# APPENDIX

*by*

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## FOREWORD

Some considerable time has now elapsed since the original publication of this work, yet, in spite of the many changes which have taken place during that period of ceaseless musical activity and constant experiment and development, the technique of orchestral instruments has remained for the most part fundamentally unaltered.

Where the latest practice and methods have been found to conflict with Widor's statements this has been pointed out, but the greater part of the Appendix has been devoted to the use of the various instruments by composers in recent times. No musical examples have been quoted, and the Appendix will be of little use unless the scores of the works of modern composers are studied carefully and in detail.

It is highly important that students should gradually build up for themselves a library of miniature scores. These are comparatively inexpensive, but if it is found impossible to afford to buy them they may now be borrowed from many public libraries. The study of whole scores is of infinitely greater value than that of the short extracts which are all that orchestration books have space to give, and the student who has not the enthusiasm, initiative and enterprise to dig for himself in the inexhaustible mine of printed scores will not go far.

In this connexion the list of composers to be found on p.196 will be found useful.

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# CHAPTER I
(p.11, Widor)

# THE WOODWIND

## The Flute

In addition to the composers whose works are recommended for study by Widor, the following should be noted by the student:

Rimsky-Korsakoff (e.g., *Scheherazade, Spanish Rhapsody*).
Debussy (e.g., *Prelude à l'apres midi d'un faune, Iberia*).
Ravel (e.g., *Daphnis et Chloe, Rhapsodie Espagnole*).
Stravinsky (e.g., *Fire Bird, Petrouchka, Octet for Wind Instruments, Sacre du Printemps*).

The modern French school, following the example of Fauré and Debussy, exploits the low notes of the flute to great effect. The bottom octave of the flute is somewhat deceptive in regard to power. When heard alone these notes are rich and full but they are very easily covered up by other instruments and therefore should be given the minimum of accompaniment. In passages for Wind alone it is often advisable to give the principal melodic line to the Oboe, the Flute being placed below it. If the reverse method is adopted the line given to the Oboe will stand out too clearly and the melody (on the Flute) will be obscured. If the Flute melody lies above the stave it can hold its own but, as Widor points out, the Flute is, more often than not, used to double a wind instrument or the violins in the octave above to give brightness and clarity. The Clarinet-Flute octave combination is a smoother sound than that of Oboe and Flute though the latter is often employed effectively.

The combination of Bassoon and Flute or of Clarinet and Flute two octaves apart is woody and pithy. The former was quite often employed by Mozart and Haydn, the latter is a more modern tone-colour and is best suited to rapidly moving figures. Mozart was also fond of the three-octave combination Bassoon-Violins-Flute.

Another effective combination is that of Bassoon and Flute in actual unison. This is, of course, very limited in range, as the compasses of the instruments only overlap for about an octave upwards from middle C.

## The Piccolo

When a composer writes for two Flutes he usually employs two lines of score for them in order that the second Flute may interchange with Piccolo. When three Flutes are used the third player does this. This procedure is adopted in order to keep the best player for Flute solos and not to interefere with his embouchure. There is no reason however why both, or, in the case of three players, all the players should not change to Piccolo. Suitable occasions for this are rare, of course, and it should very seldom be necessary to use more than one Piccolo.

The Piccolo can be used as an upward extension of the Flute in a very high-pitched solo passage; the melody is handed on from Flute to Piccolo and back again, and skilful players can give the effect of the phrase being played by a single performer.

But it is in the tutti that the Piccolo is most useful. It imparts immense brilliance to a fully scored passage and adds bite to the highest registers of the violins.

In soft passages it can add a charming piquancy if used staccato in octaves with the Flute especially if the passage is such that pizzicato strings, and possibly Harp and Glockenspiel, can be associated with it.

The Piccolo is above all a virtuoso instrument. and rapid runs and trills form its natural element. It is however so high in pitch that it is rarely used undoubled at the octave below.

In the double octave above the Clarinet the Piccolo is of excellent effect in rapid and skittish passages, and it is very incisive at the double octave above the muted Trumpet. In *Kikimora* Liadov uses muted Trumpet, Xylophone and Piccolo together in strongly marked rhythmic groups of notes.

## The Bass Flute

Widor was right in prophesying a future for the Bass Flute in G. Examples of its use can be found in Holst's *Planets*, Ravel's *Daphnis et Chloe* and Stravinsky's *Sacre du Printemps;* but that is, however, still a rarity and if a part is written for it, this must be cued in for Clarinet or Bassoon. This instrument has a marked individuality and should gradually establish itself more and more firmly in the orchestra. It is useful both as a solo instrument and in combination with other wood-wind instruments. Ravel and Stravinsky in the works mentioned above use it chiefly for solo work, but Holst discovered the chilly effect of three Flutes and a Bass Flute moving slowly about as a harmonic block of successive common chords.

The Bass Flute has the same written compass as the ordinary Flute, but sounds a fourth below. The composer therefore must write his Bass Flute a fourth higher than the sounds intended.

## The Oboe

It is best to avoid altogether the two highest notes (F♯ and G) of this instrument. The best register is from about F above middle C to the B flat above the staff, but these limits must of course often be exceeded. Notes below the D above middle C are difficult to control and it is unwise to write them *piano* or *pianissimo*. Dvorak in the slow movement of his 'Cello concerto writes such notes, and Sibelius is rather given to doing the same, but the student is warned not to imitate these masters of orchestration in this respect though he may derive immense benefit in other ways through a study of their scores. Sibelius obtains a very characteristic and rather sombre tone-colour from Oboe and Clarinet in octaves, both fairly low in their registers.

A very striking use of the Oboe is to be found in the slow movement of Elgar's second symphony where it wanders about in triplet rhythm in complete contrast to the rest of the orchestra, its part being marked "molto rubato, quasi ad lib" (the passage is on pages 74 and 75 of the score). This highly poetical use of the Oboe bears the authentic stamp of genius.

Since Widor's book was first published great strides in Oboe technique have been made particularly in Great Britain owing to the example of Leon Goossens. Not only has the flexibility and power of execution extended in scope but the instrument has become in greater measure than before a vehicle of musical expression. The playing of Goossens and of his most gifted pupils has led British composers to write concertos and works of chamber music which exploit what is virtually the new art of Oboe-playing. Some of these works test the powers of even a Leon Goossens pretty severely but never unduly, and though solo works cannot be taken as models for orchestral writing they show what are the possibilities of the instrument in the hands of a great player. If Widor were now to rewrite his book he would certainly expunge the first sentence which appears under the head "Articulation" on page 21, though admittedly the Oboe cannot yet rival the Flute in agility.

## The Oboe d'amore

A good many oboists now possess this instrument in addition to Oboe and Cor Anglais, and some modern composers have written parts for it e.g. Strauss in his *Sinfonia Domestica*, Ravel in his *Bolero*, etc.), but it is unsafe to use it unless one is making an orchestration for an orchestra in which it is known that the instrument is available. The tone, as Widor says, has great charm, lacking the heavy rather tragic quality of the Cor Anglais and at the same time being rather smoother and less pungent than the Oboe. The notation is the same as for Clarinet in A.

## The Cor Anglais

All professional oboists can be relied upon to possess a Cor Anglais and, just as the second or third Flute player is often called upon to play Piccolo, so the second or third oboist can interchange with Cor Anglais. It is however preferable not to change about continually as the player has to have time to adapt himself to the change. In the case of small orchestras which only contain one Oboe-player these changes may be required fairly frequently but the orchestrator should do his utmost to avoid all but absolutely necessary changes. As a rule, where a work is scored for three oboists the third plays Cor Anglais throughout. The Cor Anglais, owing to its extremely prominent and characteristic *timbre*, is essentially a solo instrument. Its tone-colour is particularly suited to music of a melancholy cast, and in illustration of this one thinks immediately of Sibelius's *Swan of Tuonela* which is practically a solo throughout for Cor Anglais. In this magnificently sombre poem an extremely desolate and forlorn effect is produced by this means. Another locus classicus not mentioned by Widor is the slow movement of Dvorak's *New World* symphony. Here the solo lies within the compass of the Oboe, but, as it would lie rather low for that instrument, the Cor Anglais was chosen in order to obtain far better tone and a much greater degree of poetical beauty. The use of the Oboe would here resemble a rather raucous bagpipe whereas the Cor Anglais evokes an atmosphere of distance and mystery. Elgar, who as a rule prefers mixed tone colours to give the rich and opulent effects he loved, rather than the pure prime colours of solo instruments, uses the Cor Anglais combined in unison with Violas, 'Cellos, Clarinets and Horns, and well it helps to bring into prominence melodic lines in the tenor register of the orchestra. The American composer Aaron Copland has written an excellent short tone poem called *Quiet City* for Cor Anglais, Trumpet and Strings which is full of imaginative fantasy, and the English composer Ruth Gipps has provided the only example known to the writer of a quintet for Cor Anglais and Strings.

The Cor Anglais is above all a romantic and expressive instrument but, like the Oboe, its sharp biting staccato can be used on occasion for humorous or spiteful effects as Strauss, for instance, has shown in the *Critics* section of *Ein Heldenleben*. Almost any modern score will show effective instances of its use, and its unique character has earned for it a permanent place on the orchestral palette.

## The Heckelphone

The Baritone Oboe mentioned by Widor is almost identical with the Heckelphone. This instrument is as rare as, or even rarer than the Bass Flute, but composers sometimes demand it, e.g., Holst in the *Planets* and Delius in his first *Dance Rhapsody*, both of which are scored for extra large orchestras. It probably has a future in the orchestra as its snarling tone is unique, but the composer who hopes for performances of his work will do well not to write an indispensable part for it.

The rarity of comparitively new instruments and the reluctance of composers to use them is sometimes put down to the conservatism of musicians, a quality more legendary than real. The true explanation is an economic one. Orchestral players naturally hesitate to sink capital in the purchase of an instrument which they will only be called upon to play once a year or less, and thus a vicious circle is set up: few instruments because few parts to play— few parts to play because few instruments. Can it be wondered at that it takes many years to establish a new instrument in the orchestra?

## The Clarinet

Owing to recent improvements in Clarinet manufacture the old restrictions in regard to key have largely, if not entirely disappeared. Indeed the writer has been informed that in America the A Clarinet is almost unknown in all but large symphony orchestras. It is how-

ever still advisable to use as easy keys as possible for the sake of those who still possess older types of instruments or who are unpractised in playing in remoter keys. The difference in tone-colour and brilliance between the B flat and A Clarinets is entirely imaginary. The fact that Mozart and Brahms wrote for the A Clarinet in their quintets may have accounted for the idea that it has a more distinguished quality of tone than the B flat instrument, but actually there is more difference in tone between two different players on the same instrument than between the two instruments played by the same artist. In military bands the A Clarinet is never used and this fact too may be partly responsible for the idea that the B flat instrument is the more brilliant in tone because of the rather blatant style formerly cultivated in military bands owing to open-air conditions, and perhaps some lack of sensitivity as well. One hastens to add, in fairness to present-day military bandmasters and players, that nowadays a much higher standard of excellence in the matter of tone and musicianship exists than was formerly the case.

There is little more to add to Widor's excellent resumé of Clarinet technique except to mention a few of the works written specially for it in recent years: among these Stanford's *Clarinet Concerto* holds a prominent place and Arthur Bliss' *Quintet for Clarinet and Strings* is a work of great merit (Novello). Herbert Howells has also written a *Rhapsodic Quintet* which shows a keen realization of the possibilities of the medium (Stainer and Bell for the Carnegie Trust) and Arnold Bax's *Sonata with Piano* is of considerable interest.

It is needless to quote orchestral passages as these abound in every score. Scale-passages — especially chromatic scales — can be played with ease and great rapidity and everyone knows the effect of Clarinet arpeggios and the sweetness of expression of the medium register of the instrument, not to mention what Widor calls the Freischütz effect of the Chalumeau register.

## The Bass Clarinet

The Bass Clarinet in A no longer exists, that in B flat being used in all keys. The second or third Clarinet player may be called upon to change to Bass Clarinet if so desired, but it is better not to change in the course of a movement unless it is quite unavoidable to do so.

This instrument is not solely a melodic one. It can form an admirable bass to the wood-wind and with the double basses makes a strong enough support for wood-wind and strings *piano*. An extra key enables the low E flat to be produced (sounding D flat) so that the bottom note of the now discarded Bass Clarinet in A can be obtained. Widor votes for the F clef. The player however prefers the G clef as he can then read and finger the part as though he were playing on an ordinary Clarinet. We therefore beg leave to differ on this point. Scores in this country are nearly always printed with Bass Clarinet in the G clef.

## The small Clarinet in E flat

Elgar used an E flat Clarinet in his symphonies to strengthen the flutes, while Strauss and a few others have also employed it, but it has not been generally absorbed into the orchestra.

## The Bassoon

There is nothing to add to the excellent remarks of Widor on the subject of this instrument except perhaps to draw the student's attention to Elgar's and Sibelius's Bassoon parts. There are some excellent Bassoon solos in Elgar's *Falstaff* for instance, and Sibelius writes in a most telling way for it, often using two Bassoons in thirds or even seconds very low down in a way that looks peculiar on paper but comes out extraordinarily well in sound. It is a mistake to regard the Bassoon too much as a bass instrument — two Bassoons sustaining thirds in the medium tenor register for instance can give unobtrusive substance to an orchestral texture, and a Bassoon doubles almost any other instrument effectively in the octave or double octave below.

## The Double Bassoon and Sarrusophone

In this country the Double Bassoon is of far more frequent appearance than the Sarrusophone. The modern instrument is fairly flexible and agile, and in the hands of a good player who has specialised in its use it is capable of a good deal more execution than Widor gives it credit for. Everyone must agree, however, with his strictures on the part written by Beethoven for this instrument in the choral symphony. Beethoven no doubt wrote 'col basso' in his score for page after page and gave it no further thought. This is a grim warning to the student to write nothing in his score without being fully conscious of its effect both on the audience and the staying power of the performer.

# CHAPTER II

(p. 51, Widor)

# THE BRASS

## The Natural Horn

It is good training for the student to confine himself sometimes in his orchestration exercises to the use of the Natural Horn. This teaches him economy of means, a good foundation for effective horn writing (just as the study of strict counterpoint sows the seeds of good Free Contrapuntal writing). It also inculcates a healthy respect for the resourcefulness of the old masters. In doing this he should be very sparing in the use of stopped notes, just as they were.

The same remarks apply to the Natural Trumpet.

## The Valve Horn

The present writer has not come across the across the ascending and descending Horns referred to on p. 57 par. 3, which in any case does not affect the attitude of the orchestrator very much. The system is probably entirely confined to instruments made by some particular French maker.

Widor's treatment of the Horn is very precise and illuminating and there is little to add to it except to draw attention to the great freedom and flexibility of modern Horn parts. Strauss, Elgar and Stravinsky, to mention but three orchestral masters, expect things from the Horns which would have made older composers' hair stand on end. But the Horn is not by nature a virtuoso instrument, and most of the time it is best employed in long holding-notes or in melodic phrases of a fairly vocal nature. Forsyth points out the effectiveness of cunningly constructed chromatic harmony for three or four muted Horns.

The German Horn has lately come to be used a good deal in this country rather than the French Horn. In some ways this is to be regretted as its wider bore takes off some of the noble poetic character of the instrument. It is, however, more certain in execution than the French Horn and is for this reason favoured by many players and some conductors. Sensitive, artistic playing can compensate in great measure for the naturally somewhat inferior tone of the German Instrument.

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*Shakes* (p. 61 par. 8) It is not quite true to say that shakes on the horn are always performed by the lips and never by the valves, though the lip-shake is far more artistic in quiet solos and is of course always used in parts written for the old hand-horn. In modern scores, however, the student will find frequent examples of shakes which could not possibly be produced by the lips, but these come under the head of 'effects', being usually employed to add to the excitement of loud dramatic passages—"purple patches", in fact. Most major and minor valve-shakes are possible, especially between middle C and top G, the ones to be avoided being those which require more than one valve to be moved. German Horns are fitted with a fourth valve which puts them into the key of high B flat ("B flat alto"). This makes high notes easier to produce but need not be taken into consideration by the composer, the F transposition being consistently used throughout the compass in the written part. The player does the necessary re-transposition when he finds he wants to use the fourth valve.

## The Valve Trumpet

The Trumpet in B flat is the one most used in this country, and composers are advised to write for it rather than for the Trumpet in C which lacks nobility and splendour of tone, though admittedly it is easier to produce top-notes on it. In any case, whether the composer writes for it or not his parts will be played on the B flat instrument.

With regard to Trumpet solos in the orchestra, no composer or orchestrator of any taste would give the Trumpet a sentimental melody to play except perhaps as a joke. Fanfare-like themes, of course, suit it best, or quiet melodic passages of neutral emotional significance or of a hymn-like nature. At all events a Trumpet melody should be dignified if meant to be taken seriously.

### Mutes

Jazz has familiarised us with muted Trumpet effects. In this branch of music mutes of different shapes, sizes and materials are used, most of which have not yet invaded the orchestra. We have yet to witness during the course of a symphony concert the exhilarating sight of the Trumpet players holding their hats over the bells of their instruments!

The ordinary mute is used a great deal, however; perhaps over-used. It is a great mistake to use mutes on brass instruments merely to get a quiet effect as they alter the tone entirely, and soft "open" brass sounds splendid.

Muted Trumpets played *piano* blend admirably with the Oboe, and a three-Oboe effect may be obtained from an orchestra which only contains one, by combining it with two muted Trumpets. The low notes of the Flute also blend well with *pianissimo* muted Trumpets, especially if a fibre mute is used.

The *forte* and *fortissimo* of the muted Trumpet is very harsh and arresting, and dissonant chords for muted Trumpets and Trombones are of good dramatic effect. Soft staccato chords for full muted Brass are a legitimate comic device suitable for the satirical march themes and so on, chiefly to be found in film or radio incidental music.

## The Cornet

We agree with Gevaert's remark quoted at the top of p.76. The Cornet has not proved its worth as an orchestral instrument, especially now that the B flat Trumpet has taken the place of the F Trumpet in the orchestra. The Cornet lacks distinction and is very little, if at all, more agile than the B flat Trumpet.

With regard to Widor's remark about the use of four Trumpets, one can only warn the student against extravagance. He will be wise to write for two only, or in a large symphonic work for three at the outside, if he wants conductors to look further into his score than the list of instruments required.

## The Tenor Trombone

Widor's description of this instrument and its capabilities is very full and complete. With regard to pedal-notes, all are now available to a first-rate player, and certainly the A flat and G are perfectly practicable. But opportunities for their use are very rare and their sound is somewhat coarse. He does not mention mutes as applied to Trombones which now are an every-day occurrence. The effect on the tone is similar to that produced by the Trumpet mute. Most modern scores furnish illustrations of muted Trombones played both softly and loudly, especially those of Arnold Bax. Vaughan Williams uses soft muted Trombones in the slow movement of his *Symphony No.4 in F minor* and loud ones in *Satan's Dance of Triumph* in *Job*. Elgar also used them quietly near the end of the slow movement of his *Symphony No.1 in A flat* with magical effect. But, as with muted Trumpets, so with muted Trombones, the mute changes the actual tone of the instrument and should not be used with the intention of merely damping down the sound. The Trombones are capable of a true *pianissimo*

without the use of mutes as Widor illustrates in his extract from *Parsifal* on p.83, but it must be remembered that such *pianissimo* chords should be placed in the medium register.

One would emphasise the point made in par.4, p.80, about the lowest notes of the Tenor Trombone. Apart from the lack of strength and sustaining power, they are poor in musical quality even in the *piano* and *pianissimo*. They are much better on the Bass Trombone.

## The Bass Trombone

The Bass Trombone used in this country is in G, not F. Therefore the table of positions given on p.87 must be transposed up a tone, the bottom note of the 7th position being C♯ and the top note of the 1st position G.

Widor's recommendations as to its use are excellent, but one would add that the modern player can produce pedal notes in, at any rate, the first three positions, if required. Some instruments are fitted with special mechanism whereby all the semitones below bottom C♯ and fundamental G can be obtained. This is chiefly useful when no Tuba is available and essential low Tuba notes have to be 'cued in' for the Bass Trombone.

If the low C is urgently required on an instrument not fitted in this way, the player can push his slide out a fraction further than the 7th position and 'lip' the note flat, but there is some danger of the slide coming apart from the rest of the instrument unless plenty of time is given for careful adjustment.

## The Trombone Glissando

The examples given in par.10, p.86, are certainly disastrously crude, but the glissando is now considered a legitimate musical effect though, of course, it should be used very seldom and then only under the guidance of impeccable taste. Care must be taken that the notes at the extreme ends of the glissando are not more than a diminished fifth apart and that the glissando can be executed without the player having to change the direction of the slide during its course. The tables of positions for Tenor and Bass Trombones can be consulted on this point. Glissandi where used are usually to be found at the end of movements where a great climax has been built up, their tearing effect adding the final touch of excitement (e.g. the final two pages of Ravel's *Bolero*).

## The Tuba (p.91 et seq. "SAXHORNS")

The Bass Tuba, as used now in our orchestras, is usually the Tuba in F (fundamental F below 'cello C, but capable of obtaining a few lower notes by means of combinations of its four valves). It closely resembles the "E flat Bass" of the military band, but is of course pitched a tone higher. Its part is not transposed.

The Tuba often acts as a "Double Bass" to the Brass section, that is to say it adds 16 foot tone by doubling the Bass Trombone in the sub-octave. Sometimes it is written in four-part harmony with the Trombones but it does not blend well with them except in *piano* and *pianissimo*.

Sibelius shews an acute realisation of the functions of the Tuba in the orchestra. He always writes a Tuba part differentiated from those of the Trombones though, of course, often in conjunction with them, and not infrequently makes the Tuba help the Double-basses, Bassoons, etc., to provide a firm bass to groupings of Strings, Woodwind and Horns while the rest of the heavy Brass is silent. Actually the Tuba in the *piano* and *pianissimo* makes a fine bass to the Horn quartet, but it should always be borne in mind that its tone becomes more obtrusive the higher it gets.

The Tuba is sometimes fitted with a fifth valve whose function is to correct faulty intonation when the other four valves are in operation; others are so constructed that the

fourth valve itself overcomes such discrepancies by means of special mechanism.

The use of the Tuba as a solo instrument is rare, but examples exist from Wagner onwards. Apart from Wagner's Tuba-music for Fafner in the *Ring* there is the well-known opening to his *Faust* Overture, while further examples are to be found in Stravinsky's *Petrouchka* where the dancing bear walks across the stage, in Ravel's orchestration of Moussorgsky's *Bydlo* in the *Tableaux d'une Exposition* (both of these being high up in the instrument's compass) and in Arnold Bax's *Second Symphony* (slow movement) the instrument being muted in this case. Strauss also mutes the Tuba in *Don Quixote*.

## The Tenor Tuba

This is the Euphonium of the military band, and in pitch and character it much resembles the Baritone Saxhorn in B♭ (par. 7, p. 93, Widor). In the orchestra it is written in the treble clef, as shown in Widor's example, a ninth higher than the sounds required. In the military band its part is written in the bass clef and is not transposed.

The Tenor Tuba is occasionally used in works scored for very large orchestras, e.g. Holst's *Planets* where it is particularly effective in *Mars*, Bax's *Fourth Symphony*, Strauss' *Heldenleben*, etc. In Strauss' *Don Quixote* there is an important solo part for Tenor Tuba. This Tenor Tuba must be distinguished from the Wagner 'Tenor Tuben' in E flat used by him in the *Ring* (and later used similarly by Bruckner) as part of a special quartet of Tubas see par. 3, p. 91, and the musical example at the top of p. 97 where, incidentally, there is a misprint in the Contrabass-Tuba part; the final tied quaver should of course be G, not B flat).

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*Note on Brass-Band Notation*
*for Trombones and Tubas, etc.*

In the Brass band the Tenor Trombone parts are written as transposing parts a ninth higher than the required pitch and in the treble clef, and the Euphonium the same, exactly as is the Tenor Tuba part in the orchestra. The Bass Trombone is written non-transposed in the Bass clef. The Tubas, or 'Basses' as they are called in the Brass band, are also written in the treble clef and transposed. Thus middle C for the E flat Bass represents in sound the E flat just below the bass staff, while for the B flat Bass it represents the B flat below the bass staff. In Brass band scores, in fact, the Bass Trombone is the only instrument which uses the bass clef and is not transposed. All the other instruments are in either B flat or E flat and use the treble clef exclusively, C representing B flat or E flat, as the case may be, at pitches which vary with the size and range of the instruments. For instance, middle C for the Soprano Cornet in E flat represents the E flat a minor third above, while for the Tenor Horn in E flat it sounds the E flat a major sixth below and for the E flat bass, As we have said, it sounds a major sixth plus an octave below. In the case of the B flat instruments middle C for the Cornets sounds B flat a tone below. for the Baritones, Euphonium and Tenor Trombones a ninth below and for the B flat Bass a ninth plus an octave below.

The reason for this apparently complicated system is that the fingering and technique of all the valve-brass instruments are practically identical, and so the musical notation is merely a symbol representing fingering and lip-pressure. With a little practice a player can thus change from one instrument to another without the mental effort of substituting a new set of symbols for those to which his reaction has become automatic through use.

In the *Military* band the orchestral notation is used for the Brass instruments except the Euphonium, whose part is written in the bass clef and at its true pitch.

# CHAPTER III
(p. 98, Widor)

# PERCUSSION INSTRUMENTS

## The Kettle Drums (Timpani)

Widor gives a splendidly full account of these, to which it is not necessary to add very much.

With regard to limits of pitch (par. 4, p. 99, Widor) the low E flat is quite good in *piano* and *pianissimo*, while top G on the smallest drum is used by Elgar in the *Troyte* variation of the *Enigma* and by Walton in the last movement of his *B flat Symphony*. An early example of top F sharp is to be found in Mendelssohn's *Capriccio in B minor* for Pianoforte and Orchestra. But these high notes are certainly rather a strain on the drum-head and should only be used as a vital necessity.

The Machine-drums mentioned in par. 6, p. 100 have not yet come into general use, at any rate in this country, therefore Timpani parts should be written to be playable on the ordinary Drums unless alternative parts are provided.

### The Sticks (par. 8, p. 101, Widor)

The choice of sticks is usually left to the performer though more attention might be paid to this subject by orchestrators. For radio-transmission it has been found that certain passages of a rhythmical nature come out more clearly if wooden-headed sticks are used. The Timpani sometimes tend to sound blurred and even to have a blurring effect on the rest of the orchestral ensemble in broadcast music, when ordinary soft sticks are used in a strongly marked rhythm.

We have often had occasion to mention Sibelius in these notes, and do not hesitate again to recommend the study of his scores in regard to his Timpani parts. To Sibelius each instrument of the orchestra has a strongly marked personality and is never used mechanically or perfunctorily. This will be found to be true in a very marked sense with regard to his use of the Timpani. But Sibelius is, of course, not alone in this, and any modern score will show the regard which composers pay to the Timpanist as a musician, and their appreciation of what he can do.

## Percussion Instruments in general

Widor's remarks on these are full and complete, but there is one point which has to be made and that is the necessity for economy in the orchestra. In some scores one finds that four or five percussion-players are needed in addition to the Timpanist. This is perfectly feasible in the case of large works written by established composers and which can only be played by first-rate and fully-equipped symphony orchestras. But for works of a less ambitious type by composers not yet world-famous it is strongly urged that restraint should be used. At the most two players, apart from Timpani, should be demanded. But these two players can be made to change from instrument to instrument as required, and with a little skill can be used to produce all the colour and excitement required. Even one player can thus be used, provided that common sense is exercised in regard to the time allowed for the various changes. Indeed, in some small theatre orchestras there is only one player for Timpani and Percussion combined, yet so skilful is he that effect after effect can be provided by him. Economy in another sense is also to be urged on the orchestrator. Save up your effects and they will be all the more overpowering when they do arrive. Percussion is, of course, not only used loudly, as most of Widor's musical ex-

tracts show, and charming effects can be obtained by the tasteful use of these instruments, which add rhythm and sparkle to the lighter forms of music and impressiveness when used to add their weight to symphonic climaxes. In Widor's day percussion was not considered quite the thing in symphonic music, in fact he says he has never heard of a Side-drum being used in a symphony, but since then all these instruments have come to be regarded as integral parts of the orchestra for all styles of music, symphonic works by such composers as Elgar, Vaughan Williams, Bax and Bliss showing the use of many of them, especially Bass-Drum and Cymbals, Side-Drum, Triangle, Glockenspiel and Tambourine.

The XYLOPHONE has now reached a high state of virtuosity, a clever player being able to execute very rapid runs, repeated notes, glissandi and so on.

A percussion player is expected to be able to perform on every instrument except possibly the Celesta (which really hardly comes under the head of percussion) which is played by a pianist drawn, perhaps, from the ranks of the Violins.

If TUBULAR BELLS are used it is wisest to select notes for them to play from the scale of E flat major as they are for the most part built to that scale. Probably we have the "1812" Overture to thank for that. Bells tuned to notes outside that scale may be difficult to obtain and therefore should be avoided.

# CHAPTER IV

(p. 125, Widor)

## THE SAXOPHONES

The Alto Saxophone has been used with great effect by Vaughan Williams in Scene VI of *Job* to characterise the snivelling hypocrisy of Job's comforters, which it does admirably.

It also has an important solo part in Ravel's orchestration of Moussorgsky's *Tableaux d'une Exposition (Il Vecchio Castello)*. Ravel uses three Saxophones in his *Bolero*, the Sopranino in F, the Soprano in B flat and the Tenor in B flat. Debussy wrote a Rhapsody for Saxophone and Orchestra and a few concertos and rhapsodies have been written for Sigurd Rascher, the well-known saxophonist, including one called *Saxo-rhapsody* by Eric Coates.

But, on the whole, serious composers have tended to fight shy of it, only using it on very rare and special occasions. The best of the family, as Widor says, is the Alto Saxophone in E flat (par. 4, p.126, Widor), but the Tenor in B flat is very good. The Baritone in E flat had a very full tone but seems to have fallen out of use to a large extent.

In certain small orchestras which are required to play both dance music and "straight" music some of the Woodwind players can usually "double" on Saxophones. Such orchestras often contain no Horns, and it has been found that essential Horn passages can be transferred to Alto or Tenor Saxophones with some degree of success. A Tenor Saxophone can also fill the place of a missing Trombone, for if it is placed between two Trombones in chords the blend is very good even in the *forte*. Widor correctly observes (par.11,p.127) that the Saxophones tend to stand out from the rest of the orchestra and this has been the principal reason for their failing to establish themselves in it except as very occasional solo instruments. The trouble is that they have what might be called a "hybrid" tone which prevents them from fitting comfortably into the Wood-wind group, to which it would

seem they ought to belong, and thus they upset conventional ideas about orchestration. Actually, of course, they form a distinct family, though their tone is capable to a considerable extent of combination with that of the heavy Brass section of the orchestra.

It is said that Sax tried to persuade Wagner to include Saxophones in his scores but that Wagner refused to have anything to do with them. He must have realised that they would not blend well with any of the normal Wood-wind instruments and groups, though he might have done interesting things with them if he had used a quartet of them, just as he did with his quartet of "Wagner-Tubas." Indeed it should be possible to use a *concertante* group of members of the Saxophone family contrasted with the rest of the orchestra. The writer is informed that in the United States, ensemble playing by Saxophones has been brought to a much higher degree of artistic finish than elsewhere, a trio or quartet practising together for perhaps two or three years until they all attain even the same rate of vibrato. There, also, tone production has been cultivated to such an extent that the Saxophone group can not only produce a fine *pianissimo* but in the *fortissimo* it can compete so successfully as almost to overpower the Trumpets and Trombones.

In America the playing of Jazz is taken as a serious branch of musical art, and this is bound to have repercussions on "straight" music in the future to a greater and greater extent, at any rate as regards orchestration.

## The Harp (p.128, Widor)

French composers have always been great exponents of the Harp, and Widor's explanations and examples are excellent in every way. The *chromatic* Harp mentioned in par.16, p.138, has still failed to find its way into the orchestra.

The scores of Debussy and Ravel's works are full of exquisite Harp-writing which well repay study.

One use of the Harp which is most effective is the doubling in unison, high up, of a moderately quick Wood-wind passage. A kind of icy cutting edge which is deliciously scintillating is given to the music.

## The Organ

The reaction of most musicians to the Organ might be summarised in some such way as this: "Grand in Bach and the like; essentially a polyphonic instrument; good in music written by organists of imagination (such as Widor himself) who really understand the unique musical capabilities of the instrument and never let it degenerate into attempting to imitate the orchestra; regrettable in arrangements of orchestral pieces except perhaps from a purely virtuoso point of view in which musical satisfaction is replaced by the kind of breathless admiration one feels for the performances of the acrobat or prestidigitateur; to be avoided in combination with the orchestra except in old music which relies on a substratum of organ-tone, e.g. the church-music of Bach and his contemporaries."

Holst, feeling the weakness of the orchestral bass in sustaining long notes, used the pedal-board only in his *Hymn of Jesus*, and the shuddering effect of low pedal notes certainly adds something to the orchestra which cannot otherwise be obtained. Elgar, in the *Dream of Gerontius* holds on the minor third, G sharp and B, for a very long time, the Organ giving a perfectly uniform and unchanging tone-quality which no orchestral instruments could give (p. 187 of the score).

This is an excellent example both of imaginative genius and of the capacity of a composer to exploit a unique characteristic of an instrument. The unchanging and unchangeable minor third here suggests the mystery of eternity.

Thus, when used with real imagination by a truly poetical composer the Organ can take its place in the orchestra not as a competitor with it but as a means of expression. It should

not be used simply to make more noise at a climax, and it should not be used at all unless a real and inescapable need for it is felt by the composer.

Before leaving this subject one might idly speculate on the invective which the Cinema Organ and its slippery-fingered practitioners would have drawn from our author!

# CHAPTER V

(p.148, Widor)

## THE STRINGS

### The Violin

There is nothing to be added to Widor's admirable section on the Violin. The table of availiable double-stops and chords (pp.151-157, Widor) and the explanation of Harmonics (pp.158-161, Widor) are particularly of the utmost practical help to the non-violinist.

### The Viola

Just as the technique and repertoire of the Oboe have been enlarged in this country by the superb playing of Leon Goossens and his pupils, so have those of the Viola by that of Lionel Tertis and of others who have either been his pupils or have been spurred on by his example, e.g. Bernard Shore and William Primrose. Not only have concertos and sonatas for the Viola been produced in fair quantity, the most distinguished being that of William Walton, but the Viola section of the String orchestra has received a greater amount of attention and appreciation from composers than it formerly enjoyed. Up to a little time ago the *Sinfonia concertante* of Mozart, Berlioz's *Harold in Italy*, and, to a less extent, Strauss' *Don Quixote* were more or less isolated examples of the use of the Viola as a solo instrument, but of late solo passages for Viola have become a common ingredient of orchestral works and much technical and musical ability has been required of orchestral violists. Vaughan Williams has always shown a predilection for the Violas and for Viola solos in his works from the *London Symphony* to *Flos Campi* and his Viola-writing is always grateful to play and to hear. As Widor says (par.3,p.166) the outer strings are the best, the most characteristic and unique in sound being the fourth (C) string. The middle strings have a veiled, romantically mysterious quality and the top string produces a tone somewhat allied to the Oboe. The unison of Violas, Oboes and Cor Anglais is very telling, while that of Violas and Clarinets, especially in the low register, is rich in the extreme. Bassoons may be added to this, and they add still further richness and roundness of tone.

The compass given by Widor (par.1 p.166) is still to be recommended for orchestral Violas though good solo players can reach G or even A above the top C he gives as the upward limit. Extreme high notes have not, naturally, as good a tone as the same notes on the Violin, being rather thin and pinched in effect.

Divisi passages for Violas and Cellos in medium register have a lovely quality which might be described as idealised Organ tone, and Violas divided into three or four parts give a tone-colour of great beauty and expressiveness (Sibelius *Tapiola* Full Score, p.7 et seq., and p.33 et seq.).

### The Violoncello

Notation (par.17, p.182, Widor). The notation in the G clef is now invariably written at the true pitch.

The Violoncello in the orchestra (par. 18, p.182, Widor). It is a little misleading to give the impression that the 'Cello is usually employed independently of the Double-bass and that "the Double-bass is usually left to bear unsupported the enormous weight of the harmonic mass," especially when in the very next sentence we are told that the Double-bass alone "seems dull and devoid of tonal precision." The facts are that the 'Cellos can support a good deal of weight above and still give a clear, strong bass, that more than half the time they still share the bass line with the Double-basses, and that when the 'Cellos are playing a tenor part the Bassoons, Bass Clarinet or some such instruments have to be used in conjunction with the Double-basses unless the music is very quiet and has a simple bass line, otherwise there is insufficient support for the harmony.

Passages for Violoncelli divisi are sometimes written. A very well known instance of this occurs at the beginning of Rossini's overture to *William Tell*, and Wagner uses the effect in the *Ring*. Sibelius's *Tapiola* also contains an example (p.32, Full Score also shows the use of harmonics for Violas, 'Cellos and Double-basses).

## The Double-Bass

Quality of the Strings (par. 6, p.186, Widor). The top string cannot really be called "as intensely expressive as a 'Cello string," though virtuosi can admittedly obtain a certain amount of expressiveness by the use of vibrato. The tone is somewhat dull and lacks variety, as anyone who has attended a Double-bass recital must admit, but the skill and artistry of present-day players is beyond question.

### The Mute

The Double-bass can be muted, and frequently is, but the mute must be sufficienty heavy to damp the vibrations of the bridge. Conductors should see that their bass players are provided with really efficient mutes.

## String Effects

A well known effect not mentioned by Widor is the *ponticello tremolo*. This, when executed *pianissimo*, produces a mysterious rustling effect which is frequently used in music of a dramatic character.

The opposite of *sul ponticello* is *sul tasto* or *sur la touchē*. A *pianissimo* tremolo executed in this way is so feathery and light as to be barely audible, especially if the mute is used at the same time.

The indication for plucking strings near the sounding-board of the Harp is *sur la table*.

# CONCLUSION

(p.197, Widor)

The following suggestions are added to Widor's four paragraphs devoted to the principals of scoring:

5. Make sure that you can recognise infallibly the sound of every instrument in every part of its compass.

6. If you are a student at one of the big schools of music, attend all orchestral rehearsals and listen carefully to the various ways in which instruments and groups are combined. Listen score in hand if possible, and go over the work mentally afterwards with the score while the sound is still fresh in your memory.

7. Make friends with orchestral players, and get them to talk "shop" to you and show you their instruments. If you hear orchestral players talking "shop" together, keep quiet and listen to them.

8. Before actually starting to write a score, rule out the bar lines of the entire work and put in the clefs before you write a note. You can then proceed unhampered by the irksome demands of manual labour. Put clefs and key-signatures on every page.

9. Do not necessarily start writing your score on the first page and plough straight on, but put in what you are sure you want anywhere in the course of the work, even if it is only a few notes sprinkled here and there. It is assumed that a short score of the work has first been made.

10. If there are several climaxes in the work, but one supreme one, score this first, and lay it out so as to get the maximum sonority. You can then see to it that this big moment is not overshadowed by others.

11. See that you do not use the Horns incessantly. There is rather a temptation to do this to ensure fulness of tone in the middle of the orchestra. Give them all the rests you can. The same injunction applies to the Oboes.

12. If a Wind-instrument is to have an important and lengthy solo passage arrange for it to have some bars rest beforehand so that the player can begin his solo unfatigued.

13. Avoid constantly giving Wind and Strings identical passages in unison. If the character of the music allows it, devise brilliant passage work for Strings at your climaxes while Wind and Brass play longish notes on which they can get plenty of tone.

14. Do not overwork the Percussion department. The effect of percussion is in inverse proportion to its use. It is a good plan to fill in the percussion parts after the whole of the rest of the score has been completed. Do not change the tuning of your Timpani for the sake of one note or so and then change them back to the original tuning.

15. If you want performances of your works, neither employ instruments not in general use, nor an outsize orchestra. If you use the less common instruments, cue their essential parts in for instruments which are sure to be there.

**16.** Mark all bowing for Strings and phrasing for Wind with the greatest care. Be very careful, too, to put in all expression-marks, and see especially that all entries of instruments have dynamic indications. Do not put in your p's and f's mechanically all down the page. It is often necessary to mark the Brass, for instance, at a lower dynamic level than the Wood-wind or Strings or both, to get a good balance.

**17.** Do not write any notes in the score that are not really wanted, just for the sake of giving an instrument something to do. Every note in your score must have purpose.

**18.** Avoid doing what Delius did in his *Song before Sunrise,* to the second Oboe. It has only two notes or so to play in the whole work, and they are *pianissimo* low C's, or some such thing. Leave out an instrument altogether rather than treat it like that.

**19.** Do not over-use the muted Brass. Realise the fine effect of full Brass *piano* or *pianissimo*, comfortably placed, without mutes.

**20.** Do not write a passage in an unassuming work which is so difficult that only a very exceptional player can perform it. In all things show a sense of proportion.

**21.** Remember that the orchestra is a collection of human beings, not a vast machine. Try to please the players by showing that you understand the peculiar genius of each instrument. You will then gain their approbation and co-operation, which will carry your work a long way towards success.

### ∴ Manuscript Orchestral Parts

Composers are not always affluent and may prefer to copy their own parts for economic reasons. In any case students should be urged to do so if there is a chance of their work being performed or run through, as they are then made to realise more fully what they have written for each player.

∴ The following hints are therefore appended:

i) Write large clear notes and do not cramp space.

ii) Make sure that rehearsal letters or numbers occur every twenty bars or so. Place these letters or numbers at points where fresh entries take place, or a change of mood or colour first makes its appearance.

iii) Put clef and key-signature at the beginning of every line.

iv) Write pairs of instruments (2 Flutes, 2 Oboes, etc.) on the same sheet on two bracketed staves.

v) See that the Wind parts are so arranged that a few bars rest is allowed for turning over. This ought to be obvious, but is sometimes neglected by beginners with very trying results. The same thing should be done, if possible, in String parts, but it is not quite so vital, as two players share a desk and are playing identical notes. In very small orchestras, however, there may be only one Viola, Cello and/or Bass player, in which case rests must of course be allowed for turning over, as in Wind and Percussion parts.

vi) When an instrument has a long rest it is very easy for the player to miscount his bars and come in in the wrong place. To ensure against this cues are inserted in the part. A cue should be placed a few bars before the entry of the instrument which is resting and

should consist of three or four bars which the player is likely to hear. A prominent phrase is chosen and against it is put the name of the instrument playing it. Cues are usually needed in Brass and Percussion parts which have prolonged rests. If a transposing part is given as a cue it should be written at its full pitch, but if the resting instrument's part is a transposing one the cues are transposed accordingly. For instance, a Horn passage given as a cue for a Trombone will be written at its sounded ("concert") pitch, whereas an Oboe passage given as a cue to a Clarinet will be transposed as though it were a Clarinet passage in Bflat or A as the case may be. Cues should be written in small notes, or different coloured ink, with a rest clearly shown in each bar for the silent instrument.

**vii)** Cues given of passages for instruments which may be missing are written into the parts of other instruments in just the same way as the other kind of cue described in the foregoing paragraph, the name of the instrument for which such a passage was originally written being given with the cue.

**viii)** In a rest the number of bars is given, but if rehearsal-letters or changes of time-signature appear– and the latter are sometimes of frequent occurrence in a modern work– the number of bars' rest is broken up accordingly.

If any doubt is felt in the matter of writing out good orchestral parts a set of parts should be obtained (either MS. or printed, or, better, both) and carefully examined. A bad, amateurish set of parts, unclean and illegible, will antagonise an orchestra at once, and will naturally interfere with the smooth running of a piece. The composer is therefore wise who regards this matter of parts as one of prime importance.