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THE DEVELOPMENT OF A FUNCTIONAL KNOWLEDGE OF THEORY
THROUGH SIMPLIFIED DANCE ORCHESTRA ARRANGING

A Professional Paper

by

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B.M., Montana State University, 1948

Presented in partial fulfillment of the
requirement for the degree of Master of Music in
Music Education

Montana State University

1950

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ACKNOWLEDGEMENTS

The author wishes to thank the students of the Darby High School Band who participated in the development of this method.

The author is also grateful to Professor Stanley M. Teel and Professor Robert Sutton of the School of Music at Montana State University for their guidance and counsel in the preparation of this paper.

The author wishes especially to thank Professor Theodore F. Normann of the School of Music at the University of Washington for his encouragement and invaluable aid and advice in the formation of this paper.

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INTRODUCTION

Effective music learning is sometimes thwarted because traditional teaching methods do not always meet the needs and desires of the student at his level of ability. An example might be the usual presentation of music theory which often treats subject matter divorced from the everyday experiences of students. In turn, little attempt is made to explain theory in relationship to music performed. Because theory may be presented outside the realm of their needs and experiences, students will frequently approach this subject with apprehension, disinterest and, many times, actual dislike.

In theory, as in other subjects, an immediate use or purpose is the greatest motivating force in acquiring a working knowledge of it. Many times subject matter, planned by adults, becomes so systematic and inflexible, that interest is destroyed. Teaching then becomes a matter of education of the masses rather than becoming education of the individual. Often, upon entering a theory course, a student is confronted with a rather formidable set of rules which are to be learned for later activities. Scales, intervals, key signatures and the like join forces to further mystify and confuse

the aspiring musician. This confusion indicates that the conventional approach to theory does not always develop desirable attitudes but rather, may lead to actual dislike of the subject. For effective learning the teaching of theory must be based upon activities that center around the dominant interests of students, an approach which treats music as a whole rather than in separate, isolated compartments.

Therefore, the purpose of this study is to present a method of teaching theory while at the same time satisfying the desires and interests of the student.

THE PROBLEM

This study presents a method of developing a functional knowledge of theory through the use of simplified dance orchestra arranging. This study will be presented in two main sections. They are, (1) case history of the development of this theory method, and (2) arranging method devised to teach theory.

Significant conclusions, observations and recommendations will be drawn after the presentation of this study.

This study is limited in scope to the development of an elementary knowledge of theory and arranging. This method is most effective when used as an introduction to a more formalized theory course.

Since this method of teaching theory is an original development of the author, the main source of data is based upon conclusions reached through experimentation while devising this method. Personal interviews were also utilized in acquiring data to complete this study.

The author has long been puzzled by the seeming dichotomy between the teaching of theory and actual performance. In seeking some way to bridge the gap between performance and theoretical knowledge a method was developed in a field which, though it lacked something of academic respectability, nevertheless, was highly upheld by

adolescent students; i.e. popular dance music. Therefore, the problem of putting theory into a more meaningful form was approached by teaching students to write arrangements for their own dance orchestra. Since popular music is a means of expression familiar to the highly industrialized society of today, it serves as common ground for the development of a greater knowledge of theory.

CASE HISTORY

Several students from the band wanted to play dance music. However, since the school was very small and the music program comparatively new, the problems of securing music and musicians of sufficient abilities arose. In spite of this, because a dance orchestra had at one time been organized in this school, the demand for reorganization of it was great.

Unfortunately, special arrangements were impractical because of a lack of time for writing them in sufficient quantities. In addition, instrumentation complete enough for their effective use was lacking.

Despite these obstacles, the author offered, in the form of a challenge, to help form a small dance orchestra if the members of the orchestra would learn to arrange music that would fit their group since no commercial arrangements were available for it.

With this encouragement, a small orchestra was formed. However, because of the inexperience of the members of the orchestra, there existed not only the problem of arranging the music but also of playing it once it had been arranged. In general, the orchestra members had had very little formal training. There was a universal lack of knowledge in theory. This, combined with only an elementary skill in playing instruments and reading music, caused some apprehension on the part of the students at first.

The entire project was approached from the aspect of arranging with no mention being made of theory. Theory was utilized merely as a tool for more effective arranging. Although the development of a knowledge of theory was the prime reason for the project, arranging was emphasized because of the interest factor.

In order to give the students a basis for theoretical development, a chord chart was devised which, when used in relation to popular music, enabled them to write satisfactory arrangements. In addition, because playing the arrangements was emphasized, each member of the orchestra made remarkable advancement in his ability to play his instrument. Actual performance also served as a means of analyzing the arrangements so that suggestions for improvement could be given.

Within a month a sufficient library had been written, enabling the orchestra to play its first dance. The acclaim and enjoyment they received in contributing to the social life of the school adequately repaid them for the long hours they had spent in developing their organization.

SIMPLIFIED DANCE ORCHESTRA ARRANGING

So many times young musicians desire to play popular music in dance orchestras. However, they find themselves thwarted for several reasons. Often, the instrumentation of their groups is so odd and unbalanced that the purchase of commercial arrangements will not fill their needs. Even those groups that do have adequate instrumentation fail to develop properly because commercial arrangements are often too difficult. Sheet music seemingly solves the problem of music for a small orchestra but the results are usually little more than unison.

Therefore, it is the purpose of this method to provide a means for young musicians to acquire the skill needed for writing simple well-harmonized arrangements suitable for any combination of instruments. By developing the skills necessary for simple arranging it is hoped that the gap between the desire to participate and the actual participation will be bridged.

This method of arranging is somewhat different from the usual arranging method in that it is based on a Chord Chart. A basic knowledge of this chart must be developed before effective arranging may take place. This does not mean memorization, but rather, the understanding of a basic step by step procedure utilized in writing arrangements by

this method. Technical terms have been eliminated so far as possible.

For the best and most satisfying results study this method completely before writing.

HOW TO USE THE CHORD CHART

Knowledge of how this chord chart functions is necessary before satisfactory arrangements can be written. Understanding of the relationship of the items contained in this chart is essential since each item is dependent upon the other. Therefore, too much stress cannot be laid upon the development of a thorough systematic knowledge of how this chart works.

This chart contains the following in all major keys: positions of major chords on the staff plus their sixths, sevenths, and ninths (two octaves); chord symbols; interval numbers; chord spellings; and rules for building minor, diminished and augmented chords.

Positions of the Major Chords on the Staff

Two octaves of chord positions are given so that the student may visualize their placement on the staff as well as see the interval relationship between notes.

Chord Symbols

The chord symbols are of prime importance in this arranging method because they appear above the melody line and indicate what chord is to be used with the melody note which they appear over.

Interval Numbers

Interval numbers are important since they serve as a means of translating chord spellings into meaningful combinations of notes in relation to two, three and four part harmony. Each note contained in the chord chart has an interval number.

Chord Spellings

The chart contains all of the major chords plus their sixths, minor sevenths and ninths. The first three letters (interval numbers 135) in each chord spelling make a chord.¹ These three notes (135) are always used when the chord symbol does not indicate added notes.

Many times added notes are indicated in the chord symbol, but the chord (135) serves as a basis for their spelling. Therefore, any note indicated in the chord symbol that is not a note of the basic chord is referred to as follows:

1. Chord - 1,3 and 5 interval numbers
2. Added Sixth Chord - 1,3,5 and 6 interval numbers

¹The term chord is somewhat erroneously used since it disregards the term triad. A triad is a three tone chord composed of a given tone, the 1, with its 3 and 5 in ascending order in the scale. In this method the term chord is used in place of the term triad.

Chord Spellings (Continued)

3. Seventh Chord - 1,3,5 and 7 interval numbers
(Note that the 6 is not used when a chord symbol indicates a 7)
4. Ninth Chord - 1,3,5,7 and 9 interval numbers
(Note that the 7 is used in chord symbols indicating a 9)

Application of Chord Symbols, Chord Spellings and Interval Numbers

The chord symbols, chord spellings and interval numbers contained in the chart are interdependent upon each other. The chord symbols are responsible for identifying the chord spellings. In turn, the interval numbers are identified by the chord spellings. To further clarify their use, the following five step procedure is given.

1. Write the melody and chord symbols of the piece to be arranged on manuscript paper exactly as they appear in the sheet music.
2. Refer to the Chord Chart and find the chord symbol which corresponds to the chord symbol that appears in the sheet music.
3. Refer to the chord spelling under the correct chord symbol and find the melody note within the chord spelling that appears in the sheet music.

Application of Chord Symbols (Continued)

4. Find the melody note's interval number that is listed directly under the melody note.

5. Apply the correct rule to the melody note's interval number for the harmony note or notes in two, three or four part arranging. Write the correct harmony note or notes directly under the melody line.

By using this procedure throughout the piece being arranged, suitable harmony will be arrived at with consistency. In time the entire procedure will become automatic, which, in turn, will greatly speed up the process of arranging. Also, by consistent practice, the chord spellings and various devices used in this method will be learned so that reference to the Chord Chart will diminish in frequency.

Building Minor, Diminished and Augmented Chords

All chords in the chart are major chords. Therefore, rules for building minor, diminished and augmented chords are based upon the major chords listed.

Minor - To build a minor chord, lower (flat) the 3 of the major chord one-half step.

Diminished - To build a diminished chord, lower (flat) both the 3 and the 5 of the major chord one-half step.

Augmented - To build an augmented chord, raise (sharp) the 5 of the major chord one-half step.

How to Identify the Correct Chord

Major chords are usually indicated in music merely by a chord symbol without any special abbreviation. Occasionally, a large M or Maj. follows the letter in the chord symbol to indicate a major chord.

Minor chords are indicated in music by a minus sign (-), a small m or the abbreviation min appearing after the letter in the chord symbol.

Diminished chords are indicated in music by a small zero (°) or the abbreviation dim appearing after the letter in the chord symbol.

Augmented chords are indicated in music by a plus sign (+) or the abbreviation aug appearing after the letter in the chord symbol.

CONCERT SCORE

Selection of the Piece to be Arranged

Care should be taken that the composition selected is not too difficult for the group for which it is being arranged. One should know the limitations of the orchestra as far as range and technic are concerned before the arrangement is begun. Pieces containing whole, half and quarter notes are best suited since the chord changes are usually more pronounced and occur at the beginning or middle of each measure. Also, non-chord tones are usually at a minimum in the easier music.

Instrumentation¹ and Voicing²

Before an arrangement is begun, decide what the instrumentation and voicing are to be. More effective arrangements will result with planning.

Writing the Concert Score

After deciding upon the instrumentation and voicing, follow the rules listed under two, three and four part arranging, dependent of course, upon the instrumentation.

When the score is written, divide it into segments, indicated by large letters at the end of its phrases. The

¹See Instruments, p. 35

²See Voicing, p. 26

phrases are usually sixteen, eight and eight measures long. For example, place a large letter A at the beginning of the seventeenth measure and a large letter B at the beginning of the twenty-fifth measure.³

The arrangement outlined in this method is only one chorus in length. It is possible to write an arrangement several choruses long using a variety of ideas, however. Since the basic tools for arranging are presented here, original ideas will play a large part in writing arrangements of more complicated and interesting nature. By interspersing an arrangement with two, three and four part harmony as well as solos and original backgrounds, a full fledged arrangement may be developed.

Use of the Concert Score

Parts should be copied into manuscript books. Instruments playing only the melody are written on one staff. Instruments playing both melody and harmony are written on two staves for greater ease in reading.

Before playing, the sequence of solo and tutti passages must be decided upon. By letting each instrument play a portion of the melody with rhythm accompaniment as well as harmony passages, the effect of a complete arrangement by using just one harmonized chorus will be amazingly like a full arrangement several choruses long.

³See Appendix B, p. 57

HOW TO WRITE A TWO PART ARRANGEMENT⁴

Step 1.

Write out on manuscript paper the melody and chord symbols of the piece to be arranged exactly as they appear in the sheet music.

Step 2.

Below the melody line write a single line of harmony notes. Use the following rules in writing two part harmony.

Rules Governing the Harmony Note in Two Part Arranging
Chord (135)

1. When the 1 of a chord is the melody note, use the 3 of the chord as the harmony note.

2. When the 3 of a chord is the melody note, use either the 1 or the 5 of the chord as the harmony note.

3. When the 5 of a chord is the melody note, use the 3 of the chord as the harmony note.

Added Sixth Chord (1356)

4. When the 6 of a chord is the melody note, use the 1 of the chord as the harmony note.

Seventh Chord (1357)

5. When the 7 of a chord is the melody note, use the 1, the 3, or the 5 of the chord as the harmony note. The 3 is

⁴See Appendix A, p. 56

preferable. If the 7 is indicated in the chord symbol but does not appear in the melody, use the 7 of the chord with the melody note.

EXCEPTION: If the 6 appears as the melody note in a 7 chord, do not use the 7 of the chord with it but refer to rule 4 listed under Added Sixth Chord.

6. Occasionally a Major 7 appears in the melody and is indicated as such in the chord symbol. (A Major 7 may be identified if the 7 listed in the Chord Chart has been raised $\frac{1}{2}$ step.) When the Major 7 is the melody note, use the 5 (preferable) or the 1 of the chord as the harmony note. If the Major 7 is indicated in the chord symbol but does not appear in the melody, do not use the Major 7 but follow the rule applicable to the melody note.

Ninth Chord (13579)

7. The 7 of a chord usually appears in a chord indicating a 9. When the 9 of a chord is the melody note, use the 7 (preferable) or the 3 of the chord as the harmony note.

8. When the 9 of a chord is the melody note and appears in a chord not containing a 7, use the 3 of the chord as the harmony note.

EXCEPTIONS TO RULES GOVERNING THE HARMONY NOTE IN TWO-PART ARRANGING

Many times notes not in the chord appear in the melody. It is difficult to set rules governing every situation. How-

ever, these non-chord tones may be harmonized in the following two ways.

1. When the melody note is a non-chord tone, use the piano to experiment in finding the best sounding harmony note within the chord indicated by the chord symbol.

2. When the melody note is a non-chord tone, tie the harmony note from the preceding melody note through the non-chord melody note to form a suitable effect. It is not necessary to change the time value of the notes in the harmony line each time the time value of the notes in the melody changes. Many times, it is more feasible to hold the harmony note while the melody changes.

Step 3.

Transpose the concert score to the desired instruments.

HOW TO WRITE A THREE PART ARRANGEMENT⁵

Step 1.

Write out on manuscript paper the melody and chord symbols of the piece to be arranged exactly as they appear in the sheet music.

Step 2.

Below the melody line write two lines of harmony notes. Use the following rules in writing three part harmony.

Rules Governing the Harmony Notes in Three Part Arranging Chord (135)

1. When the chord symbol indicates no added notes such as the 6,7 or 9, use all three tones of the chord regardless of which one appears in the melody.

Added Sixth Chord (1356)

2. When the 6 of a chord is the melody note, use the 1 and the 3 of the chord as the harmony notes.

Seventh Chord (1357)

3. When the chord symbol indicates a 7, use the following combinations of harmony notes.

a. When the 1 of a chord is the melody note, use the 3 and the 7 of the chord as the harmony notes.

b. When the 3 of a chord is the melody note, use the 1 and the 7 of the chord as the harmony notes.

⁵See Appendix B, p. 57

c. When the 5 of a chord is the melody note, use the 3 and the 7 of the chord as the harmony notes.

d. When the 6 of a chord is the melody note, use the 3 and the 7 of the chord as the harmony notes. When a 6 does occur in a 7 chord, be sure to write the 7 below the 6.

e. When the 7 of a chord is the melody note, use the 1 and the 3 of the chord as the harmony note. The 3 and the 5 of a chord also may be used as the harmony notes with very good effect. Do not use the 1 and the 5 of a chord when the 7 is the melody note.

4. Occasionally a Major 7 appears in the melody and is indicated as such in the chord symbol. (A Major 7 may be identified if the 7 listed in the Chord Chart has been raised $\frac{1}{2}$ step.) When the Major 7 is the melody note, use the 1 and the 3 of the chord as the harmony notes. If the Major 7 is indicated in the chord symbol but does not appear in the melody, ignore it.

Ninth Chord (13579)

5. The 7 of a chord usually appears in a chord indicating a 9. When the 9 of a chord is the melody note, use the 3 and the 7 of the chord as the harmony notes.

EXCEPTIONS TO RULES GOVERNING THE HARMONY NOTES IN THREE PART ARRANGING

Many times the 4 of a chord appears in the melody. It is difficult to set rules suitable in every situation. However,

two rules may be applied with some consistency that govern the harmony notes if the 4 is the melody note.

1. When the 4 of a chord is the melody note and appears where the chord symbol indicates no added notes, use the 1 and the 5 of the chord as the harmony notes.

2. When the 4 of a chord is the melody note and appears where the chord symbol indicates an added 7, use the 5 and the 7 of the chord as the harmony notes.

In many cases the melody changes by half steps either up or down but has no change in the chord symbol. When this occurs, use the same harmony notes under the changing melody.

To meet unusual situations, experiment on the piano keyboard to find the most suitable harmony within the chord symbol indicated.

Step 3.

Transpose the concert score to the desired instruments. Use the voicing previously decided upon.

HOW TO WRITE A FOUR PART ARRANGEMENT

Step 1.

Write out on manuscript paper the melody and chord symbols of the piece to be arranged exactly as they appear in the sheet music.

Step 2.

Below the melody line write three lines of harmony notes. Use the following rules in writing four part harmony.

Rules Governing the Harmony Notes in Four Part Arranging Chord (135)

1. When any of the chord tones are in the melody, use the other members of the chord with it. One note must be doubled. The 1 is most often doubled; the 3 occasionally; the 5 seldom.

Added Sixth Chord (1356)

2. When the chord symbol indicates an added 6, use the 1356, regardless of which interval appears in the melody. Many times, to further enrich the harmony, the 6 of a chord is added to the chord symbol where no 6 has been indicated.

EXCEPTION: No 6 of a chord should be added when the chord is augmented. Instead, double the 1 of the chord.

Seventh Chord (1357)

3. When the chord symbol indicates an added 7, use the 1357, regardless of which interval appears in the melody.

4. Occasionally, the 6 of a chord appears in the melody when the chord symbol indicates an added 7. To meet this situation, use the following rule. When the 6 of a chord is the melody note in a chord with an added 7, use the 1367. The 7 should be placed and voiced so that it sounds below the 6.

5. Frequently, a Major 7 appears in the melody and is indicated as such in the chord symbol. (A Major 7 may be identified if the 7 listed in the Chord Chart has been raised $\frac{1}{2}$ step.) When the Major 7 is the melody note, use the 1,3 and 5 of the chord as the harmony notes. If the Major 7 of a chord is indicated in the chord symbol but does not appear in the melody, ignore it.

Ninth Chord (13579)

6. The 7 of a chord usually appears in a chord indicating a 9. When the 9 of a chord is the melody note, use the 1,3 and 7 or the 3,5 and 7 as the harmony notes. If the 9 of a chord is not the melody note but is indicated as a chord plus 9 in the chord symbol, ignore the 9 and follow rule 3. listed under Seventh Chord.

7. When the 9 of a chord is the melody note and appears in a chord not containing a 7, use the 1,3 and 5 of the chord as the harmony notes.

EXCEPTIONS TO RULES GOVERNING THE HARMONY NOTES IN FOUR
PART ARRANGING

Many times the 4 of a chord appears in the melody. It is difficult to set rules suitable in every situation. However, two rules may be applied with some consistency that govern the harmony notes if the 4 is the melody note.

1. When the 4 of a chord is the melody note and appears where the chord symbol indicates no added notes or an added 6, use the 1, the 3 and the 6 of the chord as the harmony notes.

2. When the 4 of a chord is the melody note and appears where the chord symbol indicates an added 7, use the 1, the 5 and the 7 as the harmony notes.

In many cases, the melody changes by half steps either up or down but has no change in the chord symbol. When this occurs, use the same harmony notes under the changing melody.

To meet unusual situations, experiment on the piano keyboard to find the most suitable harmony within the chord symbol indicated.

Step 3.

Transpose the concert score to the desired instruments. Use the voicing previously decided upon.

VOICING

Voicing is the blending of instruments and sections of instruments together so as to bring out their best tonal qualities and to produce a proper balance.

It is necessary, therefore, to select the proper note in each chord for each of the instruments used.

The piano, string bass, guitar and drums are not voiced in harmony with other instruments in these arrangements. Their chief function is to play rhythm. When one of these instruments does play a solo passage, it is accompanied by the remaining rhythm instruments only.

The Voicing Chart lists several of the more common voicings for various combinations in two, three and four part harmony. The voicings are indicated by numbers. These numbers have the following significance.

- a. The melody is assigned the number 1.
- b. The harmony line immediately below the melody is assigned the number 2.
- c. The second harmony line below the melody is assigned the number 3.
- d. The third harmony line below the melody is assigned the number 4.

All voicing numbers figure from the melody down.

The voicing Chart indicates voicing for different instruments rather than instruments of the same kind. Voicing

instruments that are of one kind present no problems if correct transposition and ranges have been considered. However, when different instruments are used together, the problem of proper blend and balance arises.

It must be understood that there are many ways of voicing instruments. The ways listed in the Voicing Chart merely indicate several of the more common ones.

Attention must be paid to the Dixieland voicing. The clarinet must be raised one octave plus its transposition for the proper effect. Also, the trombone is treated as a bass instrument in Dixieland. Therefore, a part similar to the string bass is written for the trombone. It is, however, much more melodic and legato in style. Care should be taken to write in the correct trombone range. In order to fully appreciate the use of the trombone in Dixieland music, it is suggested that recordings of this type voicing be listened to.

In using the Glenn Miller voicing, care should be taken in placing the clarinet. The clarinet plays the melody but one octave higher than the second tenor part which doubles the melody. Also, this voicing is most effective when the clarinet is in its upper register. This is necessary for the brilliant effect possible in this voicing.

In voicing trombone parts, the range of the instrument must be watched carefully. If the chord is written too high, use a note from the middle of the chord and write it an octave lower.

TABLE II

VOICING CHART

PARTS	VOICINGS	VOLIN	B ^b CLARINET	B ^b ALTO SAXOPHONE	B ^b TENOR SAXOPHONE	B ^b BARITONE SAXOPHONE	B ^b CORNET	TROMBONE
TWO	VIOLIN AND CLARINET	1	2					
	CLARINET AND SAXOPHONE		1	2	2	2		
	CORNET AND TROMBONE						1	2
THREE	CLARINET, ONE ALTO SAXOPHONE, AND ONE TENOR SAX		1	2	3			
	THREE SAXOPHONES - ONE ALTO, ONE TENOR, AND ONE BARITONE			1	2	3		
	THREE SAXOPHONES - ONE ALTO, TWO TENORS			1	2,3			
	THREE SAXOPHONES - TWO ALTOS, ONE TENOR			1,2	3			
	TWO CORNETS AND ONE TROMBONE						1,2	3
	ONE CORNET AND TWO TROMBONES						1	2,3
FOUR & FIVE	FOUR SAXOPHONES - TWO ALTOS, TWO TENORS			1,2	3,4			
	FOUR SAXOPHONES - TWO ALTOS, ONE TENOR, AND ONE BARITONE			1,2	3	4		
	FIVE SAXOPHONES - TWO ALTOS, TWO TENORS, AND ONE BARITONE			1,2	3,4	1 or 2		
	TWO CORNETS AND TWO TROMBONES						1,2	3,4
	TWO TENOR SAXOPHONES AND TWO TROMBONES				3,4			1,2
	THREE SAXOPHONES AND ONE CORNET			2,3	4		1	
SPECIAL	DIXIELAND - ONE CORNET, ONE CLARINET, ONE TENOR SAX		2 (raise one octave) or 3		2 or 3		1	
	TENOR LEAD - TWO ALTO SAXOPHONES, TWO TENOR SAXOPHONES			2,3	and 1/4			
	GLENN MILLER - ONE CLARINET, TWO ALTO, TWO TENOR SAXES		1	2,3	and 1/4			

TRANSPOSITION

After the concert score has been written, it is necessary to transpose the various instruments so that they will sound the correct pitches. In order to facilitate the transposition of instruments as well as learn something of their ranges, their tone quality and their use in the dance orchestra, a short section discussing the more common dance orchestra instruments has been included in this method. In addition, a piano keyboard chart of four and one-half octaves also has been inserted to show the names of the notes in the chromatic scale and the position of the notes on the staves in relation to the keyboard.

The piano is always in the concert key and pitch. All transposition is based on this fact and is done in relation to it.

Transposition is referred to by steps. Therefore, the chart is essential for correct transposition.

Three rules are given to find half-steps and whole steps in relation to the piano keyboard.

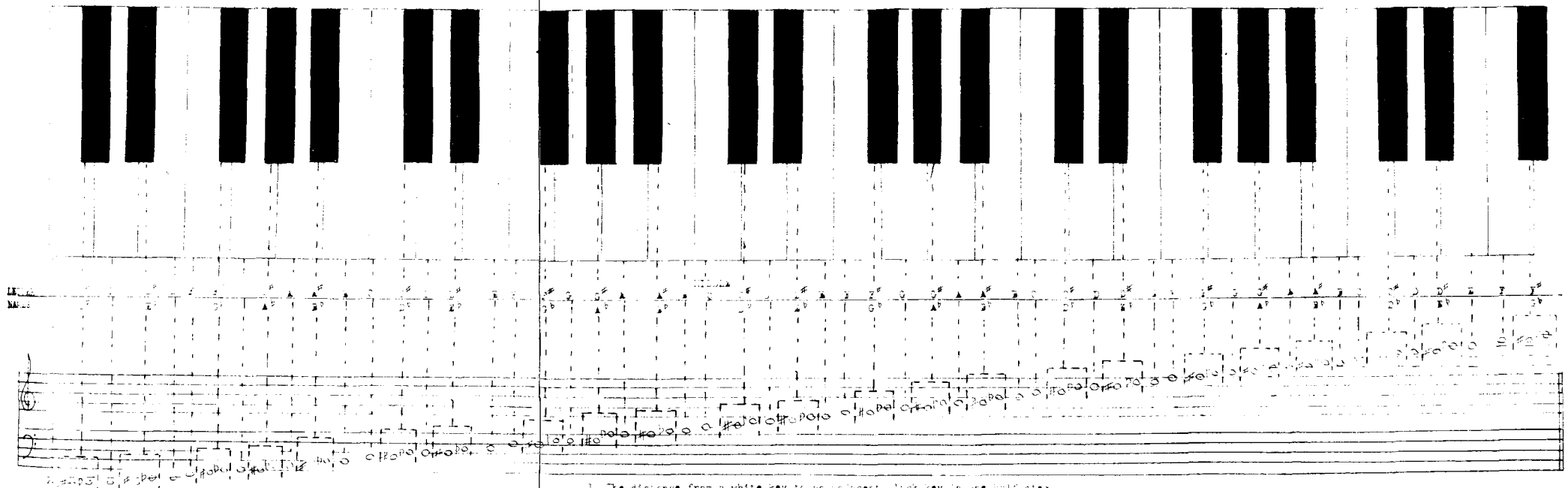
1. The distance from a white key to an adjacent black key is one-half step.
2. The distance from a white key to a white key with no intervening black key is one-half step.
3. The distance from a white key to a white key with an intervening black note is one whole step.

A Key Signature Chart has been provided to show the number of flats and sharps in all keys and their positions on the staves in both treble clef and bass clef.

In addition, a Pitch Transposition Chart and a Key Transposition Chart have been provided to check the transposition of the more common dance orchestra instruments.

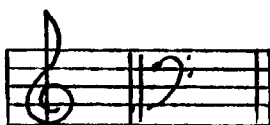
With practice, greater facility in transposition will result. The charts have been designed as an aid until sufficient skill is acquired by the student.

TABLE III
PIANO KEYBOARD CHART



1. The distance from a white key to an adjacent black key is one-half step.
2. The distance from a white key to a white key with no intervening black key is one-half step.
3. The distance from a white key to a white key with an intervening black key is one whole step.

TABLE IV
KEY SIGNATURE CHART



Key of C
No Sharps or
Flats

TREBLE CLEF

<u>KEY</u> - F	B ^b	E ^b	A ^b	D ^b	G ^b	C ^b

<u>KEY</u> - G	D	A	E	B	F#	C#

BASS CLEF

<u>KEY</u> - F	B ^b	E ^b	A ^b	D ^b	G ^b	C ^b

<u>KEY</u> - G	D	A	E	B	F#	C#

The key signature indicates the notes that are normally sharped and flated throughout the course of a composition.

TABLE V
PITCH TRANSPOSITION CHART

Actual Pitch If the Piano SOUNDS	Violin Guitar C Melody Sax is written	B ^b Clarinet B ^b Tenor Sax B ^b Cornet is written	B ^b Alto Sax B ^b Baritone Sax is written	Trombone String Bass is written
G	G	D	A	C
C [#] or D ^b	C [#] or D ^b	D [#] or E ^b	A [#] or B ^b	C [#] or D ^b
D	D	E	B	D
D [#] or E ^b	D [#] or E ^b	E [#] or F	B [#] or C	D [#] or E ^b
E	E	F [#]	C [#]	E
F	F	G	D	F
F [#] or G ^b	F [#] or G ^b	G [#] or A ^b	D [#] or E ^b	F [#] or G ^b
G	G	A	E	G
G [#] or A ^b	G [#] or A ^b	A [#] or B ^b	E [#] or F	G [#] or A ^b
A	A	B	F [#]	A
A [#] or B ^b	A [#] or B ^b	B [#] or C	G	A [#] or B ^b
B	B	C [#]	G [#]	B

When using this chart, be certain that the note is written in the correct octave.

TABLE VI
KEY SIGNATURE TRANSPOSITION CHART

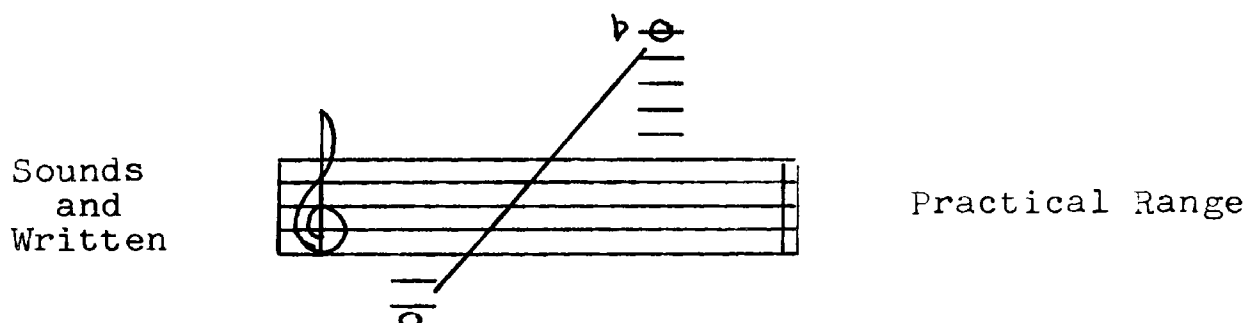
If the Piano has	Violin	B ^b Clarinet	E ^b Alto Sax	Trombone
	Guitar	B ^b Tenor Sax	E ^b Baritone Sax	String Bass
	C Melody Sax	B ^b Cornet		
	will have	will have	will have	will have
0 sharps 0 flats	0 sharps 0 flats	2 sharps	3 sharps	0 sharps 0 flats
1 sharp 1 flat	1 sharp 1 flat	3 sharps 1 sharp	4 sharps 2 sharps	1 sharp 1 flat
2 sharps 2 flats	2 sharps 2 flats	4 sharps 0 sharps-flats	5 sharps 1 sharp	2 sharps 2 flats
3 sharps 3 flats	3 sharps 3 flats	5 sharps 1 flat	6 sharps 0 sharps-flats	3 sharps 3 flats
4 sharps 4 flats	4 sharps 4 flats	6 sharps 2 flats	7 sharps 1 flat	4 sharps 4 flats

INSTRUMENTS⁶VIOLIN

This instrument is non-transposing and sounds exactly where it is written.

The violin cannot play below G, the third space below the staff in the treble clef.

Its range may be considered from G, the third space below the staff in the treble clef, upward to B^b, the fifth added line above the staff. For the most effective writing in small dance orchestras, the upward range should not go any higher than F, the fourth added space above the staff.



Pizzicato - to pluck the strings with the fingers.

Arco - to play with the bow. Arco written into the music automatically cancels the pizzicato.

Tonal Quality - The high register of the violin is somewhat thin but definitely penetrating. As the register descends, the tone becomes round and full. Although the middle tones

⁶See Transposition, p. 29

VIOLIN (CONTINUED)

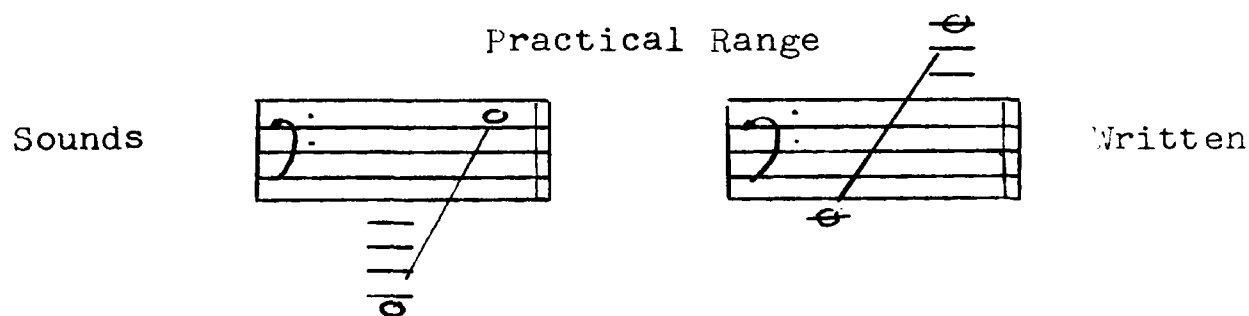
decrease in volume, they are rich. The extreme low register (on the G string) becomes broad and sonorous in quality.

Use in the Dance Orchestra - The violin is used in solo, harmony and obbligato passages.

STRING BASS

The string bass is a transposing instrument in that it sounds one octave lower than it is written. The key signature remains the same as the concert score. This instrument is written in the bass clef.

Its range may be considered from E, the first added line below the staff in the bass clef, upward to G, the third added line above the staff in the bass clef.



Use in the Dance Orchestra - The string bass is important in the dance orchestra in that it combines with the piano, guitar and drums to give the band a "beat" as well as to give depth and body to each chord or harmonic change. It is basically a rhythm instrument.

In the dance orchestra the string bass is usually played pizzicato although bowing is occasionally used.

STRING BASS (CONTINUED)

The string bass is frequently written doubling the piano bass but sounding an octave lower.

Typical note patterns played by the string bass are as follows:

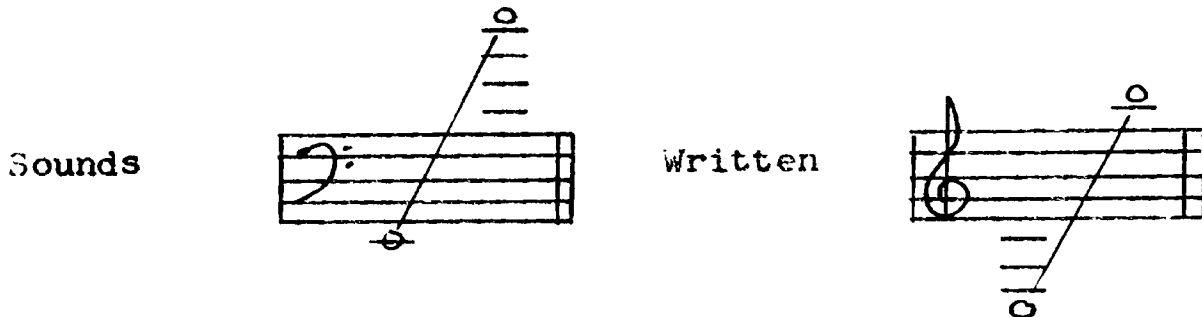
Int. 1 5 1 1 5 5 1 5 6 3 1 3 5 0 1 7 0 5 1 1 5 5
 No. Chord ----- Chord plus 6 ---- Chord plus 7 into Chords

GUITAR (Six string - tuned to E,A,D,G,B,E)

The guitar is a transposing instrument in that it sounds one octave lower than it is written. The key signature remains the same as the concert score. This instrument is written in the treble clef.

Its range may be considered from E, the fourth added space below the staff in the treble clef, upward to E, the second added space above the staff in the treble clef. The range may be extended upward dependent upon the skill of the player.

Practical Range



GUITAR (CONTINUED)

Use in the Dance Orchestra - The guitar is important in the dance orchestra in that it supplies rhythm as well as harmonic changes. Although it is basically a rhythm instrument, it is, when amplified, suitable for solo purposes.

The guitar corresponds harmonically to the piano. For the best effect the guitar should play four chords to the bar in a fox trot arrangement.

Typical scoring for the guitar is as follows:



The chord is not written out.

PIANO

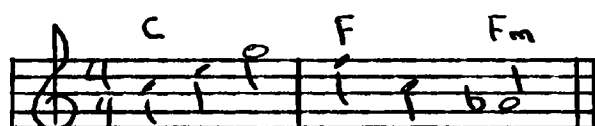
The piano is non-transposing and sounds exactly where it is written.

It has an extremely large range which is more than adequate for anything written in a dance orchestration.

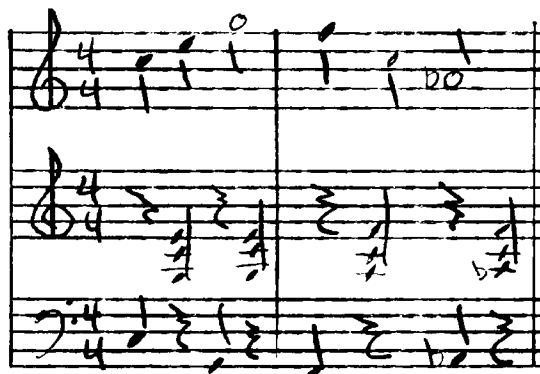
Use in the Dance Orchestra - The piano may be used for both solo playing and as a rhythm instrument. Actually, it is the basis of the dance orchestra since it supplies the harmonic background.

PIANO (CONTINUED)

The piano may be notated in two ways.

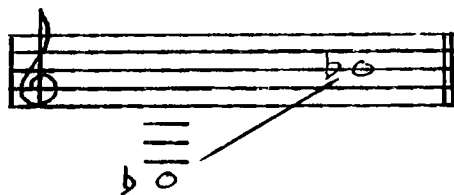


Chord Symbol and Melody

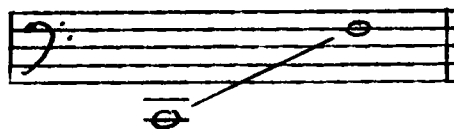


Melody and Written out Chords

In writing the right hand accompaniment chord, care should be taken so that the range of the chord does not go higher than the third line B^b in the treble clef or go lower than E^b, the fourth added space below the staff in the treble clef.

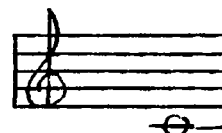
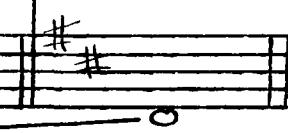

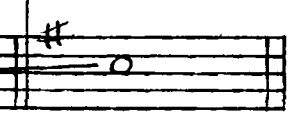


In writing the left hand bass notes, best results can be obtained if the range does not exceed the fourth line F in the bass clef upward and the second added space C below the staff in the bass clef downward.



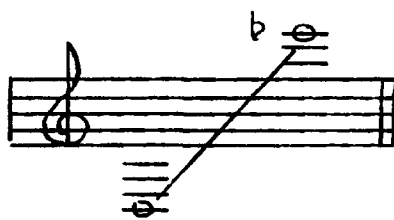
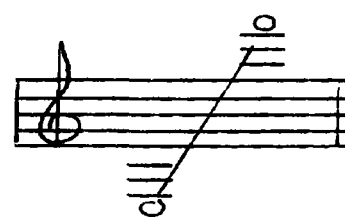
B^b CLARINET

The B^b clarinet is a transposing instrument and is written one whole step higher than it sounds. Therefore, add two sharps to the key signature and write its music one whole step higher than the concert score.

Concert or Piano		Transposed for Clarinet	Concert or Piano		Transposed for Clarinet
					

The clarinet has a large range extending from the piano's D, the fourth added line below the staff in the treble clef, to the piano's E^b, the third added line above the staff in the treble clef. The upward range may be extended, but the above range is safe for the average musician.

Practical Range

Sounds		Written	
--------	---	---------	--

Tone Quality - In the low register the clarinet produces a sonorous tone. The middle register is sweet and mellow while the upper register is brilliant and capable of penetrating through an entire orchestra. In tutti passages the clarinet is most effective written above the third space C in the

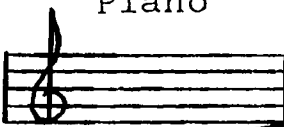
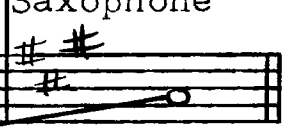
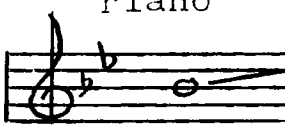
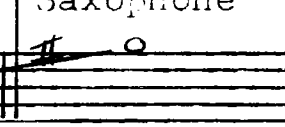
B^b CLARINET (CONTINUED)

Treble clef. In solo passages the entire range of the instrument is effective, dependent of course, upon the ability of the player.

Use in the Dance Orchestra - Although not used as much as the saxophone, the clarinet plays an important part in the instrumentation of the modern dance orchestra. It is well suited for both solo and harmony passages. In some special voicings, such as dixieland, the clarinet becomes very essential.

E^b ALTO SAXOPHONE

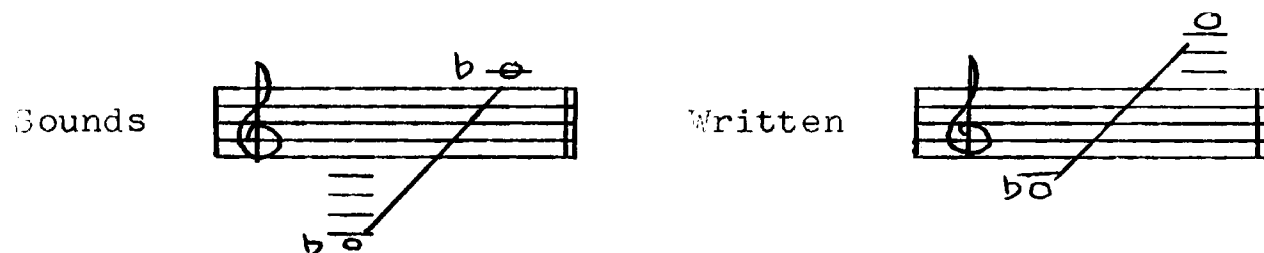
The E^b alto saxophone is a transposing instrument and is written 5½ steps higher than it sounds. Therefore, to transpose this instrument properly, add three sharps to the key signature and write its music 5½ steps higher than it sounds. One may also count up six notes or down three notes plus raising an octave to arrive at the transposition. However, care must be taken in the case of accidentals appearing in the music when either of the two last methods are used.

Concert or Piano	Transposed for E ^b Alto Saxophone	Concert or Piano	Transposed for E ^b Alto Saxophone
			

E^b ALTO SAXOPHONE (CONTINUED)

The E^b alto saxophone has a range of almost three octaves. Its range is from the piano's D^b, the fourth added line below the staff in the treble clef, to the piano's A^b, the first added line above the staff in the treble clef.

Absolute Range



Tone Quality - The E^b alto saxophone has a full but rather thick and muddy tone in the low register. Technical passages also present more of a problem in the low register. The middle range is round and full while the high range is brilliant. The alto saxophone is most effective when written in either the middle or high range.

Use in the Dance Orchestra - The E^b alto saxophone is one of the most important members of the dance orchestra in that it serves both as a harmony and solo instrument. The E^b alto saxophone part is usually written as the melody instrument of the saxophone section.

E^b BARITONE SAXOPHONE

The E^b baritone saxophone is a transposing instrument and is written 5½ steps plus one octave higher than it sounds. Therefore, to transpose this instrument properly,

E^b BARITONE SAXOPHONE (CONTINUED)

add three sharps to the key signature and write its music 5½ steps plus one octave higher than it sounds. The transposition for the E^b baritone saxophone is exactly the same as that for the E^b alto saxophone with the exception that the E^b baritone saxophone sounds 5½ steps plus one octave lower than written while the E^b alto saxophone sounds 5½ steps lower than written.

Concert or Piano		Transposed for E ^b Baritone Saxophone		Concert or Piano		Transposed for E ^b Baritone Saxophone

The E^b baritone saxophone has a range of almost three octaves. Its range is from the piano's D^b, the second added space below the staff in the bass clef, to the piano's G, the second line in the treble clef.

Absolute Range

Sounds		Written	
--------	--	---------	--

Tone Quality - The lower tones of the E^b baritone saxophone are somewhat rough and powerful. Its middle range is dull and tends towards being weak. The upper register is weak.

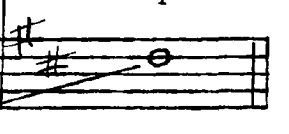
E^b BARITONE SAXOPHONE (CONTINUED)

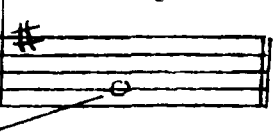
This instrument is the most effective in the lower register. However, it blends very well with other instruments when properly voiced.

Use in the Dance Orchestra - The E^b baritone saxophone is used both for solo and harmony passages. Its greatest value is in playing the bottom notes of chords when voiced in the saxophone section or with other instruments. Many times the baritone is given an obligato passage rather than its typical part, the doubling of the first or second E^b alto saxophone part.

B^b TENOR SAXOPHONE

The B^b tenor saxophone is a transposing instrument and is written one whole step plus an octave higher than it sounds. Therefore, to transpose this instrument properly, add two sharps to the key signature and write its music one whole step plus an octave higher than it sounds. The B^b tenor saxophone transposes exactly the same as the B^b clarinet except that the tenor is raised an octave also.

Concert or Piano	Transposed for B ^b Tenor Saxophone
	

Concert or Piano	Transposed for B ^b Tenor Saxophone
	

B^b TENOR SAXOPHONE (CONTINUED)

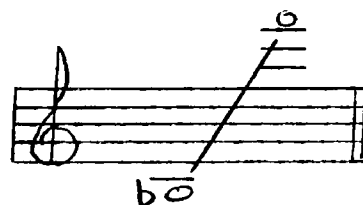
The B^b tenor saxophone has a range of almost three octaves. Its range is from the piano's A^b, the first space in the bass clef, to the piano's E^b, the fourth space in the treble clef.

Absolute Range

Sounds



Written



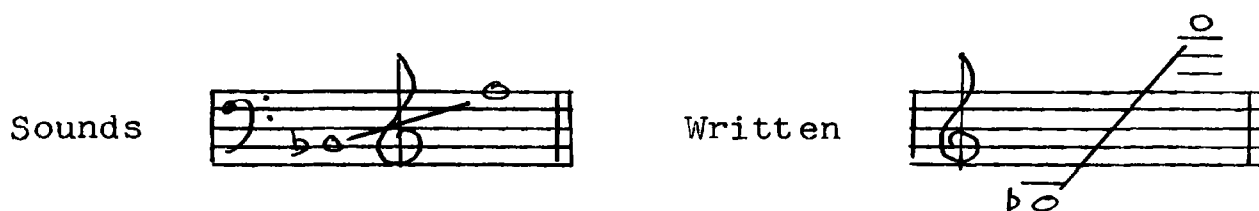
Tone Quality - The extreme low tones of the B^b tenor saxophone are harsh, but are effective in carrying the lower tones of the chord when voiced in the saxophone section. Technical passages offer difficulty when written in this register. The middle register of the instrument is rich and full. Although the high register tends to thin out, it blends well.

Use in the Dance Orchestra - The B^b tenor saxophone is very effective as a solo and harmony instrument. In the past two decades the tenor saxophone has become the most used instrument in the reed section for solo work. Although its big tone serves well for solo work, it serves equally well in the saxophone section.

C MELODY SAXOPHONE

The C melody saxophone is a transposing instrument in that it sounds one octave lower than it is written. Its key signature remains the same as the concert score. The range of the C melody saxophone is from the piano's B^b, the second line of the staff in the bass clef, to F, the fifth line of the staff in the treble clef.

Absolute Range




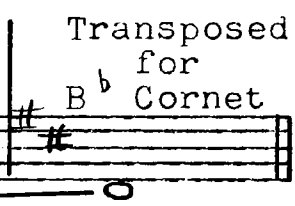


Tone Quality - The tone quality of the C melody saxophone is somewhat of a mixture of E^b alto and B^b tenor saxophone tones. However, it is neither as brilliant as the E^b alto nor as strong and round as the tenor.

Use in the Dance Orchestra - The C melody saxophone is obsolete. If one is used, it has the general function of the B^b tenor.

B^b CORNET


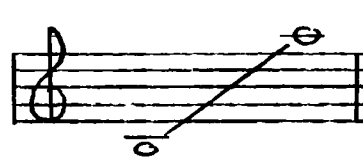
The B^b cornet is a transposing instrument. In transposing the cornet, add two sharps to the key signature and write its music one whole step higher than the concert score. The cornet transposes exactly like the clarinet.

B^b CORNET (CONTINUED)

Concert or Piano		Transposed for B ^b Cornet	Concert or Piano		Transposed for B ^b Cornet
					

The B^b cornet has a range of approximately two octaves. A practical range is from the piano's A, the second added line below the staff in the treble clef, to the piano's G, the first added line above the staff in the treble clef. The range of the cornet may be extended both upward and downward, dependent, of course, upon the skill of the player.

Practical Range

Sounds		Written	
--------	---	---------	---

Tone Quality - The low register of the cornet is somewhat muddy in quality. In the middle register, the cornet produces a round mellow tone. In the upper register the tone becomes more brilliant but gets thinner as it goes higher.

Use in the Dance Orchestra - The cornet is one of the major instruments of the dance orchestra. It not only is written in both solo and harmony passages, but it also gives the orchestra brilliance and volume. In such voicings as dixie-

B^b CORNET (CONTINUED)

land, it is essential, both for voicing and for developing the "beat" so necessary in that style of music.

TROMBONE

The trombone is a non-transposing instrument. Therefore, its key signature is the same as the concert score. It is written in the bass clef.

The trombone has a range of about two octaves. Its range may be considered to be F, the first added space below the staff in the bass clef, to G, the third added line above the staff in the bass clef. The range of the trombone may be extended upward, dependent, of course, upon the ability of the player.

Practical Range



Tone Quality - The extreme low register of the trombone is rough and powerful. The middle register is rich and sonorous, suitable for melodic playing. The high register produces a beautiful, velvet-like tone which is excellent for solo playing.

Use in the Dance Orchestra - The trombone fills in the bottom of the chord for the brass section. It is usually voiced on

TROMBONE (CONTINUED)

a lower harmony part with the cornets. However, it is valuable as a solo voice and should be utilized in this way. The trombone part is many times written basically as a rhythm part. It is also utilized as a bass instrument.

DRUMS

It is not absolutely necessary to write out a drum part. However, the drums can be much more effective if care is taken to write a suitable part.

Instruments played by the drummer include the snare drum, the bass drum, the tom tom, the high hat cymbal, and the crash cymbal. Both wooden sticks and wire brushes are used to produce the tone.

The bass drum part should correspond in beats to the piano's left hand part and the string bass part. If the piano and string bass play four beats, the bass drum should play four beats; if the piano and string bass play two, the bass drum plays two.

Drum parts are written in the bass clef. The bass drum is written in the first space; the snare drum is written in the third space. Cymbals and tom tom parts are written in the fourth space. The desired instrument should be indicated by writing in the score.

DRUMS (CONTINUED)

Two beat bass	Four beat bass	With Brushes	Tom-Tom	Cym.

CONCLUSIONS, OBSERVATIONS AND RECOMMENDATIONS

Conclusions

The results of this study indicate that a basic knowledge of theory can be developed by utilizing the method of dance orchestra arranging outlined in this paper.

Many specific learnings are developed and emphasized. The most prominent are:

1. The development of a knowledge of clefs (bass and treble)
2. The development of a knowledge of key signatures
3. The development of a knowledge of the names of the lines and spaces of the staves
4. The development of a knowledge of the structure of major scales
5. The development of a knowledge of notation and musical terms
6. The development of a knowledge of how to spell and write chords--major, minor, diminished, augmented plus their sixths, minor sevenths, ninths
7. The development of a knowledge of transposition
8. The development of a knowledge of instruments (ranges, keys, etc.)
9. The development of a knowledge of instrumental voicing
10. The development of an acquaintance with the piano keyboard

11. The development of a knowledge of manuscript writing

12. The development of the individuals on their instruments (technic, reading ability, etc.)

In addition to these specific learnings, a greater appreciation of music develops, not only in the field of dance music but in the general field of music.

Students develop an attitude of tolerance towards each other since each one's work must stand the criticism of the group.

Playing in a small group develops confidence in students to the degree that these students serve as a solid nucleus for the regular high school band. Because of the prominent place a dance orchestra holds in school activities, students participating are looked to for leadership. In addition, interest is stirred up among other students desirous of learning arranging and among those wishing to participate in one of a school's musical organizations.

The development of a school dance orchestra many times makes the citizens of a community more aware of the entire school music program. As a result, less trouble is encountered in selling music to the people.

Dance orchestra arranging serves not only as a means of teaching theory and improving musicianship, but also as an impetus in bringing music in contact with the people of an entire community in a meaningful form.

Observations

This method of teaching theory through the use of dance orchestra arranging does not contain all of the answers to questions that may arise. In such a project the teacher must be a guide, sharing his experiences and ideas with the students rather than setting hard and fast rules. When problems arise, the teacher should create devices on the level of student understanding to meet the situations. By all means, the student must feel that he is an important part of the work and free to think in cooperation with the other students and the teacher.

When a student hears an arrangement he has written, he feels the exultation and satisfaction of having created something which to him has worth. The actual performance serves as an indication of development and achievement, and at the same time challenges the student to surpass himself. With each arrangement, ability increases, thereby developing a more sensitive discrimination. As the ability level rises, so also does the student's musical equipment and experience.

Use of this method of teaching theory is limited in that it does not develop a traditional knowledge of theory. Rather, it develops a knowledge of elementary functional theory. The limitations of this method are apparent since further theory development must be acquired through a more traditional method. Therefore, the purpose of this method is to give an introduction to theory and its allied subjects based upon the interests of the student.

Recommendations

On the basis of the material presented and the conclusions reached in this study, the following recommendations are made:

1. Since this method of teaching theory is dependent upon popular music for its development, interest of the student is of prime importance. Because of this, this method of teaching theory is especially recommended for high school students as a means of developing a background, not only for future theory study, but as a generalized exploration of music. At the college level it would be of value to the music major, not as a pre-theory course, but as a concurrent elective to teach something of arranging. Also, for those students in college who are not music majors but are interested in music, this method would help them gain a greater knowledge and appreciation of music.

2. Traditional standards of achievement should be disregarded in evaluating learnings acquired by using this method since the emphasis is not upon traditional theory but upon developing a functional knowledge of theory.

3. No mention should be made of theory when using this method since its greatest motivating influence is that it is dance orchestra arranging and not theory.

4. As always, teach at the level of each student rather than force a class along at a uniform rate of progress.

5. Keep the terms simple, since technical terms so many times confuse the student.

6. Organize the class into small dance orchestras. Every arrangement written should be played. This will develop not only greater facility in playing instruments but also a keen discriminatory and evaluating power on the part of the students.

7. As problems arise, students should analyze their work by group discussion and then recommend suitable solutions.

8. Forced memorization has no place in this method. Instead of dwelling on the acquisition of specific facts, emphasis, instead, is placed upon an understanding of basic procedures and devices used in arranging by this method. Theory knowledge should be developed by practice in arranging and not by memorizing.

9. Experimentation and creative writing should be encouraged. The more brilliant student needs the added challenge of original work to retain his interest.

10. Let the community hear the arrangements written by students. Encourage the students by giving credit to the arranger.

TWO PART ARRANGEMENT

When writing out this type of an arrangement, write both the melody and harmony on double staves. Since the above is in concert key, transposition to the desired instruments is required. Then add the rhythm section and this arrangement is ready to play.

CONCERT

THREE PART ARRANGEMENT

Handwritten musical score for three parts (A, B, and C). The score is in 4/4 time and features a key signature of one flat (Bb). The first staff (treble clef) contains the melody with notes and rests. The second and third staves (bass clef) contain chords and accompaniment. Chords are labeled with letters in boxes: A, B, and C. Above the staves, various chord symbols are written, including F, Ct, F, Ct, F, F, Ct, F, D7, D7, G7, G7, G7, Bbm, Bbm, F, F, G7, and C7. The score includes a repeat sign at the end of the first system.

PIANO -- Melody and Chords

Handwritten musical score for the Piano part, showing the melody and chords. The score is in 4/4 time and features a key signature of one flat (Bb). The first staff (treble clef) contains the melody with notes and rests. The second and third staves (bass clef) contain chords and accompaniment. Chords are labeled with letters in boxes: A and B. Above the staves, various chord symbols are written, including F, Ct, Ct, F, F, Ct, F, D7, G7, G7, G7, -7, om, Bbm, F, F, G7, Eb, A7, A7, Eb7, A7, C7, F, Ct, F, Ct, G7, Bbm, F, G7, C7, F, and F. The score includes a repeat sign at the end of the second system.

DRUMS -- Rhythm: No part has been written. Use a two beat rhythm on the bass drum.

STRING BASS -- Rhythm

Musical notation for String Bass Rhythm, consisting of three staves. The first staff shows a rhythmic pattern of eighth and sixteenth notes. The second staff includes a boxed 'A' above a measure. The third staff includes a boxed 'B' above a measure and a first ending bracket over the final measures.

TRUMPET -- Melody

Musical notation for Trumpet Melody, consisting of three staves. The first staff shows a melodic line with a key signature of one sharp (F#) and a 4/4 time signature. The second staff includes a boxed 'A' above a measure. The third staff includes a boxed 'B' above a measure and first and second ending brackets over the final measures.

CLARINET -- Melody and Harmony

Musical notation for Clarinet Melody and Harmony, consisting of two staves. The top staff shows the melody with a key signature of one sharp (F#) and a 4/4 time signature. The bottom staff shows the harmony with a key signature of one sharp (F#) and a 4/4 time signature.

APPENDIX B (CONTINUED)

CLARINET (CONTINUED) (A)

59
40

Handwritten musical notation for Clarinet, first system. It consists of two staves. The upper staff contains a melody with notes and rests, including a measure with a fermata. The lower staff contains a harmonic accompaniment with notes and rests. There are some handwritten annotations like '40' and 'bc' near the notes.

Handwritten musical notation for Clarinet, second system. It consists of two staves. The upper staff contains a melody with notes and rests, including a measure with a fermata. The lower staff contains a harmonic accompaniment with notes and rests. There are some handwritten annotations like '40' and 'bc' near the notes.

TENOR SAXOPHONE -- Melody and Harmony

Handwritten musical notation for Tenor Saxophone, first system. It consists of two staves. The upper staff is labeled 'Melody' and the lower staff is labeled 'Harmony'. Both staves contain notes and rests. There are some handwritten annotations like '40' and 'bc' near the notes.

Handwritten musical notation for Tenor Saxophone, second system. It consists of two staves. The upper staff contains a melody with notes and rests, including a measure with a fermata. The lower staff contains a harmonic accompaniment with notes and rests. There are some handwritten annotations like '40' and 'bc' near the notes.

Handwritten musical notation for Tenor Saxophone, third system. It consists of two staves. The upper staff contains a melody with notes and rests, including a measure with a fermata. The lower staff contains a harmonic accompaniment with notes and rests. There are some handwritten annotations like '40' and 'bc' near the notes.

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