the notes are labels: 3<sup>d</sup>, 1<sup>st</sup>, 3<sup>d</sup>, 4<sup>th</sup>, 3<sup>d</sup>, 2<sup>d</sup>, 1<sup>st</sup>, 2<sup>d</sup>, 3<sup>d</sup>, 4<sup>th</sup>, 2<sup>d</sup>. Below the notes are fingerings: 2 1 4 1, 1 3 4 1 4 2, 1 4 1 4, 1 4 1 3 4 1 4 1, 4 1 4 1, 2 1 4, 0. The lower staff is in bass clef and contains a corresponding sequence of notes and intervals.



DETAILS OF SOME EXCEPTIONS IN FINGERING.

It will be remembered that, in the article on the *Diminished seventh*, I have stated that this chord is taken with the first and third fingers.

EXAMPLE.

Diminished Seventh.

Here the D on the first string, and in the third position, is taken with the third finger, instead of with the fourth, which is generally used.

By turning to the article on the *Sixth*, in double stops, it will be seen, that the sixth note of the scale is taken with the third finger instead of with the fourth. This is illustrated in the next example, at \*, by the same D as before.

EXAMPLE.

2<sup>d</sup> String.      3<sup>d</sup> String.      4<sup>th</sup> String.

By referring to the article on *Thirds and Sixths*, towards the end, it will be seen that the *Diminished Third* is treated of.

Here, again, the same D is taken with the third finger instead of with the fourth.

EXAMPLE.

We will now give some successions of chords, to prove the necessity of this exception.

EXAMPLE  
in F# MINOR.

At the end of the article on *Double stops*, a piece is given as a *Recapitulation* of what precedes, in which this exception is frequently used, on account of the constant occurrence of the diminished seventh and the minor sixth therein.

Although this exception seldom takes place, except in double stops, I here give two passages in single notes where it also occurs; but if we narrowly examine these two passages it will be seen, that the succession of notes requiring the exception, belongs rather to the order of double stops, than to the diatonic order.

FIRST PASSAGE.

EXAMPLE.

The notes which occasion the exception are the following:-

and it is easy to show that they belong rather to the order of double stops, than to the diatonic order.

EXAMPLE.

SECOND PASSAGE.

In single notes, with the exception.

The notes which here occasion the exception are these:-



Here follows a rare example of the diminished seventh taken with the second and fourth fingers, because it is preceded by the simple seventh

IN C MAJOR.

Sign of the diminished seventh (7)

In the next example, the same diminished seventh is taken with the first and third fingers, as it should always be.

IN A MINOR.

N<sup>o</sup> 14.

OF THE DIFFERENCE IN FINGERING, BETWEEN THE DIMINISHED THIRD AND THE MINOR THIRD.

The interval of the diminished third is taken with the first and third fingers, because it contains only two half tones; and that of the minor third, with the first and fourth fingers, because it contains a tone and a half. Let us first examine the diminished third.

EXAMPLE.

To proceed somewhat methodically, I will descend from one position to another; taking first the interval of the diminished third on the first string, and afterwards that of the minor third on the second string.

EXAMPLE.

I will now give a passage sufficiently long to put this theory in practice, and thereby to prove the truth and convenience of this distinction.

In A minor.

Let us now consider the minor third, as it presents itself the most naturally

	D Minor.		C Minor.		B $\flat$ Minor.
1 <sup>st</sup> String.					
3 <sup>rd</sup> Position.	1 3 4	2 <sup>nd</sup> Position.	1 3 4	1 <sup>st</sup> Position.	1 3 4
	G Minor.		F Minor.		E $\flat$ Minor.
2 <sup>nd</sup> String.					
3 <sup>rd</sup> Position.	1 3 4	2 <sup>nd</sup> Position.	1 3 4	1 <sup>st</sup> Position.	1 3 4

Unity of fingering constrains me to take these thirds in the way here marked; there are, however, many persons who take them in the following manner.

	D Minor.		C Minor.		B $\flat$ Minor.
1 <sup>st</sup> String.					
3 <sup>rd</sup> Position.	1 2 3	2 <sup>nd</sup> Position.	1 2 3	1 <sup>st</sup> Position.	1 2 3
	G Minor.		F Minor.		E $\flat$ Minor.
2 <sup>nd</sup> String.					
3 <sup>rd</sup> Position.	1 2 3	2 <sup>nd</sup> Position.	1 2 3	1 <sup>st</sup> Position.	1 2 3

I cannot say that this fingering is absolutely bad, as I know of no bad fingering but that which deranges the proper position of the hand, and which consequently gives rise to a faulty intonation and the production of a bad quality of tone, which cannot be said of this; but I do affirm that it has two defects; first, in being opposed to unity of fingering, which introduces confusion into the mechanism of playing; secondly, in being poor, and even worthless, while the former is rich in resources. This I now proceed to prove by the following example, in which I shall employ the thirds of G minor, of F minor, and lastly of E-flat minor, which have been given above; because, these lying on the second string, which is in the centre, present me with greater resources for this demonstration.

3<sup>d</sup> Position.

IN G MINOR.

The musical score consists of ten staves of music. The first staff is labeled '3<sup>d</sup> Position.' and 'IN G MINOR.' It features a series of eighth-note triplets with fingerings such as 3 1 3 4 1 4 1 4, 4 1 3 4 2 1 4, and 3 1 3 4 1 4 1 4. The second staff continues with fingerings like 2 4 3 1 3, 2 4 3 1 3, 3 2 4 1 3 4 1 4 2 1, and 2 3 4 2 1 4. The third staff has fingerings 3 2 4 1 4, 2 1 4 1, and 2 1 4 1. The fourth staff is labeled '2<sup>d</sup> Position.' and 'F Minor.' It starts with fingerings 1, 3 4 3 4, 3, 1 2 3 4, 3 1 3 4 1 4 1 4, and 3 1 3 4 1 4 1 4. The fifth staff has fingerings 4 1 3 4 2, 3 1 3 4 1, 2 4 3 1 3 4 1 4, and 3 1 3 4 1. The sixth staff has fingerings 3 2 4 1 3 4 1 4 2, 3 4 2 1 4 1 4 2 4 1 4, 3 2 4 1 4, and 2 1 4 1 2 4 1 4. The seventh staff is labeled 'E<sup>b</sup> Minor.' and 'E<sup>b</sup> Position.' It has fingerings 1 1 2 3 4, 1 3 4 1 4 1 4, 4 1 3 4, and 3 1 3 4 1. The eighth staff has fingerings 3 4 3 1 3, 2 4, and 3 2 4 1 3 4. The ninth staff has fingerings 2, 3 4 2 1 4 1 4 2, 3 2 4 1 4, and 3 2 4 1 3 4. The tenth staff has fingerings 1 3, 1 2 1 4 3, 1 2, 3 4 3 1, 3 1 0 1, 4 4, 3 1 0 1, 1 9 7 4 6, 3 1, 4 3, 2, and 1 2.

The preceding example must have fully shown the advantage of the first method of fingering over the second; and I trust that those who before thought it a matter of absolute indifference which of the two methods they employed, will now change their opinion.

N<sup>o</sup> 15.

IN C MAJOR.

1<sup>st</sup> Position.

IN D MAJOR.

1<sup>st</sup> String.

2<sup>nd</sup> String.

N<sup>o</sup> 16.

Of the same kind as the last; always on two strings, like sixths.

IN G MINOR.

The same passage a tone lower, with the same fingering.

IN F MAJOR.

As above, with the same fingering.

IN E MAJOR.

IN E♭ MAJOR.

There are many other ways of fingering this passage, but I prefer the above, for two reasons; first, because it requires the least shifting of the hand; secondly, because, from its regularity, the same passage can be played in every key, with the same fingering.

One of the chief causes of playing with a false intonation upon stringed instruments, arises from not well fixing the fingers upon the string, and from raising them unnecessarily, by which the hand loses its firmness. I have met with persons who never had more than one finger on the string; so that their hand appeared on the finger-board (if I might use the expression) as if it were on the ice. But perhaps I shall be told, that playing out of tune is a proof of want of ear. To which I reply, that I have known many persons who sang extremely well in tune, and yet played falsely. Now, there can be no doubt that it requires a better ear to sing in tune; than it does to play in tune; because, in the former case, we have neither open strings nor vibrations to serve as rallying points, and the chest is much more delicate in its structure, than the strings of an instrument. The fault of which I here speak, of needlessly raising the fingers, is by no means rare. It commonly happens with persons who are not thoroughly practised, and some of them retain it for a considerable time, if they are not well instructed. — I shall now give some examples, in which notes occur that are frequently repeated, and which will show the advantage to be derived from keeping the fingers which have been once used for them, firmly pressed on the string; in order that when the same notes are again required, the fingers may be fully prepared for them, without making a new movement:

EXAMPLE  
in A MAJOR.

The musical notation consists of four staves of music in A major (one sharp, F#). Each staff contains a sequence of eighth notes, with some notes beamed together. Fingerings are indicated by numbers 1, 2, 3, and 4 below the notes. The first staff has fingerings 1 1 4 1 and 2 0 1 0 4 0. The second staff has fingerings 1 2 4 2 and 2 4 1 4. The third staff has fingerings 1 2 4 2 and 1 2 4 2. The fourth staff has fingerings 1 1 4 1 and 1 4 1 4 4 4, with a '2' above the final note.

It is to be remarked that, in the preceding passage, the hand is placed in one of its widest positions, without extension.

The second measure of the above passage is not undeserving of notice. It is this:—



If the second finger, which takes B, be not kept very firmly pressed on third string, it will happen that, instead of extending the fourth finger to take G sharp on the second string, the whole hand will be advanced; so that, when the same B is required again, it will be found too high, because the hand has been moved up. This is not mere fancy on my part, for I have many times observed it, in giving lessons to those who had already acquired a certain degree of proficiency.

ANOTHER PASSAGE of the same kind, entirely in the first position, and with the same fixed pressure of the fingers.



I might multiply these examples without limit, and yet not succeed in presenting all the cases in which it is desirable not to raise the fingers needlessly; but enough have been given to show the necessity of keeping the fingers pressed down, and of directing the attention to this circumstance: besides, independently of the firmness of hand to which that tends, every one knows that in simplifying the mechanical movements we have gained a great advantage.



The preceding passage is common, but the following is more rare, and offers greater resources from being in the minor mode. This should be played throughout in the second position, 115

IN C MINOR.

9746

116 The following passes alternately from one position to another, in ascending and descending

IN F MAJOR.

The 19<sup>th</sup> Exercise, in Part II of this work, forms the completion of the above, as it is entirely in the half-position. The practice of these passages should not be neglected, as they are useful for acquiring a thorough knowledge of the lower part of the finger-board.

N<sup>o</sup> 19.

Passages are sometimes met with, in which the thumb descends from one degree to another, and as these should be known, I shall now endeavour to give an idea of them, writing the examples in easy and sonorous keys, in order to facilitate the comprehension and performance of them. In the first example, the thumb always descends on the first string, the first three measures serving only as a preparation for this.

IN D MAJOR.

The above passage is very difficult; if it stood in triplets, it would be much easier, as we could then use two strings, employing only the thumb and second finger. Here, again, the first six measures serve only as a preparation, and the thumb always descends on the first string.

EXAMPLE  
in D MAJOR.

same Position.

1st String. 2nd 1st 2nd same Position. same Position.

This way of descending with the thumb may be practised in all the keys. As an example, here follows the same passage a note lower, with the same fingering.

EXAMPLE  
in C MAJOR.

same Position.

same Position.

same Position. same Position.

It will be readily understood that the same thing can be done on the other strings. For instance, here it is on the third and fourth strings, the first six measures serving merely as a preparation. Here, however, the thumb must always descend on the third string.

same Position.

EXAMPLE  
in C MAJOR.

These passages do not always occur of the length here given; but I thought it advisable to extend them as much as possible, so as to facilitate performance by their study.

N<sup>o</sup> 20.

At the end of the Chapter on the Scales, I have stated that there are some passages in which it is indispensable to take two notes in succession with the same finger; and of these I shall now give some examples. This method of fingering, in my opinion, should never be resorted to, except when absolutely necessary, as in the following example:-

FIRST EXAMPLE.

IN A MAJOR.

Here follows another example, nearly similar, which it appears to me equally impossible to play, without taking two successive notes with the same finger.



Of the same kind as the preceding, with the same operation in ascending and in descending.

IN C MAJOR.

The following shows another way of fingering these passages, when they are short, without taking two notes with the same finger.

FIFTH EXAMPLE.

IN D MAJOR.

It is here seen that this rise of a third is taken with the first and fourth fingers. It can be performed thus, both in ascending and in descending.

SIXTH EXAMPLE.

This way of fingering answers very well, especially with the method of bowing here indicated; but if the ascent were carried farther, we should be obliged to employ the fingering marked in the third example, as it would then become much more difficult, particularly in regard to correct intonation.



EXAMPLE  
in C MAJOR.

The musical notation consists of two staves in C major. The first staff contains four measures of music, each with a pair of eighth notes beamed together. The fingerings are: 0 4, 1 4, 1 4, 1 4, 0 4, 1 4, 1 4, 1 4, 0 4, 1 4, 1 4, 1 4. The second staff contains four measures of music, also with beamed eighth notes. The fingerings are: 0 4, 1 4, 1 4, 0 4, 1 4, 1 4, 0 4, 1 4, 1 4, 1 4, 0 4, 1 4.

But it is not improper to observe, that this manner of playing octaves on the lower part of the finger-board, only suits those persons who have a very large and strong hand; for, if the octave be but just reached, the performance will be feeble, the tone will not come out freely, and the intonation will be often false. Further examples are therefore unnecessary; as, in this way, the fingering is always the same in all the keys. It is to be regretted that so very few can avail themselves of this fingering, because the octaves produce an excellent effect when played in this way, and are obtained with greater neatness and a more perfect *legato*, than when the bow is obliged to skip over a string.

In the following way, they can be played by every one.

FIRST EXAMPLE.

The musical notation consists of two staves in C major. The first staff contains eight measures of music, each with a pair of eighth notes beamed together. The fingerings are: 0 4, 1 0, 3 1, 4 2, 0 4, 1 0, 3 1, 4 2. The second staff contains eight measures of music, also with beamed eighth notes. The fingerings are: 4 2, 3 1, 1 0, 0 4, 4 2, 3 1, 1 0, 0 4.

Here we see an ascending and descending scale of octaves in C, entirely in the first position, which appears quite simple and easy to perform; but if it be desired to play these octaves with a certain degree of rapidity, this fingering must be abandoned, because it renders the bowing irregular, as the bow does not always regularly skip over a string, which will at once be seen by attentively examining the above example. It sometimes happens that a more difficult kind of bowing is used, to favor a particular fingering; and, on the contrary, a more difficult way of fingering is sometimes adopted, in order to obtain an easier and more regular method of bowing. In this case, the fingering must co-operate, as that the bowing may be always regular, otherwise it will be impossible to play the octaves with neatness and rapidity. To attain to this result, we must avoid the open strings as much as possible, and finger nearly like the fingering of sixths; that is, not to take more than two octaves in one position.

SECOND EXAMPLE.

IN C MAJOR.

4<sup>th</sup> & 3<sup>rd</sup> String. 1<sup>st</sup> Position. 3<sup>rd</sup> Position. 3<sup>rd</sup> & 1<sup>st</sup> String. 1<sup>st</sup> Position. 3<sup>rd</sup> Position.

4 2 2 1 4 2 3 1 4 2 2 1 4 2 3 1 4 2 2 1 4 2 3 1 4 2 3 1

I have omitted the two octaves of C and D, at the beginning of the preceding example, in order that it might be the more intelligible; for, it is evident that, in these, we cannot avoid the open strings, and they must be performed as follows.

0 4 1 0

Let us now take the scale of F.

THIRD EXAMPLE.

IN F MAJOR.

2<sup>nd</sup> Position. 4<sup>th</sup> Position. 2<sup>nd</sup> Position. 4<sup>th</sup> Position.

2 1 4 2 3 1 4 2 2 1 4 2 3 1 4 2 4 2 3 1 4 2 2 1 4 2 3 1 4 2 2 1

FOURTH EXAMPLE.

IN E<sup>b</sup> MAJOR.

1<sup>st</sup> Position. 3<sup>rd</sup> Position. 1<sup>st</sup> Position. 3<sup>rd</sup> Position.

2 1 4 2 3 1 4 2 2 1 4 2 3 1 4 2 4 2 3 1 4 2 3 1 4 2 3 1 4 2 2 1

It must have been remarked that, in the second, third and fourth examples, the bow has always been obliged to skip over a string; and it is this which is essential for regularity of performance as well as for neatness and equality of tone.

The following is an octave-passage ascending gradually by semitones and descending nearly in a similar manner. In ascending and in descending we pass from one position to another; and it must likewise be observed, that the four fingers are employed in each measure

IN F MAJOR.

4th & 3rd String. 2nd Position 3rd Pos: 4th Pos: 3rd & 2nd string. 1st Pos:

2nd Pos: 3rd Pos: 4th Pos: 3rd Pos: 2nd Pos:

1st Pos: 4th & 3rd String. 4th Pos: 3rd Pos: 2nd Pos: 1st Pos:

It is here very important to observe that when any note is taken with the fourth finger on the fourth string, its octave is always taken with the second finger on the second string; and when the fourth finger takes a note on the third string; its octave is invariably taken with the second finger on the first string. To this rule, I know of no exception: for example, in D major, the F sharp and C sharp are taken on the second and first strings with the third finger, in the first position.

EXAMPLE.

1st Position.

If the following notes in D major had to be played, they would certainly be fingered thus:—

4th Position.

But if the same notes and their octaves had to be performed (still in the same key), the second finger, instead of the third, would always be used for the F sharp and C sharp. The next example will verify this assertion.

1st Position.

The reason is, that the fourth finger regulates this matter; because, if the F sharp and C sharp were taken with the third finger, a constrained position of the hand would ensue in taking their octaves with the fourth finger.

Example of this bad fingering,

1st Position.

This is not an exception, but a general rule; and it may be seen that, in Chapter XVII, I have clearly shown, there should never be more than the distance of a semi-tone between the third and fourth fingers. As the fingers which take an octave are always at the distance of a tone from each other, it follows, that any note taken with the fourth finger on a lower string, must necessarily have its octave taken with the second finger on a higher string. This rule is even applicable to passages of melody, where octaves occur. The following, for instance, are very common melodies, in the bass, in all of which it will be observed, the second finger replaces the third, in order that the octave of the note thus played may be taken with the fourth.

EXAMPLE.  
1<sup>st</sup> Position.

2<sup>nd</sup> Position  
C minor.

3<sup>rd</sup> Position  
D minor.

Here is another which sometimes occurs, and in which the G natural is taken with the third finger on the second string, in the first position.

EXAMPLE.  
in B major.

This G natural is merely a passing note, which does not even belong to the key; and we feel that it would be very awkward to make the fourth finger descend to it, as the following F sharp must necessarily be taken with the second finger, in order that the fourth may be carried to its octave: in this case, therefore, the octave regulates the fingering. The same thing sometimes occurs with the interval of the diminished third. By way of variety, I shall give this example in B flat.

EXAMPLE.  
in B<sup>b</sup> major.

This may perhaps be termed a contrariety of fingering; but, for my own part, I consider it a perfectly simple and natural rule. I might enlarge considerably on this subject but think I have said enough to make myself thoroughly understood and enable any one to apply this rule, whenever an occasion may present itself.

## CHAPTER XIII.

## OF THE SHAKE.

I shall not waste time or paper in an attempt to demonstrate the beats of the shake, as if I were about to treat of something new; for everyone knows what a shake is, and besides, it is to be found in all musical works. I shall confine myself to giving some examples for practice, recommending that care be taken to make the beats very true; that the finger, in beating, fall perpendicularly on the string; and that the beats be made without force or stiffness. It is also necessary to observe that the finger must always fall on the same place on the string.

There are many persons who, thinking to acquire strength, stiffen their finger, and consequently extend or advance it in such a manner, that a shake with a major second increases to a third, and one with a minor second becomes greater than a major second. Let it not be supposed that this fault appertains exclusively to beginners; for I have noticed it in the performance of some celebrated artists. It is a bad habit which, when once acquired, is very difficult to correct.

It should not be imagined that the quickest shake is the most beautiful; for, in order to arrive at this merit, the beats must be made with the greatest equality, so that, of the two sounds forming the shake, the ear may be able to appreciate the one as clearly as the other. It is also generally known, among persons of taste, that the beats should not be made so rapidly in an Adagio, as in a quick and brilliant movement, and that, when it is too rapid, it becomes confused.

It is an old error to suppose, and mere quackery to affirm, that the beats of the shake should be made with great force, as if by a hammer &c; for, it will be readily understood that such a continuous repetition of notes as that forming the shake belongs rather to agility of finger, than to force. The finger should be raised as high as possible, and care be taken to make it fall perpendicularly on the string, in order that in descending from a distance the blow may be greater, and then a little more than its own weight will suffice to bring out the shake clearly. It should also be remembered that when force is employed, stiffness follows; a proof of what I advance, namely, that men with the strength of a Hercules have been unable to acquire a good shake on the Violin, while extremely delicate women have been known to perform it most beautifully; which shows that the merit of the shake depends, as I have already observed, on a perpendicular pressure, on equality, and on agility of finger, and but very little on force.

This, then, is my firm conviction respecting the shake, which will doubtless meet with many opponents, but that will not cause me to change my opinion, nor prevent my practising the shake according to the principles here given, while I have not the gout in my fingers.

As I have already spoken of the shake, in the Chapter *On the Position of the Hand*, I beg that it may be again referred to, in order to save needless repetition in this place.

The following is the first shake which I propose as an exercise. The finger marked below the large note is that which must remain firmly pressed on the string, while the figure placed immediately above the small note indicates the finger which is to beat the shake.

*Adagio.*

EXAMPLE.

The first staff of music is in C major, starting on the open string (0). It contains two measures of a half note each, with a 'hr' (shake) marking above the note. The first measure has a '2' above the note, and the second has a '1' above the note. The second staff is in A minor, starting on the open string (0). It contains four measures of a half note each, with 'hr' markings above the notes. The first measure has a '3' above the note, the second has a '3', the third has a '2', and the fourth has a '2'. The fifth measure has a '3' above the note, and the sixth has a '3'. The seventh measure has a '4' above the note, and the eighth has a '4'. The piece ends with a double bar line.

This shake has the advantage of exercising all the fingers, and it should be practised on all four strings.

Nearly all the shakes on the lower part of the neck, are made with the fourth or little finger: it is only in the first position that they can be made with the second finger, in minor keys, and with the third, in major, because the turn of these is made by using the open string.

EXAMPLE.

The first staff is in A Minor, starting on the open string (0). It contains two measures of a half note each, with a 'hr' (shake) marking above the note. The first measure has a '1' above the note, and the second has a '0' above the note. The second staff is in A Major, starting on the open string (0). It contains two measures of a half note each, with a 'hr' (shake) marking above the note. The first measure has a '1' above the note, and the second has a '0' above the note. The piece ends with a double bar line.

The same thing occurs on the other three strings; but in all other positions the fourth finger is used.

Shake with the major second, made with the 4<sup>th</sup> finger. On the 1<sup>st</sup> & 2<sup>nd</sup> Strings.

The first staff is in C Major, 1<sup>st</sup> String. It contains two measures of a half note each, with a 'hr' (shake) marking above the note. The first measure has a '4' above the note, and the second has a '1' above the note. The second staff is in F Major, 2<sup>nd</sup> String. It contains two measures of a half note each, with a 'hr' (shake) marking above the note. The first measure has a '4' above the note, and the second has a '1' above the note. The piece ends with a double bar line.

Shakes with the minor second are more difficult, because the fourth finger has to make the beats by itself, without the assistance of the third finger which must remain firmly pressed on the string. They require, therefore, much patience and perseverance in practising them. There are some persons who play very well, but who never make a shake, being fully persuaded it would be impossible for them to do so; I think, however, that they have wanted patience, rather than ability; for every one may acquire it, if

it be properly studied. For example, to perform the following shakes with the minor second, if the third finger be not placed quite perpendicularly on the string and very near the nail, it cannot be properly rounded, and consequently the little finger, being kept so far from the string, finds great difficulty in reaching it, and therefore cannot make the beats of the shake.

Shake with the Minor Second  
In C Minor.  
First String.



Shake with the Minor Second.  
In F Minor.  
Second String.



The shakes in E major and E minor, on the first string, are perhaps the most difficult on the Violoncello, because the hand is placed against that part of the neck which joins the body of the instrument; and if the neck is short, they become very fatiguing.

#### EXAMPLES.

Shake in E Major  
First String.



Shake in E Minor  
First String.



I shall not give examples of all the shakes, for those who desire to exercise themselves, should make them on all the strings and in every position.

When once the thumb is brought into use, most of the shakes are made with the second finger, because the thumb is nearly always placed on the tonic, as we have before seen. For example, let the thumb be placed on G and C, and we shall have the concluding shakes in the keys of G and C.

#### EXAMPLES.

Concluding Shake in G.



Concluding Shake in C.



As all shakes are not concluding ones, it follows that some may have to be made with the third finger. I shall now give a passage which very often occurs, where shakes with the third finger are sufficiently frequent to prove that we should not neglect to practise them. We remain in the same position throughout, taking care to keep the thumb quite firm in its place.

EXAMPLE.

The foregoing remarks must suffice to give an idea of this study. The shake must by no means be neglected; indeed, it ought to be practised with all the fingers, for nothing can impart to them greater lightness, agility and precision.

There is still another kind of shake, called the broken or interrupted shake, of which the following is an example.

Interrupted Shake.

There are, besides, many little embellishments, as the *pincé*, *demi-cercle*, *trois quarts de cercle*\*, and others, the names of which are scarcely known to me, since they change with fashion, like trinkets. I shall not here treat of them, as they will be found perfectly easy by those who are able to make the shake well; but there is one thing of great importance which I must not forget to mention, which is, that, in performing the shake, the hand must not make any movement: it is only the finger or fingers used in making the beats which should rise and fall. I have seen many persons shake with the wrist, but this is not a true shake, it is a mere trembling, which is ordinarily a result of stiffness in trying to play with force.

N.B. All the examples given in this chapter should be performed very slowly, for the purpose of making the shakes very long.

\* These are names of antiquated French embellishments of which no description has been given by our musical lexicographers, except of *pincé*, which Rousseau alone explains, and which seems to correspond to the old embellishment called *beat*. ED.

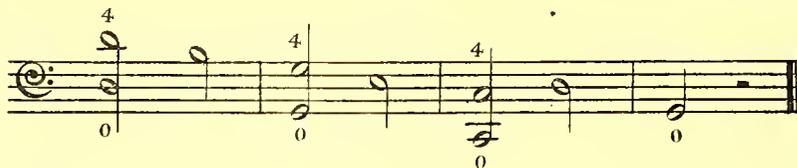
## CHAPTER XIV.

ON THE NECESSITY OF PROVING THE UNISONS  
AND OCTAVES BY THE OPEN STRINGS.

It will scarcely be believed how requisite it is to examine from time to time, while studying, whether we are in tune with the open strings, which must be done by proving the unisons and octaves by them; this must by no means be disregarded. For myself, who in this place am dictating to others, I have no hesitation in saying that, if a strange Violoncello were placed in my hands, I would wager that the first sounds which I should draw from it would be false. — I tune it, if necessary, I then prove the unisons and octaves in all the positions, and after this operation, which gives me a knowledge of the finger-board, I play on it as little out of tune as possible. — Here follows an idea of the way in which this is practised.

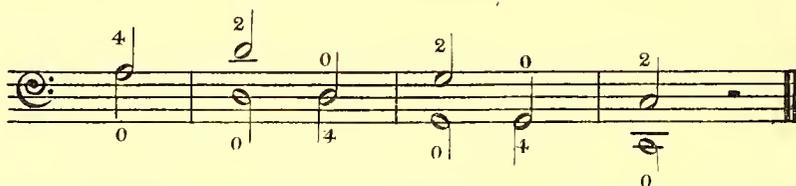
In the first position, we have only three octaves.

1<sup>st</sup> EXAMPLE  
First Position.



In the second position, there are three unisons and three octaves.

2<sup>nd</sup> EXAMPLE  
Second Position.



The next example is of the same kind as the preceding, and will serve to give greater certainty to the hand.

3<sup>rd</sup> EXAMPLE  
Second Position.



In this second position, in the key of C minor, there are only three octaves and no unison.

4<sup>th</sup> EXAMPLE. *SLOWLY.*

In the third position, there are three unisons and three octaves, both in major and in minor keys. We will begin with the major.

5<sup>th</sup> EXAMPLE. 3<sup>rd</sup> Position. D major.

6<sup>th</sup> EXAMPLE. 3<sup>rd</sup> Position. D minor.

In the fourth position, there are only three unisons, taken with the first finger.

EXAMPLE. 4<sup>th</sup> Position.

The above will suffice to assure us that we have taken the positions perfectly true; I do not here speak of fractions of the positions, of which mention will be made farther on. Where there is no open string, no proof can be made; besides, when we begin to play on an instrument, we should remain a considerable time in the open keys, to acquire a true intonation. I cannot help saying in this place, that there are many persons who, when requested to prove the unisons and octaves by the open strings, in order to ascertain whether they are playing too sharp or too flat, at once lay hold of the pegs and begin tuning; but, in this case, the fingers are far more frequently in error, than the pegs. If we wish to play with a just intonation, we must first put the instrument nicely in tune, then listen attentively to our performance and, arming ourselves with patience, criticise it with rigid severity.

## CHAPTER XV.

OBSERVATIONS ON THE MANNER OF TUNING  
THE INSTRUMENT.

To know how to tune, is a matter of more importance than is generally believed. A Violin requires to be tuned much oftener than a Violoncello, because its first string is very delicate and frequently breaks; while the four strings of the Violoncello are very strong and rarely snap; neither do they alter much, after they have once attained their tension. In taking the pitch from another instrument we must first carefully observe whether our A is too sharp or too flat, and in either case, whether it is much or little: we must then turn the pegs only as much as is necessary, for if we continue to move them to and fro, we shall be obliged to tune very frequently; while if we merely raise or lower the string as much as is really required, the instrument will remain a long time in tune. There is one thing which it is very difficult to avoid, namely, taking the A too sharp; the reason of which may perhaps be, the desire of hearing it distinctly. For example, when the A is taken by one Violin from another, and by one Violoncello from another, the moment of being exactly in tune is that wherein the string vibrating precisely in unison with the one from which the pitch was taken, induces the belief that only the latter is heard, which kind of illusion is very difficult to guard against: the bow is then pressed more heavily on the string, the peg twisted about, and the exact point of tuning missed. This is so true, that if eighty musicians were to take the A one from another, in regular succession, and the tuning of the first were to be compared with that of the last, the pitch would be found to have risen at least a quarter of a tone. This is an experiment which I have many times seen made by well organised musicians, and always with the same result: in short, supposing that ten, out of the eighty, have taken the pitch accurately; yet the least variation repeated seventy times by the others produces a considerable difference; and hence the reason, why, in a well ordered orchestra, the principal Violinist gives the A to all the performers, one after another. But even this does not prevent those who have the failing of turning the pegs about from tuning again directly; and thus half the time occupied at a concert is spent in tuning the instruments — an insufferable annoyance, which cannot be too loudly declaimed against.

In regard to tuning the four strings, whenever it is done with force and the vibrations of the strings are not listened to, we cannot be sure of being nicely in tune: for, if we take an instrument perfectly tuned and press the bow more heavily on the first string than on the second, the first will appear too sharp; the reason of which is, that the weight of the bow will have increased the tension of that string. This may possibly explain why many persons, to whom an instrument may be presented as perfectly in tune as it can be, yet cannot help turning the four pegs about, before they begin to play on it, But if the bow be passed lightly across the two strings, and then taken off in order clearly to hear their vibrations, we can scarcely fail in tuning correctly. In general, those who occupy the most time in tuning are the least perfectly in tune.

Another thing which it is not useless to observe here, is: that when the distance from the pitch is considerable, as a semitone or three quarters of a tone too sharp, it would be futile to endeavour to take the A perfectly true; for, in lowering the other three strings the pitch of A will be raised nearly half a quarter-tone. The reason of this is obvious; for the tension being made on the tail-piece by the four strings, in letting down the three lower ones, the equilibrium is restored, and the first string thereby acquires a little more tension, than it had before the others were slackened. It is the same, if the pitch of the instrument be much too low and the A taken quite true; for then, in drawing up the other three strings, the equilibrium is restored, and their tension relieving the strain on the first, it becomes too low. This might be demonstrated mathematically, by commas and fractions of commas, even as we demonstrate that two and two make four; it is the effect of the balance [of the tension on the tail piece]. The method of avoiding the above inconvenience is, to lower all four strings in succession, as near to the pitch as possible, and afterwards to take the A. If this precaution be not taken, a player would be unbearable, when engaged in an orchestra: for, were the before-named circumstance added, in ever so slight a degree, to the fault of constantly turning the pegs about, he would not be in tune in half an hour. From this it appears, that bad tuning results, in most cases, less from a defective ear, than from a faulty mode of proceeding.

## CHAPTER XVI.

## OF VIBRATIONS AND THEIR COALITION.

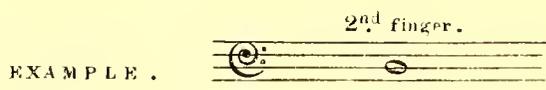
The subject of this chapter is, I fear, beyond my powers; for, in order to treat it fully, a knowledge of natural philosophy and mathematics is required, while I simply understand music. But so thoroughly convinced am I, that an acquaintance with the relation existing between the vibrations is necessary for obtaining a true intonation and producing a pure tone, that I shall now state what I myself have learnt through a long familiarity with the four strings of the Violoncello, and endeavour to demonstrate, or rather, to make evident to any one who may place his fingers on that instrument, whether the sounds which he produces are true or false. In pursuance of this object, I shall carefully abstain from employing scientific terms, lest in the end I should become even unintelligible to myself. I shall try to speak like a musician to musicians; and if this sketch should only induce one thoroughly acquainted with the subject to re-write the whole, in a way still more serviceable to our art, I trust that I shall at least have effected some good: and this thought encourages me.

Let us begin with the knowledge of unisons, and take G on the fourth string with the second finger.



Let the bow touch this G on the fourth string only, and you will then see the third string, G, vibrate throughout its length.

Now take, in a similar manner, the D on the third string, as indicated in the next example, and you will perceive the second string, D, vibrate throughout its length, which produces the same effect.



Lastly, take A on the second string, with the second finger, and still the same effect will be produced.



Here, then, are two resonances, although only one string is touched. Repeat the experiment on the three strings, one after the other, as you did before, and each time stop with another finger the open string which has given the unison, and you will hear that the string on which you are playing produces one resonance, less prolong

ed and full: this is already something in regard to quality of tone. Let us now examine it in respect to justness of intonation, by repeating the same operation and placing the second finger on the  $G$  of the fourth string, about a comma too sharp or too flat, for it is well to know that, if the finger be not too far distant from the true pitch, the unison will still resound, although rather more feebly. Now place the second finger on the fourth string, a comma too flat, and draw the bow strongly across this string; then take it off and listen to the vibrations of both strings, and you will hear a false and disagreeable sound, which arises from these vibrations not being isochronous. If this experiment be made in a large and sonorous room, the effect will be horrible; while, if we place our finger exactly true, the two resonances will perfectly coalesce and produce a superb sound. The same effect will result in the case of the two other unisons.

These are the three natural unisons which we have on the Violoncello, but the relations of the vibrations are far more extended; this is what I shall now endeavour to make audible, and even visible, if that can be done. It may not be useless to remark that, of all the consonances, the unison is the most difficult to take perfectly true. We will begin with the fourth string,  $C$ , because the graver the sounds, the more sensible and prolonged are their vibrations: therefore, let us see what are the different vibrations of this fourth string.

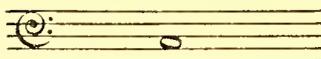
We have seen, in the Chapter on Harmonics, that they arise in the order of the octave 12<sup>th</sup>, 15<sup>th</sup>, 17<sup>th</sup>, 19<sup>th</sup> and 22<sup>nd</sup>, which is the triple octave. I must beg the reader to glance through that chapter again, if it is not fresh in his memory, as he will there see that the distances which produce the harmonics are really the different points of vibration of the string. To demonstrate this clearly, I will write the  $C$  of the fourth string as a semibreve, and indicate the different points of vibration by dots.

22 <sup>th</sup> ..		.....	Triple Octave
19 <sup>th</sup> ..		.....	Double Octave of the Fifth.
17 <sup>th</sup> ..		.....	Double Octave of the Third.
15 <sup>th</sup> ..		.....	Double Octave
12 <sup>th</sup> ..		.....	Octave of the Fifth.
8 <sup>th</sup> ..		.....	Octave
			
C. 4 <sup>th</sup> String. Open note			

In order to assure ourselves that these are the true points of vibration of this  $C$  string, let us play each of them separately on the other strings, beginning with the octave, and so on in succession; and this fourth string, by its vibration, must each time give out the same sounds as those which we draw from another string.

136 Take the following C, on the third string, with the second finger .

2<sup>nd</sup> finger .

8<sup>th</sup> or Octave . 

Draw the bow firmly and then take it off, and you will both hear and see the two strings vibrate, namely, the third string on which you are playing, and the fourth string by its octave . To make quite sure of this fact, begin again, and as soon as you have taken off the bow, stop the vibration of the third string, and you will still hear the same sound continued for some time by the vibration of the fourth string . If you doubt this, try again, and after taking off the bow, stop the vibration of both strings, and you will not hear anything . It should be observed, that it is not the low C of the open string which is heard, but its octave; which is the unison of the C that is drawn from the third string . Lastly, if you will begin once more and observe the C-string attentively, you will see that it vibrates in two parts, as in this figure .

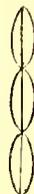


Let us now pass on to the twelfth, which is the following G :

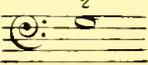
2<sup>nd</sup> finger .

12<sup>th</sup> or Octave of the Fifth . 

Take this G on the third string, with the second finger, draw the bow, and you will see the fourth string vibrate; stop the vibration of the third string, after you have drawn the bow across it, and you will still hear the same sound continued for some time by the vibration of the fourth string . By attentively observing the vibration of this fourth string, you will see that it divides itself into three parts, as in the following figure :



Here, then, a second point of vibration is determined . This experiment proves that the fourth string vibrates by its twelfth, which is the unison of the G just made on

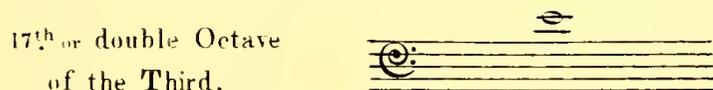
the third string. If you take the same G  on the second string, with the second finger, you will have one resonance more than in the preceding experiment: because, independently of the fourth string, C, which will resound by its twelfth, the third string, G, will resound by its octave. In this case, therefore, three strings enter into vibration to give the same sound, which renders it very full and harmonious.

The fifteenth, or double octave, is the C following:



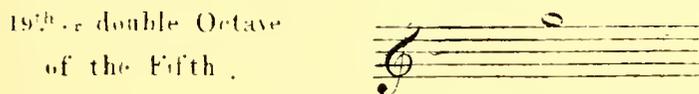
Take this C on the first string, draw the bow, and the fourth string will vibrate by its double octave. In this case it will vibrate in four equal parts; but it will not be so easy to see these vibrations, as in the two preceding experiments, although they can be quite as well heard. If you stop the vibration of the first string, you will still hear the same sound continued by the vibration of the fourth; and if you take this same C either on the second, or on the third string, the same effect will be produced.

The seventeenth is the E following:



Take this E on the first string, draw the bow, and the fourth string will vibrate by its seventeenth, dividing itself into five equal parts. If you stop the vibration of the first string, you will still hear the same sound continued by the vibration of the fourth; and if you take this same E either on the second, or on the third string, the same effect will be produced.

The nineteenth is the G following:



Take this G on the first string, draw the bow, and the fourth string will divide itself into six equal parts and vibrate by its nineteenth. It must be observed that we here obtain three resonances for one sound; for, the first string vibrates by the tone G which we draw from it; the fourth vibrates by its nineteenth; and the third

string, which is G, vibrates by its double octave. This, then, seems to me to be the reason why this tone is very sonorous and prolonged, when it is taken quite true; but when the finger is not put very exactly in the place where it ought to be, the sound will be extinct as soon as the bow leaves the string. If we take this same G on the second string, the same effect will be produced.

The twenty second is the C following:

22<sup>nd</sup> or triple Octave. 

Take this C on the first string, and the fourth will divide itself into eight equal parts and vibrate by its twenty-second. This vibration is indeed much more feeble than those in the preceding experiments, and the reason of it seems to be, that the string dividing itself into so many short parts, the vibrations become less sensible to the ear. However, on a good instrument that is well strung, this resonance may still be heard.

We have already found several sounds which have many resonances.

They are the following:



Octave      12<sup>th</sup>      15<sup>th</sup>      17<sup>th</sup>      19<sup>th</sup>      22<sup>nd</sup>

2 Resonances.    3 Resonances.    2 Resonances.    2 Resonances.    3 Resonances.    2 Resonances.

Let us now analyse the vibrations of the third string, G.

22<sup>nd</sup>... Triple Octave.

19<sup>th</sup>... Double Octave of the Fifth.

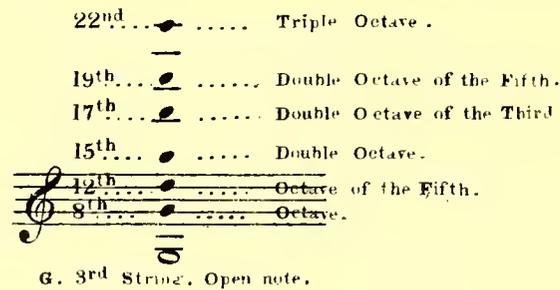
17<sup>th</sup>... Double Octave of the Third.

15<sup>th</sup>... Double Octave.

12<sup>th</sup>... Octave of the Fifth.

8<sup>th</sup>... Octave.

G. 3<sup>rd</sup> String, Open note.



8<sup>th</sup> or Octave  
of the G string.



G

We have already had this sound in the analysis of the vibrations of the fourth string, of which it is the twelfth, and have found that it has three resonances.

The twelfth is the D following:



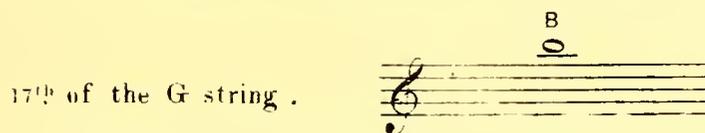
Take this D on the first string, and you will both see and hear the third string vibrate by its twelfth, in three equal parts . It must be observed, that this same D makes the second string, D, vibrate by its octave, that is, in two equal parts . Here, then, we have also three resonances for this sound . If we take the same D on the second string, there will only be two resonances, namely, that of the second string itself, and that of the twelfth of the third string .

The fifteenth is the G following:



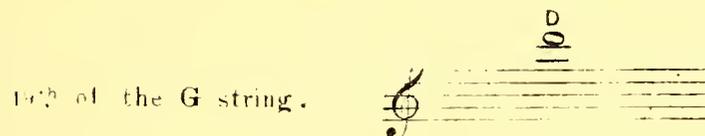
We have already had this sound in the analysis of the fourth string, of which it is the nineteenth, and have found that it has three resonances .

The seventeenth is the B following:



Take this B on the first string, and the third string will vibrate by its seventeenth, in five equal parts . If we take this same B on the second string, we shall obtain the same effect .

The nineteenth is the D following:



Take this D on the first string and you will hear three resonances : 1<sup>st</sup> that of the first string itself ; 2<sup>dy</sup> that of the third string, which vibrates by its nineteenth, in six equal parts ; and 3<sup>dly</sup> that of the second string D, which vibrates by its double octave, in four equal parts .

The twenty-second is the G following:

22<sup>nd</sup> of the G string.

Take this G on the first string and the third will vibrate by its twenty-second, in eight equal parts. This vibration is weaker than the others.

Here again we have found several sounds which have many resonances.

We will now analyse the vibrations of the D string; but only as far as the seventeenth, the others being too acute.

17<sup>th</sup>... # ..... Double Octave of the Third.  
 15<sup>th</sup>... ..... Double Octave.  
 12<sup>th</sup>... ..... Octave of the Fifth.

8<sup>th</sup>... ..... Octave  
 D 2<sup>nd</sup> String. Open note.

8<sup>th</sup> or Octave  
of the D string.

We have already had this sound in the analysis of the third string, of which it is the twelfth, and it has given us three resonances.

The twelfth is the A following:

12<sup>th</sup> of the D string.

Take this A on the first string and the second will vibrate by its twelfth, in three equal parts.

The fifteenth is the D following:

15<sup>th</sup> of the D string.

We have already had this sound in the analysis of the third string, of which it is the nineteenth, and it has given us three resonances.

The seventeenth is the F sharp following:

17<sup>th</sup> of the D string.

F Sharp.

Take this F sharp on the first string, and the second will vibrate by its seventeenth, in five equal parts. Here, again, we have found two more sounds, each of which has two resonances.

8<sup>th</sup> already found.      12<sup>th</sup>      15<sup>th</sup>      17<sup>th</sup>

3 Resonances.      2 Resonances.      3 Resonances.      2 Resonances.

TABLE OF THE SOUNDS WHICH HAVE SEVERAL PERCEPTIBLE RESONANCES.

2 Resonances By the unison of the G string.	2 Resonances By the octave of the C string.	2 Resonances By the unison of the D string.	3 Resonances By the octave of the G string and the 12 <sup>th</sup> of the C string.

2 Resonances By the unison of the A string.	2 Resonances By the double octave or 15 <sup>th</sup> of the C string.	3 Resonances By the 8 <sup>th</sup> of the D string and the 12 <sup>th</sup> of the G string.	2 Resonances By the 17 <sup>th</sup> of the C string.

3 Resonances By the 15 <sup>th</sup> of the G string and the 19 <sup>th</sup> of the C string.	2 Resonances By the 12 <sup>th</sup> of the D string.	2 Resonances By the 17 <sup>th</sup> of the G string.	2 Resonances By the triple octave of the C string.

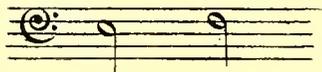
3 Resonances By the 15 <sup>th</sup> of the D string and the 19 <sup>th</sup> of the C string.	2 Resonances By the 17 <sup>th</sup> of the D string.	2 Resonances, By the triple octave or 22 <sup>nd</sup> of the G string.

Here follow several scales. By playing that of G, on the second string, we may observe all the sounds which are susceptible of coalition of vibration.

<p>SCALE of G Major on the 2<sup>nd</sup> String.</p>	<p>Fingering.</p> <p>3 Resonances. 2 Reson.: 1 Reson.: 2 Reson.: 2 Reson.: 2 Reson.: 1 Reson.: 3 Reson.:</p>
<p>SCALE of C Major on the 1<sup>st</sup> String.</p>	<p>Fingering.</p> <p>2 Resonances: 3 Reson.: 2 Reson.: 1 Reson.: 3 Reson.: 2 Reson.: 2 Reson.: 2 Reson.:</p>
<p>SCALE of D Major on the 1<sup>st</sup> String.</p>	<p>Fingering.</p> <p>3 Resonances. 2 Reson.: 1 Reson.: 3 Reson.: 2 Reson.: 2 Reson.: 1 Reson.: 3 Reson.:</p>
<p>SCALE of G Major on the 1<sup>st</sup> String.</p>	<p>Fingering.</p> <p>3 Resonances. 2 Reson.: 2 Reson.: 2 Reson.: 3 Reson.: 1 Reson.: 2 Reson.: 2 Reson.:</p>

I should not speak of the coalition of vibrations, if I regarded it merely as an object of curiosity; but I believe that a knowledge of it is of the greatest utility in acquiring a just intonation and producing a pure tone: for, if the finger be not put exactly in the right place, there will neither be a double nor a triple resonance. It is also necessary, that the string on which we play be taken with the bow in such a manner that it may vibrate very clearly and equally. To accomplish this, the bow must be drawn or pushed in a perfectly straight line, and with the greatest equality of force or lightness, or with a gradual augmentation or diminution of the pressure; for if it moves by jerks, the vibrations coming in contact with one another will lose all their clearness, and only disagreeable sounds will be obtained. It is certain that this coalition renders the sounds which it produces, more full, sonorous and agreeable; the vibrations, as it were, mutually assisting one another. Of this, I shall now endeavour to adduce an evident proof.

There are two sounds on the Violoncello, the vibration of which is very harsh, and none but perfect instruments are without this defect. These two sounds are the following E and F, on the second string.



These two notes are very coarse and harsh on many Violoncellos, the cause of which must certainly arise from the vibrations of the string being bad or unequal. But if the lower octave of these notes be taken by another finger on the fourth string, as indicated below, the second string will be found to vibrate very well, and will produce a sonorous and agreeable sound.

Take the **E** on the second string with the first finger, and place the third on the **E** of the fourth string, as follows:

## EXAMPLE.



Press the strings very firmly with the first and third fingers, and when you are certain that they are exactly in the right places, draw the bow across the second string only, and you will find that it will render a sound much more full and sonorous than when the upper **E** alone was played. The reason of this is, that the fourth string vibrates also by the octave of the **E** on which the third finger is placed. Here, then, is a coalition of vibrations as clearly proved as those which produce the open notes; and it appears to me beyond all doubt, that the vibrations of the fourth string assist those of the second, and by this means so greatly improve them.

The same occurs with the **F** of the second string, which, on a great many Violoncellos, is very bad. Take this **F** with the second finger, and its lower octave on the fourth string with the fourth finger, as follows;



and when you have assured yourself that both fingers are properly placed, draw the bow across the second string only, and the same effect will result.

I merely mention these two coalitions of vibrations to prove that the vibrations assist each other, as it were; for the above two examples, can rarely be put in practice.

There are many other interesting things to be said on the subject of this chapter, but I shall simply confine myself to the object I have in view; which is, to seek, as much as possible, the means of obtaining a true intonation, and of drawing a pure tone from the instrument. I will therefore suppose that I enter a room where a person is playing on the Violoncello, and that he has his thumb placed on the **B** flat of the first string and the **E** flat of the second, as in the following example.



Now, without knowing whether the instrument is tuned too sharp or too flat, I

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shall at once discover, from the sounds produced, whether that person plays in tune; for unless I hear the notes G, C, and D vibrate more freely than the rest, I shall say he plays falsely. To prove this, let us examine the scale of E flat.



The G has three resonances, the C two, and the D two, whilst all the rest have only one each; if, therefore, the G, C, and D are taken correctly, they must of necessity produce a more full and sonorous sound than the others; and this cannot escape the observation of a cultivated ear. By these notes, therefore, we must regulate our intonation in this position. There are few positions in which these notes are not met with, and it is by them that the intonation must always be regulated; unless, indeed, we are playing in keys so stopped, that they contain no sounds related to the open strings and their points of vibration; but this is not the case in the open keys, which are most frequently used.— From all this it results, that if we accustom ourselves carefully to listen to the different resonances occasioned by the vibrations, we shall acquire a certainty in playing in tune, and the quality of tone will assuredly derive from it considerable advantage.

## CHAPTER XVII.

EXPLANATION OF THE DISTANCE AT WHICH THE FINGERS SHOULD BE PLACED FROM EACH OTHER, IN THE FIRST FOUR POSITIONS; AND THE PROOF OF THE UNITY OF THESE POSITIONS, BY COMPARING THE SECOND, THIRD, AND FOURTH, WITH THE FIRST, IN ALL ITS RELATIONS.

I have already given the scales in all the major and minor keys; and this might be sufficient for those who, in referring to authorities, say: they must be true, because such a one has published them. But all do not think alike; for there are some persons who are not afraid of application, but delight in investigating things, and desire to ascertain, whether a principle laid down as true, is really so in all its relations. For the satisfaction of such, therefore, I write what follows, and shall endeavour to conduct them from one consequence to another, even up to conviction; and should I not succeed in my attempt, it will be owing to my own faulty explanation, as I am thoroughly convinced that the principle which I seek to establish is true in all its bearings.

There is no doubt that, at first, the fingering must have been adjusted according to the relation which subsists between the scale of the Violoncello, and the compass of the hand and length of the fingers. I know that there have been persons, and that some, though very few, are still to be met with, who wish to finger the Violoncello in the same way as they finger the Violin; but the scale of the former being about twenty-six inches, (I say *about*, because the length varies a little among different instruments,) and that of the latter, twelve inches, it is easy to see, without taking line and rule to measure the distance of the tones, that there is a total difference between them; for twelve is less than the half of twenty-six, and it is also well known, that the octave is found in the middle of the length of the scale, or of the distended string, whether it is an inch or an ell long. Besides, the Violin is every-where fingered in a regular manner, for the simple reason that, being an ancient instrument, it has during the lapse of time been studied by skilful masters; but it is not so with the Violoncello, it having been preceded by another instrument, the Viol di Gamba, the scale of which is very similar; and as this instrument had long been very ably used, the new practitioners on the Violoncello might well have sought, in the principles of its fingering, suitable proportions for the distance of the fingers between each other: but, as the Violoncello soon gained a complete ascendancy over the Viol and caused it to disappear from the orchestras, the players on the former instrument affected the most profound contempt for the latter, and were so infatuated as to determine, notwithstanding the necessity of the case, not to adopt in their method of fingering anything which might bear a relation to that of the supplanted instrument.

Besides, many persons who have found they could not succeed in playing the Violin, have taken up the Violoncello and sought to adapt the fingering of their own instrument to it, which has carried the confusion to its utmost limit. The performers on the Viol di Gamba had their hand placed as it ought to be on the Violoncello, in the way which I have already described; the ends of their fingers fell quite perpendicularly on the strings, and were at the distance of a semitone from each other, as they should be on the fingerboard of the Violoncello, with the exception of the alternative of the first finger, the necessity of which I shall demonstrate in the succeeding examples. In short, it is evident there should be an analogy between the fingering of the Viol and that of the Violoncello, on account of the similarity of their scale; but a great difference in the combination of the fingers, because the Viol was tuned by fourths and thirds, and the Violoncello is tuned by fifths.

The celebrated BERTEAU, who formed an epoch in the art, and whose reputation still subsists, may be considered as the creator of the Violoncello, It is to his lessons that my elder brother is indebted for his rare talents, and for having carried

the perfection of this instrument far beyond his master . This little eulogy on my brother will, I doubt not, be readily pardoned : it is the expression of gratitude, which my relationship does not exclude, nor cause me to forget that it is to him I am indebted for the little I know .

As to BERTEAU, it is to be regretted that he has left us nothing of his principles, except by tradition . It is true that some of his scholars have written methods for the instrument, but they are not very satisfactory : the principles of fingering in them are only glanced at, instead of being demonstrated ; and this is the reason why, even of the present day, there are nearly as many ways of fingering as there are professors . BERTEAU, however, had strongly felt the necessity of the fingers not being too far distant, if they are to preserve their strength and perpendicular pressure ; that the first might be extended from the second, but that the third could not be removed far from it without an effort and a loss of its perpendicular position : lastly, that the fourth or little finger is too short and weak to be extended from the third, from which it derives a portion of its strength, &c .

It is, then, on the principles here stated, that the fingering of the Violoncello has been determined ; and it has been settled that, between the first finger and the second, there may be, according to circumstances, an interval either of a tone or of a semitone ; but that, in all other cases, (except, indeed, in the very rare instance of the extension of the fourth finger, noticed in the chapter on Arpeggios,) there must not be a distance of more than a semitone either between the second and third fingers, or between the third and fourth . This is the principle which I shall now endeavour to demonstrate ; and for this purpose let us first take the scale of C major, and we shall see that, in it, all the fingers are at the distance of a semitone from each other .

EXAMPLE .

If this example is not sufficiently convincing, the following will prove it as decisively as the fact that twice one are two .

EXAMPLE .

The following is a short passage for putting this truth in practice, as well as for strengthening the fourth finger and exercising it and the others .

Let us now try to analyse the first position, since it is from this and its various relations that the other three positions are drawn, which form the complement of what we call the fingering of the neck; that is, from the lowest open note, C, to the G on the first string, beyond which the little finger is not used. The second, third and fourth positions ought, then, to be susceptible of comparison with the first, in all its fractions; and, if the relations are not perfectly true, there is no unity and the principle is false.

I find four fractions in the first position, which are here given, one after the other, on all four strings, commencing with the lowest.

The image displays four staves of music, each representing a different string of the violin. Each staff contains four measures, each labeled as a 'Fraction'. The notes and fingerings are as follows:

- 4th String:**
  - 1st Fraction: B $\flat$  (1), B $\flat$  (3), C (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 2nd Fraction: B $\flat$  (1), B $\flat$  (2), C (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 3rd Fraction: B $\flat$  (1), C (3), C $\sharp$  (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 4th Fraction: B $\flat$  (1), C (2), C $\sharp$  (4), B $\flat$  (1), B $\flat$  (2), C (4)
- 3rd String:**
  - 1st Fraction: B $\flat$  (1), B $\flat$  (3), C (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 2nd Fraction: B $\flat$  (1), B $\flat$  (2), C (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 3rd Fraction: B $\flat$  (1), C (3), C $\sharp$  (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 4th Fraction: B $\flat$  (1), C (2), C $\sharp$  (4), B $\flat$  (1), B $\flat$  (2), C (4)
- 2nd String:**
  - 1st Fraction: B $\flat$  (1), B $\flat$  (3), C (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 2nd Fraction: B $\flat$  (1), B $\flat$  (2), C (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 3rd Fraction: B $\flat$  (1), C (3), C $\sharp$  (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 4th Fraction: B $\flat$  (1), C (2), C $\sharp$  (4), B $\flat$  (1), B $\flat$  (2), C (4)
- 1st String:**
  - 1st Fraction: B $\flat$  (1), B $\flat$  (3), C (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 2nd Fraction: B $\flat$  (1), B $\flat$  (2), C (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 3rd Fraction: B $\flat$  (1), C (3), C $\sharp$  (4), B $\flat$  (1), B $\flat$  (2), C (4)
  - 4th Fraction: B $\flat$  (1), C (2), C $\sharp$  (4), B $\flat$  (1), B $\flat$  (2), C (4)

Each of these fractions occasions a movement, which we shall now see by taking each fraction separately. I shall analyse them by the first string, as Violoncello-players are more accustomed to that string than to the others; and will therefore comprehend my meaning better.

First Fraction.

The notation shows a single staff with six notes: B $\flat$  (1), B $\flat$  (3), C (4), B $\flat$  (1), B $\flat$  (2), C (4).

Here, we perceive that the second finger takes the place of the third, to permit the fourth finger which took D flat to ascend and finish with D natural. The following is a passage which will serve to exercise the fingers in this particular, by passing in review this first fraction on all the four strings.

The image shows a sequence of four staves, each representing a different string. The notes and fingerings are as follows:

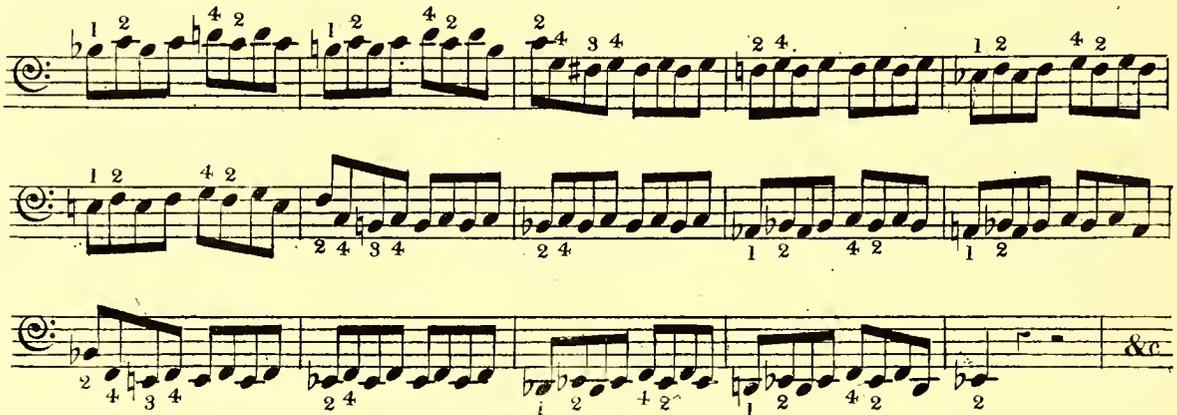
- 1st String:** B $\flat$  (1), B $\flat$  (3), C (4), B $\flat$  (1), B $\flat$  (2), C (4)
- 2nd String:** C (4), B $\flat$  (3), B $\flat$  (1), C (2), C $\sharp$  (4), B $\flat$  (2), C (4)
- 3rd String:** B $\flat$  (1), B $\flat$  (3), C (4), B $\flat$  (1), B $\flat$  (2), C (4), B $\flat$  (4), B $\flat$  (3), C (1), C $\sharp$  (2), C (4), B $\flat$  (2), C (4)
- 4th String:** B $\flat$  (1), B $\flat$  (2), C (4), B $\flat$  (1), B $\flat$  (2), C (4)

## Second Fraction.



This is what I call the alternative of the first finger; for we here see that this finger, after taking the B flat, ascends a semitone to take the B natural, and that without changing the place of the hand or of the other fingers in the least degree; for it is exclusively the first which moves. This agrees with what I have already stated, that the first finger may be distant from the second either a tone or a semitone, according to circumstances. The above example illustrates both cases.

We shall now give a kind of passage which, in exercising the first finger in this matter, passes in review this second fraction of the first position, on all the strings.



This example shows that only the first finger alternately changes its place, to be at one time at the distance of a tone from the second finger, and, at another, at that of a semitone; but the other fingers remain always at the distance of a semitone from each other, as I have before observed.

## Third Fraction.



This is the same operation as that of the first fraction: the second finger taking the place of the third, in order that the fourth which took D natural may ascend and finish with the D sharp. The following passage passes in review the matter of this fraction, on all the strings.



Fourth Fraction.



Here, the same operation takes place, as in the second fraction, which I have called the alternative of the first finger. This finger begins by taking the B natural, and then ascends a semitone in order to take B sharp, while all the other fingers remain in their places.

Let us now take the passage which passes in review the operation of the first finger in this fourth fraction, on all the strings.



Thus, the first position is analysed and known, under all its relations, Let us now see whether the other three positions are in strict accordance with it. For this purpose, I shall write on one staff the four fractions of the first position on the second string, as they have already been given, and, on another above it, the same notes an octave higher, which will give the fourth position on the first string.



This example shows that the same notes, in the same modes, are positively taken with the same finger.

Thus, the fourth position is proved to be in strict accordance with the first; but, for the further confirmation of this truth, we will now give the four passages which pass in-review the four fractions on all four strings. I confess they are very monotonous, and admit that I might easily have imparted rather more elegance to them; indeed I had even done so, but I thought it better to sacrifice everything to clearness, and this decision has obliged me to remodel the whole of this article.

First Fraction  
of the 4<sup>th</sup> Position.

Passage of the  
1<sup>st</sup> Fraction  
of the 4<sup>th</sup> Position.

Second Fraction  
of the 4<sup>th</sup> Position.

Passage of the  
2<sup>nd</sup> Fraction.

Third Fraction  
of the 4<sup>th</sup> Position.

Passage of the  
3<sup>rd</sup> Fraction.

Fourth Fraction  
of the 4<sup>th</sup> Position.

Passage of the  
4<sup>th</sup> Fraction.

We will now take the third position. Here, I shall write the four fractions of the first position on the fourth string, as they have already been given; and, above them, on another staff, I shall indicate the same notes, two octaves higher, which will represent the third position on the first string.

EXAMPLE  
3<sup>rd</sup> Position.  
On the 1<sup>st</sup> String.  
1<sup>st</sup> Position.  
On the 4<sup>th</sup> string.

Let us now try the four passages of the four fractions.

First Fraction.  
of the 3<sup>rd</sup> Position.

Passage of the  
1<sup>st</sup> Fraction

Second Fraction  
of the 3<sup>rd</sup> Position.

Passage of the  
2<sup>nd</sup> Fraction.

Third Fraction  
of the 3<sup>rd</sup> Position.

Passage of the  
3<sup>rd</sup> Fraction.

Fourth Fractions  
of the 3<sup>rd</sup> Position.



Passage of the  
4<sup>th</sup> Fraction.



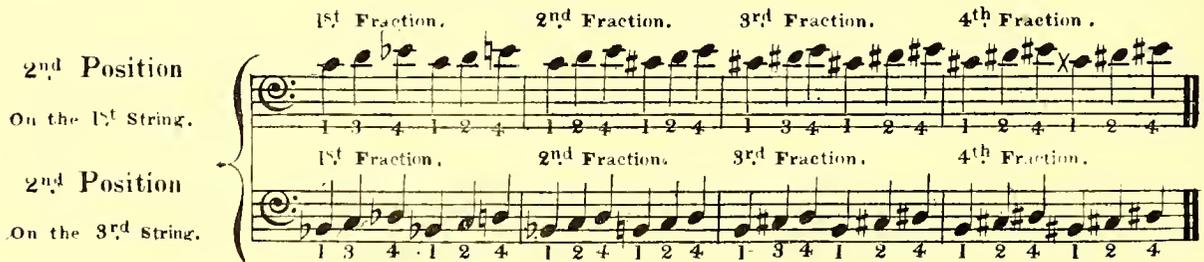
Thus, also, the third position is known, with all its fractions, and it is equally in accordance with the first, as the fourth has been proved to be. There now only remains the second position for consideration. I might write the first position on the first string a tone higher than I have before given it, and then it would certainly be the second position on the first string; but as I am desirous of presenting it by the same notes, (as I have already done in the cases of the fourth and third positions,) I shall write on one staff the four fractions of the first position on the first string, and, on another, the same notes an octave lower, which will give the second position on the third string.

EXAMPLE.



Here, then, is the last of the four positions on the neck, found by the same means; but as by this means we could not have this position on the first string, I shall now indicate the parallel of the third string with the first, in order that, by setting out from thence, we may be able to verify the passages of these fractions.

EXAMPLE OF THE PARALLEL.



Let us now, for the last time, try the four passages of the four fractions. 153

First Fraction  
of the 2<sup>nd</sup> Position.



Passage of the  
1<sup>st</sup> Fraction.



Second Fraction  
of the 2<sup>nd</sup> Position.



Passage of the  
2<sup>nd</sup> Fraction.



Third Fraction  
of the 2<sup>nd</sup> Position.



Passage of the  
3<sup>rd</sup> Fraction.



Fourth Fraction  
of the 2<sup>nd</sup> Position.



Passage of the  
4<sup>th</sup> Fraction.



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The unity of the first four positions has, I think, now been fully demonstrated and established; so that any one who, in the fourth position on the first string, takes the G with the third finger, and, in the third position, the F natural with the same finger, will be convinced that he errs against unity.

EXAMPLE.

<p>4<sup>th</sup> Position. 1<sup>st</sup> string.</p>	<p>3<sup>rd</sup> Position. 1<sup>st</sup> string.</p>
<p>1<sup>st</sup> Position. 2<sup>nd</sup> string.</p>	<p>1<sup>st</sup> Position. 4<sup>th</sup> string.</p>

The proof that this fingering is not correct, is, the necessity of abandoning it every moment; the next example will clearly show this.

4 <sup>th</sup> Position.	
	compulsorily abandoned.
3 <sup>rd</sup> Position.	
	compulsorily abandoned.

However, the above is but a slight fault, for it neither destroys the freedom nor the perpendicular pressure of the fingers. But this cannot be said, when the scales of C and D are obstinately fingered by some persons as I am about to give them, and the others in a proportionably faulty manner; and further, when the notes D, E, F $\sharp$  and G, on the first string, are taken in the way indicated below.

EXAMPLE OF THESE FALSE MODES OF FINGERING.

SCALE OF C major.	
SCALE OF D major.	
D, E, F $\sharp$ , G.	

To such persons we have nothing to reply, except that their wills are free, and to pay them many compliments if they succeed, with such a mode of fingering, in playing in tune and in drawing a fine tone from the instrument.

But I must now treat of the mobility of the thumb at the back of the neck; of which, in the Chapter "On the Position of the Hand," I promised to give an explanation.

When there is a distance of a minor third between the first and fourth fingers, (as in the following example,) the thumb, as I have already stated, should be placed opposite the interval between the first and second fingers.

EXAMPLE.



But if the fourth finger is extended to the distance of a major third from the first, the second finger then takes the place of the third, as we have seen in the preceding examples of the first and third fractions; in which case, the thumb should follow the second finger and advance behind the neck with it, and the first finger should remain firm in its own place. — I shall now repeat four measures of the third fraction. In the first two measures the thumb keeps its place, as we have seen in the preceding example, and in the last two it advances with the second finger and comes nearly opposite it.

EXAMPLE.

Here the thumb advances with the 2<sup>nd</sup> finger.

This procedure should always take place when we pass from the distance of a minor, to that of a major third; yet the case is not the same in the alternative of the first finger, in the second and fourth fractions: for, there, the second finger does not change its place, as it must have been remarked that the distance between the first and fourth fingers is, from the commencement, that of a major third.

EXAMPLE  
2<sup>nd</sup> Fraction.

In these two fractions, the thumb should be nearly opposite the second finger which always remains in the same place: hence, only the first finger ascends or descends, according to circumstances; the rest of the hand remains exactly in the same place and preserves the same form. — I shall here repeat two measures of the second fraction, in which the first finger ascends in the second measure, but the other fingers and the thumb do not change their places.

EXAMPLE  
2<sup>nd</sup> Fraction.Here, only the 1<sup>st</sup> finger advances.

I do not know that a good master should be too eager to make this remark to his pupil: as it is to be feared that it may create confusion in his movements and, especially in the earlier stages, obstruct certainty of hand: this, however, I have only noticed when teaching persons who stiffen it; for those who have a flexible hand perform this operation naturally, and, as it were, insensibly, without seeming to be aware of it.

## CHAPTER XVIII.

## OF THE BOW \*

## ARTICLE I.

## OF THE MANNER OF HOLDING THE BOW.

The thumb should be placed flat on the stick; the second finger should bear upon the hair; the first finger should advance on the stick to a little distance from the second finger, and should be moveable; because, the farther it is from the second finger, the more support the bow has upon the string: this mobility which, according to circumstances, is sometimes great, and at others moderate, or almost inappreciable, is particularly necessary for expression. The little finger should be placed upon the stick, and then the third will naturally fall into its proper position, though it should but barely touch the hair, otherwise the bow would be too far in the hand; which, it is true, might cause it to be held more firmly, but would destroy all the mobility or play of the fingers, which is extremely useful. When, however, I say that the third finger ought not to touch the hair, I must be understood as speaking of an ordinary sized hand; for those who have long fingers, may have the third a little on the hair, without the bow being thereby too far in the hand.

In this method of holding the bow, the thumb should be situated between the second and third fingers. This must be carefully attended to, as it gives more support to the first finger; and we feel that the whole exertion of the hand is made upon that side. The little finger, on the contrary, may balance this power and lighten the bow at pleasure. I have always perfectly felt these movements when playing on the Violoncello, but I should be nearly as much embarrassed to analyse them, as to describe those of my tongue, when I speak. However, what I have said proves at least that the bow should be held with freedom, and without the slightest stiffness of the hand. One thing, for instance, I can assert, which is, that when I take a note with force on the fourth string, the first finger advances considerably from the second; while, if I play moderately loud on the first string, it is nearly close to the second finger. I shall not enter into all the gradations of this movement, which depend entirely on sensation: we

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\* It was not M<sup>r</sup> Duport's intention to have spoken of the bow, and he has only been induced, through the solicitation of his friends, and since the manuscript of this work was placed in the Engraver's hands, to put together the remarks which form the substance of this chapter. — [Note of the French Editor.]

feel that it should advance or recede, according to the different degrees of power which we desire or are obliged to employ.

The second finger, which touches the hair, keeps the bow steady and prevents it from turning; but it has also other properties, of such delicate sensibility as to render them almost inexplicable: for example, it frequently informs us, through the contact of the string with the hair, that the vibrations begin to get unequal, and that the string is about to whistle or produce a harsh kind of sound, which it often rectifies. But I fear I have already said too much on this subject; for I do not wish to enter on a discussion of things which certainly I could not prove. I simply state what I believe I have felt. I have seen many persons, who have correctly made all these movements without giving attention to them, which must have arisen from natural feeling; as regards myself, I did not perceive the facility with which I made them, until I was engaged in teaching those who could not do the like.

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## ARTICLE II.

### OF THE POSITION OF THE BOW ON THE STRING.

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The hair must be nearly flat on the string, and yet the stick somewhat inclined towards the finger-board, but not too much, otherwise when a little force is employed the wood of the bow will touch the string. When the lower strings are played on, and particularly the fourth, the hair must be quite flat; but this is done so naturally, that I have never met with a pupil to whom I have had occasion to mention it.

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## ARTICLE III.

### OF THE PLACE OF THE BOW ON THE STRING.

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The place which the bow should occupy on the strings of the Violoncello is generally fixed at two inches from the bridge. All those who play on this instrument, know, that, in order to produce a fine tone, the bow must remain as much as possible in the same place on the string; but I think that, for the medium degree of power in playing, the above-mentioned place is rather too near the bridge. I am not bold enough

to determine the precise distance; for, in order to do so, a systematic method must necessarily be adopted, and this for two reasons: first, because in keeping the bow as much as possible in the same place on the string, it will always approach the bridge a little, *even against the will of the player*, when the sound is augmented, and recede from it when the sound is diminished: the bow should certainly vary from one place as little as possible, and never move about from the bridge to the finger-board, and from the finger-board to the bridge, which would more than occasion a bad tone; for, on the one hand, it would cause the string to whistle, and, on the other, to scream. The second reason which equally and rationally prevents the determining this distance, is, that it must vary with different persons. This reason may, however, be more easily demonstrated than the other; indeed it will be readily understood, that the nearer the bridge the bow is placed on the string, the greater is the resistance offered by the string; to it, and consequently a more vigorous attack is required, which renders the vibrations stronger: hence, it results that greater force must be used by the left hand, as the string must be stopped by the finger with a force proportioned to the attack which it has received from the bow. However, we should not, for the mere sake of trying our strength, press down the finger as much as we are able, and then draw the bow forcibly across the string, very near the bridge, and exclaim, "*I can produce so much sound?*" the question, here, is relative to a mean term; while this would be acting like a man, who, being able to lift three hundred weight, should say, "*I can carry this weight,*" although he would be obliged to lay it down before he had proceeded ten steps. It is with the force of the bow compared with that of the fingers, as with a man who is laden during a whole day's journey on foot. The fingers must doubtless press down the strings, but still so as to be able to do it with agility. Therefore, whoever has a very firm and vigorous touch may fix the place of the bow nearer the bridge and produce a fine tone; while those whose touch is weaker, will be obliged to fix it rather farther off, otherwise the string will scream. I think a master would be greatly embarrassed to determine the place of the bow for his pupil; it being, in my opinion, a matter of feeling. The grand object is to produce a fine tone: as to the more or less force, (talent and skill being equal,) that must depend on the physical capability, and therefore it belongs to the performer himself to seek the proper place or distance from the bridge, until he perceives the tone to be perfectly round, pure, clear and equal.

## ARTICLE IV.

## OF THE CONDUCT OF THE BOW ON THE STRING.

The bow should be drawn, and pushed horizontally on the string, care being taken to keep it from one end to the other, at the same distance from the bridge. The facility of doing this may be acquired, by moving the bow backwards and forwards in such a manner, that the hair may be always perfectly square with the string, and by employing at all times the same degree of force. In regard to this, there are several things to be observed; *first*, the motion of the fore-arm, which, almost exclusively, must suffice for drawing and pushing the bow throughout its length; the upper part of the arm must remain in the same position, except when the wrist approaches the bridge, and then the arm makes a slight movement to finish pushing the bow: the same thing also takes place in returning, as the fore-arm is then spread out to its full extent to draw back the bow to its point. *Secondly*, care should be taken to open the elbow well, so that the arm may be nearly extended when the bow arrives at its point, and not to carry back the upper part of the arm, as that renders the movements of the bow heavy, difficult and constrained; this is what is called playing from the shoulder, a habit which, if unfortunately contracted, allows the wrist but little motion and leaves only the shoulder to act: for the movement of the elbow is nullified, and the merest trifles become difficult and occasion much fatigue. The wrist performs an important part in the conduct of the bow, and has two wholly distinct movements; the first of which we shall now consider. When we wish to draw and push the bow quite horizontally on the string, the wrist, as I have before intimated, should act in the manner of a hinge, otherwise the point of the bow would incline downwards when drawn, and upwards when pushed. This movement is called the opposition of the wrist, and great care must be taken that it be neither too much nor too little. By strictly attending to the hair of the bow being always kept quite square with the string, this movement of the wrist will spontaneously take place. There are some persons who make it to excess, but every useless movement is ridiculous; others think to display grace by it, but in my opinion nothing is so graceful as ease, which every unnecessary movement destroys. When the bow is pushed from the point to the nut, the wrist must be slightly raised, in order to arrive at the second finger which keeps the bow firmly on the string, so that as much of the bow as possible may be employed.

One of the most common faults in the conduct of the Violoncello bow, which I cannot here forbear to notice, is that of constantly holding the point of the bow too high. This fault is subject to great inconvenience; for, in this position of the bow on the string, in drawing the bow, the hair ascends from the bridge to the fingerboard and, in pushing it descends from the fingerboard to the bridge: the former often causes the string to whistle and the latter makes it squeak. But supposing we should be able to prevent both the whistling and squeaking; still, with such a faulty conduct of the bow, we should never obtain a pure sound; because the vibrating string being continually shortened and lengthened by this means, there would necessarily result an inequality in the vibrations, and consequently a bad tone.

The second movement of the wrist is used in changing the string; for example, if the bow be placed on the second string, by raising the wrist a little the bow will at once be found on the first string; or, on the contrary, by slightly lowering the wrist, it will be on the third string. The arm has nothing or nearly nothing to do with this movement, which must take place every time the string is changed. This is much more evident in the bowing of those passages which are called in French, "*batteries*," of which I shall speak farther on.

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## ARTICLE V.

### OF THE ATTACK OF THE STRING BY THE BOW.

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What is called attacking the string, is, the taking it in such a manner as at once to put it into vibration; for, if we place the bow too lightly on the string, (suppose with the point,) and then push it forwards, the string will whistle; and even if pressed more heavily while being pushed, it will still continue to whistle or give its octave, but will not vibrate clearly. The string must therefore be so attacked that it may vibrate freely at the first motion of the bow, and then by keeping the bow properly placed on the string, a fine tone will be obtained throughout its length. The attack of the bow varies greatly according to the different kinds of expression which we wish to produce. There are some cases where a very strong attack produces a fine effect, and others (and these are the more general,) where it should be imperceptible or inappreciable; but this depends on taste and feeling.

The manner of attacking the string appears to me to be this: first, place the bow on the string, then contract the wrist a little, and afterwards push the bow; this little movement of support from the wrist causes the bow to put the string in motion and at once makes it vibrate. This is termed *biting the string*, and we say of a performer that his bow bites.\*

Thus far I have spoken only of the point of the bow, for the case differs when the bow is drawn instead of pushed: as the stroke of the bow then commences immediately under the hand, it happens, from the weight of the arm, that the attack is nearly always too strong, and therefore it is here necessary to diminish the pressure as much as possible, in order to equalise the attack of the nut end of the bow to that of the point. In general, the bow can neither be drawn nor pushed a single time without the string being thus attacked. It is impossible for me to enter into all the gradations of this imperceptible touch, for such it must be; I shall therefore only observe, that the attack must be in proportion to the strength of sound required, and in proportion to the resistance, and the length of the strings which have to be put into vibration. In general, those who attack the strings with too much force play harshly, and those who do not attack them with sufficient vigour are liable to make them whistle.

I have already observed that the attack should be imperceptible, and the following is my reason for the assertion. It seems to me that the string should be sufficiently attacked to be put into vibration, but not so much, nor in such a manner, as to be perceived by a hearer, which would be harsh and disagreeable. There are occasions, however, as I have already observed, when the expression requires this very strong attack; then, indeed, it produces its effect and does not shock the ear.

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\* The French phrase is: "*cet homme a du mordant dans l'archet*?"

ARTICLE VI.  
OF EQUALITY AND SHADES OR GRADATIONS  
OF SOUND, AND OF EXPRESSION.

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Variety in the manner of playing, gradations of sound, and consequently expression, depend on the bow, and are matters of taste and feeling. I shall not attempt to give examples of such taste and feeling, as that would be extremely ridiculous; but I will say that in order to be able to produce all those shades of sound which feeling inspires and taste regulates, we must begin by acquiring a perfect command of the bow. One of the means is, to seek to equalise the sound which the four strings produce. This may be attained by the practice of drawing and pushing the bow perfectly even, from one end to the other, and with a moderate degree of force, as I have already observed in the Article on the conduct of the bow. The scales must therefore be played very slowly, taking care to make every sound as equal as possible, both in drawing and in pushing the bow. It is also a point of the greatest importance perfectly to equalise the drawing and pushing, without which neither smoothness nor neatness will be attained, and (if the phrase may be permitted) I may add, only a lame method of playing will result. Great attention must likewise be paid that the successive sounds be produced perfectly equal. There is no instrument, however good it may be, which has the sounds on all its four strings perfectly equal in power and quality. It rests with the player himself to equalise them.

It may perhaps be said that, in speaking of shades of sound, and of expression, I recommend monotony. To this I reply that every thing has its centre, and the centre of fine playing, if I may so express myself, is the greatest equality in the different sounds. This equality, from the gravest to the most acute sound, is not to be neglected, since in the opinion of all professors, it is a thing at once the most difficult and the most rare; hence it is necessary to enforce it. Besides, we cannot persuade any one that the bow may produce every possible shade of sound, if he is not able with it to equalise the sounds at will. If therefore you have not a perfect command of your bow, and cannot equalise it in drawing and pushing, there will be an intermixture of weak and strong sounds, which it would evidently be an error to take for shades and expression, as such inequalities would always occur in similar circumstances.

When the power of equalising the sounds shall have been acquired, the augmenting and diminishing them at will may be practised; and this may be done by gliding the bow from the nut to the point, and from the point to the nut, taking care to begin very softly and then gradually to swell the sound, without the least jerking, as far as the middle of the bow, where the greatest degree of power must be attained; after which the sound must be diminished as gradually as it has been augmented, until it again becomes very soft. This must be practised as slowly as possible, and it presents another instance for equalising the drawing and pushing, without which we can never acquire a perfect command of the bow. I must here repeat what I have already said in Article III, namely, that "in keeping the bow as much as possible in the same place on the string, it will always approach the bridge a little, *even against the will of the player*, when the sound is augmented, and recede from it when the sound is diminished." Indeed, the string offering greater resistance when taken near the bridge, furnishes the means of obtaining a greater body of sound; but it is necessary to guard against approaching it too nearly and, in particular, too suddenly, as it will then screech.

When the two means have been acquired, of equalising the sounds, and of augmenting and diminishing them at will, both in drawing and in pushing, the bow will then be able to produce all the gradations of sound. I am fully aware that the various kinds of bowing are of great importance in expression, and that it will be acquired more easily by this means, as it offers considerably more attraction by its variety, than that of which I have been speaking, which is very dry to study: but, still, it is not the work of a day, since even the most skilful professors, when they have not played for some time, or when they find the equilibrium or the certainty of the bow is disturbed, exercise themselves for hours in this manner, before attempting a passage, or looking at a Sonata or Concerto. Every one has not this patience, which is unfortunate, for without it I think we shall never even approach towards perfection. It may not be useless to add that this study affords the means of perfecting the intonation. Beauty of tone and perfection of tune are very nearly allied to each other; besides, the slowness with which this study is conducted, gives time to judge of the intonation, and to adjust the hand if it should have deviated from its true position. But let it not be thought, that I mean to say this study should be absolutely the employment of beginners, for it would perhaps altogether disgust them: they should certainly devote a little time to it, and in my opinion, in proportion as they become more proficient, should give it still more of their attention.

## ARTICLE VII.

CONSIDÉRATIONS RELATIVE TO EQUALITY OF SOUND, AND TO THE QUALITY  
OR DISTINCTIVE CHARACTER OF THE  
TONE PRODUCED FROM THE INSTRUMENT.

In the preceding article I have spoken of equality of sound; but, in order to avoid confusion, I there omitted several things, which shall now be stated. It is well known that gravity of sound arises from the length of the string, and also that the Violoncello has four strings of equal length, but of unequal gravity. This inequality has been attained by adopting strings of unequal thickness: thus, the second string is thicker than the first; the third is covered with plated wire which imparts gravity to it; and the fourth, which is thicker, is also covered with plated wire, but of a larger size, and which therefore imparts a greater degree of gravity. I have already remarked, in Article V, "On the attack of the string by the bow," that this attack must be "in proportion to the resistance and the length of the strings which have to be put into vibration". The same principle must be kept in view, in regard to the mean force of the bow, as that which I have recommended for equalising the sounds; for if the same mean force were employed for making the double octave of the first string vibrate, as that which must necessarily be used for putting the fourth string into vibration, in the first position, the sound of the first string would be deadened: it is therefore necessary that the attack of the bow and its pressure be in proportion to the resistance, and the length of the strings. Thus, to obtain a perfect equality of sound, this force must insensibly decrease from grave to acute, and increase from acute to grave.

There are some persons who may be said to produce three different qualities of tone from their instrument; the bass being feeble, the middle part good, and the upper part rather harsh: and this must certainly arise from such persons not performing the gradations according to their true proportions. But as the ear alone can be our guide and enable us to judge in this matter, it is highly requisite to listen attentively to the sounds produced. One thing to be particularly recommended, is, not to abuse the force which we may employ on the first string: on the second and third we must not press too heavily, or we shall be liable to touch two strings at once; but on the first string, by merely raising the wrist a little, we may press as heavily as we please, only this renders the sound coarse. In general, the force of the bow should be spa-

ringly used on the first string; for which reason we should accustom ourselves to ascend on the second string as often as possible, if we wish to obtain great equality of sound. It may then be asked, why I have used the first string, in giving the scales on one string; to which I reply, that I did so in order to be better understood; but, as these scales may be ascended on all the strings in the same way, they should be so practised, and it will assuredly be often found that an advantage will be gained, in regard to equality of sound and quality of tone, by ascending on the second, or even on the third string. — This leads me to speak of the distinctive character or quality of tone which a performer draws from his instrument; and I think every one draws that quality in particular which best pleases his ear and best accords with his physical powers.

In Article III, I have already said, that “whoever has a very firm and vigorous touch may fix the place of the bow nearer the bridge and produce a fine tone, while those whose touch is weaker will be obliged to fix it rather farther off.” By this I do not mean to say that they will not be able to produce as fine a tone, but merely that it will not be so powerful. Here, then, is another quality of tone, since it differs from the first in power; and this is so true, that if you give twenty different people either a Violin or a Violincello to try, those who have an exercised ear for judging of these instruments will distinguish as many different qualities of tone. I do not say that the contrast will be as of black to white, but assuredly the shades of sound will be distinguishable. Every player, then, having his peculiar quality of tone should preserve it throughout the instrument; shading the sound, however, from the loudest to the softest, without altering the quality; and this is very essential to be observed, as there is nothing more disagreeable than such changes of quality in an instrument.

Those who know that the most celebrated singers have not attained their high degree of skill but by constantly labouring to equalise the tones of their voice, — although it may at first seem that it is only the modulation, the inflexions, the variety and agility which have constituted the charm of their singing, — will pardon this long digression, the object of which is, to recommend performers on bow instruments to labour to acquire that equality which embellishes the sounds of an instrument, as much as it does those of the human voice.

## ARTICLE VIII.

## OF THE DIFFERENT METHODS OF BOWING.

By the expression "Methods of bowing," is understood the different ways of connecting the notes by means of the bow: for instance, quavers or semiquavers played 4 by 4 with the same up or down stroke, but with four distinct movements of the bow, are said to be *detached*; as they are, also, when taken 3 by 3 and performed in the same manner. But when 2 by 2, 3 by 3, or 4 by 4 are connected by a single movement of the bow, either with an up or a down stroke, they are said to be *slurred*. At another time, in the case of four notes, the first two may be slurred, and the last two detached; or the first may be detached, and the last three slurred; or the first three slurred, and the last detached; or, finally, the first detached, the two following slurred, and the last detached. All these varieties of bowing are found indicated in the music which is played, and it is there that they must be studied. If I were acquainted with any new methods of bowing I should take pleasure in giving them, but I believe that none have been discovered since the time of TARTINI, who calculated all of them. They may be varied by the accent of the bow, but hitherto it has been considered useless, or perhaps too complicated, to mark such accentuation in the music; and I venture to say, that these accents of the bow in passages are merely a matter of fashion, and subject to its changes. For example, when two notes are connected together, they will at one time be played perfectly equal, and, at another, with a slight pressure on the first, then again with a similar pressure on the second, and so on. All this depends on the fancy of the player. In the exercises, as well as in the passages, will be found a sufficient number of bowings for the practice of the bow, if the different methods which are therein indicated are scrupulously observed. To give a clear idea of them, however, I shall here present some in due order. I shall employ the same passage for the purpose of exhibiting these bowings: and that too, shall be a common one, in order that it may be the better understood.

Let us begin with the detached bowing, with a down-bow.

N<sup>o</sup> 1.

In ♩ crotchet time.



Nº 2. The first four with a down bow, and the four following with an up bow; and so on.

Ex: 

Nº 3. The first two with a down bow, and the two following with an up bow.

Ex: 

Nº 4. The first with a down bow, and the other three with an up bow.

Ex: 

Nº 5. The first three with a down bow, and the fourth with an up bow.

Ex: 

Nº 6. Slur the first two with a down bow, and detach the two following. In this case the first two notes in the accented part of the measure are played with a down bow, and the first two in the unaccented part, with an up bow.

Ex: 

Nº 7. The first note with a down bow, the two following slurred with an up bow, and the last with a down bow; this finishes the first group. The first note of the second group is then taken with an up bow, the two following with a down bow, and the last with an up bow. [The third group like the first, and the fourth like the second.]

Ex: 

Nº 8. The first note with a down bow, in order to bring in the cross accent (*contre-temps*), and slur the others, two by two, always with the cross accent. This bowing is much used in the present day.

Ex: 

Nº 9. Slur 8 by 8, beginning with a down bow.

Ex:

Nº 10. Slur 16 by 16, beginning with a down bow.

Ex:

It must have been observed that the commencing notes of the phrase have always been taken with a down bow. But, in order to obtain facility and command of the bow, all the preceding examples should be practised by beginning with an up bow, and then scrupulously following the bowings as they are marked, [which will entirely reverse the first order of bowing].

Here follow different examples of bowing groups of three, or triplets, in  $\frac{2}{4}$  time.

Nº 1. All detached: the first with a down bow.

Ex:

Nº 2. Slur 3 by 3, beginning each measure with a down bow.

Ex:

Nº 3. Slur 6 by 6, the first six with a down bow.

Ex:

Nº 4. Slur two with a down bow, and detach one with an up bow.

Ex:

Nº 5. One with a down bow, and two with an up bow.

Ex:

Nº 6. The first note with a down bow, and the others slurred 3 by 3, as they are marked. In this bowing, the last note of the three which are slurred together must be a little more accented than the others, because it forms the first note of the second part of the measure, and the ear requires it to be distinctly marked.

Ex:

Nº 7. The first with a down bow, then three slurred, and afterwards three detached.

Ex:

Here, too, it must have been seen that all the commencing notes have been taken with a down bow; but we should also be able to perform all these exercises with the reverse order of bowing, by beginning them with an up bow.

The following method of bowing 3 by 3 is much used.

Nº 8. The first three slurred, with a down bow, and the three following taken staccato, with an up bow.

Ex:

Let us now proceed to groups of six, in 3/4 time.

Nº 1. All detached: the first with a down bow.

Ex:

Nº 2. Slur 6 by 6; the first group with a down bow.

Ex:

Nº 3. Slur 2 by 2; the first two with a down bow.

Ex:

Nº 4. The first two with a down bow, the two following detached, and the last two with an up bow, and so on.

Ex:

170 No 5. Slur the first two with a down bow, and detach the four following. Here, the two slurred notes in the first measure will be taken with a down bow, and the two in the second measure with an up bow, and so on.

Ex:

No 6. Detach the first four, beginning with a down bow, and slur the last two. Here, the first note in the first measure will be taken with a down bow, and the first in the second measure with an up bow.

Ex:

No 7. Detach the first, and slur the following, 2 by 2, as they are marked. This method of bowing answers very well, when we desire to give a strong expression, to a passage.

Ex:

No 8. Slur three with a down bow, and detach the three others.

Ex:

We must learn to execute all these examples, as in the case of the others, by beginning them with an up bow.

N.B. There are two methods of playing detached notes; the first, by taking them firmly, which is used when we desire to produce a full tone; and the other, by a slight tripping of the bow, which is adapted in light passages. The latter method is performed with three quarters of the bow, towards the point.

Enough, I think, has now been said, to give an idea of the different modes of bowing. It only remains to mention the *piqué*, the *arpeggio*, and the *martelé* or *staccato* bowings

**PIQUÉ.** The *piqué* bowing is performed in two ways: the first is very simple, and consists in taking the first note, which is dotted, with a firm down-bow, and the second note with a smart up-bow, and so on.

EXAMPLE.

The second way is rather more difficult, but it has the advantage that it can be performed with greater vivacity and even with greater force. The first or dotted note is taken with nearly the whole length of the down bow, but arrested near the point, when the string is again attacked (still with the down bow) in order to produce the quick note; then, the next dotted note is taken with an up bow, arrested near the nut, when the string is attacked a second time (still with the up bow) to draw out the quick note; and so on.

This bowing is very difficult to be understood by a mere explanation; but with the bow in the hand, and performed several times before the pupil, he will soon acquire a perception of it. In fact it is the taking two notes with the same stroke of the bow, but detaching them expressly according to their respective duration. Every professor is acquainted with this method of using the bow.

EXAMPLE .

ARPEGGIOS. An explanation of these has been already given in Chapter XI.

MARTELÉ or STACCATO. This method of bowing is so well known, that I consider it unnecessary to explain how it is executed. It is altogether a matter of tact and address, and may be acquired by much practice. Some persons acquire it very readily, while others never succeed in doing it perfectly: I reckon myself among this number.\*

EXAMPLE .

\* The French Editor here remarks, in a note; "All Mr Dupont's friends know his excessive modesty."

## ARTICLE IX.

## OF THE BOWING OF THOSE PASSAGES CALLED, IN FRENCH, "BATTERIES."

This term is used to designate those passages in which the bow passes alternately from one string to another: and here I shall take occasion to explain a matter which frequently causes embarrassment. Many persons for instance, believe that, in playing on the Violoncello, an up bow is used in all those places where a down bow would be employed on the Violin. This is certainly an error; for, on both instruments, the accented part of the measure is generally taken with a down bow; and, when a piece begins on an unaccented part, an up bow is used, in order that the next measure may commence with a down-bow, which produces a better phrasing. All melodies and even diatonic passages are performed on the same principle, and it is only in what are called *batteries* that the contrary takes place. In these, the low notes are generally taken with an up bow on the Violoncello, but with a down bow on the Violin. Here follow some examples of *batteries* for the Violoncello.

1<sup>st</sup> EXAMPLE.

Each note with a separate bowing; the first with an up-bow.

2<sup>nd</sup> EXAMPLE.

In skipping over a string; the first note with an up-bow.

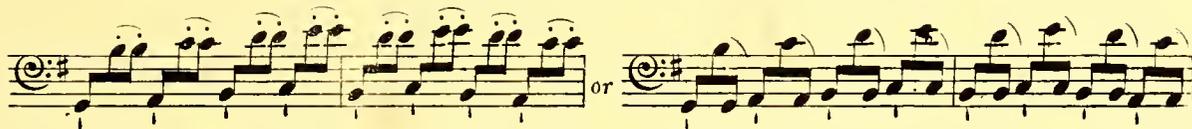
3<sup>rd</sup> EXAMPLE.

In this, on the contrary, the first note, being high, must be taken with a down bow, in order that the second, which is low, may be taken with an up bow.



4<sup>th</sup> EXAMPLE . In Triplets.

The first note with an up bow, and the two following with a down bow .

5<sup>th</sup> EXAMPLE . In Triplets.

The first note with a down bow, and the two following with an up bow.



In regard to the manner of using the bow in the performance of *batteries* where a string is skipped over, I must beg that the remark prefixed to the 20<sup>th</sup> Exercise be attentively observed .

The foregoing will suffice to give an idea of the various methods of bowing in these passages, and to enable the player to judge of those which are derived from them, in any music he may meet with . I ought perhaps to state, that the reason why, in this case, an up bow is used on the Violoncello for that which would be taken with a down bow on the Violin, arises, as it appears to me, from the fact of the strings of the two instruments presenting themselves in an inverse order to the hand which holds the bow . On the Violin, for example, the first string comes first, while on the Violoncello, on the contrary, the fourth string first presents itself to the bow; and hence it results, that the bow, while appearing to act in an opposite manner on the two instruments, nevertheless takes the string which is farthest from it with a down-stroke, and that which is nearest to it with an up-stroke . If it be desired to prove this, let attention be given to the movement of the wrist, and it will be seen that it performs precisely the same action, to render the same thing on the two instruments, although seemingly in an inverse order . These *batteries* might certainly be played by taking the lowest note with a down bow, but they will always produce a better effect when it is taken with an up bow, because the movement then made by the wrist is the most natural. When I practised much, I exercised myself for a long time in playing them in the inverse order , that I might accustom my wrist to every movement possible; but, notwithstanding this labour, I have been obliged to return to the use of the up-bow for the lowest note , when I have wished to produce the best effect .

## ARTICLE X.

OF THE FORM AND LENGTH OF THE BOW.

I have been so often questioned on the subject of this article, that I am inclined to think it may be more interesting than I have hitherto supposed: hence it is that I am induced to give my opinion, but at the same time I must beg that it may be regarded merely as an opinion, and not by any means as a judgement.

I think, then, that either a heavy or a light bow is equally good, as this altogether depends on the habit which has been contracted by the player. He who uses a light bow imperceptibly advances his first finger on the stick, which makes up for any deficiency in its weight. In my opinion, also, it is a matter of indifference whether a bow has a high or a low point, or nut; for, of all these forms, that which we have used for a long period will be found the best; because the hand being accustomed to make the requisite movements in order to conduct the bow, will be disconcerted in meeting with another which demands wholly different movements. It is almost the same, in respect to bows with the hair more or less tight; for I have seen some play extremely well with the hair screwed rather tight, and in a superior manner with the hair nearly loose. I do not think, however, that is a matter of indifference in regard to a bow being too long or too short. It appears to me that a bow which is too short must produce a less mellow tone and furnish fewer resources to the player; nevertheless, with practice and skill, I feel persuaded that much may be done with it. As to those of a wholly disproportionate length, I cannot help thinking them ridiculous, and this for two reasons: first, because a bow which is too long loses the necessary power for attacking the thicker strings, particularly the fourth; and secondly, because it appears to me that the bow should not be longer than the arm can draw it with ease, as it is almost exclusively the fore-arm which acts in moving the bow up and down. If too long, the upper part of the arm must necessarily move back in order to arrive at the point of the bow, which is very useful in a great many passages, especially in those where lightness is required; but this movement cannot be made without the action of the shoulder, and I have already detailed the inconvenience of it.

These reflections bring to mind that, in my youth, I have seen persons playing with such long bows that, in order to be able to employ the whole length, they have been obliged to throw their Violoncello forward. I well remember a certain amateur,

and that not without pleasure, who believed that by means of his long bow he produced a greater body of sound than any one else. He held his Violoncello on his left foot, so that he had his right leg quite free. When he wanted to play with the point of his bow, particularly on the fourth string, his arm and right shoulder were carried so far back that they drew with them his loins, and these again his right leg, until his foot described a quarter of a circle on the floor.

It must not be imagined that we can and ought to use as long a bow on the Violoncello as on the Violin; this would be an erroneous idea. The position of the Violin allows of a much greater extension of the right arm; of which truth any one may easily convince himself.

The ordinary length of the Violoncello bow is about 27 inches, including the head and the screw of the bow; and that of the hair about 24 inches. By this I do not mean to say that every one ought to use a bow of this exact length, nor that persons who have long arms are not justified in having bows of a due proportion to them.

The most essential thing in the form of the bow is, that the stick be very straight and not liable to warp, and that it be so regularly diminished, that it will obey equally from one end to the other. There is no one who has succeeded better in the manufacture of bows, than M<sup>r</sup> TOURTE Junr; and I am the more pleased to render this tribute to his merit, because it is so generally acknowledged.

END OF PART I.