

A TREATISE
ON
THE INSTRUMENTATION
OF
MILITARY BANDS;
DESCRIBING THE CHARACTER AND PROPER EMPLOYMENT OF EVERY
MUSICAL INSTRUMENT USED IN
REED BANDS.

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A TREATISE.

INTRODUCTION.

THE inventions and improvements in wind instruments, especially in valved wind instruments, have been carried to such a length, and reached such a point, that it will certainly not be considered out of place that an attempt should be made to give as clear an idea as possible of them, as well as of their advantageous employment in reed bands; and thus to induce both the music-playing and music-loving public to take an interest in them.

Reed bands may be said to belong to the public in general. What a band of stringed instruments is in a room, a theatre, a concert-hall, etc., reed bands are in the open air. A merry-making, no matter of what description, held out of doors, appears incomplete without a reed band.

An orchestra of stringed instruments, combined with vocal solos and chorus, always has, and always will produce the most elevating impression, and is alone that which forms, improves, and perpetuates a really artistic taste for music.

Reed bands, on the contrary, permit the minds of those present to be busied with other pleasures, which they endeavour to unite with artistic enjoyment. They cannot indulge in free and original composition, even in marches, which are particularly their own, because the only half-attentive audience must and will have their attention agreeably recalled to art by some well-known song or other, from the old melodies of the people, from some opera, etc.

Music for reed bands can, therefore, consist merely of arrangements of universally known and popular operas, songs, and other compositions; and thus either, on the one hand, remind the audience of past artistic enjoyments, or, on the other, excite them to such enjoyments.

The arranger must, therefore, in the first place, direct his attention to two things:—
1. To what instruments he may advantageously adapt the different vocal parts; and 2. So as to impair as little as possible the spirit of the original composition, to consider how and in what manner the different instruments of the orchestra are to be represented.

I.—THE VOICE.

The human voice is classed under the following heads:—(*Male Voices.*) 1. Bass; 2. Baryton; 3. Tenor; (*Female Voices.*) 4. Alto; 5. Treble and second Soprano; 6. Soprano; (*Chorus.*) Soprano, Alto, Tenor, and Bass.

1. The solo bass-parts should be given to the F bombardon, and the F or G bass valve trombone; and, if necessary, when there is no solo-player on the above instruments, or when the part contains many running passages, to the B flat euphonion, or B flat ophicleide.

2. Vocal baryton parts should be given to the baryton (tenor or alt-horn in B flat), the B flat tenor-trombone, and, generally, to all valve instruments in B flat and C, as well as to the euphonion and ophicleide, when those instruments have not to play a bass solo.

3. Vocal tenor-parts should be given to the valve instruments known by the name of alt-horns in D and E flat. These parts are now generally given to the valve instruments in B—C; but since, however, a melody in C, G, D, A, and E, will, for a reed band, be more effective in D flat, A flat, E flat, B flat, and F major,—that is to say, a semitone higher,—they are best adapted, as I have said, for the valve instruments in D—E flat, which are more

characteristic of the original orchestral parts. The same parts on an instrument in B flat would, through the constant high notes, fatigue the performer without being effective.

4. The lower alto-parts should be given to the flugel horn in F, and the higher ones to the crooked cornets, flugel horns, and bugles from B flat to G, or to the trumpets from G or F to D. More delicate alto-parts should be given to the bassett horns (which have now, unfortunately, gone almost out of fashion). The cor-Anglais might be advantageously employed, only it is too weak. The alto-saxophone in E flat might, also, be used for this purpose.

With the above, ends anything like an effective rendering of the various vocal parts, as far as brass instruments are concerned, unless, as an extreme case, a second soprano-part were given to a good piston in C, a flugel horn, or a high trumpet. The higher keys of D flat, D, and E flat, as well as the extreme piccolos from F to A flat, which might otherwise represent the soprano-parts, have so sharp and cutting a tone, that, though they might be very advantageously used for doubling the melody, in the *forte* and *fortissimo*, they cannot possibly be employed with any effect to render the vocal solo soprano-part.

The above instruments may, however, in conjunction with the valve instruments (not occupied with the solos), be turned to good account for the vocal chorus.

5 and 6. The second and first soprano-parts are, therefore, advantageously represented only by wood instruments,—namely, the oboe, the soprano-saxophone, and the solo clarinet in B flat. The flutes and small clarionets, which extend beyond the compass of the soprano-parts, will, in turn, double the solo vocal parts in the upper octave, for, since the music of reed bands is calculated for the open air, it would be, generally speaking, advantageous to double the solo vocal parts transferred to them, so that—

1. The bass-parts should be strengthened and supported by the flugel horn in F, the trumpet, the E flat alto-saxophone, or the cornet.

2. The baryton-parts, by the cornet from G to C, or the flugel horn in the same keys.

3. The tenor-parts, by the B flat soprano-saxophone, oboe, the solo B flat clarinet; and, in the *forte*, by the small cornets in D flat and E flat, also.

4. The alto-parts, by the grand flute, and the clarinet in E flat.

5 and 6. The first and second soprano-parts, by the third and the higher flutes.

It might almost be laid down as a rule that brass valve instruments are especially adapted, more by their force and expression, and less by their flexibility, to render characteristically the male voice. The wood instruments, being softer and more pliant, approach nearest the female voice.

II.—THE ORCHESTRA.

The orchestra is divided into—1. Stringed Instruments; 2. Wood Instruments; and 3. Brass Instruments.

This definite, noble, and characteristic classification is, in the case of reed bands, not easily carried out, because the various classes are there more completely blended into one mass,—the instruments belonging first to one class and then to another.

1.—*Stringed Instruments.*

The first violin is, in the first place, represented in reed bands by the first B flat, or C clarinet; and, in the higher passages, by the E flat and F clarinet.

The second violin should be represented by the second clarinet.

The tenor should be represented by the alto-clarionets or bassett horns; and, in the absence of the latter, transposed for the third clarionets in B flat.

The violoncellos should be represented by the bassoons; and

The double-bass by the bass instruments.

But this arrangement is not sufficient or advisable in all cases, as will be seen more clearly in the description of the separate instruments. Besides,—excepting in the case of a few

solos,—the French horns are mostly employed in the orchestra in the *mezzo-forte* and *forte* alone; while, in the case of reed bands, they have a very good, harmonious, full tone in the *piano*, and even *pianissimo*: it is, therefore, necessary to employ them frequently, if possible, in new and extra rhythms, invented for the purpose of strengthening the wood instruments, and of thus representing the stringed quartet. A good and characteristic mode of treating the French horn for reed bands is, indisputably, the most difficult and most important task for the arranger.

2.—Wood Instruments.

Of these, the oboe is the only one which varies but little whether employed in the orchestra or in a reed band; the others, such as flutes, clarionets, and bassoons, which are much used for replacing the stringed quartet, must,—save in the case of the solos especially their own,—be replaced by saxophones, cornets, alt-horns and tenor-horns.

3.—Brass Instruments.

Those brass instruments which have not been employed to replace the stringed quartet and the wood instruments, take the remaining orchestral parts.

A GENERAL VIEW OF WIND INSTRUMENTS.

Wind instruments are arranged in two divisions:—

1st Division—Wood instruments.

2nd Division—Brass instruments.

I. Wood instruments are divided into those—

1. Without a mouthpiece, but with an embouchure,—as all flutes.
2. With a whistle mouthpiece,—as the flageolet.
3. With a single reed,—as all kinds of clarionets and saxophones.
4. With a double reed,—as all kinds of oboes and bassoons.
5. With cup-shaped mouthpiece,—as bass-horns, serpents, ophicleides.

II. Brass instruments are divided into those—

1. With a funnel-shaped mouthpiece,—as French horns.
2. With (oval) cup-shaped mouthpiece,—as bugles, flugel horns, sax horns.
3. With a round, cup-shaped mouthpiece,—as trumpets and trombones.

N.B.—It must be observed that those bass instruments, such as bass-bombardons, and sometimes, also, euphonions, which play the principal bass-part, are, practically, to be considered wood instruments.

1st Division.—Wood Instruments more nearly described.

1. WOOD INSTRUMENTS WITHOUT A MOUTHPIECE, BUT WITH EMOUCHURE.—FLUTES.

Only the grand D flute (concert flute) and the octave D piccolo are used in orchestras. But for reed bands, and, in the army, for buglers (who are at the same time fifers and flute-players), when playing simultaneously with drums, flutes in other keys are advantageously employed. The various kinds thus used, from the lowest to the highest, are:—

- | | | | |
|--------------------------------|-------------------------|---|---------------|
| a. The grand D (concert) flute | - | - | (tuned to C). |
| b. The grand E flat flute | - | - | („ D flat). |
| c. The third (F) flute | - | - | („ E flat). |
| d. The fourth (G) flute | - | - | („ F). |
| e. The B flat flute | } the so-called fifes { | | („ A flat). |
| f. The B natural flute | | | („ A). |
| g. The C flute | | | („ B flat). |
| h. The octave (D) piccolo | - | - | („ C). |
| i. The E flat piccolo | - | - | („ D flat). |
| k. The F piccolo | - | - | („ E flat). |

There is as much to be said for as against this strange mode of naming the various flutes after the key of D, instead of after that of C. In its favour, it may be urged,—when we recollect that the name of D applies not only to the note of D, as the lowest one of most flutes, but to the most practicable key of the flute, D major; thus representing the note and the key of D as the standard for this instrument,—a flute in E flat would therefore play D major, in the key of E flat, the easiest key for the flute; an F flute would play D major, in the key of F major; a B flute would play D major, in the key of B major; etc. On the contrary, it may be said that, as the key of C has been established as the standard in all musical matters, the variation in the denominations of flutes in the different keys may easily be productive of mistakes.

a. THE GRAND (CONCERT) FLUTE IN D.

This is the best adapted for solos, even in reed bands, especially since, at present, it would be more easy to play upon one of Boehm's flutes than on any other, in those flat keys which generally occur in music written for reed bands; in bands, however, where there is only one flute-player, instruments in a higher key are to be recommended, since the extreme compass of the grand flute is easily reached and overpowered by the E flat clarinet. If, however, a good flautist should wish to execute a solo obbligato, three B flat clarionets (if possible, bassett horns), bassoons, and *one* good bass, would be quite sufficient for the solo accompaniment, with French horns introduced now and then. A solo on the grand flute, which is not written exclusively for the flute, can be supported either by the oboe, in the highest notes,—by a good cornet in A flat, B flat, or C,—or a flugel horn, when the passage does not go beyond the high F; or, when there are many passages, by the solo B flat clarinet an octave lower.

b. THE E FLAT FLUTE

Is half a tone higher than the concert flute, but does not possess the agreeable and characteristic tone of the latter; it is indispensable, however, in certain passages, as, for instance, the andante flute solo, in $\frac{3}{4}$ time, in the overture to *William Tell*,—especially, be it remarked, when the solo, as is generally and very properly the case, is arranged for reed bands half a tone higher than the key in which it was originally written for the orchestra. The andante in A flat major is too difficult for the concert flute,—ineffective for the third flute in F major,—and most unsuited for the piccolo in E flat; and, therefore, only practicable on the flute in E flat, which renders most characteristically the original composition. The flute in E flat is frequently supplanted by the third flute, since it is less capable than the latter, as a general rule, of supporting the solos of the B flat clarinet an octave higher. Unfortunately, in Belgium, France, and also in England, composers writing for reed bands use only one flute,—namely, the E flat piccolo;—now, where there are two flute-players, both would necessarily play this instrument,—but it is a well-known fact that two piccolos are very seldom indeed in tune together; one of the performers would, therefore, do better to play the same part on the E flat flute.

c. THE THIRD, OR F FLUTE.

This is, next to the concert flute, the most practical and effective flute for reed bands; indeed, I would almost assert it to be the better of the two,—it is clear and sonorous, without being in the least unpleasant. It is most effective in the keys of C, F, and B flat major, which it actually plays as A, D, and G major; it is less effectively employed in the flat keys, but still is not always to be replaced by the E flat flute. Where there is only one flute-player, however, even the third flute is not alone sufficient; in such cases, the performer should be provided with two instruments,—a third flute and a piccolo in E flat,—the former to be used, in the *piano*, to support the B flat clarinet, and the latter, in the *forte*, to support the E flat clarinet.

d. THE FOURTH FLUTE.

Since reed bands are becoming more and more restricted to the flat keys, the fourth flute has gradually fallen into disuse. This instrument would be, in the keys of D, G, and C major, for the support of the solo C clarinet, what the third flute is for the solo B flat clarinet, in the keys already mentioned.

e. f. g. B FLAT, B NATURAL, AND C FLUTES.

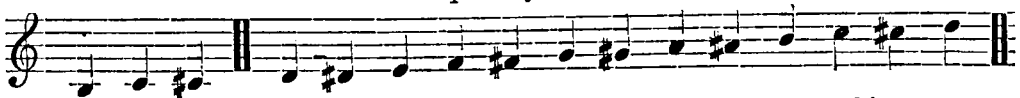
Flutes in these keys have hitherto been used only by children when learning music, or by fifers (buglers), in conjunction with the drums of a regiment. Flautists look upon them as not belonging to the flute class. For my own part, however, I am not disinclined to believe that a well-finished flute, with several keys, such as the third flute or piccolo, especially one in B flat, could be very advantageously employed, in reed bands, as a medium between grand and small flutes; in fact, I would almost assert that, if musicians would but accustom themselves to use the B flat flute (in B flat, and E flat major), and even a flute in A flat, which does not at present exist (for A flat, and D flat major), they would eventually find instruments of this kind indispensable.

h. i. h. D, E FLAT, AND F PICCOLOS.

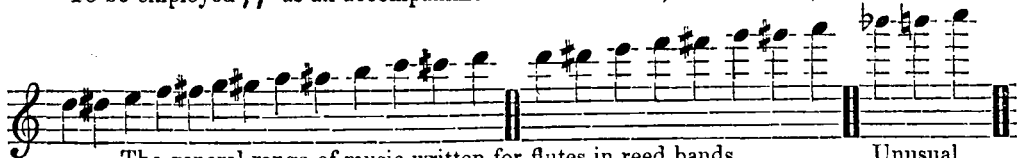
As the keys of A, D, and G major seldom occur in reed bands, the octave piccolo is more easily employed than the E flat piccolo, which is most advantageously used for the keys of B flat, E flat, A flat, D flat, and, also, G flat major,—and the F piccolo, for the keys of C, F, and B flat. The piccolos serve mostly to strengthen the melody of the grand flutes and small clarionets. An independent piccolo solo is, however, far from ineffective.

ON FLUTES IN GENERAL.

The Compass of the Flute.



To be employed *pp* as an accompaniment with clarionets, bassett horns, and bassoons.

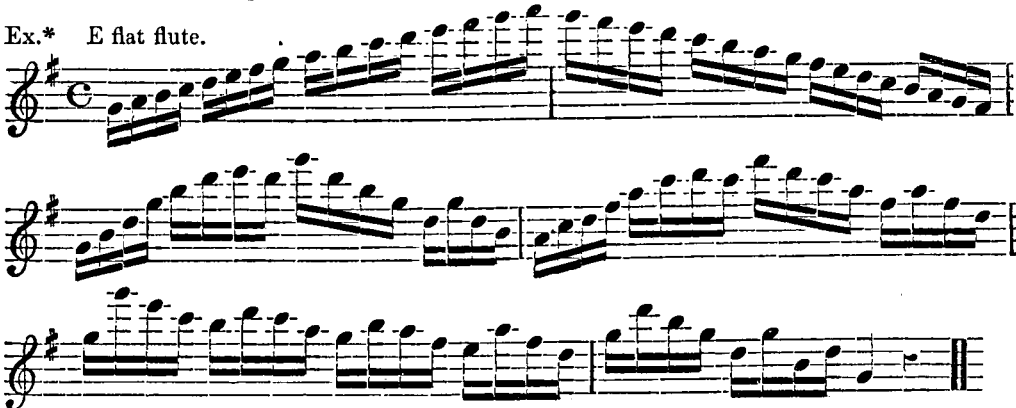


The general range of music written for flutes in reed bands.

Unusual.

It is impossible to lay down any definite scale for the employment of the various *gradations* from the *pianissimo* to the *forte*. Even the highest notes, especially of the grand flute, may be used in the *piano* and *pianissimo*; but the lowest notes are not effective from the *mezzo-forte* to the *forte*. Arpeggios and passages similar to the following:—

Ex.* E flat flute.



cannot well be divided in any case.

* E flat flute playing in the key of G (as in the Ex.) is actually the pitch of A flat major.

Two flautists would either, the one upon the E flat flute, and the other upon the E flat piccolo, play in octaves, or, taking up the melody in turn, play that portion of it best adapted to each instrument, something in the following manner :—

Actual pitch of A flat major.

Piccolo in E flat.

F flute.

The grand flute in E flat will then play the undivided passage as the foregoing Example.

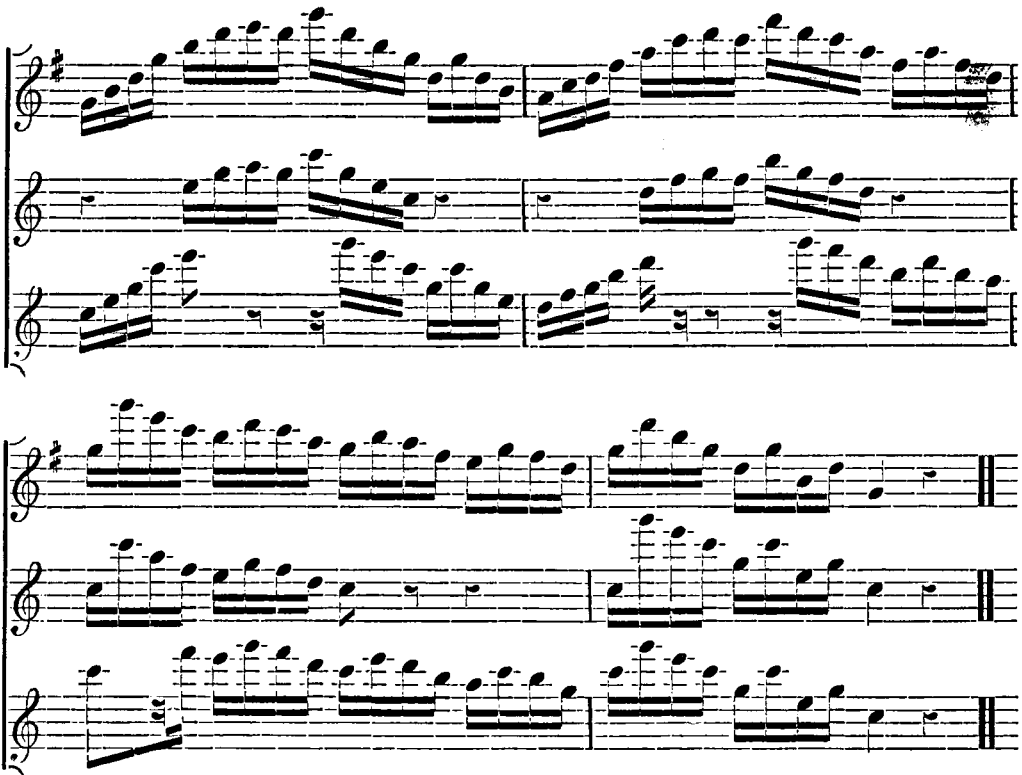
Even here, the advantage of an additional flute, in the execution of the above melody, would be apparent, as well as the use of a B flat or A flat flute, if an attempt were made to transpose this or a similar passage in D flat or E flat major.

For the undivided passage.

D flat or E flat major.
A flat or B flat flute.

E flat or F piccolo.

Grand E flat or F flute.



This Example is to prove that the passage broken would not produce the effect of the first Example.



The agreeable tone of the flute, and the ease with which it is played, qualify it,—in conjunction with the first B flat clarionet, even in preference to the small clarionets, which are too shrill and piercing in the higher notes,—for replacing the first orchestral violin; but, in order to render this, under all circumstances, possible, we must have flutes in every key, and not in two or three keys only, as at present.

In a reed band of thirty performers, we ought to have, at least, three flautists. Since, moreover, the flageolet tones of the violin resemble the flute more than any other instrument, they might be represented by the flute alone. We might effectively employ, also, in conjunction with clarionets, bassett horns, and bassoons, or with other flutes alone, the low A flat flute, used only by some persons from mere fancy, or an affectation of originality, and, on account of its soft and melancholy sound, termed the *flauto d'amore* (flute of love).

Before proceeding to consider any other instruments, I beg once more to direct the attention of my readers to the fact that I am attempting to describe wind instruments, and their respective value, for reed bands alone; and that the present work does not apply in the slightest degree to the use of the said instruments in the orchestra. To employ all the varieties of flutes, clarionets, oboes, etc., so frequently in the orchestra, would be injurious to the characteristic nature of the original instruments.

Every wind instrument in an orchestra possesses an independent and characteristic effect of its own; in reed bands, however, wind instruments are used as substitutes for others. As such bands, moreover, are intended for the open air, these instruments are employed to strengthen one another, as the occasion requires, and as far as the character of each separate instrument will permit. The task of the arranger is, therefore, by means of the instruments in the various keys, to obtain the best substitutes, and an advantageous amount of strength.

2. INSTRUMENTS WITH A WHISTLE MOUTHPIECE.—THE FLAGEOLET.

The flageolet is an instrument next in rank to a piccolo flute, although its sound is duller. It is very often effectively employed in the orchestra, for dance-music, and music in the open air, in England and France,—as well as, occasionally, in reed bands, like the E flat piccolo, which is a semitone higher than the orchestral piccolo. On account of its weaker sound, especially for solos, the flageolet appears superior to the piccolo.

Its compass is pretty nearly similar to that of the last-named instrument, since we do not greatly miss the lower notes from D to G, which are not practicable, and which are very seldom written for the piccolo; moreover, the best keys are those of A, D, and G major, as upon the piccolo, so that the latter and the flageolet can easily execute one and the same part. The various keys on the flageolet are named after the lowest note, as is the case with the flute. The flageolet which has the same sound and the same notation as the D piccolo, is called, after its lowest A, the A flageolet; and that which has the same sound and the same notation as the E flat piccolo, is called, after its lowest note, A, which sounds like B flat, the B flat flageolet.

Where there is a good flageolet-player, he should be employed either to play his own part, or to replace the D and E flat piccolo; but, where there is no such performer, his loss is not felt. Since one principal characteristic of wind instruments,—namely, the effective *crescendo* and *decrescendo*—the swell and diminution of the tone,—is not very well within the reach of flageolets, even the sharp and shrill piccolos are nobler in their expression. We must also observe that there is, on the flageolet, an artificial low G sharp, produced by half covering the opening at the bottom with the little finger of the right hand, in such a manner as to leave only half the passage for the escape of the air.

Flageolets might be made in lower keys, but then they would be feeble and less expressive, and could not be at all recommended for reed bands.

3. INSTRUMENTS WITH A SINGLE REED.

1. CLARIONETS.

In order advantageously to obtain the greatest variety of effects from the clarionet, which is the most important of all wind instruments in reed bands, it is employed in several different keys. The clarionets in B flat and E flat, and the alt-clarionet, or bassett horn, are, however, the most valuable. Before proceeding to give a detailed account of clarionets in other keys, I shall first describe the important ones above mentioned.

The most important and agreeable of all is the B flat clarionet, which replaces the vocal soprano-solo, and sometimes supports the tenor, besides being employed as a substitute for the violin-parts and the solos of the orchestral clarionet. For these various objects, a great number of B flat clarionets are, of course, necessary; so that a good fourth of a reed band

ought to be composed of B flat clarionet-players. B flat clarionets are, therefore, divided into several classes,—namely, into solo clarionets; first clarionets; second clarionets; where there is no bassett horn, or alt-clarionet, third clarionets; and, sometimes, fourth and fifth clarionets. We must, consequently, describe minutely each separate class, and the use to which it is applied.

THE SOLO B FLAT CLARIONET.

This indisputably plays the principal part in a reed band: what the leader is in an orchestra, the solo clarionetist is in a reed band. In the part for this instrument, the solos not intended for it should be distinguished by means of small notes, so that it can always serve as the conductor's copy (since, generally, the score for reed bands is in manuscript only). The solo clarionet is likewise the instrument possessing the most extensive compass in reed bands, and, therefore, can, when necessary, best undertake every solo for which other instruments may be wanting. As we have already said, it represents the vocal soprano-solo, although the latter is also rendered by the oboe and the soprano-saxophone. But these instruments should be selected only for those soprano-parts which are simple, and have not a very extensive compass, since the solo B flat clarionet is capable of executing every vocal soprano-part, and is the only instrument that can execute parts having an extensive compass, and containing rapid passages.

The clarionet has not so independent and marked a character as an oboe, in the orchestra, where its melody may be doubled by the flute, with equal advantage to both. This is still more true in reed bands, where a vocal passage on the B flat clarionet can only gain by being supported by the grand flute; but this instrument is never supported by the piccolo. In bands where the only flautist is the E flat piccolo-player, we miss that advantageous support of the solo B flat clarionet—the grand flute. The best solo clarionet-player will, if not supported by the flute, lose more than a moderate player would gain when supported by it. The case is completely different with the oboe, trumpet, cornet, etc., which are merely strengthened when the melody is doubled by other instruments, but, to a certain extent, lose their own peculiar character. The solo B flat clarionet, moreover, when not employed to represent the vocal soprano-solo, is, in conjunction with the first clarionet and the E flat clarionet, the best and principal substitute for the first violin-part in the orchestra. It cannot, however, reach the highest notes of the violin, and they are, therefore, given to the E flat clarionet.

But since a solo B flat clarionetist must be a very good performer, and, in most reed bands, really is so, we can boldly write even up to the high $\overset{=}{g}$ for a solo B flat clarionet. The performer would then, it is true, frequently have to play in unison with the E flat clarionet; but, in the shrill notes, $\overset{=}{b}$ natural, $\overset{=}{c}$, $\overset{=}{d}$ — $\overset{=}{e}$, would only soften it, by the notes, $\overset{=}{e}$, $\overset{=}{f}$, $\overset{=}{g}$, and even $\overset{=}{a}$.

Besides this, the solo B flat clarionet would have to execute the solos of the orchestral clarionet-part. It must be observed, with regard to these, that solos which are simple, and lie in the range of an alto-part,—as, for instance, the orchestral clarionet-solo in the overture to *Oberon*,—would be best given to the B flat flugel horn, or the cornet-à-piston, instead of to the clarionets, which should then represent the violins. Florid or rapid passages, and solos in the soprano register, however, can only be rendered by the solo B flat clarionet. This instrument may, moreover, be advantageously employed to support the vocal tenor-solo. When we recollect, too, how easily it can support, also, baryton and bass parts,—and that, in extreme cases of necessity, it can execute all parts,—its great value is most clearly established.

THE FIRST B FLAT CLARIONET.

This replaces, even still more decidedly than the solo B flat clarionet, the orchestral first violin-parts. As it cannot, however, render all the passages in the higher notes, without

dividing,—that is to say, at one time playing them in the same notes, and then an octave lower,—it would be desirable to transpose such passages an octave lower at once; the higher octave,—that is to say, the real first violin-part,—would then lie within the compass of the E flat clarinet and the flutes, as well as, partly, in the solo B flat clarinet-part, which, as it is generally represented by one person only, could with less detriment play the melody of the first violin thus divided.

In the high notes of the first violin, it often happens that the second violin follows it to those notes, or that it even assumes, in some few passages, a prominent and important character; the arranger must, under these circumstances, ascertain whether the first violin is perfectly represented by the E flat clarinets, flutes, and solo B flat clarinets, before he can give the vigorous passages of the second violin to the first clarinet.

The most important instrument, after the solo B flat clarinet and first clarinet, is—

THE E FLAT CLARINET.

This takes, especially when the solo clarinet represents a vocal part, the first violin-part; in the accompaniment and the softer passages, however, it pauses, and leaves them for the first clarinet alone. If, during these pauses, there should occur any small melodic or harmonic passages in the orchestral clarinet-part, they might very well be given to the E flat clarinet, which is almost always doubled. A great number of pauses are, however, not requisite, for we have very many good players who have succeeded in obviating the disagreeable, harsh, and shrill notes of this instrument.

The E flat clarinet might likewise be advantageously employed to support the vocal alto-solo, especially when the latter is represented by brass instruments.

A clarinet in the key of E flat cannot undertake, as an independent instrument, a vocal part; to suit it, a vocal soprano-solo would have to be written at least a third higher, and thus lose in expression and character,—while a vocal alto-solo would have to be written an octave higher, which would be quite contrary to our ideas as to how a vocal solo should be represented. Since, then, we cannot arrange any vocal solos for the E flat clarinet, it must be restricted to the solos peculiar to it,—that is to say, principally to variations, where it can be employed with extraordinary effect and piquancy, either in conjunction with the solo clarinet, in which case it takes the first part, or with the piccolo flute, when it takes the second.

THE SECOND B FLAT CLARINET.

This represents most nearly the second orchestral violin, and, as the latter has frequently double notes, must also be at least doubled. Effective and rapid orchestral passages of the first and second violins lying in the higher notes, and already represented by flutes, E flat clarinets, solo B flat and first B flat clarinets, would gain in strength and volume if the second clarinets doubled them in the lower octave,—so that the first of the second clarinet-part should double the first violin in the lower octave, and the second of the second clarinet-part, the second violin, also in the lower octave.

A SO-CALLED THIRD CLARINET.

This instrument must, unfortunately, be used as a substitute for the alt-clarinets or bassett horns, which, though so characteristic and effective, have gradually gone out of fashion. I can, however, no more consider this right and proper, than I could look on an orchestra as perfect without a tenor. Just as, in the orchestra, there may be first and second violin-parts subdivided into several others,—as is frequently the case in compositions by Mendelssohn, Richard Wagner, Berlioz, etc.,—so also, in reed bands, we may have several parts for the first, and several parts for the second B flat clarinets.

But a separate characteristic part for the third clarinets is quite as absurd as a third violin-part, instead of the tenor-part, would be in an orchestra. It may be objected that a

B flat clarinet is capable of supplying the place of a tenor, since the only notes in which it is deficient are the low C and the C sharp, which can be played by the bassoon. Were only the notes of the tenor concerned, they might indeed be replaced; we have, however, nothing to do with notes, but merely with the wonderful alto sound of the tenor, lying between the violins and violoncellos, and never attainable on a B flat clarinet. For this purpose, bassett horns or alt-clarionets must be employed.

There are, moreover, first and second *ripieno* clarionets, called also fourth and fifth clarionets. Parts written for these instruments are attributable entirely to the unpardonable laziness of the arranger, and are nothing more than a copy of the orchestral clarionets. Since, now, the B flat clarionets have principally to represent the violins of an orchestra, they ought to be diverted as little as possible from this purpose by being employed for any other object. The most important functions of the orchestral clarionets should be given to the solo or E flat clarinet, and the rest, as far as possible, to the cornet-à-pistons, flugel horns, saxophones, etc. It is better to omit the remainder than, by means of them, to prevent reed band clarinetists from effectively representing the violins. It strikes me that this is just as if, in an orchestra not quite complete, we were to have those parts for the wind instruments which are not filled up played by some of the stringed quartet, instead of their playing merely the solos.

Before proceeding to the bassett horns, etc., I must remark generally that the solo clarionets are used in the entire range from $\overset{=}{e}$ to $\overset{=}{g}$; and the first B flat clarinet mostly from $\overset{=}{c}$ to $\overset{=}{e}$, or, at the uttermost, $\overset{=}{f}$. The E flat clarinet is very much employed, principally in the *forte*, in the higher octave of the first clarinet,—that is, from $\overset{=}{g}$ to $\overset{=}{d}$ in the *piano*, and to $\overset{=}{e}, \overset{=}{f}$ sharp, and even $\overset{=}{g}$ in the *forte*; while the second clarinet is most advantageously used from the lowest $\overset{=}{e}$ to $\overset{=}{c}$ and $\overset{=}{d}$.

THE BASSETT HORN.

This is a kind of deep-toned clarinet, in F, and also, sometimes, in E flat, with an additional joint producing E flat, D (rarely D flat), and C, with a brass bell attached to it.

This instrument, so extensive in compass, and so pleasing, should not be wanting in any reed band. With its low tones, it does far more than replace the tenor, and in depth even approaches most nearly the violoncello, the high solos on which (not always to be reached by the bassoon) it can render more characteristically than any other instrument. It can be employed by itself, and, also, as the representative of the vocal alto-solos, besides serving as the only sensible substitute possible for the orchestral tenor. The tenor-part, when given to clarionets or bassoons, contains merely a certain number of notes without any characteristic tone. The French horns might, it is true, execute harmonically the middle passages of the tenor; but what is the French horn, which requires to be employed with so much prudence, compared with the easily-flowing tenor!

Whatever new inventions are introduced, the bassett horn always will be, as it always has been, indispensably necessary for a reed band.

Since the fingering is the same as for the clarinet, the best keys for the latter,—namely, C, F, B flat, E flat, and G major,—are, also, the most advantageous for the bassett horn. It strikes me that the best course would be to employ, in a reed band, two bassett horns,—one in F, and the other in E flat,—which might, in turn, play the solos in the keys most suited to them. If, for instance, a piece of music were in the key of E flat, A flat, D flat, or G flat major, the E flat bassett horn, which would then play in the key of C, F, B flat, or E flat major, would execute the solos, while the F bassett horn, playing in the key of B flat, E flat, A flat, or D flat major, would only accompany it. If, however, a piece of music were

in the key of C, F, or B flat, the F bassett horn, which would then play in the key of G, C, or F major, would execute the solos, while the E flat instrument, playing in the key of A, D, or G major, would, in its turn, have only to accompany. To burden each performer with two instruments, in order that he might, in his turn, play with greater convenience, in the keys of C, F, B flat, E flat, A flat, D flat, and G flat, would deprive the instrument of all its charm.

THE ALT-CLARINET.

This is the same instrument as the bassett horn, and is employed in the same keys of F and E flat; it is, however, not quite so perfect in the lower notes, since it wants those of C, D flat, D, and E flat, which may occur, although, it is true, they do so very rarely. On this account, the bassett horn is to be preferred to the alt-clarinet.

With this reservation, the observations made on the bassett horn apply to the alt-clarinet.

If we now compare the various clarionets we have already described,—namely, the E flat clarinet, the solo, first and second B flat clarionets, and the bassett horns, or alt-clarionets in F and E flat,—we find excellent substitutes for soprano-solos, first and second violins, and tenors, as well as for the most important solos of the orchestral clarionets. But these substitutes are only suitable for the keys of F, B flat, E flat, A flat, and D flat major; even C major is difficult, and G major still more so, while D major and the higher sharp keys are altogether impracticable,—so that what has been said of these instruments applies only to those in the B flat keys.

If, therefore, we wanted reed bands to play effectively in C major and the sharp keys, it would, in the first instance, be necessary to employ clarionets in other keys. As a matter of course, however, the relative value of the instrument, as the representative of soprano-airs, first and second violins, and tenor, as well as of the most important solos of the orchestral clarionets, would be the same as it is now.

Thus, in the keys of C major and G major, we could only employ, for the above purpose, to represent the present E flat clarinet, an F or high G clarinet,—for the solo, first and second B flat clarionets, a solo, first and second C clarinet; but of the bassett horns, at most only that in F (supposing we did not employ a low G clarinet, which, it is true, does not now exist, but which might be made).

Furthermore, in the keys of D, A, and E major, we should use, for the E flat clarinet, already mentioned, one in D or E, and for the solo, first and second B flat clarionets, a solo, first and second A clarinet; the present bassett horns, or alt-clarionets, would not be employed at all, unless we endeavoured to make one in E for the purpose.

In order to play with ease in every possible key, it would be necessary for a so-called E flat clarinetist to employ a D, E, F, and G clarinet, which he would be obliged always to have with him.

A solo B flat, first and second B flat clarinetist would be obliged to have also a C and A clarinet; and a player on the bassett horn, and an alt-clarinetist, also an instrument in G and E. Even then it would be impossible to employ the sharp keys, unless, at the same time, we could employ the bass valved instruments in keys in which they are not at present used.

A performer on a brass instrument can, by merely changing the crook, change the key of his instrument; but it is quite a different matter for flautists and clarinetists, who must have a separate instrument for each key.

But, further, though a flautist may carry with him, without any very great difficulty, an additional first flute, or, in cases of necessity, even two, the fact of having to carry about two, three, or more instruments of different keys, would prove for the clarinetist, in a reed band, a source of infinite trouble.

Although it is certain that the orchestral clarionetist is,—from the fact of his having to play in turns his A, B flat, and C clarionets,—one of the most hardly worked persons in the orchestra, we perceive most clearly that this is necessary, on account of the definite character of the instrument; thus, if he has a piece of music in A major, the A clarionet-part cannot, by transposition, be rendered even on the most perfect B flat clarionet, on which B natural itself may be played with ease; nor can the C clarionet be represented, by transposition, on the B flat clarionet. Furthermore, although the orchestral clarionetist plays in an enclosed space, the state of the temperature frequently affects his instruments, and causes him great inconvenience; but, in spite of this, he must, as I have said, have his A, B flat, and C clarionets.

Now it is a well-established fact that the distinguishing characteristics of the keys are not, when employed in a reed band, so marked as could be desired. Take, for instance the key of D major, which is that of the “Hallelujah,” of triumph, of the war-cry, and of victory. If this were taken by the D clarionet playing in C major, and the A clarionet playing in F major, it would be too dull and flat; or if by the F clarionet playing in A major, and the C clarionet playing in D major, with F bassett horns, or alt-clarionets, playing in A major, it would be too sharp, shrill, doubtful, and even common-place: it would be a mere piece of inexpressive vulgarity striving to effect wonders. Even if we combined with either of the above instruments, the dull D horn, and the D trumpets, which are of no use in reed bands, as well as the uncertain bass instruments in D major,—including even the valved brass instruments with a semitone crook to render them more easy of performance in that key,—the effect would be nothing very great. Such an arrangement of the “Hallelujah” in Handel’s *Messiah*, merely for the purpose of characterising the original key of D major, would, I feel convinced, never produce the impression desired.

The above “Hallelujah,” however, arranged in E flat major,—for E flat and B flat clarionets, F and E flat bassett horns, or alt-clarionets, E flat horns (which are somewhat clearer), the more effective E flat trumpets, and the easily-played basses,—would, in my opinion, be far more splendid, impressive, and touching. Thus, it may, so to say, be laid down as a rule, that the character of the orchestral key of D major may be represented, in reed bands, by E flat major. Thus, too, the other sharp keys would be more advantageously written in the B flat keys than in the original key. For instance, the peculiar character of E major would be rendered by the sharp, cutting F major, in a reed band,—and even the apparently dull A flat major, in a reed band, could serve as a substitute for the pastorally idyllic G major, because, by means of the instruments in F, B flat, E flat, A flat, and D flat, which would then play in E flat, B flat, F, C, and G major, the gloomy character of the key would be agreeably lightened.

The orchestral C major would remain C major, or might, without prejudice, sometimes become E flat major; nay, in a case of necessity, if there were many modulations in the sharp keys, it might be characteristically represented even by D flat major. The pleasing A major would then be replaced by the round and pure, although weak, B flat major. Thus one key would have to represent characteristically several others. It should be the aim of the arranger, by a varied and effective instrumentation, to reproduce as characteristically as possible the original key.

The following rules might, perhaps, be laid down to guide the musician when representing, in a reed band, the various orchestral keys:—

E flat major (representing, in reed bands, an orchestral composition in D and C major to E flat).

When a composition for a reed band is arranged in E flat major, to represent, in the first place, an orchestral composition in D major, the instruments in E flat would be most effective;

this key, which is so easily distinguishable in wood instruments, produces clear, firm, and powerful tones in brass instruments.

When a composition for a reed band is arranged in E flat major, to represent, in the second place, the same key in the orchestra, the B flat instruments would be most effective for imparting to the key the softer character peculiar to them.

When a composition for a reed band is arranged in E flat major, to represent, in the third place, an orchestral composition in C major, the instruments in E flat and B flat would be employed in common, without those of either class predominating.

F major (representing, in reed bands, an orchestral composition in E to F major).

When a composition for a reed band is arranged in F major, to represent an orchestral composition in E major, the sharp and piercing F instruments, on account of the clearness and brilliancy of the open notes on the brass instruments, would, combined with the shrill C instruments, be the best; the clarionets in C and F would, in this instance, be preferable to the softer ones in B flat and E flat.

When F major in a reed band represents the same key in the orchestra, the softer B flat and E flat clarionets, with the B flat brass instruments, would again be the most effective; the F brass instruments are confined more to the valve notes.

B flat major (representing, in reed bands, an orchestral composition in A major to B flat).

When a composition for a reed band is arranged in B flat major, to represent an orchestral composition in A major,—as well as B flat major to represent the same key in the orchestra,—it loses nothing of its original character.

A flat major (representing, in reed bands, an orchestral composition in G major to A flat).

When a composition for a reed band is arranged in A flat major, to represent an orchestral composition in G major, the instruments in A flat, D flat, and even those in G flat (since G major has great affinity to C major, and, in this case, therefore, to D flat), would be most suitable; thus, too, instead of the clarionet in E flat, we might employ the clear D flat clarionet, which, though softer, here plays in the original key of G major,—while, if, to strengthen it in higher notes, we added a high A flat clarionet, the pleasing A flat cornets and flugel horns, the soft accompaniment of the B flat clarionets and bassett horns, the full tones in A flat major of the E flat and B flat basses, would, in this manner, mark the key of G major more strongly than the key of G major itself, with F or G and C clarionets, G cornets, G trumpets, and G, D, or C French horns, etc.

In a composition arranged for a reed band in A flat major, to represent an orchestral composition in the same key, in order to render the dull, melancholy expression, we should employ only instruments in F, B flat, and E flat, which would have to play in E flat, B flat, and F major.

D flat major.

The orchestral key of D flat major, generally so deficient in character, possesses, in reed bands,—even for the orchestral D flat itself, as well as for the orchestral C major, especially if we employ A flat and D flat clarionets,—a value of which we should otherwise have no idea.

C major.

The characteristic features of the different keys are not so strongly marked in reed bands as in an orchestra, because they want the normal character of C major. The powerful and clear expression of the orchestra arises principally from the employment of the same key,—all the instruments in C major being tuned in C. The natural and majestic effect consequent on this cannot be rendered by reed bands in any key, since they employ, and are obliged to employ, several different keys simultaneously to represent every single one in the orchestra.

Hence, too, the very evident fact that it is precisely C major which must be less characteristically represented than any other key; and this is equally true whether an orchestral composition in C major is arranged for reed bands in the same key, D flat major, or E flat major. Thus we need not take into consideration the original key, but simply the most advantageous means of representing it in a reed band.

If we now consider the reed band equivalents for the various orchestral keys, and the use made of them, in connection with the employment of the variously-tuned clarionets, it is evident that we require for A flat major,—characteristic of the orchestral G major,—and for D flat major,—characteristic of the orchestral C major,—an A flat and a D flat clarionet; and for F major,—characteristic of the orchestral E major,—F and C clarionets. The E flat and B flat clarionets and bassett horns, already mentioned, are quite sufficient for all the remaining orchestral keys. If we would dispense with the F and C clarionets, which are only used in F major,—characteristic of the orchestral E major,—and supply their place by an easy transposition to the B flat and E flat clarionets, we should merely have to employ, in A flat major and D flat major,—characteristic of the orchestral G major and C major,—an additional high A flat clarionet; and, sometimes, for that in E flat, one in D flat,—in order, with those in B flat, and the F and E flat bassett horns, satisfactorily and characteristically to represent the orchestral keys of C, F, B flat, E flat, A flat, D flat, G flat, and even C, G, D, A, and E.

THE D FLAT CLARIONET.

This instrument, on account of its softer tone, is, with the first B flat clarionet, better adapted than that in E flat to represent the first orchestral violin-part. It can, also, be advantageously employed to support a vocal alto-solo. In its higher notes, which are not alone quite audible enough in a reed band, it must be supported by some instrument in a higher key,—the A flat clarionet being the best for the purpose.

THE A FLAT CLARIONET.

This sharp, shrill instrument is principally used, in the *forte* and *fortissimo*, to strengthen the melody for the B flat and the D flat clarionets, since it can with facility reach the high $\overset{=}{c}$, $\overset{=}{d}$, $\overset{=}{e}$, and even $\overset{=}{f}$; and, by the ease with which it is played in the keys of A flat major and D flat major (C major and F major), can, in most cases, effectively support the first B flat clarionet in the higher octave.

The following is a list of all clarionets, which are actually in use or could possibly be made, from the highest to the lowest:—

- | | |
|----------------------------------|---------------------------------------|
| 1. The high A piccolo clarionet. | 10. The B flat clarionet. |
| 2. The high A flat clarionet. | 11. The A clarionet. |
| 3. The G clarionet. | 12. The F alt-clarionet. |
| 4. The F clarionet. | 13. The E flat alt-clarionet. |
| 5. The E clarionet. | 14. The F bassett horn. |
| 6. The E flat clarionet. | 15. The E flat bassett horn. |
| 7. The D clarionet. | 16. The French B flat bass-clarionet. |
| 8. The D flat clarionet. | 17. The German B flat bass-clarionet. |
| 9. The C clarionet. | |

Of these, we have seen that the following can be advantageously employed:—the high A flat (G, F), the E flat, and the D flat clarionets; the B flat clarionet; the alt-clarionet, or bassett horn, in F; and the alt-clarionet, or bassett horn, in E flat.

The A piccolo, the high G, F, E, and D, and the C and A clarionets, might be employed with wonderful effect at a concert given by a monster reed band of at least 150 performers, and in which there occurred different modulations, and wind instruments of every possible key and description.

How far these various kinds of clarionets might be employed in an orchestra, especially for dance-music, is a subject that I shall not discuss, since, as I have already stated, my purpose is to describe only the wind instruments employed in reed bands. When, however, we can effect all we wish with a few keys, in an ordinary band, and even in one of forty performers, why should we trouble the latter with more? I, therefore, am inclined to think that we ought, in reed bands, to content ourselves with the A flat, E flat, D flat, and B flat clarionets, and the E flat and F alt-clarionets, or bassett horns.

It now remains for me to describe the use of the B flat bass-clarionet.

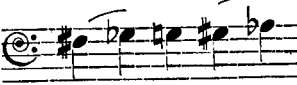
THE B FLAT BASS-CLARIONET.

The French B flat bass-clarionet is exactly an octave lower than the ordinary B flat clarionet, and, like it, is noted in the treble clef, sounding naturally an octave lower.

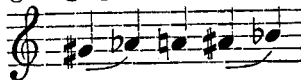
The German B flat bass-clarionet, and the low tones which can be produced on the instrument, are alone sufficient to prove it is best calculated to take the principal bass-part.

Unfortunately, it has always a nasal sound, even when played by the greatest proficient, while its tone is, compared with that of the other bass instruments, too weak to take effectively, when unsupported, even the violoncello-parts, more especially the solos. It has a great number of keys, and its mechanism is so intricate that the task of keeping it in proper order is attended with a vast amount of trouble to the performer,—so that, although possessing a more extensive compass, and being more easy to play than any other bass instrument, it seldom finds favour in the eyes of a musician. In spite of this, however, it ought not to be so much neglected as it is; for, on account of the ease with which it is played, it imparts to the invariably jolting and awkward-sounding bass-passages upon the F, and still more upon the E flat bass-bombardon,—when it is employed to support them,—roundness and volume, and that to a far greater extent than the ophicleides, bass-horns, serpents, euphonions, and other bass instruments. Furthermore, as a substitute, in the higher notes and passages, for the violoncello, it produces, when supported by bassoons or even bassett horns, a characteristic expression, never attainable by any other bass instrument. Since, however, it cannot, in reed bands, produce by itself any grand effect, there is no separate part written for it. The bass-clarionetist has, consequently, to play his notes not according to the system adopted for other clarionetists, but as they really sound,—that is to say, a tone lower; thus, for instance, the notes, C, D, E, which sound like B flat, C, D, are, on the bass-clarionet, called, also, *b flat, c, d*. Thus the lowest B flat, on the bass-clarionet, which sounds like A flat of the concert pitch, is called *contra A flat*, in order that the bass-clarionetist may play from the same part as the other bass-players.

In all cases where there is a bass-clarionetist, we should,—bearing in mind the compass of his instrument, and its effect,—denote his part by writing over the bass-bombardon, ophicleide, bass-horn, or serpent parts, “*et B bass-clarionet*,” and inserting, separately, the few passages intended for the bass-clarionetist alone, when supporting the bassoons or bassett horns.

If we felt inclined to intrust a performer on this instrument with any solos, we should take care to avoid the notes— for they are weak and ineffective;

which—though with the same fingering upon other clarionets—are written thus:—



2. THE SAXOPHONE.

This instrument is made in various keys, viz. :—

1. The B flat soprano-saxophone.
2. The E flat alt-saxophone.
3. The B flat tenor-saxophone.
4. The E flat bass-saxophone.
5. The low B flat bass-saxophone.

Except that it has a similar reed and mouthpiece, the saxophone does not bear the slightest resemblance to the clarinet, either in its compass, which is more like that of the oboe, or in its sound, which resembles a seraphim.

Although even rapid passages are easily executed on the saxophone, its sound prevents it from being effective in such cases. Its principal use should be limited to simple, choral-like melodies, and harmony; and, for this purpose, one saxophone alone cannot well be employed, but three, four, or, if possible, five, in different keys.

Nor is the saxophone of very great use as a substitute for any instrument in the orchestra, unless we give it the sustained notes, which occur now and then in the *forte* of the wood wind instruments, and which the flutes, clarionets, and bassoons,—being employed as substitutes for the violins, tenors, and violoncellos,—could not execute.

In extreme cases, however, the B flat soprano-saxophone may serve to replace the oboe, and the E flat alt-saxophone, the E flat alt-horn. The tenor-saxophone and the bass-saxophone have so peculiar and distinct a sound, that they cannot be employed as substitutes for any other instruments.

In pieces for reed bands taken from operas,—as, for instance, Verdi's *Trovatore*, etc.,—where there is an organ on the stage, the part for that instrument would, if arranged, in a reed band, for four or five saxophones (pitched in various keys), produce a characteristic effect, although the same result might be obtained from flugel horns and trombones. Thus, the saxophone is only employed in reed bands of fifty performers and upwards, for the purpose of imparting greater variety to the character of the general tone. In smaller bands, the use of it, in the place of other more practical instruments, would be attended with more disadvantage than advantage. It might be employed now and then, perhaps; but, in that case, some of the performers would be burdened with two instruments.

4. INSTRUMENTS WITH A DOUBLE REED.

1. THE OBOE.

As we have already remarked, the oboe is the only instrument which preserves, even in reed bands, its own peculiar character. It enjoys the advantage, in the said bands, of being adapted for simple vocal soprano-solos, if not of a too extensive compass. It can, likewise, strengthen vocal tenor-solos.

The best keys for the oboe are invariably G, C, F, and B flat major. It would be advisable, moreover, to choose no others for solos. Attempts have been made to manufacture oboes in E flat, in order to procure an easier key in C, F, and B flat major, for the numerous compositions in E flat, A flat, and D flat major. But an oboe in E flat no longer possesses the beauty of sound belonging to an ordinary oboe in C, and would, for this reason, be less adapted for solos, but all the more piercing and shrill, closely resembling the trumpet, in the *forte*.

It strikes me that an oboe in D flat, and above all in E flat major, A flat major, and D flat major,—characteristic of the orchestral D major, G major, and C major,—would be more expressive, and preferable to the one in E flat. In a reed band, where, for instance, there were two oboists, each one would have a C and a D flat oboe; only a third and fourth oboist would, to strengthen and vary the melody, have an oboe in E flat.

With these C and D flat oboes, we might manage to employ the oboe-parts as written for an orchestra for reed bands as well: we should, perhaps, transpose a semitone higher, for the C oboe, the orchestral parts in E and A major (which become F and B flat major, in a reed band); the oboe-parts in D, G, and C major (which, in reed bands, are E flat major, A flat major, and D flat major), would remain the same for the D flat oboe. Thus, in the keys of C, F, B flat, E flat, and A flat, the parts for reed bands are the same as those for an orchestra.

The oboe-part,—which, on account of the peculiarity of the instrument, is introduced

seldom, though always with characteristic effect, in an orchestra,—contains a great many pauses; in reed bands, however, the oboe may, now and then, fill up these pauses by occasionally and appropriately strengthening a vocal tenor-solo.

The oboe may also be employed to represent a vocal soprano-solo, when that instrument has not an orchestral solo in the same piece; the orchestral solo would be more important for it than the vocal soprano,—which latter might quite as well be executed by the B flat solo clarinet, or the soprano B flat saxophone. It would, however, be unadvisable to strengthen the oboe-solos by any other instruments, because the oboe, being independent, is better calculated to work alone.

So many improvements have been lately introduced into the oboe, that a player on one of the improved instruments would,—since the oboe, even in the easiest keys, permits no very great *roulades* and runs,—find an oboe in C alone sufficient for all purposes.

2. THE ENGLISH HORN (COR-ANGLAIS).

This is an F oboe, tuned a fifth lower than the ordinary oboe. Meyerbeer, Halevy, Berlioz, and other composers, have succeeded in employing it with such astounding effect in certain solos, apparently insignificant, that it is really a matter of regret we cannot reproduce the same effects in reed bands. As the English horn is a kind of oboe, we might almost call it an alt-oboe,—bearing the same relation to the oboe that the bassett horn does to the C or B flat clarinet. Like the oboe, it cannot be replaced by any other instrument.

Unfortunately, on account of the weakness of its tone, the English horn is calculated only for a room, or some other enclosed space, and, consequently, cannot be used in the open air,—that is to say, in reed bands.

Since it is impossible to reproduce the *expression* of this instrument upon any other, all we can do is to endeavour to replace, with effect, the mere *notes*. Under these circumstances, it would be advisable to transfer such English horn-solos to the bassett horns or alt-clarionets, or to the alto E flat saxophones; should there be none of these instruments, the solos would have to be played by the B flat clarionets, and might, also, be supported by the grand flute, the solo B flat clarinet, the bass-clarinet, or the bassoon, an octave higher or lower.

The very possibility of strengthening such solos obliges us to transfer them to other instruments, and prevents the English horn from being employed in reed bands; because, by itself, it is too weak, and when supported becomes inaudible. The only means of obviating this would be to employ two or three English horns for the same part.

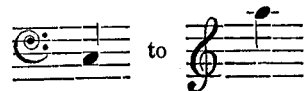
3. THE BASSOON.

This instrument ought to be principally employed as a substitute for the violoncello. As the violoncello, however, is frequently used only to double the double-bass, while the bassoon can be used harmonically with good effect, the latter—supposing the bassett horn is employed in rendering a vocal or any other solo—takes the tenor-part as well, should such part be in its compass; for otherwise it would have to be played by the third clarinet. The bassoon of a reed band must, also, take the more important portions of the orchestral bassoon-part. This applies more especially to the *piano* passages, and then to the *mezzo-forte*, *forte*, and *fortissimo* passages of the greatest range and flexibility. The simple, unadorned harmonic passages must be given to the tenor-horns and euphonions.

When transferring the violoncello-parts to reed bands, we must pay particular attention to the manner in which the violoncellos are employed,—whether melodically, or divided harmonically in several parts,—without a double-bass,—as high bass,—with *arpeggii*,—or, doubling the double-bass, as bass.

The solos, or melodic part, in the lower notes of the violoncello, from contra *c* to *a*,

should be represented by the bassoon, the bass-clarinet, and, if necessary, by the ophicleide, serpent, and bass-horn. The solos in the higher notes, from—



should, whenever it is possible, be rendered by the bass-clarionet, by the bassett horn, by the E flat alt-saxophone, and, if necessary, by the B flat clarionet. If there are several violoncello-parts, the lowest of which is a bass-part, the latter is played by a bass instrument, combined, perhaps, with the bass-clarionet; the remaining ones should be taken by the bassoons, bassett horns, and even the B flat clarionets. If the first part happens to be a solo-part as well, it should be treated in the manner already described.

The violoncello, employed, without double-bass, as high bass, should be represented by bassoons and bass-clarionets, or, also, by ophicleides, serpents, and bass-horns.

The violoncello, with *arpeggi*, should be represented only by bassoons, bass-clarionets, and, when practicable, bassett horns; the other bass instruments would be too heavy in such cases. A violoncello, strengthening the double-bass, should be represented only by the bass instruments, though, naturally, in important passages, also by the bassoon. In a simple bass, however, the bassoons would be employed to greater advantage harmonically.

As the violoncello,—especially when considered as a bass instrument,—may be replaced in reed bands by other bass instruments besides the bassoon, we have the opportunity of employing the latter for the most important of the orchestral bassoons; in extreme cases, as a substitute for the tenor; and, now and then, to strengthen melodically a vocal solo. For independent solos, it is, perhaps, in reed bands, too weak, and requires to be strengthened by the bass-clarionet, bassett horn, B flat clarionet, or flute. On account of its weakness of sound, compared to that of other wind instruments, the parts for it should be, at least, doubled,—that is to say, for two bassoon-parts there should be four players.

Because it is not so loud as other bass instruments, little value is at present, unfortunately, attached to this important and, for reed bands, indispensable instrument. The bassett horn is, so to say, already discarded, and will, probably, be followed shortly by the bassoon; after this will come the flutes, up to the piccolo, which will be retained; then the oboes; and then a couple of B flat clarionets, which might, according to the modern practice, be replaced by cornets. Our reed bands will be considered perfect with a flauto piccolo, an E flat clarionet, and a couple of B flat clarionets, while the remaining instruments will all be brass. Add to these, a couple of dozen drums, and, if possible, a few cannons, and reed bands will have attained all the perfection of which they are capable.

Though,—as I have already mentioned in the Introduction,—reed bands cannot represent the characteristic effects of the various groups of instruments as definitely as the orchestra, yet they contain two groups, presenting a decided contrast to each other in sound and effect,—one group being that of the wood, and the other that of the brass instruments. Now, since the former, as a general rule, possess less power than the latter, by far the larger portion of a reed band must,—if we would preserve the melodically-harmonic balance,—consist of performers on wood instruments. If we withdraw, from the group of wood instruments, the grand flutes, the oboes, with several clarionets, bassett horns, and bassoons, the necessary balance and independent value of the wood instruments are lost. The piccolo flute, the E flat and B flat clarionets, will be merely the servants of the high cornets, flugel horns, and trumpets; and the whole becomes nothing more than a large brass band, to which the piccolo flute and the E flat and B flat clarionets are merely added for the sake of imparting lightness to the melody. This may be advantageous for marches, but, in grander compositions for reed bands, all delicacy of light and shade would, with such an arrangement, be wanting, and the characteristic adaptation,—already so difficult,—of orchestral compositions totally impossible.

The bassoon, which is tuned in C, and, therefore, in reed bands, must always play in the flat keys, requires, more than the flute,—the player on which has several in different keys, which he can change at pleasure,—to be constructed on Böhm's plan.

I do not know whether, without great detriment to its peculiar sound, the bassoon could be

made in D flat or B flat; these keys would be highly advantageous in reed bands, because they would facilitate the rendering of the harmonic figures and violoncello-solos,—while the bass-passages, always so uneven upon the bass instruments, especially the bass-bombardons, would then be excellently supported, as the bassoons would be played in the keys easiest for them. In my opinion, there should, under these circumstances, be four performers, two of whom would play the first and second bassoons respectively; the third, one in D flat; and the fourth, one in B flat. The two latter might then, in turn, and in the manner most convenient to themselves, relieve the two former from any difficult passages, or, at least, support them in the same.

There is still another kind of bassoon, which might be called an alt-bassoon, since it is tuned in F and G, a fourth or fifth higher than the ordinary bassoon. Instruments of this kind would, however, be much better replaced by the bassett horn, and are, therefore, not entitled to any very great consideration.

2. THE CONTRA-BASSOON.

This is an octave lower than the ordinary bassoon, but; on account of its size, and the consequent distance between the holes, as well as its large calibre, is incapable of executing rapid passages, and cannot, consequently, be regarded as a perfect substitute for the double-bass of the orchestra.

I think that a bassoon in F,—that is to say, only a fifth lower than the ordinary one,—would be more serviceable, because it would be capable of replacing the orchestral double-bass in its lowest as well as its highest notes. As its size, moreover, would not make it too unwieldy, it would be more easily played.

In order that such a low F bassoon might, at the same time, play from the bass-bombardon-part, we could employ only the fingering of the ordinary bassoon,—the part allotted to it being, as it were, transposed by the performer, according to the sound of the notes; the low C sounds, on this instrument, like contra F, and should, therefore, be played as such.

5. WOOD INSTRUMENTS WITH CUP-SHAPED MOUTHPIECE.

1. THE BASS-HORN, "BASSON RUSSE," OR SERPENTCLIDE.

This is, in Germany, what the ophicleide is in Belgium and England. It is used for the same purpose, and has the same compass, from contra c , and even b natural, as far as a ; and, for solos, sometimes as high as \bar{b} flat, or even \bar{c} .

It is an instrument of the same compass as the bassoon, but, being of wider calibre, is only a bass or solo instrument, and does not answer well harmonically. It is somewhat hollow and dull in sound, while the bass-bombardon, on the contrary, is full, powerful, and, indeed, almost coarse; but the two combined produce a very good bass, for a reed band.

The characteristic key of the chromatic bass-horn is C, or, sometimes, B flat. Now, in order that we may write in one key for the various bass instruments, of which there is a different selection in almost every reed band, the bass-performers are obliged to learn the fingering, not according to the notation, but the actual sound of the notes upon their instruments; thus, upon a chromatic B flat bass-horn, the fingering for C would be equivalent to the note B flat, and, in conformity with his system, the bass-horn-performer would have to transpose the music a tone higher.

A low chromatic bass-horn in F would have the same effect as a low F bassoon. I leave it to the taste of each individual conductor of a reed band to select that of the two which he may consider more useful; but it is desirable that every such band should possess either the one or the other.

2. THE SERPENT.

The serpent is, it is true, in some few notes, softer and fuller than the bass-horn and ophicleide; but, as a general rule, its tones are not certain and decided enough for rapid passages. It produces, moreover, rather a howl than an intelligible scale, and, therefore, is inferior to the bass-horn and ophicleide.

3. THE OPHICLEIDE.

What has been said regarding the chromatic bass-horn applies, also, to the C and B flat ophicleides. I consider, however, lower-toned ophicleides,—such, for instance, as one in A flat, or even one in F,—less serviceable than the low F bassoons or low F bass-horns, because such large instruments strike me as not being so well suited for easy and flowing execution as the others. There is, however, a still higher instrument of this kind,—namely, an alt-ophicleide in E flat. This would be ineffective in the group of wood instruments, since the more serviceable bassett horn would supersede it; but, being made of metal, it might replace, in case of necessity, the E flat alt-horn, in the brass group.

If there happens to be, in a reed band, a first-rate performer on the C and B flat ophicleides or the bass-horns, a vocal bass or baryton solo should, once in a way, be given him for a change, or even an appropriate violoncello-solo,—the last, perhaps, supported by the bass-clarinet. But, as the principal use of the above-named instruments is, with the support of the low bassoon or low bass-horn, and the bass-bombardons, to serve as substitutes for the violoncello, as bass and double-bass, one or other might pause and rest in the *piano*, though all should be employed in the *forte*. This concludes the description of the wood wind instruments, and their use in reed bands; but, as the bass-bombardon, likewise, is employed as a substitute for the orchestral double-bass, it belongs to the above category,—and this is, therefore, the proper place for a detailed description of it.

THE BOMBARDON.

This is really a great bass flugel horn, in F, and frequently in E flat, with three, four, and sometimes, but very rarely, with five or six valves. Since we have on the bugle the following



to the laws of natural harmony, into 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10, all valved brass instruments (except the French horn and trumpet) must possess them also, and, artificially, by means of the valves, six times as many. By means of six different slides, each varying from the other a semitone, a trombone is lengthened, and, consequently, is, to a certain degree, an instrument formed of seven separate ones; and this holds good of the valved instruments with three valves, which comprise seven different keys. Thus, though we might reach all the chromatic tones between 2—3, and, likewise, the higher notes, sometimes double, and even three-fold, still the bass-bombardon is principally only a bass instrument, and, as much as possible, a low bass instrument. With three valves,—that is, with seven semitones,—the large gap between 1—2 would, therefore, be only one half filled up, and, in order to obtain the complete octave, several other valves would be requisite. If, however, we had a fourth valve, equal to a perfect fourth, the complete lower octave would, with the addition of the first three valves, be obtained, and that so advantageously that we should require only three valves for the semitone and the whole tone next the lowest pedal note, and only two or one for the rest.

According as a bombardon is in F or E flat, the natural notes are founded either upon contra F or contra E flat. In the valve notes, however, the pedal note is lost, so that the standard note of F or E flat is, at the same time, to be considered the lowest note of the instrument. Thus much, however, is certain,—namely, that the contra E is more easily and purely produced as the pedal note of the second valve upon an F bombardon, than the lower F sharp, G flat, and G, which, when taken with three valves, have to force a passage through so many twistings and twinings, that it is impossible for their tone to be certain and definite; moreover, since the size of the slides for the lower notes must always be proportionately increased, the three first valve crooks are not quite sufficient for the support of the sounds

produced by the fourth valve, and thus the notes below C (fourth valve alone),—that is, contra B natural, B flat, A, A flat, G, and G flat,—are too high, and become gradually higher and higher, until things reach such a pitch that, for instance, even the contra G is a semitone too high, and, therefore, must be taken as G flat—F sharp, and G flat—F sharp must then be played with all the four valves. It would, consequently, be more advisable to employ, in large reed bands, two bombardons,—one in F, and one in E flat,—played simultaneously, in order to get the contra notes either on one instrument or the other. For instance:—

	Difficult.	Easier.	Good.	Uncertain and false.	Pretty good.	Pretty good.	Good.
Bombardon in F.							
Four valves.							
1st. A whole tone.							
2nd. Half a tone.							
3rd. Two whole tones.	Open	Uncertain					
4th. A perfect fourth.	note.	and false.	Pretty good.	Rather better.	Good.	Good.	
Bombardon in E flat.							

N.B.—The low notes would be better if we had instruments with five or six valves.

The two above-mentioned bombardons would serve as substitutes for the stringed double-bass, and a vocal bass-solo might be confided to a good F bass-bombardonist.

Neither an F nor an E flat bombardon, however, possesses, as the stringed double-bass does, a so-called sixteen-feet tone in the bass. This could be reached only by a bass B flat bombardon, and on such an instrument alone would the notes, B flat, A, A flat, G, G flat, F, E, and E flat,—which are written, as for the stringed double-bass, an octave higher than they really sound,—be in fact contra notes. Notes lower than the contra E flat would possess neither a good tone, nor be at all effective; three valves would, therefore, be sufficient. Still such an instrument would not possess the flexibility of one in F or E flat, and, naturally, far less that of a double-bass; and would not be suitable for rapid passages, and would be employed like the pedal on the organ.

In Belgium and France, as well as at the grand performances of reed bands in London, one or more stringed double-basses are employed. Since, however, the music of reed bands is restricted principally to the flat keys, the double-bass is deprived of the advantage peculiar to it,—namely, the frequent opportunity of employing the open notes. To turn it to account in a reed band, the four strings should, in my opinion, be tuned a semitone higher than usual. In order, however, that the performer might still retain the mode of playing to which he is, at present, accustomed in the orchestra, the composer or arranger would have to write for a double-bass in D flat; for instance, to have the double-bass tuned a semitone higher,—that is, in D flat major,—and played in C major; that in A flat major, in G major; that in E flat major, in D major; in B flat major, in A major; and in F major, in E major. The instrument would then produce a powerful effect, from the frequent employment of its open notes, if its strings were thus screwed up a semitone higher. The strings would remain in name E, A, D, and G, but would sound like F, B flat, E flat, and A flat (characteristic of their own keys of C, F, B flat, E flat, and A flat, had they been left at their usual pitch). Combined with a double-bass thus tuned, a bassoon in D flat might be very advantageously employed as a substitute for the violoncello.

Let us now review, at one glance, all the bass instruments adapted to a reed band. They are,—1. The B flat bass-clarinet; 2. The F bass-bassoon; 3. The chromatic bass-horns in C, B flat, and F; 4. The C and B flat ophicleides; 5. The F and E flat bombardons; 6. The bass-bombardon in B flat,—to which we must add the various saxophones, in order to

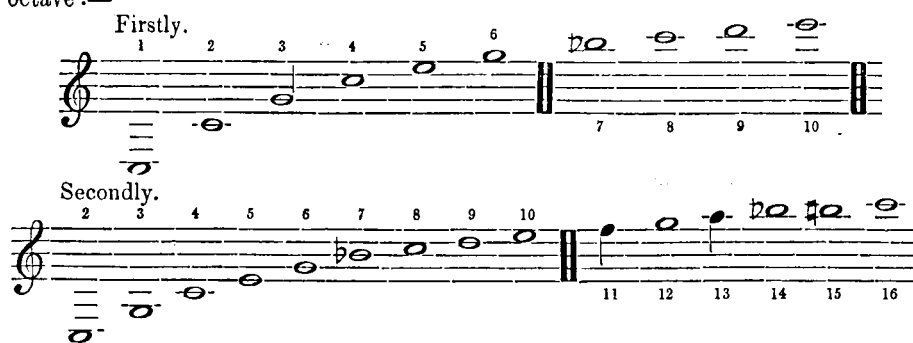
represent more fully and characteristically the organ; and 7. The stringed double-bass, with its attendant D flat bassoon.

If there were a performer for every bass instrument, we should require from fourteen to sixteen musicians, and a reed band containing so many bass-players would be at least a hundred strong. For this reason, smaller bands cannot employ every kind of bass instrument described.*

2nd Division.—Brass Instruments.

These, as I have already mentioned, are divided into four kinds, according to their mouth-pieces; but there is also another difference between them,—namely, their respective value with regard to their execution of the open or natural notes. We must bear this in mind, for it distinguishes,—

1st. Instruments whose lowest possible note is No. 1 in natural harmony. These might almost be termed instruments with a pedal note, and their next natural note is, consequently, the octave:—



2nd. Instruments whose lowest possible note is No. 2 in natural harmony,—that is to say, instruments without a pedal note, and whose next natural note is the fifth. To this second class belong French horns and trumpets, while all other brass instruments form part of the first. This circumstance is attributable to the mode in which the instruments are made, and in conformity with which, it may, so to speak, be laid down as a rule, that the first class consists of those which are short, and of a broad tubing, and the second of those which are long, and of a narrow tubing (as French horns and trumpets). The cornets form an exception, as they are short and of narrow calibre, and thus cannot produce their pedal note without great difficulty; for this reason even a fourth valve would be of little service to them. A like exception is afforded by the alt-trombone, and even tenor-trombones with narrow tube, because on them, also, it is difficult to produce the pedal note.

Taking into consideration these facts, we might lay down a second rule to the following effect:—the broader the tube of an instrument, the more certain will be the low notes, and the narrower the tube, the more certain will be the higher notes. Let us take, as an example, the well-known B flat tenor-horn. This is an admirable tenor instrument, with a narrow tube, and might be employed even up to its tenth natural note (sounding like \bar{a}); but the lower notes under No. 2 (sounding like B flat) would be deficient in expression. The same instrument, with a somewhat broader tube, and named, in consequence, a baryton-horn, cannot reach, without difficulty, its eighth natural note (the high \bar{b} flat); but the lower notes may be very well employed down to F, E, and E flat. There is another bass instrument with a still broader tube; it is known by the name of an euphonion, and its higher note reaches only to the sixth and seventh natural notes, \bar{f} , \bar{a} flat, though in the lower notes it can execute to great advantage its pedal note, contra B flat, and, by means of a fourth valve, the entire lower octave. First-rate performers can produce even more pedal notes,—such, for instance, as contra A, A flat, G, and even F.

Thus an equal length of tubing formed into brass instruments of various widths, always

* The best selection will be described in my second volume.


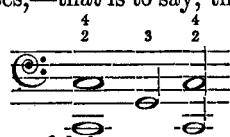
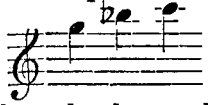
retains the same pitch, but has a different sound, and, therefore, is more suited for the highest or the lowest notes, as the case may be.

The division of brass instruments, according to their mouthpieces, cannot be laid down as a rule without exception, save in the case of French horns, which alone possess a funnel-shaped mouthpiece. There is an uncertainty respecting all the rest, on account of the partiality of individual performers for mouthpieces of different kinds. This much, however, is certain:—the flatter, and, consequently, the rounder the opening, the shriller and more piercing will be the sound, which becomes softer and sweeter the deeper and more oval, or even more funnel-shaped, the opening. This explains the soft tone of the horn, and the sharp, shrill sound of trumpets and trombones. By means of a more oval, cup-shaped mouthpiece, trumpets and trombones would become somewhat softer in tone, and cornets with a flat, round, cup-shaped mouthpiece, somewhat more shrill and piercing. In this manner high trumpets would approach very nearly in sound to the cornet, and cornets to the high trumpet. This will be more evident in the separate description of each instrument.

1. INSTRUMENTS WITH A FUNNEL-SHAPED MOUTHPIECE.—THE FRENCH HORN.

This is, with the exception of the bass B flat bombardon, the only wind instrument with a sixteen-foot tone. Properly speaking, the sixteen-foot tone belongs only to the low C horn (which has a tubing sixteen feet long). The most agreeable, beautiful, and useful horn is that in F. This has the same number of feet as the F bombardon, only, as I have already mentioned, the horn has a narrow, and the bombardon a broad tubing. Notwithstanding this, —and in relation to the other brass instruments, whose notation does not vary much from the real pitch of the note, and which, therefore, come under the head of the eight-foot tone,—the horn, whose tones always sound lower than they are noted, retains the name of the sixteen-foot tone instrument.

The horn,—firstly, from its shape, which is very narrow at the top, but gradually expands, especially at the bottom, forming a large bell; and, secondly, from its purely funnel-shaped mouthpiece, which, though wide at the top, gradually becomes narrower, until it unites with the narrow opening of the instrument itself,—has a soft, and, in the higher notes, an almost painful tone, audible, however, at a very great distance.

The low notes,—that is to say, the natural notes,—which are, for one horn,  and for two,  when employed in a sustained pedal passage, afford an agreeable and useful bass support, and can be employed alone as bass in the *pianissimo* and *piano*. Its high notes reach beyond the tenth natural note, and even  can

be produced upon it (the more conveniently, the lower the key). As I have already remarked, however, the higher notes sound painful, and, even for the best performers, are uncertain,—so that, especially in reed bands, French horns would be replaced with greater volume and certainty by the cornets and flugel horns; and it would be most advisable to write the horn-part in the lowest crooks, from the low B flat up to F, but not higher than G, F, E,—and in the higher crooks, not beyond E, D, C.

A player on the French horn,—on account of the frequent change of keys, and by being suddenly called on to play the natural notes of *b*, *c*, *d*, *e*, which are often employed, and come close to one another,—may easily become uncertain, and make a mistake. He requires, consequently, more than any other brass instrumentalist, an extraordinarily delicate ear. If he does not possess this in perfection, the very best embouchure, and the greatest facility of execution, even in solos, will not succeed in making him a good performer either in the orchestra or in a reed band.

A first-rate horn-player, however, will find it a mere nothing to perform with certainty, and in a very short time, on all other brass instruments, for which he is naturally qualified, and feels any partiality.

On the other hand, the very best thing every brass instrumentalist could do would be to learn the French horn, in order to be able, on every occasion, to grasp in his mind every note, both from the notation and from the sound. The other brass instruments possess, also, some of the natural notes; but, as they are generally limited to 1, 2, 3, 4, 5, 6, and 7, the interval between each couple of natural notes is, in every case, at least a third,—and, with this difference, there is no difficulty in producing with certainty every note.

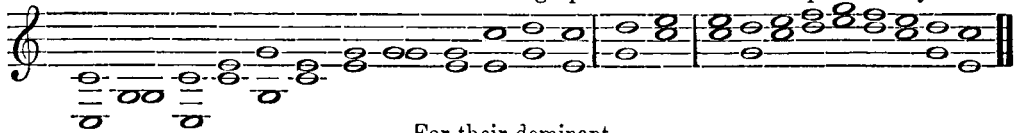
All other brass instruments, therefore, need valves more than the French horn; and, to some extent, every note is produced with more certainty on them, or on trombones with the slides, since the four consecutive seconds, 7, 8, 9, 10, in the notes most employed on the French horn, depend on the ear alone.

The French horn of a reed band serves, firstly, to replace that in the orchestra. This, however, would not afford sufficient employment for it,—since, on account of its agreeable and harmonious volume, it can be more frequently used in a reed band than in an orchestra; but, as it cannot replace the second violin, the tenor, or even another wind instrument, it is restricted to representing itself,—and I will endeavour to show how it may be employed. To produce any effect in a reed band, we naturally require several horns; if possible, two pairs, —that is to say, four in the same key, or two in one key and two in another. The arranger should show a preference for the open notes, and those which can easily be produced by means of the hand, for the key itself in which they stand, or for their dominant and subdominant.

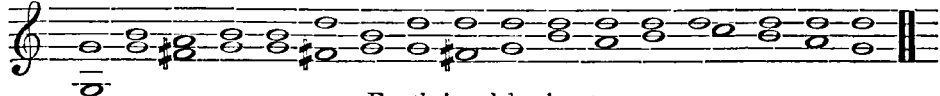
Two horns for the key in which they stand.

For a high pitch.

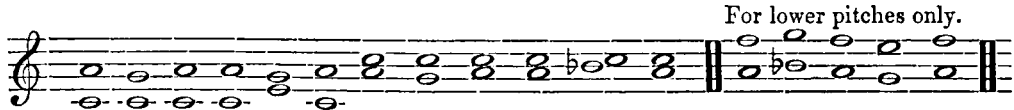
For lower pitches only.



For their dominant.



For their subdominant.



For lower pitches only.

Four horns in the same key.

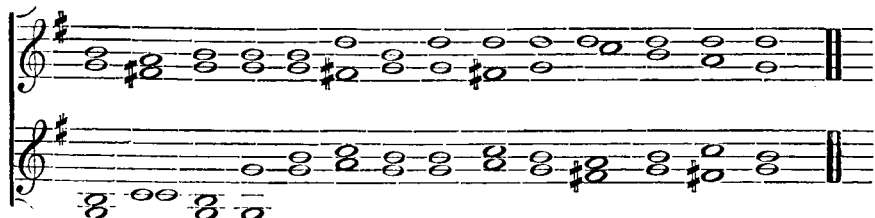
For lower pitches only.

For the pitch bearing the name of the key.

For high pitches.



For the dominant.



For the subdominant.

For high pitches. For low pitches.

Two sets of horns with the difference of a fourth.

1st. For the key in the higher crooked horns.

For the key of G flat major, the G flat and D flat horns; for the key of F major, the F and C horns; for the key of G major, the G and D horns; for the key of A flat major, the A flat and E flat horns.

G flat, F,
G, A flat,
B flat.

D flat, C,
D, E flat,
F.

2ndly. For the key in the lower crooked horns.

For the key of D flat major, the D flat and G flat horns; for the key of C major, the C and F horns; for the key of D major, the D and G horns; for the key of E flat major, the E flat and A flat horns; for the key of F major, the F and B flat horns.

G flat, F,
G, A flat,
B flat.

D flat, C,
D, E flat,
F.

3rdly. For the subdominant of the higher key.

For the key of C flat major, the G flat and D flat horns; for the key of B flat, the F and C horns; for the key of C, the G and D horns; for the key of D flat, the A flat and E flat horns; for the key of E flat, the B flat and F horns.

G flat, F,
G, A flat,
B flat.

D flat, C,
D, E flat,
F.

For high pitches. For low pitches.

Two sets of horns with the difference of a tone.

1st. For the subdominant of the higher, or the dominant of the lower key.

For the key of A flat major, the E flat and D flat horns; for the key of B flat, the F and E flat horns; for the key of C, the G and F horns; for the key of C flat, the G flat and E horns.

E flat, F,
G, G flat.

D flat,
E flat,
F, E.

For high pitches. For low pitches.

2ndly. For the higher key.

For the key of E flat major, the E flat and D flat horns; for the key of F, the F and E flat horns; for the key of G, the G and F horns.

3rdly. For the lower key.

For the key of D flat major, the D flat and E flat horns; for the key of E flat, the E flat and F horns; for the key of F, the F and G horns.

4thly. For the dominant of the higher key, if absolutely requisite.

For the key of B flat major, the E flat and D flat horns; for the key of C major, the F and E flat horns; for the key of D major, the G and F horns.

Two pairs of horns, principally for minor keys, with the difference of a minor third.

1st. For the minor keys of the lower pitch, and their relative major key.

For the key of E flat minor or G flat major, the G flat and E flat horns; for the key of D minor or F major, the F and D horns; for the key of C minor or E flat major, the E flat and C horns.

2ndly. For the minor key of the dominant of the lower pitch, and its relative major key.

For the key of B flat minor or D flat major, the G flat and E flat horns; for the key of A minor or C major, the F and D horns; for the key of G minor or B flat major, the E flat and C horns.

G flat,
F, E flat.

E flat,
D, C.

G flat,
F, E flat.

E flat,
D, C.

As the horns of the present day have generally two and three valves, they all have the chromatic notes from C to two-line *g* (\bar{g}), etc.

The following notes are wanting on a two-valved horn :

It would not be difficult to execute (on a valved horn) such passages as the following :—

In duets, trios, and quartets for valved horns, greater difficulties would be allowable; but, in reed bands, only for a concertante horn, since long passages, chromatic scales, and runs, can be executed with far more certainty and advantage upon other instruments. Many horn-players have got into the habit of transposing compositions in every possible key for the

F horn. If we consider the three valves of a French horn not merely as a means of completing as much as possible the chromatic scale, but, also, so to say, as a crook or an enlargement of the instrument,—that is, as a means of changing the natural key by pressing the valves,—a three-valved F horn contains six other keys; and it is then perfectly immaterial whether the instrument is lengthened by any kind of crook or by the valves. The second valve, when opened, lengthens the horn half a tone, and is equivalent to a natural E horn.

Thus the natural notes of a composition for the E horn, transposed on the F horn, will be played with the second valve.

E horn, or
2nd valve of F horn. Natural, or F horn notes.

1st valve alone, or E flat horn notes.

Scale of the E horn on the F horn.

1 2 0 1 2 0 1 2 0 1 2 0 1 2 0 1 2 1

0 1 0 2 1 0 2 0 1 2

The notes wanting in the above scale of the E horn, are:—

Firstly, when the third valve produces a minor third:

1 2 1 2 3 1 1 1
3 3 3 2 1 2 2

Secondly, when the third valve produces a major third:

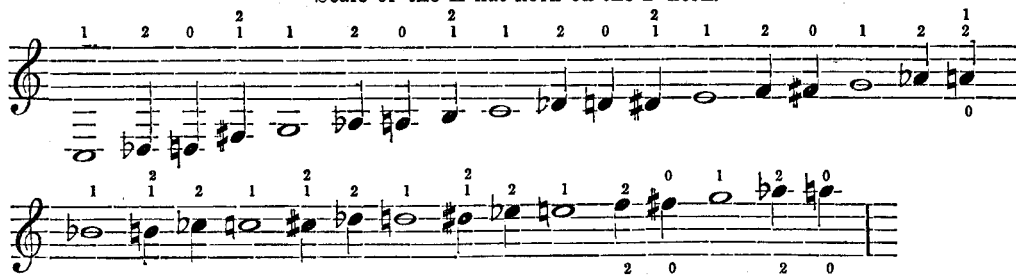
1 2 1 1 1 1 1
3 3 3 2 3 2 2

E flat horn transposed on the F horn.

1 E flat horn, or the first valve F horn. 0 Natural, or F horn notes.

2 2nd valve, or E horn notes. 1st and 2nd valves, or D horn notes.

Scale of the E flat horn on the F horn.



The notes wanting in the above scale of the E flat horn, are:—

Firstly, when the 3rd valve produces a minor third:



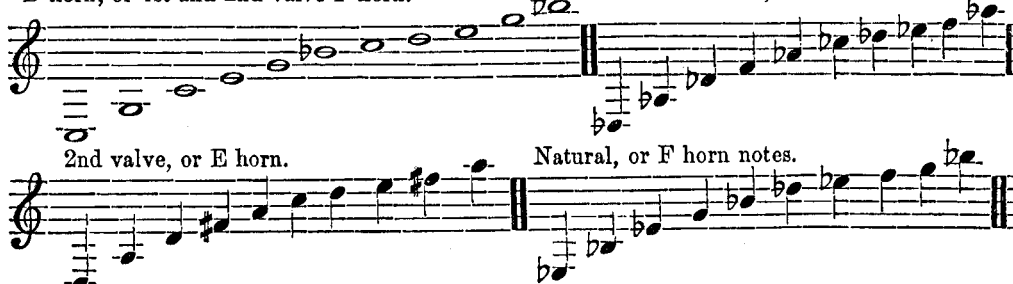
Secondly, when the 3rd valve produces a major third:



D horn transposed on the F horn.

D horn, or 1st and 2nd valve F horn.

1st valve alone, or E flat horn.



2nd valve, or E horn.

Natural, or F horn notes.

Scale of the D horn on the F horn.



The notes wanting in the above scale of the D horn, are:—

When the 3rd valve produces a major third:



When the 3rd produces a minor third, it is equivalent to the 1st and 2nd valves together, and may be advantageously employed alone on the D horn, and have two valves for all chromatic notes, as well as the following notes:—

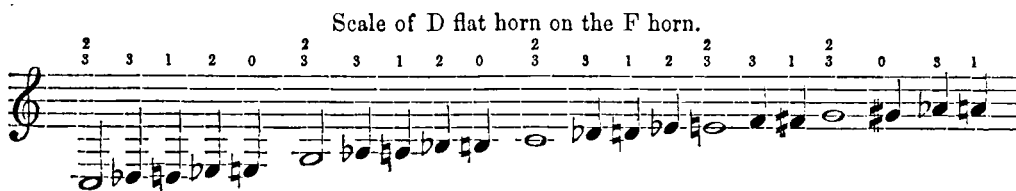
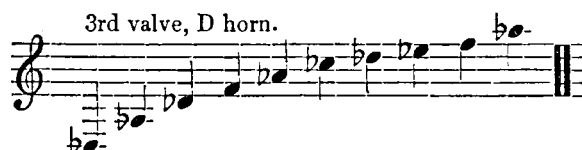


D flat horn transposed on the F horn.

When the 3rd valve produces a major third, it is equivalent to a D flat horn with two valves, for all chromatic notes, and even for the following:—



If, however, the 3rd valve produces a minor third, the open notes of the D flat horn are played with the 2nd and 3rd valve.



Or 2 only.

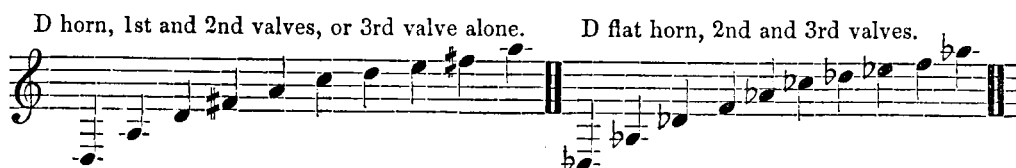
Notes wanting in the above example :—



C horn transposed on the F horn.

1stly. When the third valve produces a minor third.

C horn, or 1st and 3rd valves.



The whole scale is complete up to the note :—

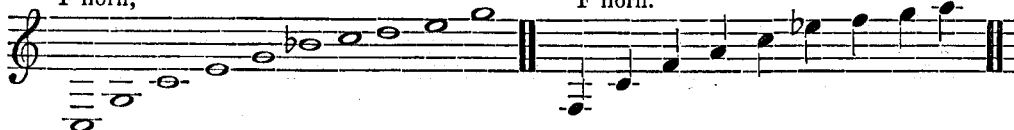


2ndly. When the third valve produces a major third.

C horn, or 2nd and 3rd valves.

F horn,

F horn.



E horn, 2nd valve.

E flat horn, 1st valve.



D horn, 1st and 2nd valves.

D flat horn, 3rd valve.



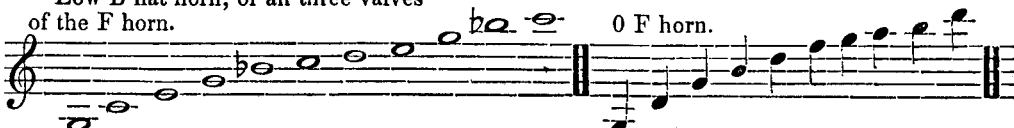
The only note wanting in the scale is :—



The low B flat horns can only be transposed on an F horn, when the third valve produces a major third; and then all three valves together produce the open notes of the low B flat horn.

Low B flat horn, or all three valves
of the F horn.

0 F horn.



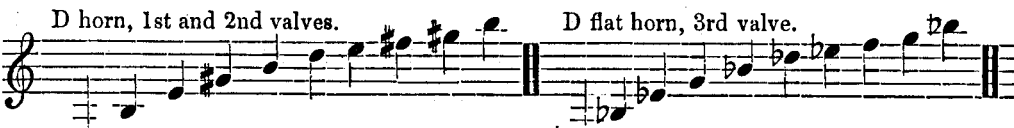
E horn, 2nd valve.

E flat horn 1st valve.

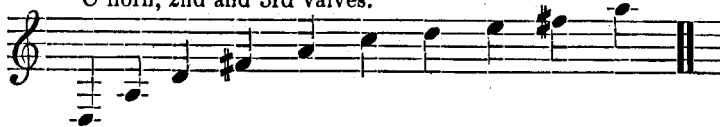


D horn, 1st and 2nd valves.

D flat horn, 3rd valve.



C horn, 2nd and 3rd valves.



The notes wanting are the following,
which are very unusual on a B flat horn :—




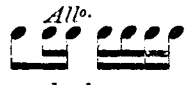
For the higher crooks, no such method of lessening the difficulties can be positively laid down, and the performer must transpose the tone. For horns in a higher key than F, however, the natural key,—that is to say, the original key,—is preferable to a transposition on the F horn.

The higher horns, A flat, A, B flat, and the high C, have a sound resembling that of the flugel horn, which might be substituted for them in reed bands. Horns in the lower keys, such as low C and B flat, sound dull and hollow; and, besides, on account of the long narrow tubing, the tone is uncertain.

The best crooks for horns are, therefore, G, G flat, F, E, E flat, D, and D flat. A three-valved G horn, with G flat and F crooks, would be sufficient for a good horn-player to produce, in the manner already mentioned, all the other low keys, E, E flat, D, D flat, and even C. Since reed bands have to play only in the flat keys, the best crooks will be G, G flat, and F, with three valves. The employment of the third valve will give us an E flat, D, and D flat horn, with two valves, etc. If performers, composers, and arrangers could accustom themselves to this method, which I have shortly stated would, if tried more in detail, prove of endless advantage, we should have, without the slightest loss of time, and by the mere pressure or change of the valve, an instrument in another crook. Hitherto, a pause has always been necessary for changing a crook. This would, too, be more easy for the eye to catch, and thus be more easy to hit, than any transposition for the F horn. Thus, the valved horn might be rendered extremely useful, although, in sound, it is inferior to the natural horn.

These would be the most advantageous notes and crooks of the French horn. The question now arises,—when and how are they to be employed?

Our first guide will be the various horn-parts in the orchestra, the most valuable examples of which we may study in the compositions of C. M. von Weber, Beethoven, Mozart, Meyerbeer, etc. But, in all these there are too many pauses for the horns to be employed, as they are originally employed in the orchestra, in a reed band. The first aim of the arranger should be, partly, to fill up these pauses in the best possible manner. Quickly changing harmonies and modulations, rapid passages, contrepunt passages, or passages in unison, or in sixths and diminished sevenths, etc., when not sometimes harmonically connected by means of a suitable sustained note, are not adapted for horns. Simple forms of accompaniment might, however, be strengthened by them; or they might be used in other rhythms suited to the melody and the accompaniment, as marking harmonically with the bass in time; or, contrasted with it, as harmonically complementary against the time; or else in simple and sustained

chords, etc. The middle compass between  is capable of every kind of rhythm, while the lower one is better for sustained notes; the highest, is not well adapted for repeating the same note quickly,  and, as a general rule, must, in order not to fatigue the performer too much, be very sparingly used. Every passage written for horns must be easily grasped, and musical. Skips and frequent series of chromatic and valve notes will prove uncertain.

Since, when orchestral compositions are arranged for a reed band, the horn-player in the latter is obliged to use a crook a semitone higher than the orchestral performer, and has little chance of pausing, or, that is to say, resting himself, high passages, as well as the high solos of the orchestral horn-part, should be given to the flugel horns and cornets, while the part for the horns should lie in a lower and more advantageous position.

The best crook for the horn is F. A solo for such an instrument, or a double concertante for two horns, and even a good horn quartet, in various crooks, with a simple and weak accom-

paniment, might very well be given to a reed band, since the four horns might, now and then, play unsupported by the other instruments. The horn is less adapted to represent a vocal operatic solo, since it would have to take the vocal tenor solo, for which its sound is too dull. A song, however, of a sentimental character would, with a weak accompaniment, be very well suited for the horn alone, or supported by the solo B flat clarinet in the higher octave.


2, 3.—INSTRUMENTS WITH AN OVAL-SHAPED MOUTHPIECE, BECOMING GRADUALLY SHALLOWER.

If the German horns, bugles, flugel horns, bombardons, sax horns, cornets, etc., etc., should be of a different make and tone, only some of them, according to the partiality of the performer for this or that one, could be employed for one and the same purpose. This applies to instruments from the highest to the lowest possible key. Thus, we have German horns in F, with E, E flat, and D crooks, B bugles in and from B flat up to E flat, inclusive; flugel horns, from the lowest bass to the highest C, inclusive; tubas, from the lowest pitch to the high soprano E flat; sax horns, from the lowest to the highest keys; cornettos, from the alto E flat up to the piccolo E flat, F, G, A flat; cornets-à-pistons, from F to B flat, etc. But a reed band in which we employed all these instruments, with all the various possible keys, would have to consist of more than a hundred performers. Consequently, only a few kinds of the above instruments can, in ordinary cases, be employed. I would leave the selection to the conductors themselves. I shall speak only in a general manner of the effect produced by the high and low keys of the remaining valved instruments (with the exception of horns, which I have just described, and of trumpets and trombones, to which I shall presently allude more particularly).

There is a material difference between brass and wood instruments. While flutes, clarionets, oboes, and bassoons retain almost the same compass, whatever the key, the compass of brass instruments changes with the key. Valved brass instruments might be divided into two nearly equal classes,—namely: first, into bass or low instruments, from the low F to the alt-horn in E flat, having almost the same compass; and, secondly, into alt or high instruments, from the alt in F, even to the highest piccolo in E flat, F, G, and A flat, likewise having nearly the same compass. The difference between the lower notes of these instruments is greater than that between their higher ones, the low instruments having a greater compass downwards than the high ones upwards.

In the middle key of B flat, a very good performer on the euphonion might, in the lower notes, replace the bombardon (although, perhaps, the effect would not be so strong and full as upon the latter instrument), as well as, in the higher notes, the alt-horn in E flat (although, perhaps, not with such certainty and so flowingly as on the alt-horn itself). The same applies to a good performer on the B flat cornet, who, in a similar manner, might replace an F alt-cornet-à-piston in the lower notes, and a piccolo-cornet in the higher ones. Thus the highest keys are principally necessary to strengthen and support only the high notes, and the low ones only the lowest notes of an instrument in the middle key of B flat.

The compass attainable by good performers on the euphonion and the B flat cornet-à-pistons represents, therefore, the entire compass of brass instruments; this, however, even in the

highest brass piccolos does not extend with any effect beyond  the sound of the two-lined c, and, consequently, not beyond the high alto range.

The denominations *soprano* and *piccolo* do not, therefore, apply so much to the compass as to the size of the instruments. I will now proceed to describe the high and low-valved instruments, and their use.

A. THE HIGH-VALVED INSTRUMENTS.

1. THE HIGHEST OR PICCOLO KEYS.

First comes the piccolo in A flat, which, that it may be advantageously employed in various keys, is provided with G, G flat, and F crooks. These highest keys can be used only in large brass bands, since their effect is limited to the highest notes alone, the lower ones being produced much more beautifully and fully upon the other high-valved instruments. A better kind of piccolo would be one in F, with E and E flat crooks; but the valved piccolo, or, as it is also called, the valved soprano instrument in E flat, with D and D flat crooks, is even better, and has a more extended compass for the middle and high passages; it might be introduced even in large reed bands. It would then be employed, on the one hand, to strengthen the melody in the *forte*, and, on the other, to give certainty to the high notes of the trumpets, or even to represent the vocal soprano-chorus in the *forte*, and, as it is very effective in the middle and low notes, might, when necessary, also take the alto part or the vocal tenor-chorus itself.

2. INSTRUMENTS IN THE SECOND HIGHEST KEYS.

Of these, all valved instruments in C may be advantageously used for solos, and, therefore, to represent a second soprano or alto vocal-part, as well as to support a vocal tenor or baryton solo. When there is no oboe, the harmonic notes of the latter, when not too high, can be written for these instruments. The harmony, too, of the orchestral clarionets, which frequently lies very well for these instruments, can be represented by them, as well as the vocal soprano and alto parts.

3. INSTRUMENTS IN THE MOST EFFECTIVE HIGH KEYS.

Are those in B flat, with an A, A flat, and G crook. They possess the most extensive compass, and, therefore, may be advantageously employed for their own solos, as well as for the vocal alto-solo alone, to support vocal baryton and bass parts, for imparting fulness to the harmony, and for rendering the melody, in *piano*, and even *pianissimo*, up to the *fortissimo*, in every



4. INSTRUMENTS IN THE LOWEST OF THE HIGH KEYS.

Just as the piccolos are effective only for the highest, the instruments in G, with G flat and F crooks, are, on the other hand, effective only for the lowest notes of the high keys;

a solo, however, in this compass—

is not ineffective, and, moreover, the

high solos, as well as the high passages of the high French horns, may be well rendered by these instruments, as well as by those in the higher keys of B flat, A, and A flat.

Before proceeding to describe low-keyed valve instruments, I must mention the F and E flat alt-horns in the middle key. They are classified according to their greater or less calibre, thus belonging either to the high or the low-keyed instruments. Alt-horns of narrow calibre belong consequently to the high-keyed instruments of this division, while alt-horns of wide calibre are included under the head of—

B. THE LOW-VALVED INSTRUMENTS.

1. INSTRUMENTS IN THE HIGHEST OF THE LOW KEYS.

First comes the German horn in F, with E, E flat, and D crooks. Attempts have been made to substitute this instrument for the French horn, but they were very speedily

abandoned, because it was found that the latter possessed a peculiar sound for which there was no equivalent, and was capable of producing an excellent effect. For instance, it is impossible to replace by the German horn the lowest notes of the sixteen-foot French horn, or its beautiful, full, middle notes. With regard to certainty of manipulation, the German horn, like all valved instruments, is more easily managed than the French horn,—that is to say, the performer finds it easier to play the notes, since it has an eight-foot tone; it is an instrument with a pedal note, and, therefore, in order to have a complete scale in the lower notes, requires a fourth valve. Its use would be, if necessary, to take the part of the third or fourth horn; it might also replace the alt-horn, being well adapted to execute a solo of the compass of a vocal tenor-solo.

2. THE ALT-HORN (TENOR EUPHONION).

This instrument in E flat, with D and D flat crooks, may be employed in a variety of ways. In the first place, it may serve as a substitute for the third or fourth French horn in its own key; and, in the next, for the alto or first trombone, when those instruments are wanting. The numerous pauses may be filled up by the flowing middle and high notes of the first orchestral bassoon (for an orchestral bassoon-part containing many rapid passages can only be rendered in a reed band by the bassoon itself). As I have already mentioned in the introduction, the alt-horn in E flat is, moreover, principally adapted for rendering the vocal tenor-solo, and can, therefore, effectively take the tenor chorus-part as well.

3. THE SO-CALLED C BASS.


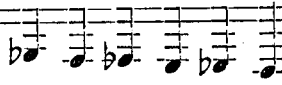
In order that this instrument may render efficient support in the solos and bass of the bass-part, it must be of wide calibre, and also possess four valves, if we wish it to have the low notes. Since, however, the music of reed bands is mostly written in the flat keys, the B flat euphonion is preferable.

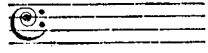
4. THE TENOR HORN OR BARYTON (ALT-HORN IN B FLAT).

This instrument, in B flat, with an A crook, has lately formed part of every reed band, and, in the absence of the lower-valved bass instruments, must take the vocal tenor, baryton, and bass parts. Should there, however, be several valved bass instruments,—such as the alt-horn in E flat, the euphonion, and the F or even E flat bombardon,—we should do better to give it only the vocal baryton-part, and the second tenor and first bass-part of the vocal chorus. It might, also, take one of the tenor trombone-parts,—namely, the second. When, however, there is no alt or first trombone-player, represented either by the trombone itself, or by the E flat alt-horn, it might even take the first trombone-part, in which case a performer on the second tenor horn, or an inferior player on the tenor trombone, would have to take the second trombone part. According as it is employed as the first and highest, or as the second and lowest valved instrument, the pauses in the trombone-part will be filled up by the first and second orchestral bassoons, executing easily the middle and high notes. Two tenor horns are, also, very frequently, employed to replace the third and the fourth horns crooked in the low B flat; I am inclined to assert that this would be more effective than even two low B flat French horns.

5. THE B FLAT EUPHONION.



This is the most important of all the low brass instruments. It is of wide calibre, and has four valves. I have heard first-rate performers produce upon it, vigorously and distinctly,

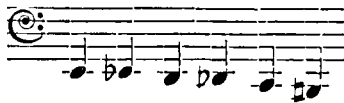
both the contra pedal notes,  and, also, the high notes 

 so that it possesses a compass of very nearly four octaves, and, there-

fore, can be very variously employed. What has been said about rendering the vocal solo on the tenor-horn, applies equally to the B flat euphonion; a bass vocal-part may, however, be executed on it, and that more advantageously than on the tenor-horn. There is this marked difference between the two instruments:—the euphonion cannot, like the tenor-horn, be harmonically employed to render a first or second trombone-part, or a third or fourth low B flat horn-part, and therefore can only render passages of the second orchestral bassoon-part, when the latter is a bass part. Thus, the euphonion is merely a solo or bass-instrument, and, consequently, can execute only the second bass-part of the vocal chorus.

The euphonion is, also, sometimes tuned in C.

What has already been said of the bass-bombardon, is the case here also; the notes on the F bombardon below this,— and the notes on a B flat euphonion below F,  which are the notes produced by the fourth valve only,—that is to say,

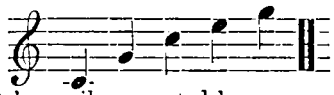
 are all too sharp, becoming gradually more and more so, so that

the lowest B natural must be fingered a semitone lower—in other words, it must be played by all four valves, if we would have it perfectly correct. By employing the fourth valve, we have, to a certain degree, an F bass, otherwise called an F bombardon, with three valves. We should, however, have, in order to obtain purity of tone, to lengthen the first three valve-slides, by drawing them out, and thus the same object would be attained on the

6. F BASS OR F BOMBARDON (WITH THREE VALVES).

This is an instrument serving to represent the vocal bass-solo and the orchestral ophicleide or bass-bombardon, or the low F bass-trombone, should the latter be wanting. It must be remarked that, in Germany the bombardon has three valves; when the fourth valve is added, the instrument is called a bass tuba.

The foregoing is an approximative description of the high and low-valved instruments; a more exact account, and instructions for their use in every possible case, cannot be given, since they require to be differently employed according to the peculiar constitution of each particular reed band, and the partiality of individual performers for this or that class of instruments. In addition to this, we must take into consideration the width or narrowness of their calibre or tubing, the uncertainty attending the employment of the mouthpiece, and, what is the principal thing, the performer's mode of playing. All these points must be known before we can establish a definite compass for valved instruments, or for any other brass instruments, with respect to each separate key.

In arranging any piece, if we restrict ourselves to the middle notes from the second natural tone,  up to the fifth, or even sixth natural tone, these notes

might be easily executed by every performer. To write lower or higher, we must know the performers personally.

I now return to the employment of the fourth valve. If musical-instrument makers could succeed in discovering some mechanical contrivance which would, with the pressure used in employing the fourth valve, lengthen the slides of the other three valves, while the latter, when the fourth valve was not used, recovered their original length, we should obtain not only purity in the low notes, but a double instrument as well. In one case, the instrument would be in the key after which it is named, and would possess four valves, of which the fourth would be employed for the lowest notes, between the pedal note chromatically up-

wards to the next fifth, which the fourth valve alone represents,—or, in other words, it would be employed only for the lowest seven notes of the lowest octave. The second instrument would be obtained by keeping the fourth valve constantly pressed down. By this means the instrument would be a fourth lower, with, so to speak, only three valves.

The student possessing an instrument constructed on the above principles may advantageously consult, both as regards purity and technical skill, the following large number of examples, showing the use of the valves, with the various modes of fingering for producing one and the same note:—

Euphonia in B flat, with four valves.

0 Open notes.

2nd valve.

1st valve.

1st and 2nd valves together.

3rd valve.

2nd and 3rd valves together.

Or 4th valve alone.

1st and 3rd valves together.

1st, 2nd, and 3rd valves together.

Or 4th and 2nd valves together.

Or 1st and 4th valves together.

The euphonion in B flat, with the fourth valve continually pressed down.

4th valve alone.

2nd and 4th valves together.

1st and 4th valves together.

1st, 2nd, and 4th valves together.

8ve.

3rd and 4th valves together.

2nd, 3rd, and 4th valves together.

8ve.

8ve.

1st, 3rd, and 4th valves together. 1st, 2nd, 3rd, and 4th valves together.

8ve. 8ve.

Scale for the two instruments combined.

Imaginary but impracticable pedal notes. 2 1 3 3 3 2 1 2 0

1st instrument in B flat.

2nd instrument in F.

8ves. loco.

0 0

B flat. 2 1 2 2 2 1 1 2 0 2 1 2 3 2 1 3

1 2 1 2 2 3 3 2 1 1 2 3 3 2 1 3

4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4

F. 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2

4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4

8ves.

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

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

2 2 1 2 1 2 2 2 2 1 1 2 1 2

4 4 4 4 4 4 4 4 4 4 4 4 4 4

B flat.

F.

Flugel horn, or Cornet in B flat, with 4 valves.

Open notes.

2nd valve.

1st valve.

1st and 2nd valves.

3rd valve. 2nd and 3rd valves together, or 4th alone.

1st and 3rd valves together, or 2nd and 4th together. 1st, 2nd, and 3rd valves together, or 1st and 4th together.

The second instrument, with the 4th valve continually pressed down.

4th valve. 2nd and 4th valves together.

1st and 4th valves together. 1st, 2nd, and 4th valves together.

3rd and 4th valves together. 2nd, 3rd, and 4th valves together.

1st, 3rd, and 4th valves together. 1st, 2nd, 3rd, and 4th valves together.

Scale for the two instruments combined.

Imaginary but impracticable
pedal notes.

1st instrument in B flat.

2nd instrument in F.

0 2 1 2 2 2 1 1 2 0 2 1 2

3 3 3 3 3 3 3 3 3 3 3 3 3

4 4 4 4 4 4 4 4 4 4 4 4 4

In B flat.

The pedal notes.

In F.

The pedal notes.

The highest notes
for the instrument
in B flat only.

The pedal notes.

The varied scale would, however, be practicable only with the mechanical contrivance mentioned before, page 39; once provided with this, all the four-valved instruments, as far as the manner of constructing and playing them allowed, would form their scale in accordance with that of the euphonion, or flugel-horn.

Were such a mechanical contrivance introduced, it might be employed also in the French horn, for lengthening the two other valve-slides when the third valve is used. The French horn has a sixteen-feet tone, and its valve-slides require, therefore, a greater length of tubing, in proportion to the valves used, than the other instruments, which have only an eight feet tone and three valves.

4. INSTRUMENTS WITH A FLAT AND ROUND CUP-SHAPED MOUTHPIECE.

A. TRUMPETS.

These are used in every key, from the high B flat to the low B flat. With regard to the production of the natural notes, the trumpet most resembles the French horn. The narrower its calibre, the more certain the highest natural notes; the lower keys cannot, however, well reach the lowest note. The best key, therefore, for the trumpet, is, like that of the French horn, F; a good performer has a compass from No. 2 natural note up to its tenth, and even twelfth harmonic note;—this is, by the way, the compass of all trumpets.

Latterly, especially in Germany, the ordinary trumpet is that in the high B flat, with A, A flat, and G crooks, into which all other keys are transposed. Such an instrument loses, however, something of the true character of the trumpet, but replaces very advantageously the cornets-à-pistons, which are not used in Germany. The notation, too, of this high B flat trumpet is the same as that of the high-valved instruments, since the pedal note contra C is added, and the low C of the lower trumpets written an octave higher. Such an instrument belongs, therefore, to the class of the high B flat valved instruments already mentioned, except that it requires only three valves, as, from the narrowness of its calibre, the pedal notes cannot be produced, and the fourth valve would, in consequence, be utterly ineffective. The compass of the F trumpet is the standard, therefore, for trumpets of every key, and a good trumpeter would have the same compass as a player on the French horn, while, as the latter has a sixteen feet-tone, and the trumpet only an eight-feet tone, the notes would be an octave higher on the trumpet than on the French horn. We cannot, however, reckon on this compass being obtained by all trumpeters. Modern trumpets are wider in calibre than old ones; most of them, also, have two or three valves, and, in common with French horns, form the medium between high and low-valved instruments, so that the lowest of the latter are below the French horns, and the highest above the trumpets.

The orchestral trumpet-parts are generally written for the old plain trumpets of narrow calibre, and, therefore, their high notes cannot be rendered by our present trumpets; so that it would be necessary either to transpose high orchestral trumpet-parts into the highest keys of the trumpet, for reed bands, or to produce such notes by soprano valved instruments.

If an orchestral trumpeter does not possess an old plain trumpet, he will at once perceive the use of a high B flat, or even a high C or piccolo valved trumpet in E flat, since he would be able, by transposition, to play with far more certainty the high notes of the old trumpet-part on instruments in the above keys, than even in the original key.

The new valved trumpets are advantageously employed only in a compass of two octaves,



with all the intermediate chromatic notes. The principal object of

such instruments is the same as that of the old plain trumpets,—namely, their brilliant and powerful volume in the *forte* and *fortissimo*. Since we now have valves, we need not be so

particular in employing the natural notes, though we do so wherever we can, since we are thus enabled to judge with more accuracy of the correctness of the valve-notes.

There is, however, one thing to be particularly remarked with regard to the mode of writing for trumpets. We must not place the seventh of the scale, resolving itself into the octave as third of the dominant, in the first trumpet-part, but in the second, or, still better, in a third or fourth. The sound of the trumpet is, perhaps, more shrill, piercing, and clear, than that of any other wind instrument, and, therefore, the third of the dominant chord resolving itself in the octave, will be so much the more too shrill in the first trumpet.

The valved trumpet, with the flat, round, cup-shaped mouthpiece, is less adapted for rendering a vocal part than the other valved instruments; these, on account of the manner in which they are made, and their more oval, cup-shaped mouthpiece, are softer and milder in tone, and, consequently, in this respect, superior to the trumpet. But for flourishes, tonguing, and similar effects, only trumpets with a flat, round, cup-shaped mouthpiece can be employed. To produce these effects on other high-valved instruments, they would have to be supplied with a trumpet mouthpiece.

First-rate trumpeters, of whom there is a tolerable number, have such a mastery over this instrument, that they can produce soft and mild as well as vigorous and full sounds,—they may, consequently, be intrusted with vocal solos. Such players use, also, as a general rule, the high B flat trumpet, which, as I have already said, is the same as the cornet-à-pistons and the other high-valved instruments of the same description.

The modern plain trumpet for reed bands stands sometimes in G, but mostly in F, with E, E flat, D, D flat, and C crooks; but, as good performers prefer playing a valved trumpet, the plain trumpet occupies a very subordinate position in reed bands.

In small reed bands, therefore, only two, and in very large ones alone, four trumpets should be employed, since the high-valved instruments are themselves a species of trumpet.

It will be found most advisable for these two or four trumpets to be in one key, or, when the modulation of the composition requires it, for greater ease in playing, in two. The following are examples of the employment of two or four trumpets, from which the reader will perceive when the orchestral trumpet-parts can be rendered by the same notes, and when they require to be transposed:—

The fundamental key.

1st and 2nd trumpets. In the same key.

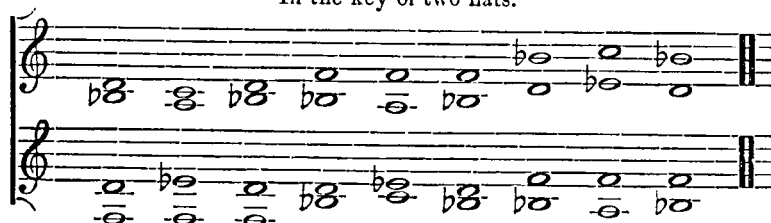
3rd and 4th trumpets.

The dominant.

The subdominant.



In the key of two flats.



Written in the key of three flats,—that is, in the key of E flat major.

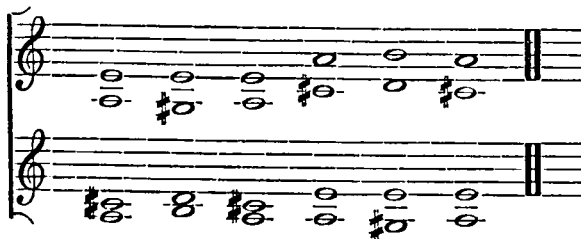
Four trumpets in
the same key.



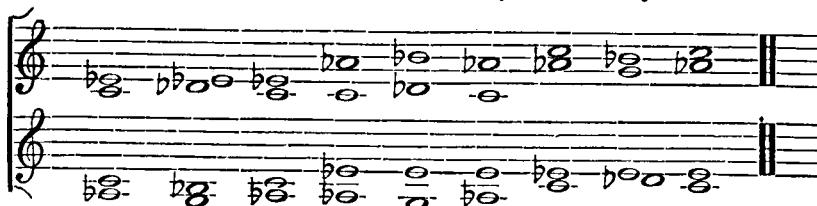
Written in the key of two sharps,—that is, D major.



Written in the key of three sharps,—that is, in the key of A.



Written in the key of four flats,—that is, in the key of A flat major.



Two pairs of trumpets with a difference of a whole tone.

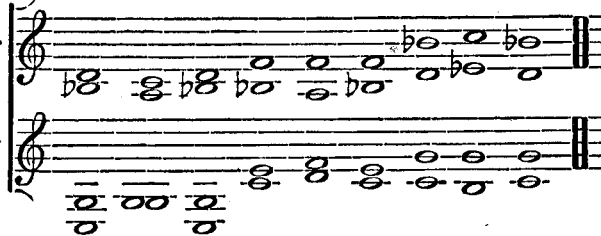
In the key of the 3rd and 4th trumpet part.

For the key of F, 1st and 2nd trumpets in G, 3rd and 4th trumpets in F.

"	E,	"	"	G flat,	"	"	E.
"	E flat,	"	"	F,	"	"	E flat.
"	D flat,	"	"	E flat,	"	"	D flat.

Trumpets in G or G flat, or F or E flat.
1st and 2nd.

Trumpets in F or E, or E flat or D flat.
3rd and 4th.



In the key of the higher pair.

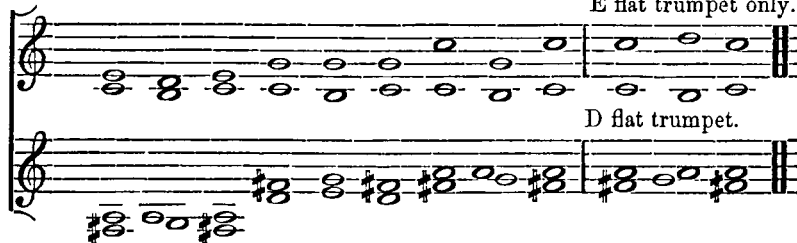
For the key of G, 1st and 2nd trumpets in G, 3rd and 4th trumpets in F.

"	G flat,	"	"	G flat,	"	"	E natural.
"	F,	"	"	F,	"	"	E flat.
"	E flat,	"	"	E flat,	"	"	D flat.

E flat trumpet only.

1st and 2nd.

3rd and 4th.



In the dominant of the higher pair.

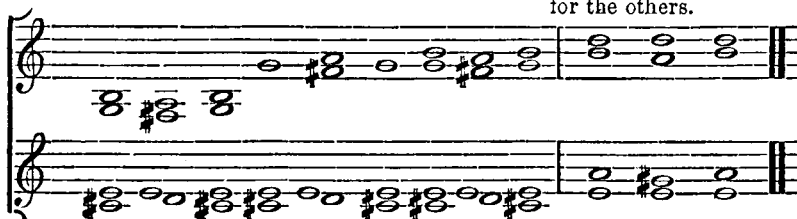
For the key of D, 1st and 2nd trumpets in G, 3rd and 4th trumpets in F.

"	D flat,	"	"	G flat,	"	"	E natural.
"	C,	"	"	F,	"	"	E flat.
"	B flat,	"	"	E flat,	"	"	D flat.

Only possible for trumpets
in E flat, and too high
for the others.

1st and 2nd.

3rd and 4th.



Parts for two pairs of trumpets with the difference of a minor third, especially for the minor keys.

The following example will produce three different keys. By crooking the first pair of trumpets in G flat, and the second pair in E flat, the key will be in E flat minor; by crooking the first pair in F, and the second in D, the key will be in D minor; by crooking the first pair in E flat, and the second in C, the key will be in C minor.

Almost too high generally for
G flat and F trumpets.

Trumpets in G flat, F, E flat.
1st and 2nd.

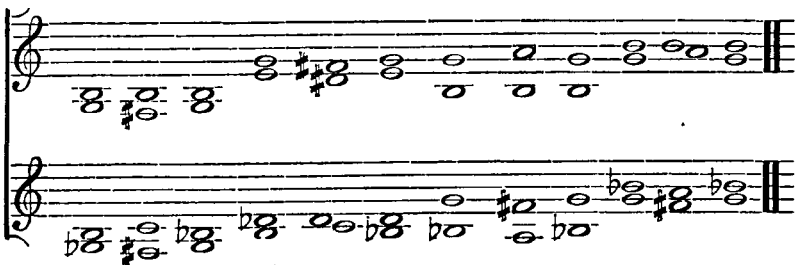
Trumpets in E flat, D, and C.
3rd and 4th.



The following example will produce three different keys. By crooking the first pair of trumpets in G flat, and the second pair in E flat, the key will be in B flat minor; by crooking the first pair in F, and the second in D, the key will be in A minor; by crooking the first pair in E flat, and the second in C, the key will be in G minor.

G flat, F, and E flat.
1st and 2nd.

E flat, D, and C.
3rd and 4th.



The following example will produce three different keys. By crooking the first pair of trumpets in G flat, and the second pair in E flat, the key will be in A flat minor; by crooking the first pair in F, and the second in D, the key will be in G minor; by crooking the first pair in E flat, and the second in C, the key will be in F minor.

G flat, F, and E flat.
1st and 2nd.

E flat, D, and C.
3rd and 4th.

The following example will produce three different keys. By crooking the first pair of trumpets in G flat, and the second pair in E flat, the key will be in F minor; by crooking the first pair in F, and the second in D, the key will be in E minor; by crooking the first pair in E flat, and the second in C, the key will be in D minor.

G flat, F, and E flat,
1st and 2nd.

E flat, D, and C.
3rd and 4th.

In the relative major keys.

The following example will produce three different keys. By crooking the first pair of trumpets in G flat, and the second pair in E flat, the key will be in G flat major; by crooking the first pair in F, and the second in D, the key will be in F major; by crooking the first pair in E flat, and the second in C, the key will be in E flat major.

G flat, F, and E flat.
1st and 2nd.

E flat, D, and C.
3rd and 4th.

Only for E flat trumpets.

The following example will produce three different keys. By crooking the first pair of trumpets in G flat, and the second pair in E flat, the key will be in D flat major; by crooking the first pair in F, and the second in D, the key will be in C major; by crooking the first pair in E flat, and the second in C, the key will be in B flat major.

G flat, F, and E flat.
1st and 2nd.

E flat, D, and C.
3rd and 4th.

Only for E flat trumpets.

The following example will produce three different keys. By crooking the first pair of trumpets in G flat, and the second pair in E flat, the key will be in C flat major; by crooking the first pair in F, and the second in D, the key will be in B flat major; by crooking the first pair in E flat and the second in C, the key will be in A flat major.

G flat, F, and E flat.
1st and 2nd.

E flat, D, and C.
3rd and 4th.

G flat, F, and E flat.
1st and 2nd.

E flat, D, and C.
3rd and 4th.

High trumpets or cornet-
à-pistons in B flat or A flat.
1st and 2nd.

Trumpet in G or F.
1st and 2nd.

High trumpets or cornet-à-pistons in B flat or A flat.
3rd and 4th.

The two following examples will produce two different keys. By crooking the pair of high trumpets or cornets-à-pistons in B flat, and the pair of trumpets in G, the key will be in D minor; by crooking the pair of high trumpets or cornets-à-pistons in A flat, and the pair of trumpets in F, the key will be in C minor.

Trumpets in G or F.
3rd and 4th.

Trumpets in G or F.
1st and 2nd.

High trumpets or cornet-
pistons in B flat or A flat.
3rd and 4th.

Trumpets in G or F.
1st and 2nd.

Or,

High trumpets or cornet-à-pistons in B flat or A flat.
3rd and 4th.

The two following examples will produce two different keys. By crooking the pair of high trumpets or cornets-à-pistons in B flat, and the pair of trumpets in G, the key will be in C minor; by crooking the pair of high trumpets or cornets-à-pistons in A flat, and the pair of trumpets in F, the key will be in B flat minor.

High trumpets or cornets-à-pistons in B flat or A flat.
1st and 2nd.

Trumpets in G or F.
3rd and 4th.

Or,

Trumpets in G or F.
1st and 2nd.

High trumpets or cornets-à-pistons in B flat or A flat.
3rd and 4th.

The two following examples will produce two different keys. By crooking the pair of high trumpets or cornets-à-pistons in B flat, and the pair of trumpets in G, the key will be in A minor; by crooking the pair of high trumpets or cornets-à-pistons in A flat, and the pair of trumpets in F, the key will be in G minor.

High trumpets or cornets-à-pistons in B flat or A flat.
1st and 2nd.

Trumpets in G or F.
3rd and 4th.

Or,

1st and 2nd.
Trumpets in G or F.

High trumpets or cornets-à-pistons in B or A flat.
3rd and 4th.

In the relative major keys.

The two following examples will produce two different keys. By crooking the pair of high trumpets or cornets-à-pistons in B flat, and the pair of trumpets in G, the key will be in B flat major; by crooking the pair of high trumpets or cornets-à-pistons in A flat, and the pair of trumpets in F, the key will be in A flat major.

High trumpets or cornets-à-pistons in B flat or A flat.
1st and 2nd.

Trumpets in G or F.
3rd and 4th.

Or,

Trumpets in G or F.
1st and 2nd.

High trumpets or cornets-à-pistons in B flat or A flat.
3rd and 4th.

By crooking the pair of high trumpets or cornets-à-pistons in B flat, and the pair of trumpets in G, the key will be F major. By crooking the pair of high trumpets or cornets-à-pistons in A flat, and the pair of trumpets in F, the key will be E flat major.

High trumpets or cornets-à-pistons in B flat or A flat.
1st and 2nd.

Trumpets in G or F.
3rd and 4th.

Trumpets in G or F.
1st and 2nd.

Or,

High trumpets or cornets-à-pistons in B flat or A flat.
3rd and 4th.

By crooking the pair of high trumpets or cornets-à-pistons in B flat, and the pair of trumpets in G, the key will be E flat major. By crooking the pair of high trumpets or cornets-à-pistons in A flat, and the pair of trumpets in F, the key will be D flat major.

High trumpets or cornets-à-pistons in B flat or A flat.
1st and 2nd.

Trumpets in G or F.
3rd and 4th.

Trumpets in G or F.
1st and 2nd.

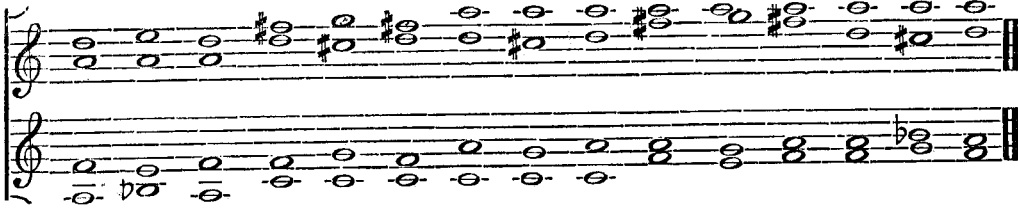
Or,

High trumpets or cornets-à-pistons in B flat or A flat.
3rd and 4th.

By crooking the pair of high trumpets or cornets-à-pistons in B flat, and the pair of trumpets in G, the key will be C major. By crooking the pair of high trumpets or cornets-à-pistons in A flat, and the pair of trumpets in F, the key will be B flat major.

High trumpets or cornets-à-pistons in B flat or A flat.
1st and 2nd.

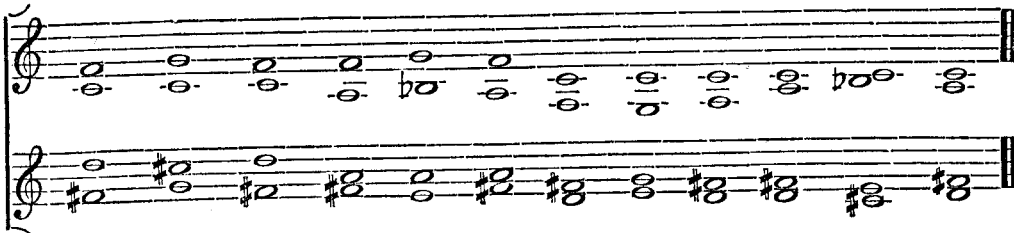
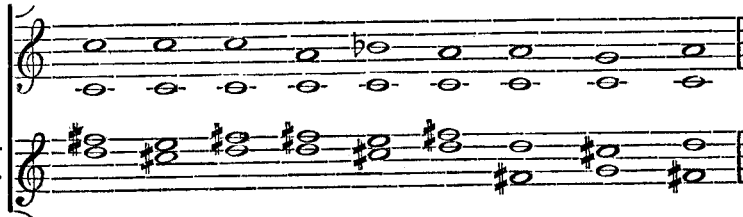
Trumpets in G or F.
3rd and 4th.



Or,

Trumpets in G or F.
1st and 2nd.

High trumpets or cornets-
à-pistons in B flat or A flat.
3rd and 4th.

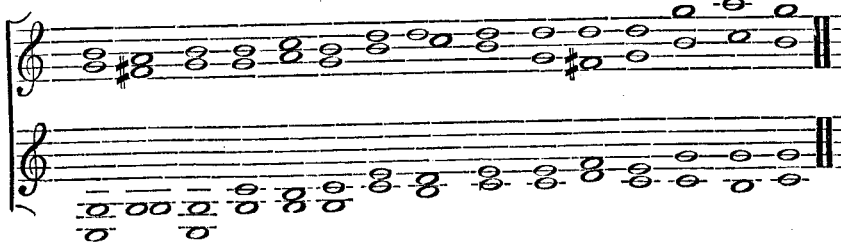


By crooking the pair of high trumpets or cornets-à-pistons in B flat, and the pair of trumpets in F, the key will be F major. By crooking the pair of high trumpets or cornets-à-pistons in A flat, and the pair of trumpets in E flat, the key will be E flat.

Two pairs of trumpets, with a difference of a fourth.

B flat or A flat.
1st and 2nd.

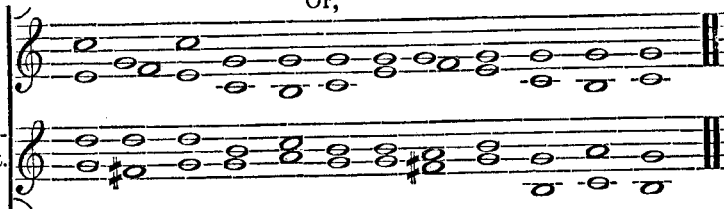
F or E flat.
3rd and 4th.



Or,

Trumpets in F or E flat.
1st and 2nd.

High trumpets or cornets-
à-pistons in B flat or A flat.
3rd and 4th.



By crooking the pair of high trumpets or cornets-à-pistons in B flat, and the pair of trumpets in F, the key will be C major. By crooking the pair of high trumpets or cornets-à-pistons in A flat, and the pair of trumpets in E flat, the key will be B flat major.

B flat or A flat.
1st and 2nd.

F or E flat.
3rd and 4th.



The image shows two staves of music. The top staff is for the 1st and 2nd parts, and the bottom staff is for the 3rd and 4th parts. Both staves are in treble clef and contain a sequence of notes and rests. The notes are mostly eighth and sixteenth notes, with some rests. The key signature is one flat (B flat or A flat). The time signature is not explicitly shown but appears to be common time (C).

Or,

F or E flat.
1st and 2nd.

B flat or A flat.
3rd and 4th.

By crooking the higher pair in B flat, and the lower pair in F, the key will be B flat major. By crooking the higher pair in A flat, and the lower pair in E flat, the key will be A flat major.

B flat or A flat,
1st and 2nd.

F or E flat,
3rd and 4th.

Or,

F or E flat.
1st and 2nd.

B flat or A flat.
3rd and 4th.

By crooking the higher pair in B flat, and the lower pair in F, the key will be E flat major. By crooking the higher pair in A flat, and the lower pair in E flat, the key will be D flat major.

B flat or A flat.
1st and 2nd.

F or E flat.
3rd and 4th.

The image shows the first two staves of a musical exercise. The first staff is for the 1st and 2nd parts, with a key signature of one flat (B flat or A flat). The second staff is for the 3rd and 4th parts, with a key signature of two flats (F or E flat). Both staves contain a sequence of notes and rests, with some notes beamed together. The notation is in a standard musical format with a treble clef and a key signature of one flat for the first staff and two flats for the second staff.

Or,

F or E flat.
1st and 2nd.

B flat or A flat.
3rd and 4th.

By crooking the higher pair in B flat, and the lower pair in F, the key will be A flat major.
By crooking the higher pair in A flat, and the lower pair in E flat, the key will be G flat major.

B flat or A flat.
1st and 2nd.

F or E flat.
3rd and 4th.

Or,

F or E flat.
1st and 2nd.

B flat or A flat.
3rd and 4th.

With B flat and F crook, the key will be G major. With A flat and E flat crook, the key will be F major.

B flat or A flat.
1st and 2nd.

F or E flat.
3rd and 4th.

Or,

F or E flat.
1st and 2nd.

B flat or A flat.
3rd and 4th.

With B flat and F crook, the key will be D flat major. With A flat and E flat crook, the key will be C flat major.

1st and 2nd.

3rd and 4th.

B flat or A flat.

3rd and 4th.

1st and 2nd.

F or E flat.

Two pairs of trumpets with a difference of a fifth.

B flat or A flat.
1st and 2nd.

In E flat or D flat.

E flat or D flat.
3rd and 4th.

In E flat, or D flat major.

E flat or D flat.
1st and 2nd.

B flat or A flat.
3rd and 4th.

In B flat or A flat major.

B flat or A flat.
1st and 2nd.

E flat or D flat.
3rd and 4th.

The first system of the musical score consists of two staves. The top staff is labeled 'B flat or A flat. 1st and 2nd.' and the bottom staff is labeled 'E flat or D flat. 3rd and 4th.' Both staves are in treble clef. The top staff begins with a B-flat note on the second line, followed by a series of eighth and sixteenth notes, and ends with a double bar line. The bottom staff begins with an E-flat note on the first space, followed by a series of eighth and sixteenth notes, and ends with a double bar line. The music is written in a simple, melodic style with many beamed notes.

In B flat or A flat major.

E flat or D flat.
1st and 2nd.

B flat or A flat.
3rd and 4th.

g

In A flat or G flat major.

B flat or A flat.
1st and 2nd.

E flat or D flat.
3rd and 4th.

The image shows the first two staves of a musical exercise. The first staff is for the 1st and 2nd parts, with a key signature of one flat (B flat or A flat). The second staff is for the 3rd and 4th parts, with a key signature of two flats (E flat or D flat). Both staves contain musical notation for a sequence of notes and rests, ending with a double bar line.

In A flat or G flat major.

E flat or D flat.
1st and 2nd.

B flat or A flat.
3rd and 4th.

In D flat or C flat major.

B flat or A flat.
1st and 2nd.

E flat or D flat.
3rd and 4th.

In D flat or C flat major.

E flat or D flat.
1st and 2nd.

B flat or A flat.
3rd and 4th.

In G flat or F flat major.

B flat or A flat.
1st and 2nd.

E flat or D flat.
3rd and 4th.

Or,

E flat or D flat.
1st and 2nd.

B flat or A flat.
3rd and 4th.

In F or E flat major.

1st and 2nd.

3rd and 4th.

B flat or A flat.

3rd and 4th.

1st and 2nd.

E flat or D flat.

In C or B flat major.

1st and 2nd.

3rd and 4th.

B flat or A flat.

E flat or D flat.

3rd and 4th.

1st and 2nd.

It would likewise be possible to employ, with the difference of a fourth or a fifth, actual trumpets, such, for instance, as trumpets in G flat and D flat, or F and C (the difference being a fourth); or, more rarely, G and C trumpets (the difference being a fifth). Although these combinations of keys are seldom used, I will, nevertheless, here endeavour to show how they may be employed:—

Two pairs of trumpets with a difference of a fourth.

In D flat or C major.

G flat or F.
1st and 2nd.

D flat or C.
3rd and 4th.

In G flat or F major.

G flat or F.
1st and 2nd.

D flat or C.
3rd and 4th.

In A flat or G major.

G flat or F.
1st and 2nd.

D flat or C.
3rd and 4th.

In F flat or E flat major.

G flat or F.
1st and 2nd.

D flat or C.
3rd and 4th.

In C flat or B flat major.

G flat or F.
1st and 2nd.

D flat or C.
3rd and 4th.

Two pairs of trumpets with a difference of a fifth.

In C major.

G.
1st and 2nd.

C.
3rd and 4th.

In G major. In F major.

G.
1st and 2nd.

C.
3rd and 4th.

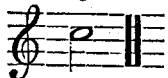
In B flat major.


G.
1st and 2nd.

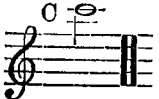
C.
3rd and 4th.

A trumpet in this key of G is, to a certain extent, equivocal,—on the one hand it is formed by placing a crook on the high B flat trumpet, or on a B flat valved instrument, and the part for it must be noted an octave higher; and, on the other hand, it may be a trumpet in the highest key, with crooks to low D or C, and the part for it will, as in the last example, be written like that for any other trumpet. The performer will find no difficulty in transposing it an octave; and, no matter by which of these two modes the G trumpet is obtained, it is then immaterial whether the notes are played as they are written or an octave higher or lower, since the original intention will be easily perceptible.

Good performers will be enabled to play with certainty a third higher than the examples given. Some orchestral trumpet-parts are, however, sometimes written a fourth and even a fifth higher; and to attain this with certainty in the higher notes, a soprano valved instrument or a piccolo trumpet is indispensably necessary, especially when we remember that in arranging pieces a key half a tone higher is employed. What, for instance, in the orchestra, is an E trumpet, becomes in a reed band an F trumpet,—that which is already very high in the orchestra becoming half a tone higher in a reed band. The highest note in these examples

is, according to the sound, therefore, F, which is on the F trumpet:  The highest note, according to the sound, is, for high valved instruments and trumpets in B flat,

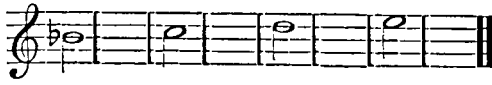
G, which is written:  Some orchestral trumpets reach, sometimes, the simi-

larly sounding note,  It is left to the performer or arranger to which of the highest keys he will give the high notes; or even, in the case of first-rate performers, which note shall supply their place, or strengthen, and, so to speak, render them certain.

The following are examples of the manner in which the orchestral trumpets may be employed:—



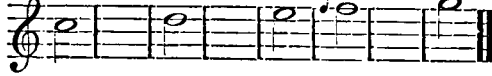
Trumpets in G.



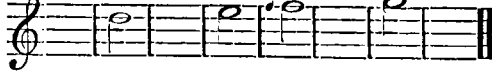
In G flat.



In F.



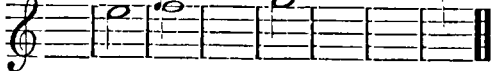
In E.



In E flat.



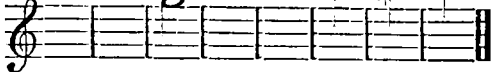
In D.



In D flat.



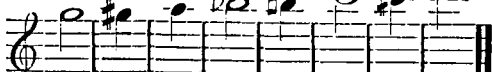
In C.



High Trumpets in C.



In B flat.



In A.



Piccolo Instruments in G.



In G flat.



In F.



In E.



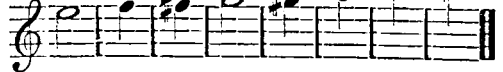
In E flat.



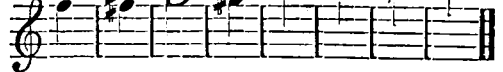
In D.



In D flat.



In C.



In C.



In A flat.



In G.



To the foregoing examples may be added the following :—

E flat trumpet.

E natural trumpet, 2nd valve.

F trumpet, 1st valve.

G flat trumpet, 1st and 2nd, or 3rd valve.

G trumpet, 2nd and 3rd valve (sometimes only 3rd)

A flat trumpet, different fingering.

A flat cornet-à-piston.

B flat trumpet, different fingering.

B flat cornet-à-piston.

Piccolo in E flat.
The G and E are not natural notes.

On the piccolo, the notes not marked with a 0 are valve notes. Thus some few orchestral trumpet passages cannot be represented by valved trumpets and high valved instruments as effectively as could be desired. Valved trumpets are, however, preferable to plain trumpets, especially in reed bands, on account of the great number of modulations contained in our most modern music, especially in marches. The sparing manner in which natural notes are employed, as well as the frequent pauses consequent upon this fact, throw plain trumpets into the background, despite the extraordinary effects which they alone can produce, compared with the effects of the valved trumpets, which may be employed in a variety of notes

and keys, since, as a general rule, the natural sound of these instruments loses but very little by the valves, the loss from the same cause being much greater in the case of French horns and trombones.

Thus plain trumpets should be employed only in very large reed bands. The best would be those in G flat, with crooks to low C. There is one more point of very great importance with regard to trumpets for reed bands. In the works of Mozart and Beethoven, as well as those of more modern and more ancient composers, the trumpets (in combination with the French horns) are frequently employed to double the bass in the higher octave. With the ordinary three and four-part chords this would be well enough; but in a pedal passage, or a sustained bass, where other chords are combined with it, the bass doubled by the trumpet would form a false relation. In such cases, the trumpets thus employed will lose the peculiar and distinguishing effect which they might otherwise produce, combined with similar high valved instruments.

Such strained effects of frequent occurrence, especially in the works of French and Italian composers, are exceedingly disagreeable, even in the orchestra, but they are a still greater failure in reed bands, which do not contain so many varieties of sound. The sixteen-feet tone of the French horn is more adapted for such a doubling of the bass; but even with this instrument care and reflection are requisite, since every dissonance becomes still more marked than before when transferred to reed bands.

b. TROMBONES.

I have here to mention only the ordinary slide trombones, since valved trombones, although very different in form, belong to the valved instruments already described.

Trombones are employed in various keys, and have three different names, according to their compass and the quality of their tone,—being called alto, tenor, and bass trombones.

The alto trombone, which unfortunately is now more rare than formerly, is sometimes in F or E, but mostly in E flat, and is named after the note which it produces with the slides not drawn out.

There is never more than one alto trombone part written either for the orchestra or reed-bands, so that, in learning his instrument, the performer has to observe the manner in which one and the same note is to be produced, by means of the slides, according as the trombone is in F, E, or E flat: thus:—Three alto trombone players—one on an instrument in F, another on one in E, and the third on one in E flat—are able to play from one and the same book, each player drawing the slide according to the key in which the instrument stands. This is the principal difference between trombones, on the one hand, and horns and trumpets on the other. The trombone-player learns, from the very commencement, to transpose, as it were, whilst he goes on; whereas, for horn and trumpet players, each part when transposed must be written out afresh. It is, however, always advantageous that composers and arrangers should know for which of these three varieties of the trombone they are writing, since each one is attended with peculiar advantages and disadvantages, as will be clearly seen from the following examples.

Slides on the F alto trombone.



Slides on the E alto trombone.

1st. 2nd. 3rd. 4th.

5th. 6th. 7th.

Slides on the E flat alto trombone.

1st. 2nd. 3rd. 4th.

5th. 6th. 7th.

As the tubing of the alto trombone is very narrow, the lower octave is very uncertain.

Scale of the three alto trombones.

Bad. | Middling. | Good. | Bad. | Middling. | Good.



Bad. | Middling. | Good. | Bad. | Middling. | Good.

Middling. | Good. | Bad. | Middling. | Good. | Midd.

Good.

Middling. | Good. Uncertain.

Good. Uncertain.

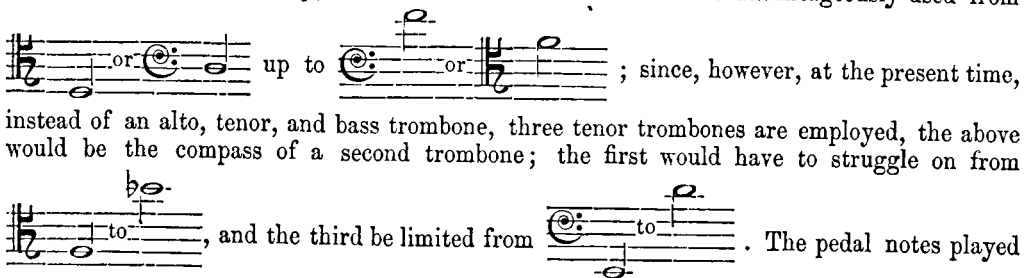
This scheme shews us that we may advantageously use the notes from  chromatically upwards to  on an alto trombone of any key. In order to employ other notes, we must know in what key the instrument stands.

The Tenor trombone stands in B flat,—that is to say, when its slides are not drawn out. When this instrument is of wide calibre, in the first three positions it can reach the pedal notes contra B flat, A, and A flat, respectively; and, in the case of very good players, perhaps a fourth pedal note, contra G. This key is principally used for solos, as having the most extensive compass.

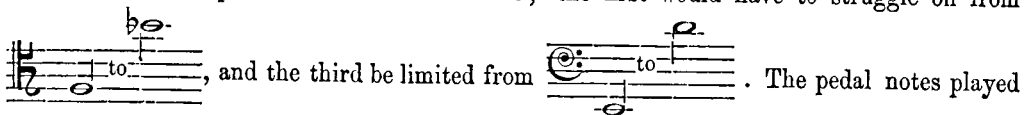
Scale of the tenor trombone in B flat.



As a tenor trombone only, the B flat trombone would be most advantageously used from



instead of an alto, tenor, and bass trombone, three tenor trombones are employed, the above would be the compass of a second trombone; the first would have to struggle on from



by the third trombone alone would be ineffective, because it requires several performers to produce them satisfactorily. But for trombone solos in unison, three tenor trombones are preferable to three in various keys,—namely, to an alto, tenor, and bass.

Bass trombone in G.



5th slide. 6th slide.

7th slide.

Bass trombone in F.

1st slide. 2nd slide.

3rd slide. 4th slide.

5th slide. 6th slide.

7th slide.

Bass trombone in E flat.

1st slide. 2nd slide.

3rd slide. 4th slide.

5th slide. 6th slide.

7th slide.

The best lower notes of the three bass trombones.

The musical notation displays three staves, each representing a different key for bass trombones: In G, In F, and In E flat. Each staff includes a main line and a lower line labeled 'Pedal'. Fingerings (1-7) are indicated above specific notes to guide the performer. The notes are primarily half notes and whole notes, showing the range of the instrument in each key.

The low notes of the bass trombones are best employed in a simple style, the middle and high notes being better adapted for florid passages. The compass from is quite sufficient for bass trombone-parts, except solos.

Trombones are the only instruments which, to be effective, require three parts. All other instruments, when not employed for solos, are capable of being used in two or four parts.

Two and four horns, or trumpets, may be very well employed in the same key, but with trombones it would be most desirable for them all to stand in different keys. Now-a-days, every performer wishes to be as effective as possible upon his instrument; and as the alto trombone is limited in compass, besides being little adapted for solos, it is superseded by valved alt-horns, or by the tenor trombone; while, again, the bass trombone, being too troublesome, is replaced by the bass valved instruments, or the tenor trombone. As composers

seldom write lower than or higher than for the three trombones,

both the alto and the bass may easily be represented by the tenor trombone. This explains the present use of three tenor trombones, which have a more extended compass than other trombones. Although this new plan may be inferior to the old one, which, while employing three different trombones, produced three different qualities of tone, it is better than replacing the trombones by alto, tenor, and bass valved instruments, and more characteristic; since the trombones may themselves be employed in any key, though too rapid passages destroy their character.

Although a tenor valved trombone strikes me as more useful and dignified than a tenor horn, and might replace the latter, it could no more form one in the simple and majestic combination of three ordinary trombones than the tenor horn itself could.

In order to obtain some slight difference of tone from the three trombones in the same key, musicians employ, in France, Italy, and sometimes England, a B flat trombone of narrow calibre, for the first,—that is to say, alto-part. The higher notes of this instrument are more certain, whilst its tone more resembles that of the alto trombone; but, for solos, it wants the strength and dignity belonging to the ordinary trombone. Another sort, known principally in Germany under the name of a tenor-bass trombone, is wider in calibre than the usual trombones, whilst it resembles in sound the bass trombone. A good performer could execute upon it even a vocal bass or baryton solo, not containing too many *legatos*.

Since we may conclude, as a general rule, that one at least of three trombones will be employed for solos, it is desirable, so as to have three effective trombones in every case, for the third to be strengthened at least by a G or F trombone.

Since, therefore, a B flat tenor trombone of narrow calibre loses something of the peculiar trombone character, one in C or D flat, of somewhat wider calibre, might perhaps be found serviceable for the first, *i.e.* the alto-part; on such an instrument, trombone-parts in unison, occurring in the intermediate notes, might be well rendered; besides, such an instrument would be well suited for solos.

For my own part, therefore, I should be inclined to employ the three trombones, with a slight difference of key; choosing the first in C or D flat, the second in B flat, and the third as tenor-bass, supported by a bass trombone, on which some of the bass notes might be doubled by means of the lower octave.

This small difference of key would prove extraordinarily effective for some passages in unison, for there is one difficulty which we experience in all kinds of trombones; I refer to the connecting, in quick succession, the fundamental tone of any key with the next semitone or full tone, as the one lies in the first, and the two others in the seventh and sixth positions.

Where we have trombones in three different keys, passages which would be difficult on the one, may be rendered with perfect ease on one or both of the other two.

Trombones are treated in reed bands as they are in an orchestra,—that is to say, the orchestral trombones are replaced by similar ones for reed bands, except that, in the latter, the one or the other is sometimes used for tenor, baryton, or bass solos, according to the capabilities of the performer.

The trombone, like the violin, is a perfect instrument, since by lengthening or shortening the slide a little, a note if at all false can be played correctly. For this purpose a very delicate ear is naturally necessary, though it is different from that of a horn-player; the latter must employ his ear for the purpose of not confounding one note with another, while the trombone-player, on the other hand, must do so to intone his note—which is more easy to hit than on the horn—in its most perfect purity.

I must make one more observation. In some orchestral compositions there is only one trombone; this must merely be considered as strengthening the bass-part, chiefly in the *forte*.

The percussion instruments are employed in a reed band just as in an orchestra, and therefore need not be described at any length.

FINIS.