

THE ORCHESTRA AND ITS INSTRUMENTS

Based on excerpts from the music of Vaclav Nelhybel, with commentary by Alexander Semmler. An analysis and presentation of a symphony orchestra, the simultaneous playing of many instruments in a great variety of ever-changing musical sound combinations. This new record breaks down the instruments of the orchestra into various combinations solos, duets, trios, quartets, etc., and shows how each instrument plays its own unique role in the final total sound. With accompanying notes.

Cover design by Ronald Clyne

FOLKWAYS FT 3602



THE ORCHESTRA AND ITS INSTRUMENTS

FOLKWAYS FT 3602

DESCRIPTIVE NOTES ARE INSIDE POCKET

Single Instruments
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The Individual Groups
Special Effects
Combination of Groups
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Conclusion

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The Orchestra and its Instruments

Based on excerpts from the music of Vaclav Nelhybel, with commentary by Alexander Semmler. An analysis and presentation of a symphony orchestra, the simultaneous playing of many instruments in a great variety of ever-changing musical sound combinations. This new record breaks down the instruments of the orchestra into various combinations solos, duets, trios, quartets, etc., and shows how each instrument plays its own unique role in the final total sound. With accompanying notes.

Introductory note by Henry Cowell

The art of orchestral sound is the art of combining the tone qualities of instruments. This record, with highly diversified contemporary musical examples, gives a fascinating systematic hearing of many combinations (with comment) leading to the development of the full symphony.

If you don't know that a piccolo is small and high, while a tuba is large and low, you'd better learn more about individual instruments on an introductory record, and there are follow-up records which give more concerning specialized instruments such as harp and percussion. This record deals mainly with how instruments sound when blended - blends produced by the myriad varieties of tone which can be made on each instrument individually.

A flute is usually high, a clarinet often low. How does it sound when two flutes are placed below a clarinet? What is the difference if first all trumpets and then all horns play the same music? The bassoon is often heard in low tones; how do its high tones sound?

There are examples here of these combinations, and everything else needed to hear how customary (and some uncustomary) groups build orchestral sound. If you were to hear them without comment you might not recognize them. If you read of them or hear unillustrated comment, you may not know how they would sound - and where will you find an orchestra with which to experiment?

The record is the answer. Here one hears isolated bits from actual contemporary music, ranging from a few single instruments at the beginning through smaller and larger combinations in different moods and manners. It is mostly symphonic, but some popular styles with saxophones, etc., are represented, and there are even examples of the strange qualities of modernistic "tape" music.

The succinct, simple but knowledgable comments, both written and on the record, are by the highly experienced, well-known composer and conductor, Alexander Semmler.

THE SYMPHONY ORCHESTRA and its INSTRUMENTS
Comments by
ALEXANDER SEMMLER

The symphony orchestra as an integrated whole is the most colorful, dynamic and expressive instrument our Western music practice has created. Its development up to its present form has taken several centuries. As recently as the Baroque* period, that is to say, reaching far into the times of Bach and Handel, most orchestral playing was based on whatever instrumentalists were available to play the three to five voices, often vocal parts, the composer had written out. In the case of purely instrumental music the composer most frequently wrote nothing but the melody and a thorough* or figured* bass which indicated the desired harmonies. The players filled out the inner voices according to their own capabilities and the range of their instruments. Usually, a keyboard* instrumentalist, well versed in the realization* of a figured bass, saw to it that the harmonic structure was kept complete.

There were, of course, many exceptions to this rather fundamental way of ensemble playing. But, by and large, although composers like Stamitz and Rameau had prepared the way, real orchestral color consciousness did not develop until the advent of the great symphonists Haydn, Mozart and Beethoven.

In the works of these masters the string instruments attained their position as the foundation of the orchestra. But, to give them the body needed to counterbalance the brass and the woodwinds, the individual string parts were played by groups of players rather than individual musicians. Their number, therefore, grew in proportion to the number of musicians in the whole orchestra. The keyboard instrument disappeared. The wind instruments, besides being considered mainly for sustaining harmonies, were recognized as melody instruments and their tone colors were skillfully exploited within the orchestral texture. To assure adequate supply of the various instrumentalists the symphony orchestra became standardized. Most of the late symphonic works by Haydn and Mozart and the majority of Beethoven's orchestral compositions call for two flutes, two oboes, two clarinets, two bassoons, two horns, two trumpets, two timpani and strings.

Once tone color had become an important consideration for the orchestral composer it was only natural that succeeding composers should keep on adding to the orchestral "palette". Weber, Berlioz, Liszt, Wagner, Rimsky-Korsakoff, Strauss, Debussy, Ravel, Stravinski and many others helped immeasurably to extend and

refine the orchestral sound and color at the same time that they expanded the size of the orchestral ensemble. Today, a representative symphony orchestra consists approximately of three flutes and piccolo, three oboes and English horn, three clarinets and bass clarinet, three bassoons and contra bassoon; six horns, four trumpets, four trombones, tuba; two timpanists, three percussion players; eighteen first violins, sixteen second violins, twelve violas, ten cellos, nine double basses, two harps and piano.

The process of the symphony orchestra's growth is still going on. New times and new personalities beget new ideas which, in turn, need new means of expression. With man's conquest of distances even the remotest tribe, its music and its musical instruments are brought into the Western composer's orbit of interest and inspiration. The dance music of all countries contributes new instruments, new playing styles, new thoughts. And the expanding world of electronics is just beginning to make its influence felt in the creation of new sounds and new instruments.

But the mounting costs of performances by large symphony orchestras are becoming more and more difficult to meet. In former days, symphony musicians seldom depended on orchestral playing or even on music alone for their livelihood. Contemporary music, however, makes such high demands on each player that he must be able to devote all his time to his instrument in order to meet today's high performance standards. In addition to rising promotional and managerial expenses a representative orchestra must, therefore, pay full living wages to all its musicians. Admission fees cannot possibly absorb ensuing deficits. Adequate subsidies are difficult to obtain. This economic reality has retarded the continued physical growth of the standard symphony orchestra during the last few decades.

Beyond that, there is, as in other fields of creative endeavor, a marked reaction among today's composers against the tendency toward gigantism inherent in our time. The complications and threats of our atomic era have awakened in many people a longing for the return to a simpler life. No doubt, this longing often leads to a false primitivity in thinking as well as in art expressions but it is definitely responsible for the return of the contemporary composer to smaller combinations in much of his writing, in order to achieve meaningful simplicity rather than glittering redundancy in his musical language.

With its inductive procedure of beginning with the single instrument and gradually working up to the sound of the full orchestra, THE SYMPHONY ORCHESTRA AND ITS INSTRUMENTS is especially suited to develop the tonal imagination for all possible combinations, large and small.

* Asteriks indicate that a definition of the word can be found under "Musical Terms".

A full symphony orchestra consists of a great diversity of single instruments, each played by a musician who has dedicated his life, his energies and his talents to the mastery of that one instrument. His heart and soul, his hopes and despairs, his failures and his achievements all vibrate in his playing. This is what gives such a dynamic impact to the playing of a large orchestra.

Though it has been tried many times, ensemble playing by a large group of musicians, usually spread over a large stage, is hazardous without a leader. The players on one end of the stage often do not hear their colleagues on the other end. Besides, every musician has his own idea as to how a work should be played. It is to the interest of a unified performance to have a capable conductor in authority who, while respecting each player's valuable contribution, carries the responsibility for an integrated interpretation, perfection of ensemble playing, proper balance between the different sections and conformity of phrasing*, dynamics* and expression*. If, as a musical personality, he has the necessary stature and magnetism he will inspire every musician to the utmost of his capacity.

But, of course, for an impressive and convincing performance of a work the orchestral score itself has to be well conceived and well organized in all its details. This is the composer's responsibility. Quite aside from its compositorial aspects, an orchestral work must achieve perfect sound realization of its musical ideas. The good orchestrator must know the playing capabilities of each instrument, how it blends and how it contrasts with all other instruments in every possible combination and how it fits into the full orchestral sound. He must know how to achieve homogeneous* sound and how to produce striking contrasts, how to evoke dark hues and how to create brilliance, how to diffuse his sound and how to arrive at transparency. There is an infinite variety of possibilities and every composer creates his own individual world of orchestral sound. Ultimately, the richness and intensity of a composer's sound imagination and his own creative personality will determine his orchestral sense of color.

The placement of the different instruments on the score page became standardized with the standardization of the symphony orchestra. Reading from top to bottom, the now accepted order is: woodwinds (flutes, oboes, clarinets, bassoons); brass (French horns, trumpets, trombones, tuba); percussion*; strings (first and second violins, violas, violoncellos, double basses). Harps, piano, solo instruments and voices are placed between percussion and strings.

Reading and mental coordination of a symphonic score demand a great deal of practice and tonal imagination. Knowing the sound of every instrument throughout its complete range is a basic requirement. So is fluency of reading in four different clefs* and the facility

of visualizing the transposing* instruments in their actual sound. Helpful, though difficult, as it may be, playing an orchestral score on the piano achieves at best a black and white reproduction of the orchestral canvas.

SIDE 1, part 1: SINGLE INSTRUMENTS

THE SYMPHONY ORCHESTRA AND ITS INSTRUMENTS is more concerned with the reproduction of the actual living sound of the orchestral instruments than with the details of their exact range and playing techniques. To fix the individual tone quality of each instrument in the listeners' mind the disc begins with short solo passages for the more important orchestral instruments.

A few general remarks may be of interest at this point. It is noteworthy to realize that on all instruments the intensity of their carrying power increases with ascending pitch.* This is due to the higher frequency* of vibrations* incidental to the production of higher tones. In the case of the wind instruments, this is accentuated by the technique of overblowing* into ever higher overtones.* Most instruments, therefore, assert themselves more readily in their higher than in their lower registers, a most important fact to consider in all orchestral writing. In their extreme high registers very soft playing is difficult on all wind instruments with the possible exception of oboe and bassoon. Trumpet and trombone are apt to have a penetrating growl in their very low tones. By and large, it is wise not to use the extreme registers on any wind instrument too extensively. They wear out both players and listeners.

The flute has a breathy low register which, if the instrument is to be heard, must never be covered by heavy orchestration. Its high register can be rather piercing. Both statements apply to the piccolo as well. The very highest tones on the piccolo, representing the highest tones of the total orchestral range, cut through like the proverbial knife and must be used with cautious design.

The tone of the oboe and that of its bigger brother, the English horn, is thick in the low notes but becomes more slender and flexible as it goes up. Both are excellent melody instruments, especially suited for pastoral moods. They blend well with the strings and can be used to strengthen string melodies without "sticking out" too much.

The clarinets, besides being good solo instruments, serve many purposes in the orchestra. They add to the richness of harmonic sound by sustained notes or by undulating arpeggios, they blend well with the lower strings, the bassoons and the horns, and they have special charm when playing in pairs. The bass clarinet, sounding an octave lower, has a striking beauty of resonance down to its lowest tone.

The bassoon is the bass* among the woodwinds. It is often used to strengthen the bass line of the full orchestra together with string basses, trombones and tubas. As a solo instrument it has a very special sense of humour but is also capable of beautiful, somewhat melancholy melody playing. The contrabassoon is the lowest pitched instrument in the orchestra and is mostly used in tutti* passages only. By itself, it has a rather unsatisfactory sound which resembles a very low distant boatwhistle.

Among the brass instruments the horns are the mediators between the stern sounds of trumpets and trombones. They also establish, through their special blending affinity to clarinets and bassoons, the contact between woodwinds and brass. There is a wide range of dynamic expressiveness, from velvety mellowness to strident brassiness. Having descended from the hunter's horn, they are particularly adept at sounding what has become known as "horn calls". Muted* or stopped,* they attain a strange "out-of-this-world" quality which is especially effective in mysterious episodes and in sudden sforzato* entrances.

Of all the orchestral instruments, trumpets and trombones have the most dominating sound. They represent the heavy artillery. Capable of rousing fanfares, of steelgirder-like support in orchestral tutti passages and dramatic participation in all climaxes, they also have a softer side to their nature and can be exploited melodically in a very special way. For changes of color a variety of mutes can be applied which, besides making soft playing easier, brings them nearer to a blend with the woodwinds. Muted trumpets and oboes, for instance, have no difficulties in bridging their sound differences, although open trombones have no real trouble in fraternizing with bassoons.

The tuba, though not as brassy as trumpets and trombones, nor as full-bodied and round in tone as the horns, nevertheless furnishes an adequate bass to the entire brass choir.

It is in the percussion section that, more than anywhere else, new instruments have been added during the past century and are still being added today. The great variety of percussion instruments would require much time and space to demonstrate in detail. THE SYMPHONY ORCHESTRA AND ITS INSTRUMENTS restricts itself to presenting them, not by themselves, but as instruments which support and heighten the rhythmic, dramatic and coloristic aspects of the music, leaving a more thorough demonstration of this important section to a future project.

Harp and piano, both well known solo instruments, are very effective orchestrally when used correctly. For a detailed study of their sound values and

characteristics many recordings by outstanding artists are available.

The contrasts between the different wind instruments are much greater than between the different string instruments. Actually, though all of the four types of string instruments, violins, violas, cellos and string basses, have their own sound characteristics, their main difference lies in the diversity of their respective size and pitch. Together they represent a sound body unequalled in its homogeneity by the other sections of the orchestra. It is difficult to explain why, but the musical listener seems to tire very much less easily of the continued sound of the strings than that of the other instruments. This is why a good deal of music has been written for string orchestra alone. This is also the reason for the strings being the foundation of the symphony orchestra. Five individual parts are usually provided for the strings, two violins, violas, cellos and basses, but any amount of subdivisions in each part is possible to widen the sound space covered by the whole section. It is to be remembered though, that each division weakens the individual line. For impressive statement of a big melody, violins, violas and cellos are often used in octaves or, wherever their playing registers permit, in unison.

SIDE 1, band 2: DUO TO CHAMBER ORCHESTRA

One of the chief tasks our disc has set itself is to show as many different combinations of instruments as possible. The contrasts of tonal color between instruments seem, in most cases, more obvious than the blending possibilities among them. Yet, to know how to fuse the sound of related as well as heterogeneous instruments is one of the most important assets of the good orchestrator.

The possibilities for combining instruments are almost limitless. In addition, tempo, expression, dynamics, phrasing and special playing techniques, dictated by the musical ideas of the composer, can give the same combination many different appearances. The examples given represent a salient, though by necessity limited, choice demonstrating some of these possibilities and pointing the way to many others. There are instances where writing and playing strive for a perfect blend and there are others in which, intentionally, each instrument remains individually recognizable. It is interesting to note also how in some cases either single instruments or small groups of instruments form separate sound planes contrasting with the rest of the ensemble.

The intelligent instrumentalist will always realize his particular place and function in the ensemble and modify his tone accordingly. Quite apart from being able merely to adjust his dynamic level, the range of tone modifications a good player is capable of is quite considerable. This helps to

blend the individual instrument into the ensemble beyond its natural affinities. It can also help to accentuate contrasts.

The wind players achieve these tone modifications by special lipping* or, as in the case of the brass instruments, by different kinds of mutes*. The string players accomplish them by various bowing techniques, by changing the position of the bow in relation to fingerboard or bridge, by altering the intensity of their vibrato*, by playing pizzicato*, by producing harmonics* or by playing "col legno", that is to say, hitting the strings with the wooden part of their bows.

Whereas knowledge of the range of tone modifications possible on all instruments is important in full symphonic writing, it is essential when writing for smaller combinations where the limitation of instruments demands special skill.

The term chamber orchestra is very flexible, if not to say vague. It may be applied to ensembles of from eight to forty-five players. Contemporary composers like to write for odd combinations in order to arrive at new colors and effects. Sometimes, strangely composed groups will get together by chance of circumstance. If no repertoire exists for them, they will either make special arrangements or they will ask new works of their composer friends. All these groups, above a certain number of players, will be referred to as chamber orchestras.

SIDE 2, band 1: THE INDIVIDUAL GROUPS

Now our disc takes a separate look at each of the large instrumental groups within the symphony orchestra, that is to say, the woodwinds, the brass and the strings. Each group has its low, its middle and its high instruments and is, therefore, an entity in itself. Contrasting these groups in their entirety with each other can be very effective within the course of a symphonic movement. It offers complete changes of color.

The given examples are again chosen to point up the great variety of musical ideas and moods which can be expressed through each of these separate groups. The larger the ensemble, the more inexhaustible its potentialities.

SIDE 2, band 2: SPECIAL EFFECTS

Besides the more general "legitimate" effects demonstrated in this part, each instrument is capable of producing its own individual effects. A young composer should befriend as many good instrumentalists as possible. By asking the right question and showing the right kind of curiosity he will have no trouble in find-

ing out everything about their instrument and their own personal bag of "tricks" and playing effects. American jazz musicians are particularly fertile in inventing new ways of using their instruments. Maybe not all of their tricks are usable in serious music but much can be learned to stimulate the imagination.

SIDE 2, band 3: COMBINATIONS OF GROUPS

In combining two of the major groups the greater part of the orchestra becomes involved. This is where the big orchestral sound really begins. It is to be hoped that the gradual approach up to this point has helped the listener to gain new insights into the inner workings of a symphony orchestra by pointing up the relationships between its many individual components.

SIDE 2, band 4: Special recording TECHNIQUES

No dissertation on THE SYMPHONY ORCHESTRA AND ITS INSTRUMENTS today would be complete without a few remarks about special recording techniques. Although recordings should principally be a stimulus to the interest in live performances, the availability of reproductions on discs of the world's finest performances has drawn great public interest to itself per se. However, even the best recordings seldom give a true reproduction of the actual live sound, but, they have found acceptance for what they are and have become part of today's musical scene. Stereo has created a great deal of excitement by bringing to recorded music a depth never experienced in the concert hall unless the orchestra were divided into its different sections and placed all around the hall instead of on one stage. In other words, the tonal impressions of a live performance and its reproduction on today's hifi stereo discs are in many ways two different things. The composer who specifically writes for recording purposes must keep these differences in mind to be successful at it.

The few examples of electronically altered music presented on the disc may give some idea as to what can be done. Sounds may lose their old identity and take on an entirely new one. There is a great deal of experimentation in this field today. In many instances, extra-musical sounds are used as "points of departure". The note of a bird, the splash of a stone thrown into water, the sound of a hammer, a train or a jet plane and many others can, by rerecording them at graduated speed alterations, be worked into whole scales of sound. The dropping of a pea into a metal pot can be so magnified as to sound like a nuclear explosion. The tinkling of a triangle can be changed into the crash of a big gong, flutes can descend into the lowest bassoon register and the bassoon can be raised to the heights of the piccolo. The results are often very startling. New sounds are being evolved that have never been heard before. All this represents a great

challenge to serious creative musicians and may make, in time, for an entirely new kind of music, in keeping with the mechanization of our whole civilized life. One may consider this development an invasion of the fields of living music by robots but one cannot deny its existence and its very fascinating aspects.

SIDE 2, band 5: CONCLUSION

Many good books and theoretical treatises have been written on the art of orchestration. But books cannot give reproductions of living musical sounds. THE SYMPHONY ORCHESTRA AND ITS INSTRUMENTS purports to fill this gap. It confines itself to a minimum of theory and tries to give a maximum of representative examples all taken from the writings of a richly endowed contemporary composer. In spite of trends to the contrary, the main focus of musical interest in our time remains on the full symphony orchestra. Our record should therefore be of interest to the young professional as well as to the dedicated lover of music.

Orchestration, as implied before, is ultimately a very personal matter, closely tied to the creative process and the individuality of a composer. Theoretical knowledge is, of course, indispensable. However, in music the sound is the thing. Intelligent listening is the only way to develop the musical imagination so necessary to the writing as well as to the proper understanding of complex orchestral works.

I should like to close these comments on a rather pertinent personal note. A famous oboe player, now a leading figure in the recording field, once complimented me on my writing for oboe. He was aware that my technical knowledge of the instrument was purely theoretical and wanted to know my procedure. The only answer I could give him was that when I wrote for an instrument which I did not play myself I recalled to my imagination the sound of that instrument in all of its aspects as vividly as my years of experience in orchestral writing, conducting and listening made possible. My subconscious seemed to do the rest. It made me almost automatically avoid awkward tone combinations and technical impossibilities. It also demanded that the instrument was always given a chance to sound its very best under whatever musical circumstances prevailed.

This may not be everybody's procedure but it does stress the importance of the tonal imagination. It also points up the fact that when a phrase fits well into the instrument it is apt to come out well. In the statement of the most complex musical thoughts there is always the relatively easiest way of projecting it instrumentally. In cases of doubt, however, even the most brilliant and experienced orchestrator will not be ashamed to consult a good player.

MUSICAL TERMS

AGITATO (Italian) agitated

ARPEGGIO (It.) a chord in which the notes are played consecutively rather than all at once, in the style of the harp (It. arpa)

BAROQUE MUSIC the music of the period c. 1600 - 1750.

BASS (Greek "basis", foundation) in musical composition, the lowest of the parts, the foundation upon which the harmonic structure rests.

CLEF (key) the sign set at the beginning of a staff to fix one note on that staff, and thus the rest.

DUO, DUET a composition for two voices or two instruments.

DYNAMICS (Greek dynamikos, powerful) dealing with the intensity of tones in terms of volume, that is, loudness and softness.

EXPRESSION projecting the inner life of a piece of music through sensitive shading, phrasing and dynamic variety, with feelings and emotions often playing an important part, as opposed to the mere mechanical production of musical sound.

FIGURED BASS see "thorough bass".

FLUTTER-TONGUE a way of wind instrument playing in which the tongue is kept vibrating like in the sounding of an Italian r.

FREQUENCY the number of vibrations per second necessary to produce a given tone.

GLISSANDO (French glisser, to slide) sliding from one tone to another or, in the case of harp and piano, the execution of rapid scale playing by having the fingers slide along the strings or keys.

HARMONICS overtones, especially those high flute-like tones a string player can produce by putting his finger lightly on the strings in certain places thereby making them vibrate in partial rather than total length.

HETEROGENEOUS SOUND dissimilar, contrasting sound

HOMOGENEOUS SOUND similar, uniform sound

KEYBOARD INSTRUMENTS all instruments which are played by manipulation of a keyboard, such as

virginals, clavichords, harpsichords, spinets, pianos, pipe-organs and, in more recent days, electronic organs, celestas, solo-vox etc.

LEGATO (It.) a manner of playing in which all notes are smoothly connected.

LIPPING the variable lip pressure or position that controls the tone produced on windinstruments.

MISTERIOSO mysterious

MUTES devices for softening, muffling or altering the tone of various musical instruments. On string instruments a three-pronged clamp is placed on the bridge, brass instruments are muted by inserting a cone-shaped piece of wood or metal into the bell. In recent years, many different kinds of mutes have been developed for trumpets and trombones the best known among which are the straight mutes, harmon, and cup mutes.

OVERBLOWING the technique of producing any of the overtones of the fundamental tone to which a given windinstrument is tuned. This is accomplished by greater lip pressure and narrower channeling of the breath as higher overtones are produced. The keys or valves on the instrument serve only to produce the tones between the different overtones.

OVERTONES the tones produced by a vibrating body above its fundamental tone. The fact that all sound bodies, whether strings, air columns or other vibrating matters, vibrate not only in their entirety but also in partial fractions is responsible for the existence of overtones. These overtones represent a phenomenon which is of the greatest importance in the making and the playing of musical instruments and the composing for instrumental ensembles.

PERCUSSION includes all instruments that are struck, such as timpani, all types of drums, cymbals, gongs, triangles, chimes, bells, woodblocks, xylophones, vibraphones and many others.

PHRASING the clear rendering in musical performance of the phrases of a melodic line. It is related to the projection of punctuation in speech.

PITCH the height or depth of a tone according to its number of vibrations per second.

PIZZICATO a playing of string instruments by plucking the strings.

QUARTET a combination of four voices or four instruments.

QUINTET a combination of five voices or five instruments.

REALIZATION OF FIGURED BASS the construction of a full keyboard instrumental part from a figured bass. During the Baroque period, a good keyboard artist usually played these realizations extemporaneously.

SAXOPHONES a family of single-reed instruments made out of brass which has, up to now, made but little inroad into the symphony orchestra. However, alto, tenor and baritone saxophones are flexible instruments which blend well with either woodwinds or brass and are indispensable in bands or jazz orchestras.

SEXTET a combination of six voices or instruments.

SFORZATO with sudden emphasis or accent.

SOLO (It.) alone, often applied to a single instrument when carrying the most important melody line. The plural form is soli.

SOLO VOX an electronic melody instrument.

THEME a musical key-subject which may represent the melodic essence of a piece, furnish the basis for variations or, as in a symphonic movement, constitute the driving force behind the musical development.

THOROUGH BASS a system in which figures above the bass line indicate the desired harmonies. During the Baroque period, every musician was thoroughly trained to cope with this "shorthand" way of musical notation which saved the composers much time. But, as the harmonic structure became more complex the thorough bass method grew more and more cumbersome and was finally abandoned in the practice of music. For the training in traditional harmony it is still used today.

TONGUING in the playing of windinstruments, special tonguing techniques are used for greater speed and accuracy of intonation.

TRANSPOSING INSTRUMENTS all windinstruments are based on a fundamental tone which gives a particular instrument the best tone quality. In many cases, the natural scale based on this fundamental tone is, for easier reading purposes, notated in the key of C, that is, without sharps or flats, although, when playing in the key of C, the sound would be that of its natural scale. This sound might be in B flat major, A major, F major etc. The transposing instruments most commonly noted as such are English horn, clarinets, French horns, trumpets, and all the saxophones. However,

there is a strong tendency among today's composers to do away with the complications of transposition and write all instruments in their actual pitch.

TREMOLANDO on string instruments the quick reiteration of the same tone, produced by a rapid up-and-down movement of the bow.

TRILL an ornamental shake, produced by the rapid alterations of two notes, either a tone or a half tone apart.

TRIO a combination of three voices or three instruments.

Also applied as denoting the middle part of minuets, marches etc.

TUTTI (It.) meaning all, every performer participating, as opposed to solo or soli.

VIBRATO (It.) on string instruments a slight fluctuation of pitch produced on sustained notes by an oscillating motion of the left hand to give warmth, feeling and expressiveness to the tone. Also applied to the tremulous, wobbly tones of a poor singer.

Motivivo

Vaclav Nelhybe?

1. Flute

2. Flute

Piccolo

1. Oboe

2. Oboe

E. horn

1. Clar. (Bb)

2. Clar. (Bb)

1. Bassoon

2. Bassoon

C-Bassoon

2/4

Horns 12/4

in F 3/4

Trumpets 12/4

in Bb 2/4

Trombones 12/4

13/4

Tuba

2/4

Timpani

Percuss.

V. I.

V. II.

Vla.

Cello

C-Bass

SYMPHONY ORCHESTRA AND ITS INSTRUMENTS

Music 1

Music 2

(Introduction music without any demonstrative purpose.)

(Sounds as written)

Low register: soft, pale, thick, breathy.

Middle register: fluid, lyrical, sweet.

High register: brilliant - even piercing

The standard large symphony orchestra uses three flutes, the third flute doubling on piccolo.

ORCHESTRA SCORE

The standard order of the score page, developed over the last few centuries, places the woodwinds on the top.

WOODWINDS

Music 3

Flute: Made of wood or solid or plated silver, it is the only woodwind instrument which produces sound without the use of reeds. The musician blows across a hole in the side of the tube. The differences in pitch are obtained by covering or uncovering the finger-holes in different combinations. Technically, the flute is the most agile of the woodwinds. The range:

gva

Low middle High

Piccolo: A small flute, less than half the regular size, which sounds one octave higher than the flute. The tone production and technique of playing are the same as those of the flute. The range:

gva

Low middle High

Written

Sounds

(Sounds one octave higher)

Low register: very soft, thin, weak.

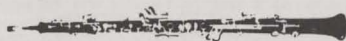
Middle register: bright, brilliant.

High register: shrill, piercing.

The standard large symphony orchestra generally uses only one piccolo.

General remarks: The parts for piccolo are written one octave below the actual pitch. Any instrument whose part is not written in the actual pitch is called a "transposing instrument". The piccolo is an instrument transposing one octave higher.

Music 4



Oboe: Is a double-reed instrument made of wood. Two very thin blades of cane are bound together in such a way as to leave a small space between them, through which the air is blown into the tube of the instrument. The vibration of this double-reed sets the air in the instrument in motion, thus producing the tone. The differences in pitch are obtained by covering or uncovering the finger-holes in different combinations. The reed set of the oboe (as of all other woodwind instruments with the exception of the flute and piccolo) is fixed in the narrow end of the instrument. The tone-production is most difficult in the lowest and highest registers, especially in *piano*.

The oboe, primarily a melodic instrument, is technically less agile than the flute.
The range.



(Sounds as written)

Low register: Thick, very nasal.
Middle register: Lyrical, pastoral.
High register: Becoming strident and piercing.

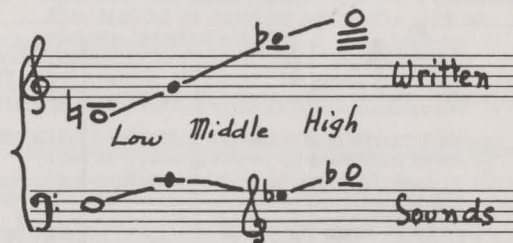
The use of the double-reed causes the overall nasal, melancholy tone quality of the oboe.

The standard large symphony orchestra uses three oboes, the third oboe changing with English horn.

Music 5



English Horn: Actually, a larger oboe. All characteristics of the oboe apply to the English horn, but, since the range is one fifth lower than that of the oboe, the nasal, melancholy tone quality becomes stronger.
The range:



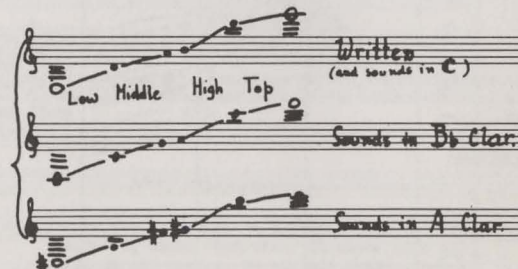
(Sounds one fifth lower)

The English horn is an "F"-instrument, transposing one fifth lower.

Music 6



Clarinet: usually made of wood, but recently made of metal or glass as well. The tone production is similar to that of the oboe. The reed, however, consists of only one flat blade of cane. Technically, the Clarinet is, after the flute, the most agile of the woodwinds.
The range:



("C"- Clarinet sounds as written)
("Bb"- Clarinet sounds a major second lower)
("A"- Clarinet sounds a minor third lower)

Low register: dark, ominous.
Middle register: dull, pale.
High register: soft, tender, to burlesque-loud.
Top register: brilliant, strident.

The standard large symphony orchestra generally uses three clarinets, the third changing with bass clarinet.



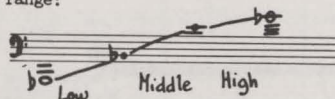
Bass Clarinet: More than twice the size of a clarinet, sounds one octave lower than it. All characteristics of the clarinet apply also to the bass clarinet. The tone quality is naturally much darker, especially in the low register. Its high register lacks the burlesque brilliance of the clarinet.

Music 7



Bassoon: Made of wood, is (like oboe and English horn) a double reed instrument. Compared to the other woodwinds, the bassoon is a very big instrument. (About four feet long.) Because of its size, the bassoon is the low bass instrument among the woodwinds. The tone production and the technique of playing are similar to those of the oboe. Staccato playing, however, is almost as easy as that of the flute.

The range:

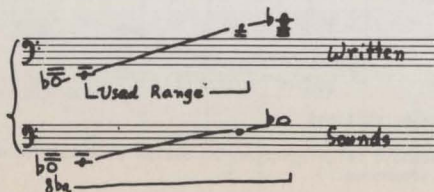


(sounds as written)

The low register: powerful, dark.
Middle register: nostalgic, humorous-grotesque.
High register: nasal, tense.

The standard large symphony orchestra uses three bassoons, the third changing with double bassoon.

Contra-Bassoon: The largest woodwind instrument (about sixteen feet long), sounds one octave lower than the bassoon. The tone production in the extreme registers is very difficult; in *pianissimo*, almost impossible. The range:

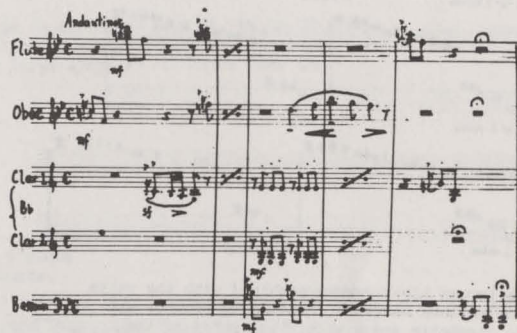


(sounds one octave lower)

The tone color of this lowest woodwind instrument is, depending on the dynamics, smooth-soft or dense-dark. The extreme sections of the range are avoided.

Music 8

The foregoing music examples show mainly the sustained qualities of the woodwinds. Staccato playing, just as typical for the woodwinds, is demonstrated in music example No. 8, set for a small woodwind ensemble.



BRASS INSTRUMENTS

Music 9



Horn: (French horn): A brass instrument consisting of a coiled brass tube, which is about twelve feet long. The mouth piece is at the narrow end of the tube, against which the musician presses his lips, thus blowing the air into the tube. The middle part of the tubing consists of three labyrinthine sections which can be opened or closed by means of a three-valve mechanism. The three valves can be used in seven different ways, producing seven different pitches. For example: valve 1-2-3: F sharp, 1-3: G, 2-3: G sharp, 1-2 or 3: A, 1: A sharp, 2: B, 0: C. These combinations produce a series of seven succeeding halftones, under the condition that the pressure of the lips on the mouthpiece remains steady. If the musician increases the lip pressure slightly, a series of seven halftones, lying a fifth

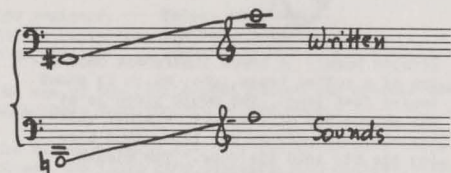
higher than the above mentioned half-tone series, is obtained. Progressive increasing of the lip pressure can produce up to twelve different succeeding pitches, lying respectively over the seven above-mentioned valve combinations.



The proper lip-pressure combined with the valve combinations makes it possible to produce all the chromatic steps within the range of the instrument. This system of tone production applies to horns, trumpets and tubas, (valve instruments) and, in principle to sliding trombones (no valves) as well.

The horn blends very well in *piano* and *mezzoforte* with the woodwinds, thus forming a link between the woodwind and brass section in the orchestra. Its tone quality ranges from mellow *pianissimo* to strident *fortissimo*. The horn, as a valve instrument, lends itself to all kinds of virtuoso techniques.

The range:

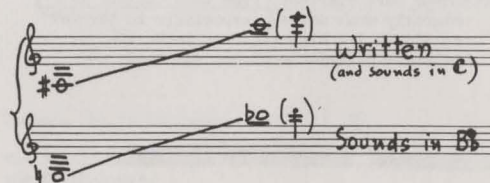


(sounds one fifth lower than written)

The standard large symphony orchestra generally uses four to six horns.



Trumpet: Has a tube length half the size of that of the French horn. The tone production is the same. The trumpet is the most brilliant instrument of the whole brass group. Because of the short tubing and the valve technique, the trumpet is a "virtuoso" instrument. The range:



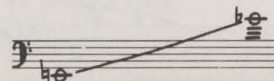
(Sounds as written in C or one tone lower in Bb. Most commonly used are the Bb trumpets.)

The standard large symphony orchestra uses three, and sometimes even four trumpets.



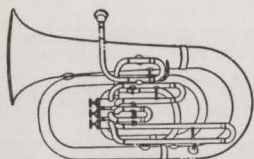
Trombone: Instead of valves, it has a slide. By moving this slide into proper positions, seven half tones are produced, corresponding precisely to the seven half tones produced by the seven combinations of the valves. In all other respects, the tone production and technique of playing are the same as those of the other brass instruments. The tone quality is similar to that of the trumpet. It is less brilliant, but richer and fuller.

The range:



(Sounds as written)

The standard large symphony orchestra generally uses three trombones.



Tuba: The bass of the brass group. The tone production is the same as that of the horn or the trumpet. Because of the enormous requirements of air, it is difficult to play long, sustained notes. The tone quality varies with the dynamics: it goes from the softest organ-like pianissimo to the most powerful fortissimo. The range:



(Sounds as written)

Tubas are made in different keys (F, Eb, C, Bb), but the notation is always in the actual pitch. The standard large symphony orchestra uses the tuba.

The condensed score of Music Sample No. 9 shows the range used in the particular instruments.

Allegro marcato

3 Trumpets in Bb
Timpani
Side Drum
Cymbal
Bass Drum

6 Horns in F
3 Trumpets
Timp.
S. Drum
Cymb.
Bass Dr.

6 Horns

3 Trombones

Tuba

Timp.

S. Drum

Cymb.
Bass Dr

3 Trombones

Tuba

Timp.

S. Drum

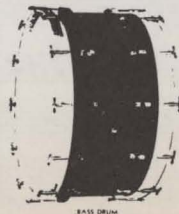
Cymb.
Bass Dr

PERCUSSION

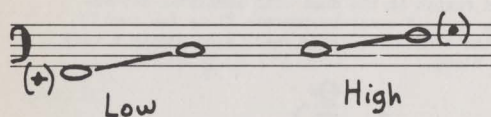
The standard percussion instruments in a symphony orchestra are:



The following instruments produce sounds of no definite pitch: Bass drum, Snare drum, Cymbals, Triangle, and Gong.



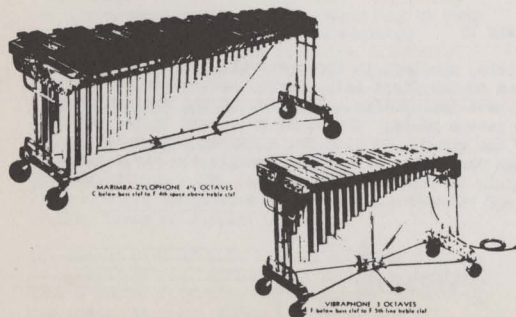
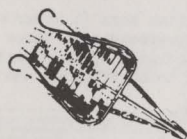
Timpani: At least two in the orchestra, one low and one high.
The range:



The modern pedal mechanism enables the musician to change the pitch very quickly, so that even melodic passages are playable on the timpani.

There are other percussion instruments which are also melodic instruments (those which produce sounds of definite pitch):

Glockenspiel, Xylophone, Vibraphone.



On the score page, the space between the percussion instruments and the strings is used for the harp, the piano, or any other solo instrument, solo singer, or choir.

STRINGS

Music 10

Since the sound of the single string instrument is too soft to assert itself against the rest of the orchestra, especially in *tutti forte*, the individual parts in the string section are played by whole groups of musicians. In Music Example No. 10, ten first violins, eight second violins, eight violas, six cellos and four double basses are used.

The string section is the most homogeneous group of instruments. The violas are enlarged violins, and are tuned one fifth lower. The cellos, substantially larger than the violas, are tuned one octave lower than they. All these instruments have four strings, respectively tuned in fifths. They are non-transposing instruments. The double bass, however, is tuned in fourths and sounds one octave lower than written. The standard double bass has four strings. Large symphony orchestras, however, use at least one or two double basses with five strings.



The music example demonstrates the percussive potential of the string group. In order to obtain a maximum of sound volume, the instruments each play four notes, i.e., one tone on each string simultaneously. (The double basses only play two notes each.)

The condensed last chord shows the ability of the strings to cover a vast tone territory and to keep the intensity by means of the multi-stop technique.

Violino I

Violino II

Viola

Cello

D. Bass

actual Sound:

DUO TO CHAMBER ORCHESTRA

DUO:

Music 11

Two clarinets, creating a perfect blend, as they are identical instruments.

Range used (written)

Music 12

Two violin lines, played in legato. This example demonstrates legato playing mainly on the two high strings (E and A).

Range used

Music 13

A duo of two different instruments of the same group: flute and clarinet. The music is fluid, using legato and staccato playing styles. The sound fusion in the duos with identical instruments is self-evident, but the flute (no reed) and the clarinet (simple reed) also create a very good blend.

Flute

Clarinet

Ranges used

TRIO:

Music 14

Two oboes and one English horn (a lower oboe). The blending of sound is perfect. All three instruments play in their middle ranges. This example is typical of the nostalgic tone color of oboes and English horn.

1/2 Oboe

Engl. H.

Ranges used

Music 15

A trio, similar, in the combination of instruments, used to the first trio. Here, instead of two oboes, we have two violins. In place of the English horn we have a viola. The viola of course is the "Alto" of the group. It also has a darker tone quality than the violins. In this example the viola plays mainly on its two high strings. As a result, the blend between instruments is very good.

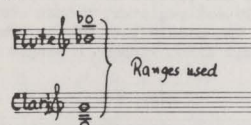
1/2 Violins

Viola

Ranges used

Music 16

A trio for two clarinets and one flute. As in Music No. 13, the blend of clarinets and flute is excellent.



Music 17

A different set of instruments, a different sound purpose: each instrument is distinctly heard individually. Here it is almost impossible for the performers to make the sound blend. First, the double reed instruments (oboe, bassoon) do not blend with the other woodwind instruments; secondly, the musical lines played by the double reed instruments are separated by the musical line of the single reed clarinet. The most important reason for the non-blending lies in the compositional set of the three melodic lines. All three instruments are separated by a space larger than one octave and they differ in playing styles, i.e., the oboe has a legato cantilene line, the clarinet and the bassoon, an afterbeat type of setting, and both instruments can thus be heard distinctly.



Music 18

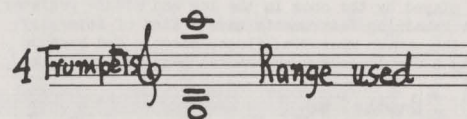
This example has two sound planes: the melody and the accompaniment. In the beginning we hear the oboe play solo in its middle register, accompanied by two flutes in narrow intervals (thirds) in their lowest register. There are several reasons for the auricular separation of these two sound planes: different tone production techniques - oboe, double reed; flutes, no reed; different registers - oboe, middle register; flutes, lowest register; different phrasing - oboe, continuous legato melody, flutes, sforzato-piano-accentuated pulsation in regular beats of quarter notes.

The second part of this example contains similar trio combinations, although it is less striking in its contrast of tone colors: Solo flute in the middle part of its high register and two clarinets in their lowest register. The less striking separation in sound is due to the fact that flute and clarinets produce a better blend than oboe and clarinets.

QUARTET

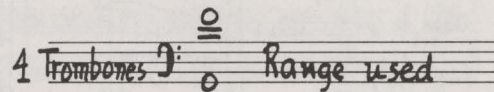
Music 19

Four trumpets, creating a well blended sound, as they are identical instruments.



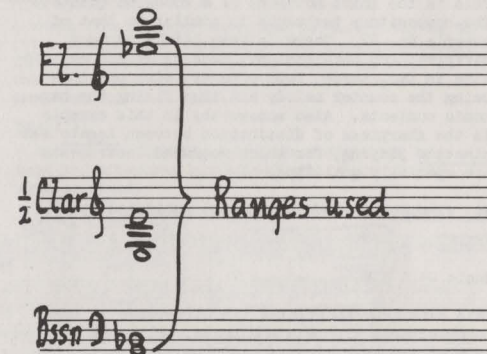
Music 19A

A well blended trombone quartet.



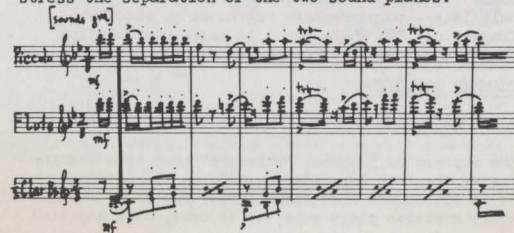
Music 20

This again is a typical example for two sound planes: Solo flute accompanied by two clarinets and one bassoon.



Music 21

The second part of the composition divides the four instruments into two pairs (piccolo and flute - two clarinets), separated by a space of more than one octave. The high register used in the flutes and the middle-low register used in the clarinets stress the separation of the two sound planes.



QUINTET

Music 22

The first part uses three sound planes: the melody is played by the oboe in the low and middle register; the remaining instruments have a kind of interplay: in the uneven measures, flute, piccolo and bassoon play a complementary rhythmical pattern in eighth

Andantino

Piccolo

Flute

Oboe

Clar. Bb

Bassoon

mf

Music 23

This is the third movement of a woodwind quintet. The compository technique is similar to that of example No. 22. There is very little harmony, different duo combinations, leading of one melodic line in two, three, four octaves, with one line being the counter melody and thus fixing the harmonic contents. Also noteworthy in this example is the sharpness of distinction between legato and staccato playing, for which woodwind instruments are specially qualified.

No. example -- woodwind quintet published by

SEXTET

Music 24 A & B

This example demonstrates the difference in tone color between trumpets and horns. Although the trumpet and horn players used the same parts, the first example played by six trumpets in C sounds one fifth higher than the second example played by six horns in F.

Music 25

Six instruments (Flute, alto-saxophone, tenor-saxophone, trumpet, trombone, guitar) repeat in a calculated, complementary rhythm short melodic fragments. The whole piece is based over the low Bb played by the trombone.

CHAMBER ORCHESTRA

Music 26

The expression "Chamber Orchestra" came into fashion during the last few decades, and has two meanings: it is either the name for a larger ensemble in which every musician plays solo, or it designates any kind

notes. (The bassoon attacks the beats, the flute and piccolo, the afterbeats. The distance between them is about three and a half octaves). In the even measures (flute and piccolo are tacet), the clarinet plays, in its lowest register, broken chords in sixteenth notes. The middle part of the composition is only a melodic line, without a single note of harmony.

of instrumental, group, which is too small to be called a Symphony Orchestra, or too big to be called by a name derived from the number of musicians involved.

Our example here is the "Would-like-to-be-Symphony-Orchestra" type.

SIDE II

The first side of the record deals with the individual instruments and their combinations, the second side with the instrumental groups as individual units.

A group, consisting of instruments that are made of identical or similar material and have the same or similar tone production technique, forms a kind of family. The instruments differ in size and therefore in pitch; they vary in tone production and therefore in tone color and technical facilities. The heterogeneity of the instruments of a group enables the group to produce different sound combinations and therefore to express different moods.

WOODWINDS

Music 27

The commentator on the record describes this piece as "mock-misteriosos". To create this mood, the score assembles a certain amount of tone color elements that differ from each other and binds them together by the compository technique. There are two sound planes: the bassoon in its lowest register, together with the second clarinet also in its lowest register, and the first clarinet in the low part of its middle register joins them in the third measure. All three instruments have their individually stylized melodic lines, created by the use of different metric values and different lengths of phrases:

The bassoon is progressing in short, interrupted quarter notes, the second clarinet in legato phrases of the length of one measure, using different metrical values. The phrases of the first clarinet are half a measure long and introduce a

new element, that of trills. Within the complete sound textures, these three instruments form a unity, one sound plane. The other sound plane is produced by the oboe, flute and piccolo, led in parallel sevenths.

Music 28

This little march for woodwinds tries to imitate the big brass band march. One section of the instruments plays the melody, the other tries to establish the rhythmical pattern of the beat-afterbeat technique that is characteristic of the march. The instruments used are the same as in Music Example No. 27.

Music 29

The same instruments as in the two preceding examples are used. One solo instrument or two instruments in octaves carry a kind of fragmentary melody, while others (solo or in pairs) "improvise" a rhythmical ostinato. The harmony is the vertical result of the horizontal, quasi-contrapuntal lines. At the

end of the piece, all instruments join in a homophonic pattern.

BRASS

Music 30

A chant-like melody, harmonized in such a way as to get a homogeneous, well balanced, organ-like sound. The instrumentation of the next three examples is the following: six French horns, six trumpets, four trombones and two tubas.

Music 31

A march. The leading melody is accompanied by a beat and afterbeat rhythmical set. Here, percussion is added.

Music 32

This piece is a parody of a "boogie" for brass. The brass instruments imitate the dance band. The horns take the role of the saxophones. A dance-band-like percussion is used.

(Example on page 10)

STRINGS

Again three examples to show the versatility of the strings.

Music 33

A sustained, homogeneously organized sound. Toward the end of the example, there is a separation of the whole sound apparatus into two planes: trills in the high strings, legato melody in the cellos and double basses.

Music 34

Harmonically a very primitive pattern: 12 measures of freely broken chords. The aim is to create an atmosphere of motion, technically realized by leading the two violins and the violas in parallel chords (steady sixteenth notes) over the cellos and double basses in octaves (short accentuated quarter notes).

Music 35

Harmonically, a series of four chords, connected to each other in an organpoint-like manner. Instrumentally, a typical sforzato-piano tremolo sound of muted strings.

SPECIAL EFFECTS

The Music Examples Nos. 27-35 demonstrated the ability of the woodwinds, the strings and the basses to create different sound colors. The following examples demonstrate the most common playing styles which are important elements in the production of sound colors.

Music 36

Glissando (played by the two violins in thirds) combined with Trills (played by the violas)

Music 37

This piece combines most of the playing styles of the strings:

Pizzicato (cellos and doubles basses; in the second half of the piece)

Tremolo sforzato piano (the second violin in the first part)

Legato (first violins and violas play five notes in one bow movement; these two instrumental groups also use glissando.)

Molto crescendo (performed by all the strings in pizzicato): shows the difference between the pizzicato sounds in piano and in forte.

Music 38

Trills in chords (played by the violins and violas)
A sforzato marks the beginning of very note.

Music 39

Glissando (produced by a sliding trombone)
Mutes (the end of the example is played by a muted trumpet)

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VE. I.
VE. II.
Viola
Cello
D. Bass

VI I
VI II
Viola
Cello
D. Bass

Music 40

Fluttered tongue (Six trumpets play in a style
similar to the tremolo of the strings)
Drum roll (creating a sort of ominous background
to this piece)
Staccato sforzato (short accentuated chords,
played by four low trombones and two tubas.)

in C
Trumpets
Horns
Trombones
Tubas
S. Drum
B. Drum
Cymbals

These different playing styles, properly combined with the appropriate compository set, help to create the sound variety within the same group of instruments.

strings and brass blend in one homophonic structure. The first part demonstrates the non-blending of two combined groups. The sound color of the individual groups remains distinctly separated. In the second part, both groups blend in the same playing style, which results in a new unified tone color.

COMBINATIONS OF GROUPS

The combination of two or more instrumental groups multiplies the variety of sound colors. If all groups involved are used in the same playing style, the result is a new uniform sound color. But if, on the other hand, each group is stylized in a different playing manner, the result is a split sound. In this case, the individual groups are mainly attached to musical lines which have distinctly contrasting functions within the compository set.

Music 41

Brass and strings

In the first part of this example, the strings busily play homophonic passages over the chord. The brass play short accents on the first beat of every second measure. In the second part,

Music 42

Woodwinds and strings

A non-blending sound; both groups have different compository functions. The woodwinds play sustained on which are sometimes transformed into melodic fragments. The strings form a steady rhythmical background in their own dynamic pattern: a build-up from pianissimo to poco mezzo-forte and decrecendo to pianissimo.

Music 43

Piccolo and bassoon play the melody in octaves, the strings play the accompaniment. Again the two groups perform two different functions and do not blend.

Music 44

Different combinations of woodwinds play the melodic line, always in three octaves (a similar sound combination to that in example 43). But here it is not merely a melody - accompaniment relationship, for the string set is more elaborate and actually forms an independent unity. The marcato-pizzicato of the strings forms a rhythmical counterpart. .

Music 45

Brass, Percussion, Strings

Throughout the whole piece, the strings play pizzicato, a beat-afterbeat rhythmical ostinato. The side drum goes rhythmically with the strings. In the beginning, there's a light trombone glissando. Later, muted trumpets and trombones, in legato, play chords over the pizzicato of the strings. Towards the end, the gong is added. The split sound in the beginning of the piece becomes progressively a melted sound of muted brass and pizzicato strings. By adding the gong towards the end, a perfect smoothness of sound blend is obtained.

Trumpets 1, 2, 3
Trombones 1, 2, 3
S. Dr.
Gong
Vid. I
Vid. II
Viola
Cello D. Bass

musical notation including notes, rests, and dynamic markings (p, p133, p150, p173, arco).

Music 46

Solo Oboe and Strings

A typical case of solo instrument and accompaniment in the symphonic sense, i.e., the accompanying part is well elaborated, and is not merely a harmonic support of the solo melody.

Music 47

Here a flute is merely accompanied by sustained chords of the two violins and the violas.

Music 48

This is the last movement of a Concerto for Winds and Percussion. It is, therefore, a combination of woodwind, brass and percussion sections, or a large symphony orchestra without strings. Not being merely a demonstrative, but a concert piece, it includes many combinations of instruments and different playing styles which are integrated in the compository intentions of the piece.

RECORDING TECHNIQUES

Music 49 to 54

These are only a few examples to show the innumerable possibilities of changing the life-performed sound by means of recording techniques.

Music 55

(Conclusion-music.)

This record does not claim to be a full-scale demonstration of the gigantic field of orchestral sound. It tries to demonstrate, in an easy form, the individual instruments, some of their typical combinations and their expressive abilities. This booklet is far from being a complete manual of orchestration. Its purpose is to give some details of the orchestral scores, with analytical comments which point out the basic principle of any orchestration.

The musical ideas are realized by means of musical sound. The choice of instruments and their combinations and the use of their playing styles must be subordinated to the compository structure of the musical piece. The search for a "sound for sound's sake" autonomy weakens the musical contents and results in substanceless sterility.

As long as there is creative musical thought, orchestration cannot grow stale, and its theoretical aspects cannot be exhausted.

Vaclav Nelhybel



ALEXANDER SEMMLER,



VACLAV NELHYBEL,

ALEXANDER SEMMLER, Biography

Alexander Semmler, American composer-conductor-pianist, received most of his musical education in Germany, studying piano with Joseph Pembaur, conducting with Krasselt and Haussegger, composition with Brahms' only composition pupil, Gustav Jenner, and musicology at the Universities of Marburg, Berlin and Munich. Well known for his work as composer and conductor in television, radio and films, Semmler's serious compositions cover all categories of musical writing. Many of his orchestral works have been recorded and are often heard on radio and television. He has extensively conducted abroad, frequently upon special invitation of the U.S. Department of State.

VACLAV NELHYBEL, Biography

Vaclav Nelhybel, composer-conductor-organist, was born in Polanka, Czechoslovakia. Besides obtaining a thorough musical education under the guidance of outstanding European musicians he also studied musicology, acoustics and philosophy at different Universities in Europe. He has conducted such well known orchestras as the Czech Philharmonic Orchestra of Prague, the Vienna Symphony Orchestra and the Munich Philharmonic. As lecturer, he has given extensive courses in musical forms, composition and orchestration. Prior to coming to the U.S. for permanent residence in 1957, he was Music Director of RADIO FREE EUROPE in Munich for seven years. His many compositions include operas, ballets, symphonic works, chamber music and countless scores for radio and films.

The musical examples of THE SYMPHONY ORCHESTRA AND ITS INSTRUMENTS are taken from the writings of Vaclav Nelhybel. Many of them are excerpts from full length compositions to which scores and parts are available through ALPHA MUSIC, Inc., 501 Madison Avenue, New York 22, N. Y.