

Chapter

9

KEY WORDS

consonance/consonant
dissonance/dissonant
drone
interval
key
tonality/tonal
triad

Learning Objectives

After successfully completing this unit, the student will understand that:

1. Harmony involves the concepts of consonance-tone combinations which sound pleasing or restful and dissonance-tone combinations which sound edgy or restless. Most people hear intervals in which the tones have simple vibrational relationships as being consonant.
2. In the West, explicit harmonic practices developed from medieval organum through the increasingly triadic harmonies of the Renaissance, to the tonal system of the Baroque Era. The tonal system remains the most commonly used harmonic system, and it has spread throughout the world.
3. Harmonic systems which are not influenced by Western practices still tend to favor intervals with simple vibrational relationships. However, in some traditions people savor the sound of harmonies which sound dissonant to most outsiders.

Television Program

Harmony

Audio Selections

- | | |
|--|---|
| 44. "The Green Fields of Canada" (excerpt), melody alone and with drone. | 47. "Benedicamus Domino" (melismatic organum, c. 1175). |
| 45. "Benedicamus Domino" (parallel organum) | 48. "Dominator Domine." |
| 46. "Benedicamus Domino" (melismatic organum, c.1125). | 49. "Super Flumine Babilonis." |
| | 50. "The Green Fields of Canada." |
| | 51. "Chemutemgure." |

Harmony

*“Music creates order out of chaos:
for rhythm imposes unanimity upon
the divergent, melody imposes continuity
upon the disjointed,
and harmony imposes compatibility upon
the incongruous.”*

YEHUDI MENUH

This chapter provides an introduction to the basic features of the Western harmonic system, and chronicles its development from the European church music of the Middle Ages. It also describes the usages of Western harmony in non-classical musics such as folk and jazz. Harmony's natural basis in the overtone series can be heard in both Western and non-Western traditions, such as that of the Central African mbira. But some traditions run counter to this tendency, cultivating harmonies which would sound dissonant to outsiders.

People in many parts of the world enjoy hearing and producing musical harmony. The combined sound of congenial tones makes melodies more colorful and meaningful, and adds momentum to rhythmic patterns. Producing music together in harmony, people enact a powerful social ideal, blending their voices and actions in an engaging embodiment of social accord, agreement, or *consonance*. Some people have a knack for improvising harmony in group singing; but even those who can't make up a harmony can determine whether or not someone else's harmony sounds right to them. Some musical genres, which differ substantially in other factors, are quite similar in their judgments of harmonic consonance. But these perceptual agreements can change when cultural factors come into play, and some people relish harmonies that sound all wrong to others.

Harmony is defined as the simultaneous sounding of two or more pitches, and it is directly related to texture. It can refer to the simultaneous combinations of tones generated by polyphony, or to the chords or drone accompanying a melody in a homophonic texture. By separating out harmony as a distinct subject, we are, in effect, refocusing our lens to look at music in a different way. For example, when we focus on the overall texture of polyphony, we are looking at the interplay of simultaneous melodies; when we focus on harmony, we are picking out the individual *intervals*—the various combinations of tones—which are created, moment by moment, by this melodic interplay. Generally, a consonant interval is one which sounds pleasant, involving compatible tones. A *dissonant* interval sounds edgy, or restless: listeners may find it unpleasant, wanting it to change, or resolve, to a consonant one.

Why is there so much agreement around the world about what kinds of intervals are consonant or dissonant? The answer may lie in the overtone series, which also directly affects musical timbre. Regardless of a sound's pitch and timbre, the overtone series itself always has the same basic structure. The overtones vibrate in specific mathematical relationships to the fundamental pitch—1:2, 2:3, 3:4, 4:5, and so on. The lowest ratios in this series produce the intervals, which are perceived almost universally as consonances: octaves, fifths, fourths, and thirds. Higher ratios produce intervals which are usually considered dissonances: seconds, sevenths, and tritones (see Appendix 2).

Cultural Tuning. In actual practice, these intervals are tuned many different ways in various cultures. Relatively few musical tuning systems involve the exact mathematical relationships found in the overtone series. For example, a carefully-tuned Javanese gamelan or African mbira may produce thirds and fifths which sound out of tune to a Western musician.

But Western tuning systems may sound just as disagreeable to a non-Western musician. These preferences are culturally constructed; they are not based on objective mathematical facts. Still, the general relationships between the fundamental overtone ratios and the perception of consonant intervals—however they may be locally tuned—suggests a possible reason for the preference for octaves, fifths, fourths, and thirds in so much of the world's music.

Harmonic Vocabulary. Although harmonic practices can be found in many parts of the world, only in the West have musicians developed a vocabulary for describing them in analytic terms. Western composers have worked with explicit harmonic concepts and practices for more than a millennium, developing a detailed theoretical system. Since other cultures do not have such specific ways of describing their harmonic usages, the Western system will provide the terms and concepts for our investigation of the world of harmony. But there is no reason to assume that Europeans in the Christian Era were the first people to discover the appeal of producing music in simultaneous intervals; such practices could be as old as music itself.

DRONES

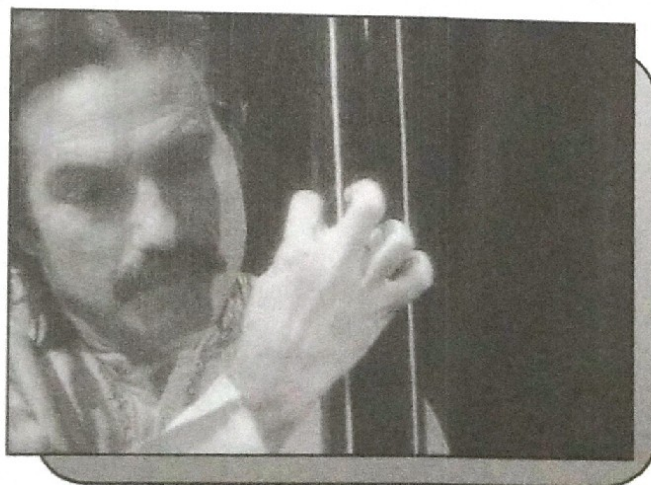
One type of harmonic practice found in many parts of the world is the use of a *drone*: one or more constant, unchanging pitches providing a backdrop accompaniment for melodies and rhythms. A drone can be a long unchanging tone, like the drone of a bagpipe, or it can be rhythmically articulated: for example, in some folk song traditions in Eastern Europe one singer sings a melody with words, while another sings the same words to a constant drone pitch. Another kind of articulated drone involves the rhythmic reiteration of one note—often on a stringed instrument—to support a melody with both a harmonic and a rhythmic basis.

Tanpura. In some traditions a drone is considered an essential part of the music. For example, in North Indian classical music the drone instrument *tanpura* sounds the primary note of the raga (sa) as well as a secondary note (ma or pa). All of the musicians, including the tabla player, tune their own pitches very carefully to the drone. With melody instruments and voices, this involves concentration on the fine-tuning of subtle microtones—intervals even smaller than half-steps.



Demonstrates the difference between the sound of an Irish melody played alone and with a drone. Notice how the presence of the drone creates a sense of tension and resolution in the musical phrase, as some melody notes sound dissonant with it while others have a consonant sound.

▼ The Tanpura

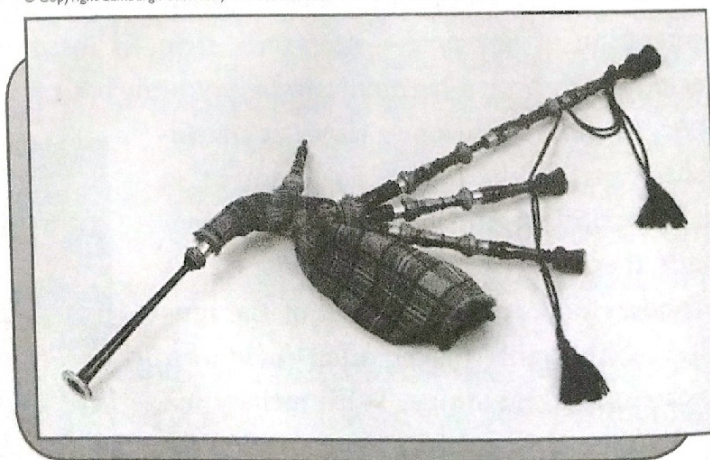


The tanpura provides a constant drone as the player plucks each of the four strings in order over and over again. Their gently buzzing sounds, caused by the open strings vibrating against cotton threads placed on a sloping bridge, spill over each other in an ever-shifting web of consonant sound. For some, this drone has a spiritual significance, representing the pulsing but essentially balanced and unchanging flow of the universe. Plucked instruments like the sarod and sitar often provide a drone as well; each has a special set of drone strings tuned to the tanpura, and the player strums rhythmic accents while playing melodic compositions or improvisations on the melody strings.

Other traditions place great importance on the presence of a drone, though it may not be accorded the same kind of significance as that of the tanpura. Scottish Highland bagpipers, for example, would never perform without sounding their drone pipes. But in some traditions a drone may be considered optional. For example, a performance of traditional Irish music will only include a constant drone if an uilleann piper is present. Further, this type of bagpipe includes a stop key which enables the piper to turn off the drones at will and perform on just the chanter, the melody pipe.

A drone may be considered a comparatively simple form of harmony, since it does not change in pitch. But the combination of a melody with a drone causes a succession of harmonic tensions and resolutions, a concept which is the basis of any harmonic system. As we will see, the earliest codified harmonic practices of Europe involved slowing down old plain-

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▲ The Scottish Highland Bagpipe

chant melodies and ornamenting them with quicker melodic figurations which emphasized consonance—in effect, turning the chants into slowly changing drones and decorating them with melodic ornamentations. It is likely that the medieval church musicians had heard drones before, and were adapting a common usage to a new purpose. We will now turn our attention to the story of the growth of this harmonic tradition, a story which begins in medieval Europe.

THE DEVELOPMENT OF WESTERN CLASSICAL HARMONY

The Middle Ages

Chanting in voices blending happily together, they sang, “Blessed is he who cometh in the name of the Lord.” And we in our humble way, relying on the unquestioned authority of the men of old, observe the same practice with due solemnity: on the holy festival of Palm Sunday we divide into two groups, singing with melodious voices and crying our “Hosanna” with two bodies of singers, in joyful and triumphant melody. Aldhelm, Bishop of Sherborne [640–709].¹

Does this seventh-century passage describe a harmonic practice? We don’t know for sure: the writer may simply have been describing antiphonal singing—the two groups alternately singing the same chant, perhaps overlapping at times—rather than a conscious harmonic “blending” of different tones. No one knows how long Europeans sang in harmony before they started to leave unambiguous evidence of it. A passage from the ninth century seems to provide more solid documentation:

When one hears two strings at once, and one of them sounds a low note and the other a high one, and the two sounds are mixed in one sweet sound, as if the two voices had blended into one, then they are making what one calls a consonance. Regino of Prüm [d. 915].²

It is possible that this writer was merely describing octave doubling, but if so, one might ask why he felt it necessary to define consonance. As in many other cultures, the consonance of the octave might have been so obvious that no one needed to point it out. A twelfth-century passage is more decisive, clearly distinguishing practices observed in Wales and Britain from other group singing styles.

When [the Welsh] make music together, they sing their tunes not in unison, as is done elsewhere, but in parts with many simultaneous modes and phrases. Therefore, in a group of singers (which one very often meets within Wales) you will hear as many melodies as there are people, and a distinct variety of parts; yet, they all accord in one consonant and properly constituted composition. In the northern districts of Britain, beyond the Humber and round about York, the inhabitants use a similar kind of singing in harmony, but in only two different parts, one singing quietly in a low register, and the other soothing and charming the ear above. This specialty of this race is no product of trained musicians, but was acquired through long-standing popular practices. Giraldus Cambrensis, *Descripto Cambriae* [1198].³

Notice that these harmonic traditions were oral ones; notational conventions and theoretical models came later, as ways of describing and codifying what some musicians were already doing by ear. As far as we know, the first explicit theoretical system of harmony involved adding a new decorative layer to the singing of the old plainchant melodies of the Christian Church: a development which was called *organum*.

Organum (c. 900–1200)

Consonance is the judicious and harmonious mixture of two tones, which exists only if two tones, produced from different sources, meet in one joint sound, as happens when a boy's voice and a man's voice sing the same thing, or in that which they commonly call organum. Hucbald [c. 840–c. 930].⁴



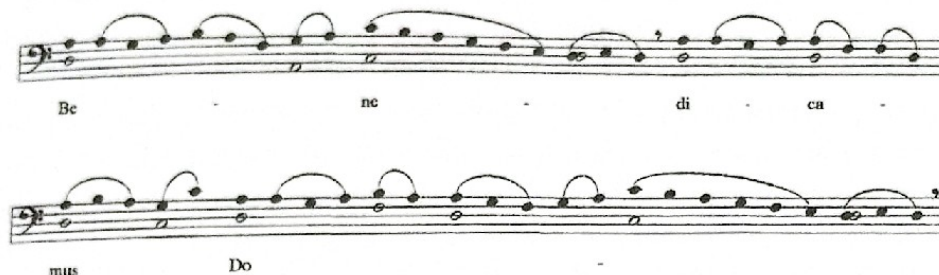
A fifth doubling of the plainchant excerpt heard in **audio #36**.

In the above passage, the writer was distinguishing between two kinds of consonance in medieval church music: that of singing in octaves, “when a boy’s voice and a man’s voice sing the same thing,” and that of singing in other intervals, a practice which, by the tenth century was known as *organum*. Organum began as a simple doubling of plainchant at the interval of a fifth or fourth above or below the melody. There was no need to notate or think in any detailed way about this practice: one simply sang the same melody, starting at a different pitch. The result was an enrichment of the overall sound of the chant, not the addition of a separate melody.

Rooted in this practice, some chanters improvised more complex variations using a practice called *melisma*—singing several pitches on one syllable. They started by singing a fifth or fourth above or below the melody, but then moved to other acceptable intervals—fifths, fourths, octaves, and unisons—on various succeeding chanting tones, filling in some connect-

ing or ornamental melodic figures along the way. This may be considered the beginning of European religious polyphony, music in which two or more melodies are combined simultaneously, later known as *counterpoint*.

Example 1: Two-Voice Organum, c. 1125



Example 1 is most likely a written-out improvisation from around 1125, showing one way of producing a two-voice organum which involves more than a simple parallel doubling. This is an ornamentation of the plainchant excerpt given in Chapter 8.

Example 2: Two-Voice Organum, c. 1175 (Notre Dame)



Example 2, a later example of two-voice organum (c. 1175) shows a more ornate treatment of the same plainchant. Given the complexity of this style of elaboration, scholars believe that it is not a written-out improvisation but a fully composed embellishment of the chant. The upper voice accompanies the first four chanting tones with a fifth, octave, unison, and fifth, respectively; but it fills in these intervals with so much



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Performances of Examples
1 and 2.

ornamental detail in the form of little melodic and rhythmic sequences that the basic chant must be sung very slowly. This style of organum was developed at the Cathedral of Notre Dame in Paris, and is associated with a composer named Leonin—one of the first European composers whose name has been preserved.

It is no accident that the development of organum in religious music came at the same time that the visual artists of the church started to explore depth and perspective. Just as these painters and sculptors were pursuing a more vivid portrayal of holy figures, the church musicians were becoming interested in a more nuanced performance of sacred chant. The human figure was still central visually, as the basic chant was musically, but certain aesthetic qualities were beginning to be considered appropriate for holy images and rituals.

As these trends continued to develop, the next few centuries saw deepening depictions of human experiences and emotions by visual artists like Giotto and writers such as Chaucer and Dante. The expressive capabilities of harmony were broadened as well, as composers developed ways to combine more than two tones at a time. Although the word was not in use at the time, composers were beginning to use *triads*: three-note chords which combined the consonant intervals of the third and the fifth.

Early Triadic Harmony (c. 1200–1400)

Master Leoninus [Leonin] was generally known as the best composer of organum, who made the great book *Magnus Liber* of organa for Mass and Office for the enhancement of the Divine Service. This book was in use until the time of the great Perotinus [Perotin], who shortened it and substituted a great many better *clausulae*, because he was the best composer of discant and better than Leoninus. Moreover, this same Master Perotinus wrote excellent compositions for four voices . . . replete with artful musical turns and figures, as well as a considerable number of very famous pieces for three voices. . . . The book, or rather books, of Master Perotinus have remained in use in the Choir of the Church of Our Blessed Virgin in Paris [i.e., Notre Dame] until the present day. *Anonymous IV* [c. 1272].⁵

As thirteenth-century composers became interested in composing for more than two voices or parts, they started to make more use of a richer concordant sound: a fifth could be subdivided with a third, producing a pleasing three-note consonance which was later called a *triad*. The two most common triads take their names from their lower thirds: a major

triad has a major third—an interval comprising four half steps—on the bottom, and a minor triad has a minor third, comprising three half steps, on the bottom. Both of these triads involve a subdivided perfect fifth, so all their intervals are consonant, and they sound harmonically stable to Western ears. Triads with more complicated vibrational relationships, like the “diminished” and “augmented” triads, are considered restless and dissonant in the West (see Appendix 2).

Though they did not articulate the concept of triads in theoretical language, thirteenth-century composers began to use them in their music as ways of preserving an overall harmonious sound while interweaving more than one melody in addition to the basic plainchant, called the *tenor* when used in this way. Such religious compositions became known as *motets*.

Example 3: Motet, c. 1225; Asterisks Show Occurrences of Triads

Example 3 is a motet from Notre Dame, probably from around 1225, in the style of Perotin. Triads appear in this piece, though not very often, and almost never on a strong beat.

This kind of piece required a more detailed level of craft, as composers sought to construct individual melodies (referred to as *contratenor*,



A performance of a Motet from Notre Dame, c. 1225.

triplum, and *motetus*, in the quotation below) which were both pleasing in themselves and concordant in their combination. Also, a regular rhythmic pulse was necessary to keep all the melodies together, and this pulse was organized into “rhythmic modes,” somewhat similar to the more modern concept of meter. A late fourteenth-century musician described the compositional process in craftsman-like terms:

First take for your tenor any antiphon or repository or any other chant from the book of Office chants; and its words should accord with the theme or occasion for which the motet is being made. And then take the tenor and arrange it and put it in rhythm according to what will be revealed below about perfect and imperfect mode: perfect mode is when there are three beats per note of the tenor and imperfect mode is when there are two. And when the tenor is well laid out, if you wish to make a motet in four parts, your next step is to arrange a contratenor and put it in rhythm over the tenor.

And when this is done, take the tenor again, and the contratenor if you are composing in four parts, and arrange a third part, the *triplum*, over them, so that it concords well with the tenor and contratenor. And if all of the above is to work in the best way possible, then divide the tenor into two segments, or four, or as many as you like; and complete one section over the tenor according to the above rules, and each part should be shaped in this way, from first to last. And this is what is known as setting out a motet. Aegidius of Murino, *Tractatus cantus mensurabilis* [c. 1400].⁶

This writer’s pragmatic demeanor is particularly striking when he describes the final step, matching the desired text to the music. “Sometimes it will be necessary to stretch many notes over a few words in order to make the setting come out right,” he advises, “and sometimes many words must be squeezed into a small amount of time. Just fit it together any way you can.”

But this routine approach was not the only one. Composers like Guillaume de Machaut (d. 1377) and Francesco Landini (c. 1325–1397) reveled in the wealth of possibilities suggested by the new harmonic practices. Their works demonstrate some of the most agile and creative minds in the history of Western composition, as they experimented with new sounds and new ideas. In this time of burgeoning creativity, the austerity of the medieval period was giving way to an increasing involvement with emotion and passion, and European artists in all fields were finding new and richer ways to express the world of human feeling.

The Renaissance (c. 1400–1600)

This growing concern with human experiences fed into cultural developments which were so far-reaching that many of the people involved felt that a turning point had been reached. Inspired by the humanism of the Greek and Roman classics—compared to the severity of the medieval emphasis on contemplation of the divine—many artists and thinkers declared a rebirth (renaissance) of cultural values. These values were both intellectual and aesthetic, and were seen as restoring the importance of human thought and feeling to their rightful places in social life.

Academies were founded for study and discussion of the classics and contemporary issues, and changing attitudes towards the arts created an atmosphere in which music, visual art, and literature expanded and flourished. An account of the dedication of the Cathedral of Santa Maria del Fiore in Florence on Annunciation Day in 1436 provided a vivid picture of the importance and value of music in the early Renaissance:

First there was a great line of trumpeters, lutenists, and flutists, each carrying his instrument, trumpet, lute, flute, in his hands, and each dressed in red clothing. Meanwhile, everywhere there was singing with so many and such various voices, such harmonies exalted even to heaven, that truly it was to the listener like angelic and divine melodies; the voices filled the listeners' ears with such a wondrous sweetness that they seemed to become stupefied, almost as men were fabled to become upon hearing the singing of the sirens.

I could believe without impiety that even in heaven, yearly on this most solemn day that marks the beginning of human salvation, the angels sing thus, the more ardently to give themselves up to the celebration of this festive day with sweet singing. And then, when they made their customary pauses in singing, so joyous and sweet was the reverberation that mental stupor, now claimed by the cessation of those sweet symphonies, seemed as if to regather strength from the wonderful sounds.

But at the Elevation of the Most Sacred Host, the whole space of the church was filled with such choruses of harmony and such a concord of diverse instruments that it seemed (not without reason) as though the symphonies and songs of the angels and of divine Paradise had been sent forth from the heavens to whisper in our ears an unbelievable celestial sweetness. Wherefore at that moment I was so possessed by ecstasy that I seemed to enjoy the life of the Blessed here on earth; whether it happened so to others present I know not, but concerning myself I can bear witness. Giannozzo Manetti.⁷

The music for the moment of Elevation at this event was probably Guillaume Dufay's motet "Nuper rosarum flores," which was composed for the occasion. Dufay (c. 1400–1474) and Josquin Desprez (c. 1440–1521) were two of the most accomplished and creative composers of the early Renaissance, and they were decisive in developing and establishing its harmonic innovations. Particularly in Josquin's music, four-voice harmony was refined into a system which provided the foundation of Western harmony writing for at least five centuries.

This system enabled composers to place increased emphasis on triads. The thirteenth-century three-voice motet we have seen used triads, but they were by no means prevalent; to some extent they were even just conveniences to smooth out the upper voice lines, rather than specifically sought-after sounds. The four-voice style perfected by Josquin afforded much more opportunity to subdivide fifths with thirds while maintaining smooth melodic lines, creating a rich triadic sound which, he felt, lent itself to deeper representations of emotional states. And with four voices, a composer could double what was later called the *root*—the bottom note of the triad—to create a feeling of harmonic "rootedness" and strength.

Another practice which reinforced the triadic sound was the abandonment of parallel octaves, unisons, and fifths—the very practice which enhanced the feeling of a central melody in organum. Now all of the melodic lines were truly equal, and colorful harmonies could paint sonic pictures of human experiences. Musical qualities could support the emotions evoked by the words being sung, in stark contrast to the attitude toward texts expressed by Aegidius.

Reformation. The second half of the Renaissance saw waves of religious change which influenced harmonic practices. Fueled by humanism and the widespread abuses of power in the Catholic church, the Reformation spread across Europe, splintering Christianity into factions. Reformers like Martin Luther (1483–1546) believed in supplanting the authority of Rome and allowing all people to participate in worship by holding services in their own languages.

Similarly, Luther believed in congregational singing, empowering non-specialists to glorify God through music. For his hymns, or *chorales*, Luther borrowed folk tunes and composed new ones in a similar style, harmonizing them in four-voice settings which could be sung by everyone. Though he admired the works of Josquin and Dufay, he was convinced that egalitarian participation in sacred music addressed a higher religious goal. Other reformers, such as John Calvin (1509–1564), believed that even simplified harmonic practices evinced vanity and secularism, and promoted the practice of congregational singing in plain, unharmonized clarity.

Counter-Reformation. Responding to the Reformation, the Catholic church moved to clean up internal corruption, enforce piety, and simplify musical practices. The Counter-Reformation eschewed flamboyant polyphonies and harmonies, encouraging religious ardor rather than aesthetic display. “The whole plan of singing in musical modes should be constituted not to give empty pleasure to the ear,” declared a Catholic decree in 1562, “but in such a way that the words may be clearly understood by all, and thus the hearts of listeners be drawn to the desire of heavenly harmonies, in the contemplation of the joys of the blessed.”⁸

Avoiding the severity of the Reformation’s musical goals but adopting some of its moderating convictions, the Counter-Reformation supported composers whose music was considered both refined and inspiring, including Giovanni Gabrielli (c.1533–1585) and Giovanni Pierluigi da Palestrina (c. 1525–1594).

Example 4 shows a psalm setting from 1580. This composition demonstrates four-part triadic harmony writing in an elegant style which was considered well-suited to such musical and religious values.

Many composers at this time worked with a variety of secular forms as well, including the *madrigal* and the older *chanson* (originally a secular version of the religious motet), and many dance and functional genres. In both sacred and secular musics of the later Renaissance, judicious use of dissonance became an important expressive device. But dissonance was still subordinate to consonance, and rules for the proper usage of dissonances—including the ways they must be prepared and resolved—were codified. A passage from a 1558 treatise describes this approach:

As I have said, every composition, counterpoint, or harmony is composed primarily of consonances. Nevertheless, for greater beauty and charm dissonances are used, incidentally and secondarily. Although these dissonances are not pleasing in isolation, when they are properly placed according to the precepts given, the ear not only endures them but derives pleasure and delight from them. They are of double utility to the musician. The first has been mentioned: with their aid we may pass from one consonance to another. The second is that a dissonance causes the consonance that follows it to sound more agreeable. The ear then grasps and appreciates the consonance with greater pleasure, just as light is more delightful to the sight after darkness, and the taste of sweets more delicious after something bitter. . .

Though I have said that in composing we use consonances primarily, and dissonances incidentally, it must not be thought that these dis-



A performance of a Setting of Psalm 137 by Mikotaj Gomółka.

Example 4: Setting of Psalm 137 by Mikotaj Gomółka, 1580

sonances can be placed in counterpoints or compositions without rule or order, as is sometimes done, for confusion would result. Care should be taken to use them in an orderly, regular fashion, so that all may turn out well. Gioseffo Zarlino [1517–1590] in *Institutioni harmoniche*.⁹

By the time this treatise was written, usages of consonance and dissonance and conventions of part writing had been firmly established. Although a comprehensive theoretical language had not yet crystallized, a

basic harmonic system was solidly in place—one which would be used in manifold forms and genres for centuries. But as we will see, new developments continued to enrich harmonic practices, as composers strove to depict human emotions and experiences ever more vividly.

The Baroque Era (c.1600–1750)

From *Atlas To Freeman's Historical Geography*, Third Edition, edited by J. B. Bury (Longmans Green and Co., 1903)



The beginning of the Baroque Era in music was marked by the development of what some musicians called the “second practice,” as differentiated from the “first practice” of the Renaissance. Throughout European culture, the importance of human feeling in the arts was continuing to increase: authors like Miguel de Cervantes and William Shakespeare were delving ever deeper into the intricacies of the emotions, and painters like Michelangelo da Caravaggio and Peter Paul Rubens were producing sensuous and dramatic works, full of color and movement. Similarly, the second practice in music was an advancement of expression over mere decorousness, an exaltation of spirit over formality. For some, the ultimate musical embodiment of these goals was opera, a new theatrical form involving dramatic tales staged in musical settings.

Opera. Of course, the second practice had its detractors. “Would you know what an Opera is?” wrote a French courtier to the English Duke of Buckingham. “It is an *odd medley of poetry and music, wherein the poet*

and musician, equally confined one by the other, take a world of pains to compose a wretched performance" (Seigneur de Saint-Évremond [c. 1610–1703], quoted in Hayward, ed. 1930:206; emphasis original). In 1600, a conservative Italian musician published an attack on the harmonic innovations of Claudio Monteverdi, who is now considered the first outstanding composer of opera and early Baroque music:

Such composers, in my opinion, have nothing but smoke in their heads if they are so impressed with themselves as to think they can corrupt, abolish, and ruin at will the good old rules handed down from days of old by so many theorists and excellent musicians, who are the very ones from which these modern musicians have learned awkwardly to put a few notes together. . .

Of course I recognize that new discoveries are not only a good thing but a necessary one. But first tell me why you want such clashes as they have written? If you would answer, "I wish them to be heard clearly, but not so as to offend the ear," then why not prepare them in the conventional way, as reason dictates? Now, even if you want dissonances to become consonances, they will always remain the opposite of consonant; they are naturally always dissonant and can become consonant, therefore, only if consonances become dissonances . . .

Compositions like these, then, are the product of ignorance. For such composers it is enough to set up a great roar of sound, an absurd confusion, an array of defects, and it all comes from the ignorance which keeps them benighted. Giovanni Maria Artusi.¹⁰

Monteverdi's response to Artusi—discreetly issued under the name of his brother—provides an elegant exposition of the intentions of the second practice:

My brother says that his works are not composed at random, for, in this kind of music, it is his goal to make the words the mistress of the harmony and not its servant, and it is from this point of view that his work should be judged. But in the event Artusi takes a few details, or, as he calls them "passages" from my brother's madrigals, without any regard for the words, which he ignores as if they had nothing to do with the music. By judging these passages without their words, my brother's opponent implies that all merit and beauty lie in following exactly the rules of the First Practice, in which the harmony is mistress of the words. . .

"Second Practice". . . is that style which is chiefly concerned with the perfection of the setting; that is, in which harmony does not

rule but is ruled, and where the words are mistress of the harmony. This is why my brother calls it "second" rather than "new," and "practice" rather than "theory," for its understanding is to be sought in the process of actual composition."

One of the chief harmonic innovations ascribed to Monteverdi is the use of certain dissonant chords which are now called *seventh chords*. A triad—a fifth subdivided by a third—can also be seen as two simultaneous thirds, the top note of one providing the bottom note of another. Adding another third to the top of the triad produces a seventh chord, a four-note chord consisting of three simultaneous thirds, the top note of the chord a seventh above the bottom one.

This seventh is a dissonant interval, and previously it was subject to careful regulation: it had to be both approached and resolved by stepwise melodic motion. In fact, in the past the seventh chord had not been considered a chord at all, but merely a dissonant intermediary between one triad and another. Monteverdi pioneered the use of this chord as a powerful expressive device, underscoring moments of strong emotion in the words of his madrigals, operas, and even religious works. His new usage soon became standard: although the seventh was still considered a dissonance which must resolve in a prescribed way, downward stepwise into the next chord, this chord became an important aesthetic tool for Western composers.

Continuo and Figured Bass. A key feature of opera is the *aria*, a solo song in which a character expresses an emotional state. The solo voice must be clearly heard, so the words can be understood. A rich accompaniment with several melodic lines would undermine this imperative, and partly as a response to this situation a practice arose of writing just two parts: the vocal melody and a bass line. But these composers were not interested in a simple two-voice texture, which would have sounded too austere and old-fashioned to them. Instead, the bass line was meant to be played as a *continuo*, with improvised chords provided by a chordal instrument, such as a lute or harpsichord. Such instruments could provide both the bass line and the chords, or the bass line could be played separately, often on a low instrument like the bass viol, the predecessor of the modern cello.

To insure that the improvised chords would fit with both the melody and the bass line, the continuo parts included "figures," numbers which showed what intervals should be played above each bass note. Although musicians at the time would not have described the practice in this way,

the figures showed what triads the improviser should use at each point in the accompaniment.

Figured bass writing was by no means limited to vocal music. The idea of a basic two-voice texture filled in with continuo improvisation became one of the most important models of the Baroque era. Many instrumental pieces were written just as a melody with a figured bass, and the listener's ear was drawn to an appreciation of how these two voices interacted, accompanied by a continuo improviser. Even pieces written for orchestra were usually supported in performance by a continuo player, whether or not the composer specifically indicated one. The practice of improvising accompaniments by reading figured bass lines became widespread among the players of chordal instruments, a necessary skill for both careerists and amateurs.

Understanding Baroque Harmony. Around the beginning of the Baroque era, the concept of *tonality* began to supplant the older concept of mode. In various usages the term mode had referred to rhythmic or melodic practices; tonality was a concept that specifically referred to harmonic practices. Like most theoretical concepts in music, it did not arise as an abstract idea, but as a way of understanding and codifying existing musical practices.

Tonality involves the idea that a given piece of music exists in a major or minor *key*, a specific harmonic world which contextualizes individual chords and melodies. So, for example, if a piece is in the key of C major, then the pitch C is the fundamental, or *tonic* pitch—the appropriate pitch to end a melody on with a satisfying feeling of resolution and repose. Similarly, the C major triad is the tonic (or I) chord—the triad which imparts the strongest feeling of rest at the end of the piece. Other notes and triads fall into place around the tonic. For example, the triad a fifth above the tonic is known as the *dominant* (or V), and is considered to exert a strong pull toward the tonic. In this manner, a key becomes a system of harmonic tension and release, ebb and flow, lending a richer level of drama to the “story” told by a melody (see Appendix 2).

Through the end of the nineteenth century, all Western composers used this basic harmonic system. To be sure, there were many additions to it, but the core principles remained intact; for the most part, composers of the Classical and Romantic eras were involved with other kinds of innovation. In the early twentieth century some composers began to feel that the old harmonic system had run its course and was no longer sufficient to their needs.

Some sought to modernize the system by replacing its rules with a new approach to concepts like “key,” while others developed “atonality” and other systems and practices intended to replace the tonal system. Although some Western classical composers consider such developments inevitable, others continue to derive fresh ideas and sounds from elements of the tonal system. And as we will see, Western classical composers are by no means the only musicians who are doing this.

OTHER APPLICATIONS OF WESTERN HARMONY

Early Folk Music

We cannot assume that the learned church and court composers of Europe were the first people to discover triads. Since they were the first to develop sufficiently detailed notations, their usages are the earliest for which we have concrete evidence. But while nothing proves conclusively that early folk musicians made use of triads, nothing proves that they did not.

The twelfth-century description of Welsh folk singing quoted earlier demonstrates that a multitude of improvised vocal parts sounded concordant to the writer; this may well indicate the use of triads, though they were not identified as such. With their simple vibrational relationships, the intervals of triads tend to sound agreeable to most people, so there is further reason to suppose that an imaginative musician or group might discover this pleasing sound without exposure to the musical practices of elite institutions. Particularly in vocal music, intuitive harmonic practices may have developed long before such usages were notated.

Instruments afforded further opportunities to enhance monophony. Harps, lutes, guitars, and other multi-stringed instruments could be played both melodically and chordally; anyone who could afford or could build such instruments could produce harmonic accompaniments to songs and dance tunes. Such practices seem to have developed early on in the oral traditions of Mediterranean countries. In several parts of Europe, “ground basses,” melodic phrases which were repeated over and over again as a bass line, served as the foundation for many early folk and popular melodies;



▲ Irish Uilleann pipes and fiddle

for example, the medieval song “Greensleeves” is a melody set to an older ground bass sometimes known as “Romanesca.” But in general, folk and popular musicians have tended to start with a melody or song, working out harmonic accompaniments which fit concordantly with the notes of the tune.

Although few rural or street musicians would have had the chance to hear religious and court music in the medieval period, succeeding eras brought more interaction between institutional and vernacular cultural forms. There can be no doubt that some cross-pollination occurred between folk and court musics in the Renaissance. We have early notations of folk tunes which were played for courtly dances and entertainments, and it is just as possible that melodies and practices from the court found their way into oral traditions. And as public performance became increasingly important for classical music in the eighteenth and nineteenth centuries, the harmonic practices of composers became accessible to a broader range of the populace. Melodies from operas became standard fare for some folk and popular musicians, who included chordal accompaniments whenever possible.



You hear the judicious use of regulators—following a rendition accompanied only by a drone—in a performance of an Irish slow air.

In the nineteenth century, melodeons and accordions spread throughout Europe. These portable organs could provide chordal music as well as producing melodies, and their loud, full tone made them ideal for outdoor and large-group occasions. In Ireland, “regulators” were added to the uilleann pipes: keyed drone pipes which lay across the piper’s lap and sound only when one of their keys is struck, usually by the player’s wrist. The keys are arranged so that with one broad wrist stroke a piper may strike the keys of more than one regulator to sound a triad—or the keys may be struck separately.

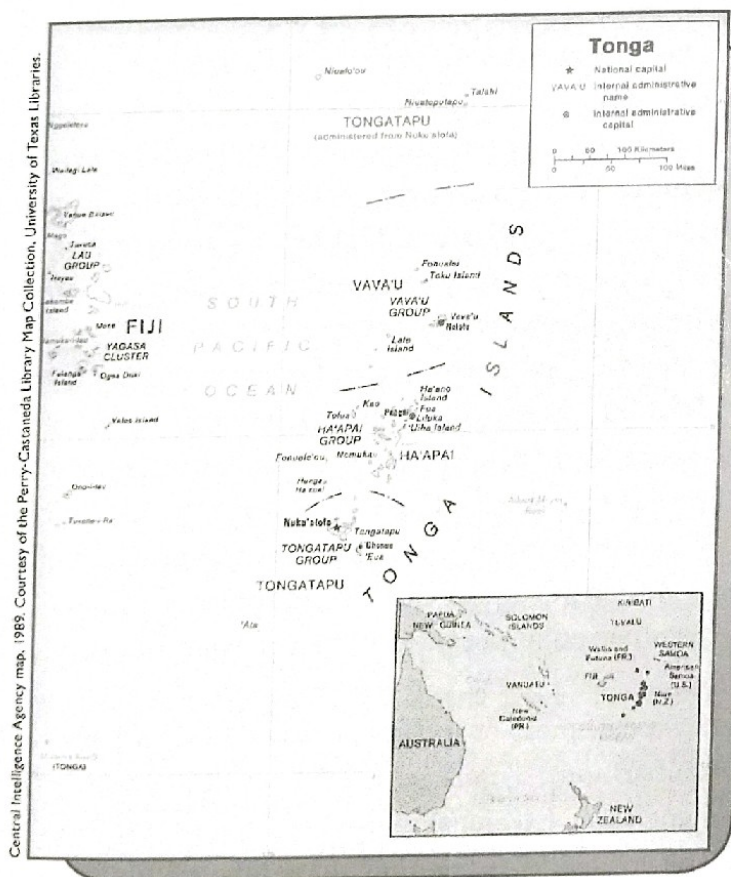
Western Folk and Popular Music

Today Western folk and popular performers have access to a wide variety of chordal instruments, from pianos to synthesizers and samplers. While they seldom make use of all of the harmonic practices of Baroque composers, many players of these instruments work with basic concepts of Western harmony: they use numerals or letter names to refer to chords in a given key, they match their chords to accented melody notes, and generate bass lines which fit harmonically with both the melody and chords. Sometimes groups even work out counter-melodies which interweave harmonically with the main melody, following the same basic rules for usages of consonance and dissonance which were developed in the Renaissance.

Early Western Influences Abroad

In some parts of the world people were exposed to Western harmony through hymns taught by missionaries. Traditions of Western-influenced harmony singing are found throughout Africa and in much of Polynesia, sometimes as adaptations of older practices. Adrienne Kaeppler described a Tongan example of such acculturation:

Melodic rendering of poetry was often done polyphonically in two main parts—*fasi*, or melody, and a *laulalo*, a drone—both sung by men. Up to four additional parts decorated the *fasi*. These were two women's parts described as high and low contralto, and two men's parts sung above and below the *fasi*. Today, much of this polyphony has been replaced by Western harmony, in which a more melodic bass has replaced the drone and a soprano *fasi*, usually an octave above the men's *fasi*, has been added.¹²



European practices have also been spread through less well-meaning endeavors. The early *conquistadors* and Spanish colonists, for example, brought European musical instruments and usages to many parts of the New World. In what is now generally known as Latin America, a vast ar-

ray of musical genres arose evincing a blending of European harmony, Native American practices, and the polyrhythmic musics of the Africans who were enslaved by the colonists. Some of the modern-day descendants of this blending—such as salsa and reggae—have gained wide international audiences, influencing other popular musics around the world.

African American

In the slavery era, some African Americans merged indigenous African harmonic practices with European ones. By the 1920s, when African American musics were first recorded, distinct harmonic hybrids had already developed in blues, religious music, and the music which would later be called jazz. At that time, African-American musics involved even more use of seventh chords than the popular musics of Europeans and European Americans, particularly in vocal melodies.

Later blues musicians essentially worked with the same harmonic traditions, but jazz musicians developed more and more complex usages. Seventh chords became the rule rather than triads, and more thirds were added to the top of seventh chords, creating ninth and even eleventh chords. While classical composers also used such chords for certain effects, jazz musicians employed them as part of a standard harmonic language for both composition and improvisation. Unlike folk and popular musicians, who started with a given melody and worked out appropriate-sounding harmonies, jazz musicians worked most intensely with chord progressions themselves, as the basis for composing and improvising.

Popular Music. Meanwhile, the fundamental sound of blues harmonic practices was feeding into the development of popular forms like rhythm & blues and rock & roll. Often with sevenths added, blues cycles of I, IV, and V chords became the harmonic basis of much of American popular music. As recordings of this music spread across the globe, the sound of Western harmony began to influence young musicians in many diverse cultures.

Around the world, most of today's popular music attests to the influence of Western harmony. Triads generally prevail in group arrangements and the dominant-tonic relationship can be heard almost everywhere. The emergence of new musical forms that share a harmonic basis is a unifying factor. Whether the collective genre is known as "zouk," "afropop," or "world beat," the harmonic sound is familiar to the ears of all listeners. This is not to say that ethnic identities and musical creativity have disappeared—indeed, popular musics are sometimes powerful vehicles for

such concerns. Indigenous instruments, languages, and musics have been combined in ingenious ways with electric guitars and keyboards. These hybrid musics are grounded in local experience and place, but often reflect the interconnectedness of the global market.

Reggae. Reggae offers a good example of hybrid music. Musicians in the urban ghettos of Jamaica were greatly influenced by African-American rhythm & blues, Anglo-American popular music, Afro-Protestant hymns, and indigenous Rastafarian music. The new reggae sound that emerged in the 1960s also had a strong ideological message that resonated with many other oppressed groups around the world. The moral concerns, self respect, and revolutionary nationalism voiced by reggae artists such as Bob Marley, Bunny Wailer, and Peter Tosh helped to make reggae one of the first global popular musics. While reggae itself was a hybrid, new musical styles developed by fusing the reggae beat, message, and basic harmonic progressions with indigenous styles and instruments all over the world.

NON-WESTERN HARMONY

Although Western harmony has spread to many parts of the world, other harmonic practices exist, uninfluenced by the West. Still, in most cases the harmonies people are drawn to are based on the primary intervals of the overtone series which, in the West, are combined to make triads: the fifth and third, and their inversions, the fourth and sixth.

For example, while the *balungan* instruments of a Central Javanese gamelan produce a single central melody, elaborating instruments like the *gendèr* often add these concordant intervals in performance, as do the composed countermelodies of the *rebab* and male chorus. The polyphonic *kora* and *balafon* musics of West Africa are based on these intervals, as is the Central African *mbira* tradition discussed below. And in many parts of the world people have discovered the compelling sound of melodies sung or played in parallel thirds or fifths. Theodore Levin described such a practice in an Islamic ceremony in Central Asia:

At the appropriate moment, the men joined the mullah as a chorus that at first sounded heterophonous and disorderly, as though each chanter had begun from his own starting pitch without regard for the other chanters. But a structure quickly became apparent: some of the men were holding more or less accurately the interval of a fifth below the reciting tone and moving the fifth in parallel to the melody as it rose and fell. As they chanted thirty-three repetitions of *lâ ilâha illâ' llâh*, and a hundred repetitions of *illâ' llâh*, they nodded

their heads gently from side to side. The harmony that had begun as a fifth reemerged as a third, a fourth, a seventh, and, still later, an octave.¹³

But there are also traditions which run counter to this trend, savoring the piquant sound of seconds. Bosnian ganga singers, for example, regard these close intervals as bell-like: complex and vibrant. Mirjana Laušević explained:

What people are looking for when singing ganga . . . is physical experience of the sound. And the way they find that is by singing together. Once their whole bodies start resonating and buzzing from this interval of the second, that is the desirable interval that they are looking for. So what they are dealing with is not some external concept of pitches. It is [a] very internal or internalized concept of sound that you are physically experiencing. . . . And the reason this interval is considered a consonance, really, is because it's [the] most physically pleasurable. It's the interval which you can physically experience in a very pleasant way through the buzz in your ears, through the buzz in your chest.¹⁴

Levin noted a similar practice in a Central Asian work-song tradition, in which groups of men or women alternate sung couplets:

While the chant had a dominant reciting tone, some of the girls sang the reciting tone a bit flat, creating a rich body of beating tones. . . . The singers made it clear that their dissonance was not accidental and not the result of an inability to tune a unison. We had heard other songs [there] in which a unison was kept well tuned. On the contrary, judging by the gusto with which they put their faces close together and shouted out the antiphonal couplets, they clearly revelled in their collective dissonance. Nur Muhammad, a graduate of a specialized music school, agreed. "They love seconds here," he told us, "But try to sing that kind of dissonance through solfège. You can't do it; it's very difficult."¹⁵

Whatever specific qualities are valued, many people have been drawn to the simultaneous sounding of tones, and several cultures have developed systems of preferences which govern such activities. While they may or may not make them explicit in words, musicians and listeners understand them implicitly. One such system has grown up around the Central African instrument known as *mbira*.

Zimbabwe: Mbira Music

There are many different kinds of mbira in Zimbabwe and other parts of Africa, but they all share certain structural features. Individual metal strips or keys, each tuned to a specific pitch, are fastened together in such a way that the performer, holding the instrument with both hands, can strike some keys with the left thumb and forefinger, and some with the right. These keys can be retuned or adjusted by the performer, and several different “chunings” or tuning systems may be consciously employed for various pieces. The keys are mounted on or inside a soundboard or resonator, such as a wooden box, a tortoise shell, or a hollowed-out calabash.

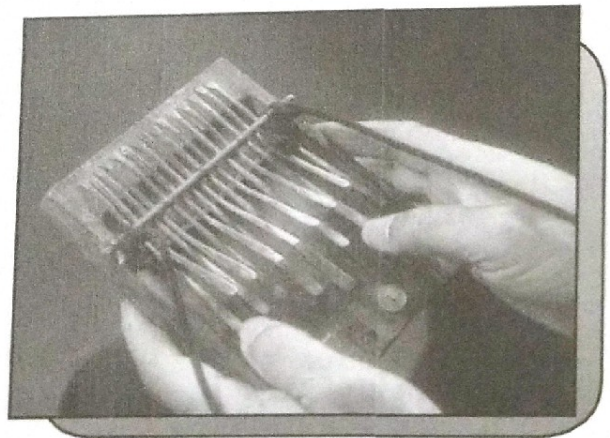
Although mbira players may not subscribe to a body of music theory which resembles that of the West, some musicians have developed conceptual systems relating to their musical materials. For example, according to Paul Berliner, the mbira player Mubayiwa Bandambira characterized the individual keys of his instrument in specific ways: *benzi*, which “frightens you or makes you start, makes you feel awake; makes the heart feel wild like a mad person; makes you dance wildly; has a sharp voice which leads the mbira,” *gadzanga*, which “controls the excited feeling of the *benzi* . . . controls the high pitches, cools the feeling down to normal; settles the piece and holds it together,” *tida*, which “shouts from far away, sings aloud; makes people feel like singing to it; makes you raise your voice in song,” and so on.¹⁶

Bandambira’s culture is the Shona, who are believed to have lived in Zimbabwe since the tenth century. In the Shona’s primarily agrarian culture, music has always played important and diverse roles—from the court traditions and war songs of the past, to the work, recreational, and religious traditions of the present. The mbira is an instrument of primary importance to the Shona: its name reflects its crucial function in the *bira* ceremony of ancestor worship, and it is often played for pleasure as well. The Shona value its potential for musical complexity, noting that it can sound like a group of instruments all by itself, and mbira players are considered especially skillful musicians.

Harmony in Mbira Music. Mbira music involves repeating polyrhythmic cycles which musicians use to structure their performances. Depending on the mood and skill of the performer, a performance of a



▼ The Mbira



given piece may include extensive improvisation. As the mbira player Ephat Mujuru told Berliner, "If I feel like it, I will play one piece all night long. Listen to what I am playing and then come back in a half hour and I'll be playing altogether differently [on the same piece]."¹⁷

Part of the basis for improvisation is the underlying harmonic structure of each piece; this structure also makes it possible for two or more mbira players to improvise together. Ernest Brown explains that in Zimbabwe

you don't have the word for "chord." And you don't have an explicit body of musical theory. But you learn the music by imitation. And ... if you play notes that are not in the chord, your teacher will tell you, or someone in the audience will tell you, or they'll throw a stick at you [laughs]: you don't do that. They'll say "Here, leave that alone. Don't play that note here." And they'll show you: "Here, play this one." And if you analyze what they're telling you to play, they're telling you to play the notes that are within the chord. So they're hearing ... the relationship of tones to each other.¹⁸

Example 5: "Chemutemgure": Harmonic Structure and Basic Polyrrhythmic Cycle

basic cycle:

harmonic structure:

Example 5 shows the basic polyrrhythmic cycle of the mbira piece "Chemutemgure" ("The Wagon Driver"). Notes with upward stems are played by the right thumb and forefinger; those with downward stems are played by the left. The two hands alternate quickly, striking simultaneous tones only once in each measure. The second line shows the underlying harmonic structure. You can see the relationship between the two lines: for the most part, the basic polyrrhythmic cycle uses the pitches of the underlying harmonic structure, occasionally adding pitches which subdivide an octave with a fifth, or subdivide a fifth with a third. Improvisations on the cycle primarily involve such intervals, so that the underlying structure is always observed. As in so many parts of the world, Zimbabweans clearly feel that octaves, fifths, fourths, thirds, and sixths are pleasing musical sounds, the proper components of both harmonic structure and its elaboration.



A performance of "Chemutemgure." The underlying harmonic structure is played alone at the beginning and ending of the performance.

SUMMARY

Just as most of the world's rhythmic preferences correspond to the two- and three-part structures and cycles of the natural world, so most harmonic preferences reflect the simple vibrational ratios at the bottom of the overtone series. And just as rhythmic syncopation can heighten musical interest and excitement, the use of dissonance can enhance the experience of consonance. Whether such practices are explicitly codified or subjectively developed, the agreeable feelings generated by singing and playing instruments in simultaneous intervals are a fundamental part of making music in many parts of the world. And, consciously or not, harmony enacts a powerful ideal of social consonance: voices combined in musical concord replicate the dynamic relationships of individuals in a harmonious society.

POINTS TO REMEMBER

1. Harmony is the simultaneous sounding of two or more different tones. It can refer to the simultaneous intervals generated by polyphony, or to the chords or drone accompanying the melody in a homophonic texture.
2. Most of the world's harmonic systems are derived from the fundamental pitches of the overtone series—intervals known as consonances. However, in some traditions dissonances are cultivated for their visceral sensuality.
3. Western harmonic practices, rooted in medieval European music, have developed into a highly influential system worldwide. This system is the basis of harmonic practices in Western classical, folk, and church musics, as well as jazz and popular music, including many non-Western popular musics.
4. There are also harmonic practices that are not influenced by the Western system, including traditions from Bosnia and Zimbabwe.

POINTS FOR DISCUSSION

1. What is a basic definition of harmony?
2. Discuss the concepts of consonance and dissonance in terms of harmonic practice.
3. Discuss the development of harmonic practices in Western classical music.
4. What are some characteristics of the Western tonal system that become codified by the Baroque period?
5. Why is harmony a worldwide phenomenon?

STUDY QUESTIONS

1. What intervals sound consonant to most people? Why?
2. What is organum? How did it develop?
3. How did Western harmonic practices develop in the Renaissance and Baroque eras?
4. How has Western harmony influenced other traditions?
5. How do these non-Western harmonic practices compare to the Western system?
 - Bosnian ganga
 - Zimbabwean mbira

References

1. *The New Oxford History of Music*, Vol. II: 272.
2. Weiss and Taruskin, eds. 1984: 60.
3. Robertson and Stevens, eds. 1960: 246–7.
4. Reese, 1940: 253.
5. Weiss and Taruskin, eds. 1984: 62.
6. Ibid.: 66–7.
7. Ibid.: 81–2.
8. Reese, 1959: 449.
9. Translated as Zarlino, 1968: 53–4.
10. Weiss and Taruskin, eds. 1984: 171–2.
11. Ibid.: 172–3.
12. Kaeppler, 1980: 136.
13. Levin, 1996: 236.
14. Laušević, interview 1997.
15. Levin 1996: 231, 233.
16. Berliner, 1981: 57.
17. Ibid.: 53.
18. Brown, interview 1997.