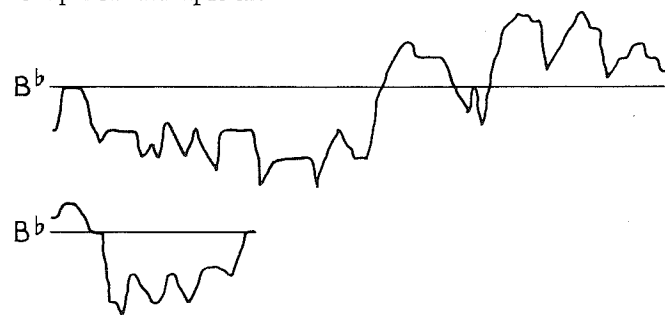


(i) Graph of Example 12



The foregoing comments summarize and the graphs illustrate characteristics of the examples and, indeed, of good melodies generally. It is admittedly easier to list the characteristics than to create melodies which embody them, because the quality of a melody is more dependent upon balance than upon the possession of specific features. Balance is essential between unity and variety, activity and repose, ascending and descending motion, conjunct and disjunct motion, cadences, and climaxes, but the perception of balance is subjective. Subjective judgments to have validity must be based on a foundation of thorough knowledge and broad experience. Instincts sharpened by analyzing and conceiving conventional melodies are readily adapted to evaluating and composing themes using expanded tonal resources and in more progressive idioms.

Suggested Assignments

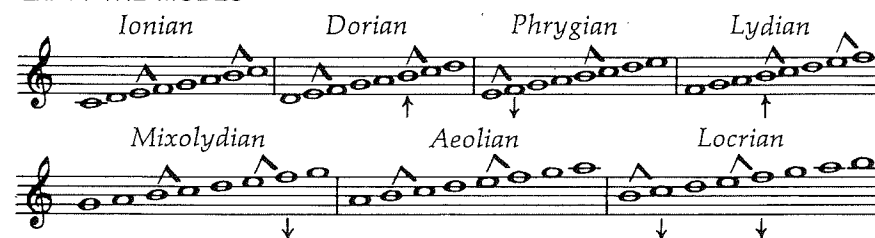
1. Analyze the melodic contour and internal organization of the themes from Prokofiev's *Classical Symphony*.
2. Examine early twentieth-century scores to find conventional melodies illustrating various contours. List the scores examined by composer and title. Copy the melodies and write brief analyses of their salient features.
3. Write original melodies in a traditional style, at first deliberately imitating the models. Later, concentrate on developing strength of thematic idea and effectiveness of presentation in a more personal manner.
4. Make contour graphs of the melodies written for Assignment 3 and check them for compliance with the principles outlined in this chapter. Revise the melodies as necessary to eliminate any flaws that are detected.
5. Read the chapters on melody in *The Shaping Forces in Music* by Ernst Toch (Wehman reprint).

Modal Melodic Resources

CONTEMPORARY musicians have not been concerned exclusively with blazing unexplored trails. They have also done extensive research on early music, much of which is based on a system of modal scales. It is not the historic uses of the modes that interest composers but rather their effectiveness in counteracting restrictive major-minor conditioning. The modal scales, neglected by composers for three centuries, provide a simple and logical extension of melodic resources.

Ignoring historical implications, the modal scales consist of seven tones with a different pattern of five whole steps and two half steps for each mode. All of the modes are produced by playing seven-tone scales on the white keys of the piano starting on successive notes. The names, of Greek origin, are given in Example 14, and the locations of the semitones are marked for ready comparison. The major and natural minor scales form part of the modal system as the Ionian and Aeolian modes. The other modes are like one or the other of these with one scale degree altered, except Locrian which has two. Notes which differ from major or minor are indicated by arrows pointing in the direction of the deviation.

Ex. 14 THE MODES



The arrangement of the whole steps and half steps in the modes is in every way just as natural as in major and minor, and the use of a mode as a source of material for a melody is just as valid. The modes are not to be considered as altered major or minor scales. However, ears saturated with major and minor music are apt to perceive them in terms of their deviation from the major-minor patterns, and this deviation then asserts itself as the distinctive feature of the mode. In preliminary work with the modes it is useful to keep this feature in mind and to exploit it consciously. The following table showing the deviation of each mode from major or natural minor is given for reference.

<i>Ionian</i>	like major
<i>Dorian</i>	like minor with the sixth degree raised
<i>Phrygian</i>	like minor with the second degree lowered
<i>Lydian</i>	like major with the fourth degree raised
<i>Mixolydian</i>	like major with the seventh degree lowered
<i>Aeolian</i>	like minor
<i>Locrian</i>	like minor with the second and fifth degrees lowered

It is emphasized that the modes were not derived from the major and minor scales, but students trained in traditional harmony usually find this association and the association of the untransposed modes with the white keys of the piano the easiest ways to recognize and remember them.

A distinction must be maintained between the characteristic notes of the modes and the occurrence of these same relationships as chromatic tones in tonal (i. e., major or minor) melodies. As chromatic notes they have an auxiliary function and a decided tendency to resolve in the direction of the alteration. By contrast, their function in the modes is basic, and they are free to progress either up or down by step or skip. They behave exactly like diatonic notes which, in the modes, they actually are.

The modes can be transposed to any pitch in the same manner as major and minor by using accidentals or the proper signature to produce the required pattern of whole steps and half steps. A formula for modal signatures can be derived from the relationship of the untransposed mode to C major. For example, the Dorian mode is like a major scale beginning on its second degree, or stated another way, the Dorian mode has the same signature as the major scale a major second below. Thus, the Dorian mode on G would have the same signature as the major scale a tone below, which is F with one flat. The Phrygian mode has the same signature as the major scale a major third below, so Phrygian on C-sharp would have the same signature as A major or three sharps. This process can be continued to determine the signature for any mode on any pitch. The fact that a mode has the same signature as some major scale must not be construed to constitute a relationship between them.

Essentially this same process will serve to determine the mode when the tonic and the signature are known. For example, if the tonic (the *final* in modal terminology) is A and the signature is four sharps, the mode would be Lydian since the signature is that of the major scale a perfect fourth below.

There is no uniform practice in the use of signatures for modal music. Some composers use the signature which produces the mode without the use of accidentals. Others use the major or minor signature which is closest to that of the mode and then add the necessary accidentals. This practice is usual when only part of the composition is modal. In many recent works there are no signatures, and accidentals are used as required. This practice has the same advantages and disadvantages in modal as in tonal writing. When there are frequent shifts in the key center, it avoids the problem of excessive cancellations, but sharps and flats must be indicated each time they occur.

The following melodies from the works of twentieth-century composers are written in a mode or show evidence of modal influence, though it is possible that the influence functioned on a subconscious level with no deliberate intent on the composer's part to utilize modal elements. The perception of tonal centers is somewhat subjective, so there are times when the tonal center and consequently the mode are open to more than one interpretation. In some cases, too, the accompanying parts suggest a center different from that of the melody. These facts, however, do not detract from the genuine contribution of modal concepts to the music of this century.

The F-sharp does not appear in the signature of Example 15, but it is used consistently. The cadences are on C and A alternately. The scale on C with F-sharp is Lydian, but Dorian on A emerges as the mode of this example and the movement from which it is taken.

Ex. 15 BARTOK: *Piano Sonatina* (1915) p5



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A more extended melody in D Dorian is given in Example 16. G-sharp occurs five times as a chromatic neighboring tone, but in each instance it resolves as such without disrupting the feeling for the mode. In contrast, the B-natural which is diatonic in the mode, though raised from the signature, more often than not resolves downward. The B-flat near the end of the melody suggests a change to the Aeolian mode, and the final E-flat results in a modulation.

Ex. 16 SIBELIUS: *Violin Concerto in Dm* (1903) p3

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The Phrygian mode with its center on G is illustrated in Example 17.

Ex. 17 VAUGHAN WILLIAMS: *Fantasia on a Theme by Tallis* (1910) p23

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The setting for Example 18 suggests D minor, but the melody considered by itself is a particularly clear and beautiful example of Phrygian on A.

Ex. 18 RAVEL: *String Quartet in F* (1903) p5

International Music Company

The distinction between major and Lydian is not always clear because of the frequent use of the raised fourth degree of the scale in major. Also, the use of the augmented fourth above the tonic, the characteristic note of the Lydian mode, tends to create the impression of a modulation to the dominant. Example 19 is an unambiguous Lydian melody on C, though for the first three measures the other parts imply Dorian on A. Writing a melody that suggests one mode and an accompaniment that suggests another seems to have been a device Ravel favored.

Ex. 19 RAVEL: *String Quartet in F* (1903) p30

International Music Company

F-sharp as a chromatic tone in C major has a definite tendency to resolve upward. Since the descending motion continues after the F-sharp in Example 20, the Lydian influence is apparent even though the next fragment suggests C major.

Ex. 20 HANSON: *Symphony No. 2 "Romantic"* (1930) p32

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The feature of the major scale which composers find most restricting is the tendency of the leading tone to resolve up to the tonic. This tendency is so strong that in many progressions no other voice leading is satisfactory. For this reason melodic lines and harmonic progressions involving the leading tone have been most subject to stereotyping. Finding an effective substitute for the clichés involving the leading tone is one of the most perplexing problems for composers breaking away from traditional formulas. One solution is to avoid the leading tone, and this is provided by the Mixolydian mode, which otherwise has all the characteristics of major. This accounts for the frequency with which Mixolydian is used and perhaps for the excellence of extended melodies conceived entirely in it. The next three examples are representative.

In spite of the key signature the mode of Example 21 is Mixolydian on D. The mode is pure except for the C-sharp in the thirty-second note run leading to the octave transposition in the second phrase.

Ex. 21 VAUGHAN WILLIAMS: *The Wasps Overture* (1909) p8

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In Britten's *Serenade for Tenor, Horn, and Strings* the *Prologue*, which is repeated as the *Epilogue*, is for unaccompanied French horn. It is played without using the valves, so the pitches deviate perceptibly from equal temperament. The complete notation is given in Example 22. It is in the Mixolydian mode on F throughout.

Ex. 22 BRITTEN: *Serenade—Prologue* (1943)

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Example 23 is another extended melody in pure Mixolydian, this one untransposed on G.

Ex. 23 COPLAND: *Violin Sonata* (1943) p17

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Because the melodic and harmonic forms of minor are used almost exclusively in traditional music, the natural minor or Aeolian has a relatively fresh sound even though it is studied along with major in common practice theory. Example 24, which is pure Aeolian on D, exhibits the special qualities of this mode in a line that would be impossibly distorted by the chromatic adjustments of melodic or harmonic minor.

Ex. 24 SHOSTAKOVICH: *Symphony No. 5* (1937) p109



The Locrian mode is rarely encountered in the music of any period. Some theorists recognize it in theory only and argue that it has no practical applications. Example 25 would appear to be an exception. Only one chromatic passing tone in the melody is not in the Locrian mode on B, and all of the notes of the scale are used except A. The missing A, however, is prominent in the accompaniment and seems to assert itself as the tonal center, making the mode Aeolian. The F-sharps that appear in four measures of the accompaniment can be attributed to Dorian influence. The notes of the cadence chord, B-D-F-A, suggest the Locrian mode, but the A is in the bass and it sounds like the tonal center. It is the possibility of multiple interpretations such as this that accounts for part of the subtle charm of modal melodies.

Ex. 25 KHACHATURIAN: *Violin Concerto* (1940) p24



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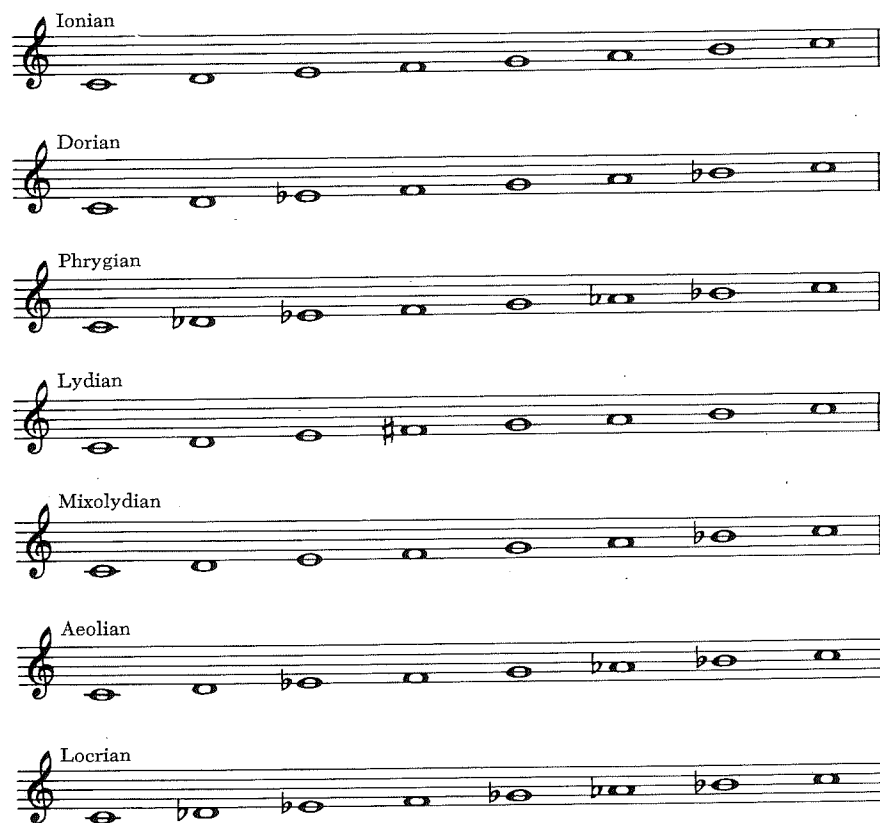
Academic distinctions are sometimes made between Ionian and major, but for purposes of composition and analysis they are identical. Since all of the major melodies in Chapter 2 can also be regarded as Ionian, no examples of Ionian are included here. Additional examples of melodies in the other modes can be found in the section on modal quality in Chapter 7.

The characteristic structure of each modal scale is responsible in part for the effectiveness of melodies based on it. This fact can be demonstrated impressively by playing the foregoing examples substituting notes of the

parallel major or minor scales for the distinctive notes of the modes. By such seemingly trivial corruptions some of the most impressive melodies can become commonplace, which is further evidence that regarding the modes as merely variants of more familiar scales is fallacious.

The modes put at the composer's disposal not only a variety of scale resources, but collectively they make all twelve pitches accessible without chromatic implications, as is demonstrated in Example 26 showing all of the modes starting on C.

Ex. 26 THE MODES STARTING ON C



Example 27 is a composite of the notes in Example 26 listing the modes in which each note occurs.

Ex. 27 COMPOSITE OF THE MODES STARTING ON C

Ionian	Phrygian	Ionian	Dorian	Ionian	Ionian
Dorian	Locrian	Dorian	Phrygian	Lydian	Dorian
Phrygian		Lydian	Aeolian	Mixolydian	Phrygian
Lydian		Mixolydian	Locrian		Mixolydian
Mixolydian		Aeolian			Aeolian
Aeolian					Locrian
Locrian					

Lydian	Locrian	Ionian	Phrygian	Dorian	Dorian	Ionian
		Dorian	Aeolian	Phrygian	Phrygian	Lydian
		Phrygian	Locrian	Lydian	Mixolydian	
		Lydian		Mixolydian	Aeolian	
		Mixolydian		Locrian		
		Aeolian				

Since the modes have much in common with major and minor and are a definite part of our musical heritage, they offer an ideal approach to expanding melodic resources beyond the arbitrary limitations of major and minor.

Suggested Assignments

- Write the proper signature for the following modes:
 - Dorian on E
 - Aeolian on F
 - Lydian on B-flat
- Name the mode when:
 - The signature is two sharps and the tonal center is A
 - The signature is four flats and the tonal center is C
 - The signature is one sharp and the tonal center is F-sharp
- Determine the tonal center and mode of the themes in Ravel's *String Quartet in F*. Observe the changes in recurrences of the themes.
- Locate additional twentieth-century melodies which exhibit modal influences.
- Write original melodies in each of the modes. At first use pure modes with a definite tonal center and exploit their characteristic features. Later apply modal concepts freely in spontaneous melodic invention.

Twentieth Century Melodic Practices

THE free transposition of either the major-minor or modal scales requires all twelve of the notes accommodated by conventional notation and playable on standard instruments. The twelve tones in an octave became practical when the principle of equal temperament was widely adopted more than two hundred years ago, but new ways of exploiting them are still being found.

Prior to 1900 the prevailing practice was to derive melodic materials from the seven tones of a definite key or mode and to use the remaining five notes incidentally for embellishment and variety. Modern practice is to utilize more fully the potential of the available pitches through greater freedom in linear organization, more varied scale resources, less restrictive concepts of tonality, and by responding to contemporary harmonic influences. These trends are examined in this chapter and illustrated with melodies from the literature. The features which distinguish twentieth-century melodic writing are not clearly delineated and used independently, but for purposes of study it simplifies the problem to consider them individually.

Nonvocal Melodic Lines

Vocal influences permeate the melodies of the classic and romantic periods, even in instrumental works. Singable melodies are the norm for these periods, and singableness is still cited on occasion as a factor in melodic value. This test is less applicable to the music of the baroque era and has very little validity for the music of the present. While many melodies can be sung with ease, other equally good melodies are decidedly nonvocal and unsingable.

One of the ways nonvocal characteristics are manifest is in the use of extended ranges. In view of the wide ranges practical on orchestral and keyboard instruments, it is remarkable that so many melodies written for them observe the limitations of the voice. The next three examples are among those that do not. The essential lyric quality of the violin and of many vocal melodies is preserved in Example 28 while covering a range in excess of two octaves within three measures.

Ex. 28 PROKOFIEV: *Violin Concerto No. 2 in Gm* (1935) p3



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The Example 29 melody ranges over the keyboard with wide leaps and octave transpositions without which its effect would be greatly diminished, as can be demonstrated by transposing the first two measures up an octave and the last two measures down an octave.

Ex. 29 COPLAND: *Piano Sonata* (1941) p3



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From the same work as the preceding example, Example 30 shows another procedure leading to extended melodic ranges. Here the extended range is the result of leaps which continue in the same direction instead of reversing in the traditional manner.

Ex. 30 COPLAND: *Piano Sonata* (1941) p19



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Leaps of more than an octave within a phrase are intrinsically nonvocal in style. Such leaps sometimes result from what appear to be octave transpositions of melodic fragments even though there are no repetitions at the octave. Example 31 is a melody of this type: (a) as Milhaud wrote it and (b) with fragments transposed an octave and wide leaps reduced correspondingly.

Ex. 31 MILHAUD: *Violin Concerto No. 2* (1948) p8

(a)



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(b)



It is not to be presumed that composers conceive melodies with conventional contours and then transpose segments of them, but this type of analysis reveals affinities between some angular twentieth-century mel-

odies and their smoother counterparts which otherwise might not be apparent. When the melodic segments in different octaves consist of only one or two notes as in Example 32, the angularity is extreme. The characteristic ninth interval, which results from an octave expansion of a second, occurs four times and is the interval spanned by the arpeggios in measures two and four.

Ex. 32 PROKOFIEV: *Symphony No. 5* (1944) p61



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The ultimate in octave expansion of intervals is illustrated in Example 33 where alternate notes are in different octaves. The consistent alternation of registers could lead to the perception of two melodic streams, one in the upper octave and the other in the lower, but this effect is minimized by the short duration of the low notes. Transposed up an octave, they would be simple chromatic neighboring tones.

Ex. 33 SCHOENBERG: *Three Piano Pieces, Op. 11 No. 1* (1910) p4



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Some melodies for voice are as unvocal in style as those for instruments. The Example 34 melody for soprano has wide and unusual intervals and an angular contour encompassing more than two octaves. It demands vocal capabilities that were considered impossible until a few decades ago and illustrates how the concept of vocal melody has changed in recent times. However, to sing such a complex melody accurately taxes the most competent professionals, a fact worth remembering when composing for less proficient singers.

Ex. 34 BERG: *Wozzeck—Act II Scene 1* (1921) p87



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Additional Scale Resources

The scales considered thus far have been limited to those consisting of seven notes comprising five tones and two semitones. Though these scale patterns dominated European music for several centuries, there is no justification for restricting melodic resources to them exclusively. Other scale patterns have always been favored by non-European cultures, and for some time now the trend in Western music has been to borrow scale resources from other musical traditions and to invent new ones. Tracing the origins and geographic distribution of the various scales is a fascinating study, but the primary concern of composers and performers is their utilization in living music.

Pentatonic (five-tone) scales are among the most ancient and universal. The most prevalent pentatonic scale has a pattern like a major scale with the third and seventh degrees omitted or like the black keys of the piano. Example 35 is a Debussy melody containing only sharp notes which can be played on the black piano keys.

Ex. 35 DEBUSSY: *Nocturnes—Nuages* (1899) p12

Un peu animé

Fl. *très expressif*

Scale

Any note in a pentatonic scale can serve as the center or tonic, and notes which are stressed or on which cadences occur tend to be heard as such. However, persons accustomed to the strong functional relationships in major and minor never have a comparable sense of tonality in pentatonic music due mainly to its lack of a leading tone. The scale of the preceding example is represented like C-sharp major with the E-sharp and B-sharp omitted, but the tonal center seems to shift from F-sharp at the beginning to G-sharp at the end. A change of center with the same collection of pitches means that there is a corresponding change in the scale pattern, that is, in the arrangement of the major seconds and minor thirds comprising the scale. The next two examples illustrate other pentatonic scale patterns, the first centering on D.

Ex. 36 RAVEL: *String Quartet in F* (1903) p37

Vif et agité

Vi. *p* *express.*

Scale

International Music Company

In the continuation of the preceding melody, B-flat is introduced in the next measure. Twelve measures later B-flat replaces A in the scale of the following pentatonic melody, which otherwise has the same pitch content. This melody revolves around C but cadences on B-flat. It is a cyclic return of a theme originally stated in the Phrygian mode (see Example 18).

Ex. 37 RAVEL: *String Quartet in F* (1903) p38

Vif et agité

Vi. *p*

Scale

International Music Company

Another pentatonic scale prevalent in Japanese music and frequently used to evoke an oriental atmosphere is produced by omitting the third and seventh degrees of a Phrygian scale. The same interval relationships are produced by omitting the second and fifth or sixth degrees of a major scale. Any number of five-tone scales can be devised simply by omitting different notes from the various seven-tone scales. In our musical tradition such scales are not used for extended passages, but Stravinsky often wrote fragmentary melodies using a limited number of notes. The five used in the following melody occur in both the Dorian and Aeolian modes on G.

Ex. 38 STRAVINSKY: *The Rite of Spring* (1913) p17

Tempo giusto

Fl. *p*

Hrn. *mp* *mais en dehors*

Scale

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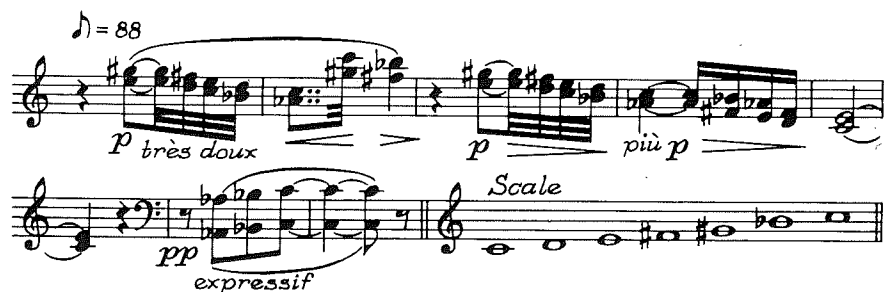
Example 39 shows a pronounced Phrygian influence, but with the fourth degree missing the remaining notes form identical three-note patterns separated by a major third.

Ex. 39 DEBUSSY: *String Quartet* (1893) p3



A six-tone scale more often associated with Debussy is the whole-tone scale. Whole-tone scales a semitone apart consist of mutually exclusive pitch collections, and one or the other of these collections will duplicate the notes of the whole-tone scale starting on any pitch. Since the potential of whole-tone scales is extremely limited both melodically and harmonically, they are more useful for isolated coloristic passages than as a basis for complete compositions. The source of Example 40 is exceptional. All of its pitches in all but six measures, which are black-key pentatonic, are derived from the whole-tone scale shown. Observe the enharmonic spellings.

Ex. 40 DEBUSSY: *Piano Preludes, Book I No. 2—Voiles* (1910)



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Ordinarily the equal intervals and the absence of a leading tone cause the feeling for tonality to be vague or nonexistent in whole-tone music, but Example 41 shows an incidental whole-tone influence in a strongly tonal work. F is the tonic throughout the melody, and the second phrase is in F major. The whole tones seem to have been derived from the first three notes of the ascending F major scale and the first three notes of the

descending F minor scale. This results in the mirroring of the two whole steps above F by two whole steps below.

Ex. 41 VAUGHAN WILLIAMS: *The Wasps Overture* (1909) p4



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Mirroring of scale degrees is carried further in Example 42 by Bartok. In the most conventional terms, the scale on which it is based is made up of the lower tetrachord of a major scale and the upper tetrachord of a natural or descending melodic minor scale. The scale material also may be analyzed as a mirroring of the first five notes of the major scale, with a tone-tone-semitone pattern both up and down from E. This analysis is supported by the mirror imitation between the two hands.

1:16 - Took 4

Ex. 42 BARTOK: *Mikrokosmos, No. 29—Imitation Reflected* (1926-37)



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Whatever the derivation of the preceding scale, it affords note combinations not available in major, minor, or any mode. Infinite variety is possible in constructing scales of this sort. For lack of a better and generally accepted designation, such scales will be called *synthetic scales*. Bartok was ingenious in the derivation and use of synthetic scales. Some of his unconventional scale materials seem to have been purely contrived, while others stem from non-Western musical traditions. Synthetic scale structures underlie several pieces in his *Mikrokosmos*. Because of their simplicity they provide an excellent introduction to the device.

In Example 43 unconventional key signatures, different in each hand, produce a synthetic scale. In the piece only those notes shown on the top staff and their octaves are played by the right hand, and only those notes shown on the bottom staff and their octaves are played by the left hand. C is the tonal center. The mirroring of intervals is apparent with the scale notes arranged on the staff as they are in the example and as they occur in the piece. The mirroring, unlike that in the two preceding examples, starts on different notes.

Ex. 43 BARTOK: *Mikrokosmos*, No. 99—*Crossed Hands* (1926–37)



The key signature of *Mikrokosmos* No. 41 is one sharp on C, and its tonal center is G. The scale on which it is based combines features of two modes—the augmented fourth of Lydian with the minor seventh of Mixolydian.

Ex. 44 BARTOK: *Mikrokosmos*, No. 41—*Melody with Accompaniment* (1926–37)



No signature is used in the source of Example 45. The scale is made up of two major pentachords a tritone apart. The compass extends beyond an octave, which is possible in synthetic scales when different inflections of notes are used in the second octave. It is also possible to use different inflections of a note in the same octave, like the C-natural and the C-sharp. Since each pentachord appears in a different hand, this piece could be perceived as being in two keys simultaneously. Consideration of this possibility is postponed until Chapter 8.



Ex. 45 BARTOK: *Mikrokosmos*, No. 86—*Two Major Pentachords* (1926–37)



Example 46 shows another synthetic scale resulting from the combination of two key signatures. The signatures themselves are not as unconventional as they appear to be. The E-flat and A-flat which normally precede D-flat in the signature could as well be added to the top part, but they would be meaningless since those notes do not occur in the piece. One sharp on F is not an unusual signature, but it appears unusual when it is placed in the first space. Bartok places the sharp where it occurs in the melody rather than on the fifth line, but the effect is the same. E is the tonal center of the piece. It begins on E and ends on the tritone E, B-flat. The scale consists of alternating whole and half steps up from the tonic. Placing the D-natural below the keynote of the scale, where it occurs in the second violin part, produces an eight-tone scale from D-natural to D-flat with the second note as the keynote. The practice of starting a scale on a note other than the keynote has historical precedent in the plagal forms of the modes.

Ex. 46 BARTOK: 44 Violin Duets, No. 11—Cradle Song (1931)



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Unconventional and double key signatures are useful in devising and notating new scale resources, but they are a hazard for performers who must resist years of conditioning when they encounter a new arrangement of sharps or flats in a signature. They are not too disturbing in scores, but it is generally inadvisable to use them in performance parts, especially when rehearsal time is limited. Preferable procedures are to use no key signature or to use the conventional signature that most closely approximates the synthetic scale and to add accidentals and cancellations as required. The end result is the same, and maximum efficiency in learning the work and performing it accurately are assured.

The recommended procedure is illustrated in Benjamin Britten's *Dirge*, which is based on a synthetic scale. The tonal center is G, and the key signature is that of G minor. A-flat is used consistently, and it could be added to the signature without violating the normal order or arrangement of the flats. However, Britten chooses to indicate it each time with an accidental. The C-sharp in the melody is a chromatic neighboring tone and the D-flat a chromatic changing tone. Omitting them, the scale is like harmonic minor with a lowered second degree or like the Phrygian mode with a raised seventh degree.

Ex. 47 BRITTEN: *Serenade—Dirge* (1943) p18



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In the source of Example 48 Griffes follows the same procedure as Britten, using the signature of B minor for a melody with B as its tonal center. The scale, with its two augmented seconds, is synthetic as far as the major-minor and modal systems are concerned, but it occurs with sufficient frequency to have a common designation—that of *gypsy scale*. Though not included in our basic scale systems, it is used extensively in other parts of the world. It effectively invokes the oriental atmosphere of the Coleridge poem which inspired the music.

Ex. 48 GRIFFES: *The Pleasure Dome of Kubla Khan* (1919) p16

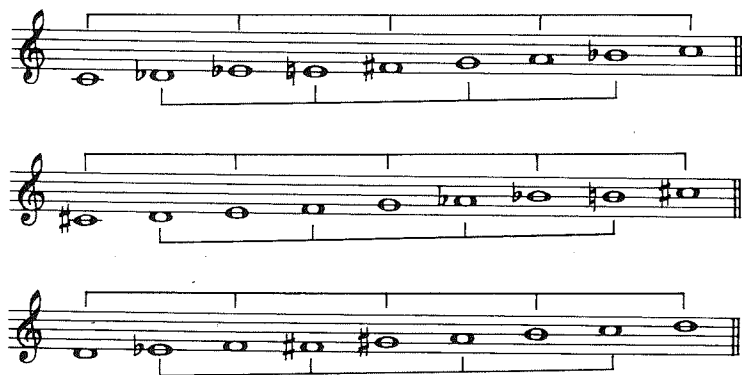


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An eight-tone scale in which half steps and whole steps alternate figures prominently in the music of Stravinsky (see Arthur Berger, "Problems of Pitch Organization in Stravinsky," *Perspectives of New Music* 2/1, 1963). This *octatonic* scale, to use Berger's terminology, is produced by combining the pitches of any two diminished seventh chords, as shown. Since the scale contains four identical three-note patterns, different

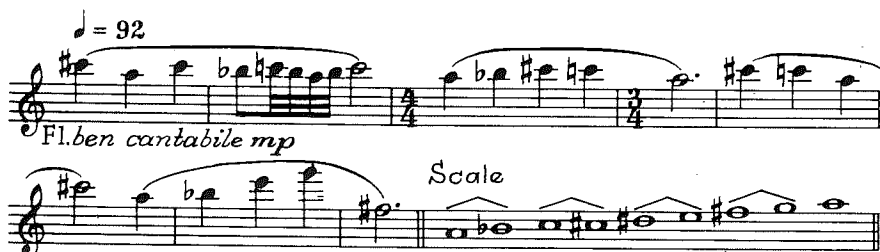
itches can be perceived as the tonal center, but only three transpositions are possible. An octatonic scale starting on any note will duplicate the pitch content of one of the scales shown in Example 49.

Ex. 49 OCTATONIC SCALES



The octatonic scale has many fascinating possibilities for both melodic and harmonic constructions. The theme for the variations in Stravinsky's *Octet* is derived from the octatonic scale on A.

Ex. 50 STRAVINSKY: *Octet* (1923) p12



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In *The Technique of My Musical Language* Olivier Messiaen describes and illustrates his "theory of the modes of limited transpositions," which includes the octatonic scale as mode 2. Messiaen's modes are not to be confused with any other uses of the term. His modes, derived from the

twelve pitches of the tempered system, are formed by combining two or more symmetrical groups with the last note of each group coinciding with the first note of the next. The construction of the modes is such that after a limited number of transpositions—two to six—any further transposition produces a duplicate pitch content. The first mode is identical with the whole-tone scale, for which two transpositions are possible. Three transpositions of the second mode, like the octatonic scale, are possible before the pitch content is repeated. Beginning this mode on its second degree reverses the order of the whole steps and half steps but does not alter the pitch content. The remaining modes of limited transposition are shown starting on C, which Messiaen designates as the first transposition. There are four transpositions of mode 3 and six transpositions of modes 4–7.

Ex. 51 MESSIAEN: *Modes of Limited Transpositions*



Extract from *The Technique of My Musical Language* by Olivier Messiaen. Copyright by Alphonse Leduc & Cie, Paris, Owners and Publishers.

The pitches of mode 3 in its first transposition are used exclusively in the following melody for violin, and in its piano accompaniment in the complete version.

Ex. 52 MESSIAEN: *Theme and Variations* (1932)



Extract from *Theme and Variations* by Olivier Messiaen. Copyright by Alphonse Leduc & Cie, Paris, Owners and Publishers.

This consideration of additional scale resources is by no means exhaustive. It merely indicates some of the new scales that have been used, hints at the manner in which they may have been conceived, and points the way for the creation of additional scale patterns. This technique is valuable, because music based on a selective scale, even a synthetic one, is generally more homogeneous and comprehensible than music lacking such a foundation.

Expanded Tonality

Restrictions resulting from selective scale concepts have diminished continuously during the course of Western music history. By the end of the romantic era chromatic tones were employed to such an extent they rivaled the tones of the scale in importance and frequency of use, though selective scales and tonality had not yet been abandoned. Increased chromaticism coupled with free and frequent modulation led to a greatly expanded concept of tonality. Carried to its logical conclusion, chromaticism leads to an all-inclusive scale of twelve tones with equal status known as a *duodecuple* scale. This designation is more appropriate than chromatic scale even though the notes are the same, because it does not carry with it connotations of altered or secondary tones. The duodecuple scale provides maximum freedom in melodic invention, but the unifying force of selective scales and tonality are lost in the bargain. This poses a problem

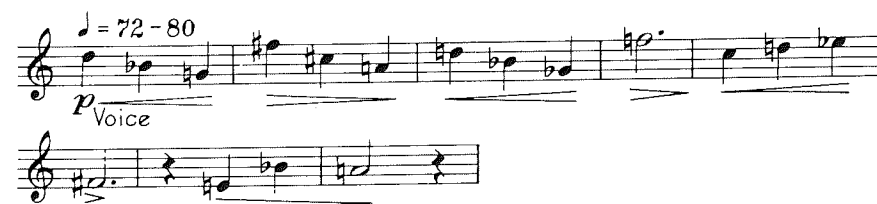
that has been attacked by contemporary composers in three basic ways.

The first way is simply to deny the importance of tonality—to renounce it as a desirable quality. Music with no tonal center is called *atonal*. Composers of atonal music enjoy the advantages of unlimited freedom, but uninitiated listeners find it difficult to comprehend and appreciate.

The tendency to perceive as a tonic any tone which appears at strategic points such as cadences or is used more frequently than the others is innate or at least strongly conditioned. Therefore, atonality does not occur spontaneously but must be cultivated, and free (i.e., nonserial) atonality is relatively rare. When tonality and selective scale foundations are missing, conceiving infectious melodies is more difficult, but the point at which tonality ceases to function is largely subjective. Some musicians will detect a tonal center in almost any combination of pitches, while others perceive tonality only when definite tonal relationships are established. The former would find evidence to suggest a tonal center, perhaps F, in Example 34, but the latter would probably regard it as atonal.

Example 53 approaches atonality, but it is basically simple. This sort of melody, though lacking strong tonal orientation, has no insurmountable obstacles to comprehension. The triads outlined in the melodic contour provide a link with tradition and previous experience.

Ex. 53 BERG: *Wozzeck*—Act I Scene 3 (1914–21) p45



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Though free atonality is possible, atonal music more often is based on a *note series* or *tone row* which provides both a systematic way of achieving atonality and a unifying device to take the place of tonality. *Twelve-tone* or *serial* music, as music based on a series or row is called, represents the second twentieth-century approach to musical organization. This approach is considered separately in Chapter 14.

The third approach has no common name, but it is abundantly represented in early and conservative twentieth-century compositions. In this approach tonality is a significant factor, but the concept of tonality differs

from that of previous periods in that no hierarchy is recognized among the twelve tones with the single exception of the tonic. The traditional functions of the keynote are preserved, but the other eleven tones are equal, free, and independent of each other. This concept will be called *free tonality*.

There is no clear line of demarcation between free tonality and late nineteenth-century ultrachromaticism. Example 54 might be considered a borderline case. In this example all twelve notes are used, and little preference is shown for those that belong to the key, F minor. Statistically there are eighteen occurrences of the five notes out of the key and twenty-nine occurrences of the seven notes in the key. The proportions approximate those anticipated with the complete acceptance of the free tonality concept. On the other hand, a large percentage of the notes out of the key are chromatic passing tones. Only the G-flats of measures 1 and 5 and the E-naturals of measures 4 and 7 do not resolve by half step. Even these eventually arrive at their normal resolution, the G-flat with one note intervening, the E-natural with seven. The voice leading is more representative of the nineteenth century than of the twentieth century.

Ex. 54 SHOSTAKOVICH: *Symphony No. 1* (1925) p4



A more typical use of free tonality is evident in Example 55. The tonal center of F-sharp is established by the ascending fourth at the beginning and the clear cadence on that note at the end. In between, all twelve notes are used with equal freedom and independence. The conventional tendency for notes to resolve in the direction of their alteration is noticeably absent. This is to be expected, since in free tonality and the duodecuple scale there are, strictly speaking, no altered tones. In this respect the necessity of using accidentals to indicate certain pitches is misleading as

they lack the conventional connotation of being raised or lowered from the basic scale. In this example the incidence of the various tones is particularly even. F-sharp and D-sharp occur most frequently—six times each, and F-natural and B-natural least—twice each. Exploiting the full duodecuple scale, Hindemith executes unusually effective approaches to the climax and the cadence.

Ex. 55 HINDEMITH: *Symphony in E-flat* (1940) p10



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Melodies of this sort admittedly are more difficult to sing and remember than those in a strong conventional tonality, but once heard and learned they are equally powerful and logical. Moreover, in this style the risk of being trite and resorting to clichés is greatly reduced. This tune achieves to a high degree a sense of inevitability. Each note creates the impression of being in its proper place and indispensable, infinitely desirable characteristics in melodies of all periods and styles.

Example 56 is another illustrating the concept of free tonality. Though very different in contour from Example 55, their tonal aspects are remarkably similar with all twelve tones having equal freedom and importance in both.

Ex. 56 HINDEMITH: *Symphony in E-flat* (1940) p33



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In the duodecuple scale equally tempered tuning is taken for granted, and the enharmonic spellings of notes are interchangeable. Accepted practice is to use the spelling which facilitates reading and playing, a practice Hindemith follows consistently.

Serial and nonserial atonality and free tonality are different approaches to tonal organization with the same purpose—that of exploiting the full potential of the duodecuple scale. Each in its own way occupies a significant place in contemporary music. Though there were sporadic experiments using resources beyond those of the duodecuple scale before the advent of electronic music, they exerted no real influence on the main-streams of melodic invention. Scales with more than twelve tones to the octave and with intervals smaller than semitones are considered in Chapter 16.

Contemporary Harmonic Influence

Just as melodies of previous centuries often outlined triads and seventh chords, melodies of this century often outline contemporary harmonic structures. The influence is less obvious when the harmonies are more complex, and the trend recently has been away from melodic lines of harmonic derivation. A few melodies embodying elements of unconventional chord structures will suffice to illustrate the phenomenon.

Example 57 is one of many instances in the *Scherzo* of Bartok's *Fifth String Quartet* where the melody outlines a ninth chord.

Ex. 57 BARTOK: *String Quartet No. 5* (1934) p40



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Example 58 begins with an arpeggiation of a thirteenth chord on F. In this form the harmonic influence is apparent. The thirteenth chord, however, encompasses all the notes of C major. If the notes were arranged along scale line instead of along chord line, the harmonic implication would be missing. This possibility is most apparent in thirteenth chords, but it exists in all the more complex sonorities.

Ex. 58 BRITTEN: *Peter Grimes—Interlude I* (1945) p27



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Fourths, except as they resulted from inverting fifths, were dormant as harmonic ingredients from the time of organum to the present century, when the use of chords built in fourths became common practice. The fourth chord influence on the next melody, in which most of the intervals are perfect fourths, is obvious.

Ex. 59 BARTOK: *Concerto for Orchestra* (1943) p1



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Example 60 has augmented and diminished as well as perfect fourths in its melodic line.

Ex. 60 BARBER: *Violin Concerto* (1941) p7



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When a contemporary harmonic idiom is adopted, it is almost certain to influence the melodic writing. Such influence is both natural and desirable within limits, but interest diminishes when outlines of the prevailing sonorities are too apparent in the melodic lines. The most effective contours result when chord lines are combined with the stepwise motion of scales and nonharmonic tones.

Melodic Doubling

The doubling of melodic lines at the octave, third, and sixth is a venerable practice. To these intervals contemporary composers have added melodic doublings at other intervals and by complete chords. Doublings at conventional diatonic intervals are too common to require comment. Only doublings which color and reinforce melodic lines in less usual ways are illustrated.

The *Gioco delle coppie* movement of Bartok's *Concerto for Orchestra* is a virtual catalog of melodic doublings. It starts, after a brief introduction on the side drum, with two bassoons playing the melody in sixths. The consistent doubling at the minor sixth, broken only once in this excerpt, produces cross (false) relations that are a characteristic feature of the passage. Examples 61–65 demonstrate that the effect of a melodic doubling is enhanced when the interval qualities deviate from those of the diatonic scale.

Ex. 61 BARTOK: *Concerto for Orchestra* (1943) p29



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Immediately after the bassoon passage in sixths comes a section for oboes in thirds, with the minor quality predominating.

Ex. 62 BARTOK: *Concerto for Orchestra* (1943) p30



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Unlike Examples 61 and 62, which are unconventional only in their emphasis on equal rather than diatonic intervals, Example 63 from the same work features doubling at a dissonant interval, the minor seventh. In any doubling at a uniform interval the two lines imply different keys.

Ex. 63 BARTOK: *Concerto for Orchestra* (1943) p30



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Parallel perfect fifths, strictly forbidden by conventional rules, continue uninterrupted throughout the passage from which Example 64 is taken.

Ex. 64 BARTOK: *Concerto for Orchestra* (1943) p32



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The last in this series of melodic doublings at various intervals is consecutive major seconds played by two trumpets. One not familiar with the passage might expect a dissonant effect, but the muted trumpets playing softly as they do in Example 65 produce a distinctive tone coloring which is not at all dissonant in the usual sense.

Ex. 65 BARTOK: *Concerto for Orchestra* (1943) p34



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The movement from which the preceding examples were taken concludes with all five pairs of instruments playing their characteristic interval simultaneously in a D7 chord. Listening to a performance or a recording will bring these examples to life and vividly demonstrate the possibilities for contemporary melodic doubling.

Melodic doubling is not limited to single intervals. In Orff's *Catulli Carmina* the following theme is stated in parallel triads.

Ex. 66 ORFF: *Catulli Carmina* (1943) p51



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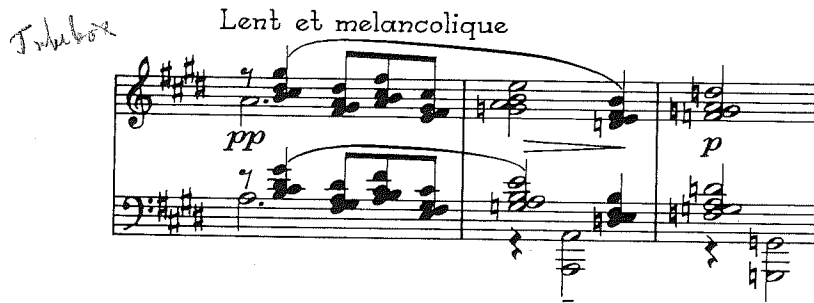
A still more elaborate melodic doubling occurs in *The Rite of Spring*. The melody in octaves is paralleled by diatonic fifths and sixths above, thirds and fourths below.

Ex. 67 STRAVINSKY: *The Rite of Spring* (1913) p39



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An extended melodic line in parallel ninth chords would surely be monotonous, but sonorities with ninth chord implications double melodic fragments in Example 68 with good effect. The structure of these chords is obscured by their spacing, but they can be analyzed (ignoring the pedal A's) as ninth chords with the third omitted. In each instance the three adjacent tones are the seventh, root, and ninth, and the highest tone in each hand is the fifth.



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Melodic doubling is a special effect used sparingly by composers to color and reinforce lines. The foregoing examples show typical applications of the device in isolated passages from larger works where it is appropriate and useful.

Suggested Assignments

1. Illustrate each distinctive twentieth-century melodic practice cited in the text with a melody copied from a contemporary composition. Other themes from the sources of the examples in the chapter may be used.
2. Write idiomatic melodies for various instruments exploiting some of the possibilities suggested in the section on nonvocal melodic lines.
3. Make a table of Messiaen's modes of limited transpositions showing each of the seven modes starting on C and on ascending semitones until the pitch content of the first transposition is repeated.
4. Analyze a passage from a Messiaen work to determine whether or not its pitches are derived from one of the modes of limited transpositions. Identify by number any modes that are detected.
5. Write melodies using scale patterns from the examples. Invent additional scales and compose melodies using them.
6. Write melodies exploiting the principles of free tonality. In these melodies pay particular attention to contour, organization, and to the element of unity which otherwise may be lacking.
7. Write melodic lines influenced by contemporary harmonic structures.
8. Listen to a recording of the second movement (*Gioco delle coppie*) from Bartok's *Concerto for Orchestra*. Analyze the intervals between parts involved in melodic doublings by ear or from the score.
9. Devise effective doublings for original or borrowed melodies. Original melodies may be drawn from previous assignments.
10. Read "Sketch of a New Esthetic of Music" by Ferruccio Busoni in *Three Classics in the Aesthetic of Music* (Dover Publications, 1962) or in *Contemporary Composers on Contemporary Music* edited by Elliott Schwartz and Barney Childs (Holt, Rinehart and Winston, 1967).

Rhythm and Meter

THROUGHOUT this century rhythm has been less restricted and more varied than in any prior period or style since time signatures and bar lines came into general use. These conventions of notation and the constant metric accent patterns associated with them severely inhibited rhythmic flexibility in the past. On a larger dimension the four-measure phrases which became standard were also an inhibiting factor. Though time signatures, bar lines, metric accents, and four-measure phrases are still used, their tyranny over rhythmic organization was broken early in the century by composers revolting against arbitrary restrictions and seeking means to express innovative rhythmic ideas. They devised many ways of circumventing the limitations implicit in our notational system and explored many fresh approaches to the organization of time and durations in music. Complete rhythmic freedom is now taken for granted. Cataloging all of the new devices is not feasible, but a survey of the more fruitful trends will suffice as an introduction to twentieth-century rhythm.

Nonmetric Rhythms

Proportional notation

Traditionally, music is written in a constant meter specified by a time signature. Bar lines define metric units, and beats immediately following bar lines are accented. Music theory also establishes a hierarchy of secondary accents and unaccented beats. Generations of composers wrote music applying these principles; performers are still taught to observe them; and listeners are expected to perceive them. A wealth of music has been composed embodying these rhythmic concepts, but their limitations are obvious.

*Pyramid Song
Radio Head*