

B. Tone and Tonal Organization.

XI The Resources of Music:

Tone Systems and Scales.

A. The Physical Properties of Sound

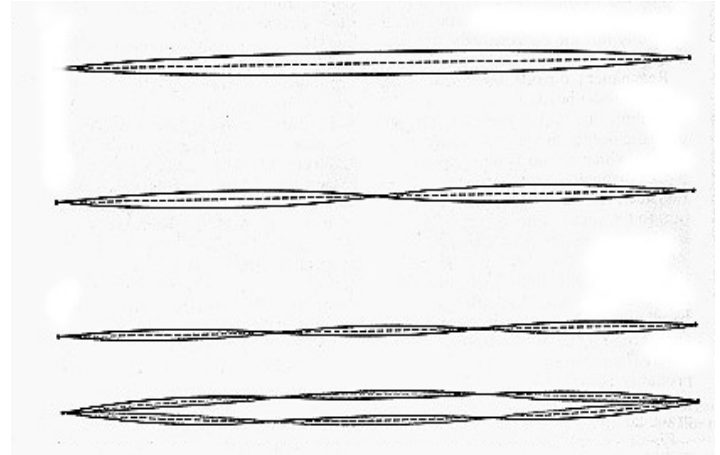
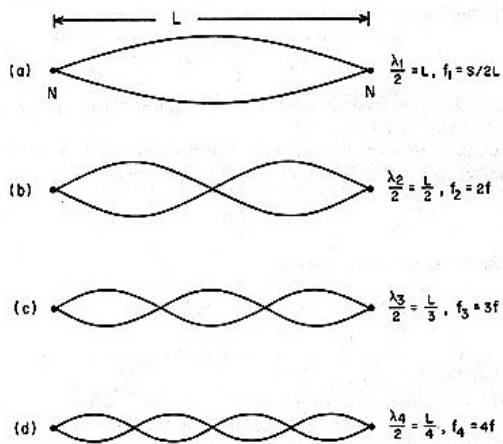
Music exists both in space and time. Besides requiring the passage of time to unfold and permit us to perceive its patterns, music simultaneously exists in a spatial realm of sound that varies from low to high. Sounds that we hear are the results of waves that travel to the ear. The velocity of these waves, we hear as volume. The rate or frequency at which these waves move through the air, we hear as pitch or as different notes, as low or high sounds.

Sound waves are similar to light waves. Differences between rapidly undulating waves and slowly undulating waves we perceived as higher and lower sounds.

Differences in wave frequency are measured by the number of cycles, or vibrations that occur in a second. The average range of human hearing ranges from about 20 cycles or vibrations per second (CPS) to about 18,000 CPS. The middle C note on the piano vibrates at 256 CPS.

Although we are used to associating these vibrations with musical instruments, they also occur in the natural world. Early humans must have discovered that certain bodies, such as particularly resonant pieces of stone (lithophones), tightly stretch vines, stretched and twisted animal intestines, or stretched skins, particularly over hollow areas, produced audible and pleasant sounds. These sounds which vibrate at frequencies within the range of human hearing were cultivated and refined by learning and experimenting with the physical bodies which produced them. Pragmatism and the need for food may have produced the first hunter's bow, but in many places the sounds produced by the bow were soon cultivated into musical instruments. In many parts of Africa, the hunter's bow is used as an instrument. In ancient Japan, the courtiers whose duty it was to keep watch would sound the hours by twanging on their bows.

With the entire range of audible sound, from roughly 20 to 18,000 cps, from which to choose, a great variety of different sound choices have been made throughout the



TWO ILLUSTRATIONS OF STANDING WAVE PATTERNS AS THEY ARE FOUND IN VIBRATING STRINGS. ON THE LEFT IS A STRING VIBRATING AT THE FUNDAMENTAL PITCH (A), THE FIRST PARTIAL (B), THE SECOND PARTIAL (C), AND THE FOURTH PARTIAL (D). THE GRAPH ON THE RIGHT ILLUSTRATES HOW A STRING VIBRATES SIMULTANEOUSLY AT THE FUNDAMENTAL, FIRST, SECOND AND THIRD PARTIALS AND HOW THE STRING APPEARS WHEN VIBRATING AT TWO OR MORE FREQUENCIES SIMULTANEOUSLY.

world. Nonetheless, in those cultures we know of, the tendency has been to use primarily those sounds which fall in the mid range human hearing. The choice of which particular tones, that is which frequencies or vibrations to employ evolves differently in each culture. It is possible for the human voice to produce, if its governing brain can “visualize” it, virtually any pitch within its potential range. The selection and eventual limitation in the choice of one set of pitches as the musical standard of one culture as opposed to another comes about when we start to make instruments. A string tightened to a certain tension produces a note that changes if the tension is adjusted. The pitch of a drum can be changed by increasing or decreasing the tension. A pitch or tone of musical stone, vibrating slab of wood or a cast metal gong or bell cannot be easily changed, although some adjustment can be made by shaving different areas of the vibrating body in order to make one part vibrate more or less rapidly than another. It is true that these are limitations for which humans can and eventually did find means to overcome. What is important is that we must assume that at first these sounds were valued, enhanced and preserved. They thus became part of the established and accepted resources of that culture. The choice of which sounds were preferred in each culture was largely arbitrary, either the result of chance or of gradual refinement.

Choices and Borrowings

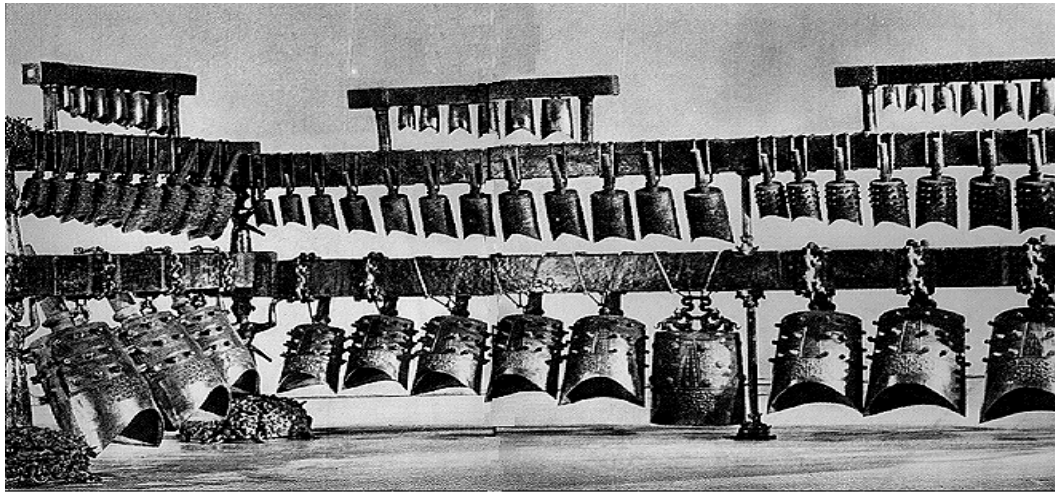
Just as people borrow and learn each others tunes they

appear to have borrowed each other's ways of tuning, that is the set of preferred pitches or frequencies selected and used in any particular culture. In today's times, with the saturation of pop music in every culture, much of it originating in the West, it is not surprising that increasingly, people in many places of the world have begun to adopt the most frequently used tuning systems and in particular, the modern Western tempered tuning. The convenience and consequent dispersion today of electronic instruments, all tuned to that system which evolved in Western Europe, has led to further adoption of the western tuning system.

If we go back to a time before this intensive dissemination, to a time when cultures were more isolated from each other, we find a great variety in the choice of tones that make up the range of culturally possible selections. There is great variety of tone selection among the various nomadic peoples and hunter/gathers of the world. We find numerous tonal systems in Siberia and Central Asia as well as among the numerous Native American peoples from the Inuit of the far North to the Ona and Yagan of the extreme southern part of South America as well as among the many hill peoples of mainland Southeast Asia and the Philippines. In addition, the traditional musics of the cultures of Japan, Korea and China, of Indonesia, Burma and Thailand, of North and South India, of Persia, the Arabic world and Turkey represent among them thousands of other permutations of tone arrangements of pitches unique to each. All until the advent of recordings, all of these were almost unknown in the West.

Choices of which tones are to be used for the music of any culture, are like other aspects of culture, arbitrary. This does not mean that they are not important in that culture nor that there are not even strict rules governing the theory of the tonal systems. It only means that the selection of certain notes and the rejection of others is the result of the history and experience of the people in the group. No one tone system is better than any other any more than one language is better or more efficient than another. Each has been developed and refined in order to best achieve the requirements of that particular culture.

Although people accustomed to one set of pitches can be made very uncomfortable when confronted with music in a different system, there is nevertheless a high degree of tolerance for variety within one's own culture. The human brain has a flipping capacity. In each culture, there are certain notes which all agree are basic in that system.



A RECENTLY EXCAVATED SET OF ANCIENT CHINESE BRONZE BELLS. ALTHOUGH THE MAIN PITCHES, LIKE HWANG CHUNG WERE PRESERVED WITH A BAMBOO TUBE, EVENTUALLY GREAT BELLS, LIKE THESE, WERE CAST IN BRONZE

Suppose that we hear a set of notes that we recognize. Then one note is gradually raised, let us say. We continue to hear the changed note as the original even though it is getting higher and higher. At a certain point, we “decide” that it is now the next note up in our system. Humans seem to share the ability to accept slightly variant notes as the same as the note next closest to them. Trained musicians, of course, have refined this sense greatly, which means that they have much less tolerance for these variations and do not like to accept them. Precise and careful tuning was important in ancient China, is still very important in the traditions of India and the Middle East. In Indonesia, in Bali and Java, in particular, virtually every set of instruments is tuned differently and this special quality sets the character of the region or village where it is employed, or the unique character of the particular set of instruments being used. These tunings may be culturally important but they are still arbitrary, perhaps in part, because their differences do not seem to be humanly important. Life or health do not appear to be affected by the tuning system we choose for ourselves.

Human Theories of Tone

In both the ancient West and East the question of the generation of different tones was important. In both Ancient Greece and in China it was discovered that vibrating bodies, strings or metal and wood, vibrated in orderly ways which could be explained with numbers. Although we hear only one particular “note”, vibrating

bodies are sounding several “notes” at once. They are vibrating in complex patterns that result in multiple simultaneous sounds. When we hear a note sounded on a piano string, for example, culturally, we hear a single note, but in fact, what gives the note its character is the fact the several other notes are sounding a bit more softly but at the same time. The string is simultaneously vibrating at a half, a third, a fourth, etc. of its length at the same time as it is vibrating the number of times equivalent to the basic frequency which we are hearing. If we could visualize the pattern of this vibration, or see it with an instrument like an oscilloscope, we would see, not only the fundamental vibration of the entire string, but smaller patterns of vibration that occur simultaneously. These smaller vibration patterns seem to divide the string in half, in thirds, in quarters and so forth. This principle of simultaneous sounds produced by vibrating bodies is known as the natural overtone series, the natural harmonic or partial series and sometimes as the “chord of nature”.

In the natural overtone series a vibrating body vibrates at several different frequencies simultaneously. The most prominent of these is usually the fundamental, the pitch that we perceive that we are hearing. Usually the next audible frequency occurs at twice the number of vibrations of the fundamental described as the ratio 2:1. This frequency produces a note one octave higher than the fundamental pitch. The next frequency to be heard would be the frequency $\frac{2}{3}$ the frequency of the second harmonic, which was the octave. This produces a pitch that is an octave and fifth higher than the fundamental pitch. These subdivisions continue upwards, each step slightly decreasing the size of the interval from the preceding step until they disappear in very high numbers and small intervals, and fade beyond the range of audibility.

The Ancient Greeks

The Greek philosopher, Pythagoras (c. 582-c.507 BC) was the first known music theorist. We can think of him as one of the first scientists as well. He was one of the first to propose that the earth was a sphere revolving around a fixed point. It was Pythagoras who measured and subdivided the length of a vibrating string and found that the system of pitches produced in the natural overtone series could be explained in terms of low number ratios. Thus in the overtone series the first partial, the octave is

the ratio, $2/1$, the next partial, a fifth higher, is $3/2$, the next, $4/3$ and so forth. To us today, respectful products of the age of science, well accustomed to the idea that there is a scientific explanation for all our perceptual experiences, Pythagoras would seem to be the first to scientifically explain the phenomenon of music. Yet what was important for Pythagoras was that mathematical facts such as the low number ratios could also be heard as equally pure truths in sound. The simple mathematical ratio of 2 to 1 ratio could be perceived in the simple perfection of an octave - two sounds which are the same yet different. The study of theory thus began initially as a means of explaining sound as natural phenomenon that could be explained mathematically.

The Ancient Chinese

In the ancient Chinese view of the universe, music was important in ways that exceeded the importance given to it in the West. The balance and continued stability of the universe was an important responsibility of the reigning dynasty. The ritual ceremonies honoring the ancestors were also intended to maintain the balance of all the natural elements in the universe. Musical instruments were thought to be construction of materials which the ancient Chinese regarded as the 8 basic elements, wood, bamboo, earth, vegetable, animal, stone, metal and silk. When an orchestra of these elements played together in perfect balance, it represented the balance of the universe and the performance ensured the continuation of that balance.

The careful tuning of each of these instruments was also of great importance. All the pitches of these instruments were generated from a single tone, which was known as the "Yellow Bell", or Hwang Chong. In the event of a disastrous war, or of famine or some natural calamity, it was taken as a sign that the reign and its system were either corrupt or no longer functioning. In such a case, the entire governmental system had to be changed, but this also meant that a new pitch had to be chosen for Hwang Chong. This of course meant remaking all the instruments, recasting the bronze bells, cutting new musical stones, etc. However, the music system was intrinsically interrelated to the system of weights and measures. The pitch of the note, Hwang Chong, was preserved by means of a tube of bamboo, stopped at one end, which when blown across, produced the desired note. The length of the tube also served as the unit of measure and the number of grains of millet which could be contained in that tube constituted the unit of weight. When the music system had to be changed, so did the

entire system of weights and measures throughout the empire.

The ancient Chinese book, the Tao Te Ching, or the “Book of Tao” says that “one begets two, two begets three, and three begets all the numbers”, which is a way of saying that with three the truly interesting part of mathematics begins. This cryptic proclamation also means that from the first tone we generate its own octave ($2/1$) and from the octave (the two) can be generated a fifth ($3/2$). From the fifth, by successive additions of $3/2$ fifths, can be generated all the possible tones which we are capable of hearing.

It was by this means that the Ancient Chinese devised their entire tonal system. They too, understood the principle of the subdivisions of the vibrating string length. They observed that by continually adding a note that was a $3/2$ fifth higher than the previous note, a series of tones could be generated. Of course, this is a theoretical model. In actual practice the upward $3/2$ fifths would be alternated with falling $4/3$ fourths, otherwise the notes would soon cover too great a distance in pitch. The Chinese made use of 12 such pitches within one $2/1$ octave. At first sight this system would seem to coincide with the Western 12 tone system, the twelve different notes available on the piano for example. But the principle is very different. After proceeding up 12 $3/2$ fifths, the Chinese recognized that the 13th $3/2$ interval did not return to the $2/1$ version of the fundamental. The 13th fifth produced a pitch which was a bit, higher than the fundamental starting tone. Although this difference was small, it nevertheless was noticeable. In theory, the Chinese recognized the possibility of 60 possible fundamentals, or Hwang Chongs, which could be generated by these successive cycles of $3/2$ fifths. This is the equivalent of subdividing the half tone distance on the piano between C and C sharp into 60 micro tones.

Western Temperament

The Western tonal system is a logical cultural outgrowth of thinking in a technologically oriented society. It evolved out of the music system of the ancient Greeks. Through long development under the guidance of the Roman Church, the Western music system gradually evolved into a basic 12 tone system from which most of its music was set in a scale made up of seven of these tones. The series of seven tone scales formed the fundamental tonal structure of Western classical and popular music. Over the years, but increasingly since the 18th Century,

classical composers, in an attempt to make their music more interesting, began changing from one set of seven tones to another in the midst of a single composition. These seven note scale systems came to be known as keys and the process of shifting between them was known as modulation.

Moving from the fundamental tonal center in which the instrument was tuned to another key or tonal center, a fifth higher or a fifth lower was a fairly simple task. However, as composers toyed with the idea of being able to play pieces in a key starting on any of the 12 possible tones and became increasingly daring in the choice of tonalities to which they might modulate an adjustment had to be made. In the 12 tone system as it evolved in the West adjustments had to be made, first to accommodate melody, the Just Intonation System, and then to accommodate harmony, the Mean Tone Temperament. When the music needed to move freely between scales built upon all and any of the 12 possible tones in the system, the differences interval between notes varied too greatly depending on the starting point. These scales were evolved to serve a melodic purpose and the intervals between notes evolved to allow for these to sound pleasing in a melodic context. The need to be able to change freely between systems required a compromise in order that all of the potentially produced seven tone series sounded equally pleasant.

Compromise is precisely what was devised in the West. First used in the early 18th Century the Equal Tempered system compromised all of the 12 available tones in the system by dividing the perfect $2/1$ octave into 12 equal parts. This allowed the possibility of freely changing between starting points on any of the twelve pitches of the Western system. The cost was that none of the intervals so produced fall within the range of the lowest pure ratios of the natural overtone series. One of the most serious losses which resulted from this change of tuning system, was the loss of the perfect $3/2$ fifth which in the Equal Tempered system was replaced by a fifth which has the ratio of $2.9966:2$.

Such high number ratios as those produced by the Western Equal tempered system are far from the low number ratios of the natural overtone system. Nonetheless, because this system allows for free modulation between different keys in the Western system, something which the development of music in the West required, the discrepancies between the natural and tempered system are overlooked. Given the wide range of

different tone generations systems and tuning systems throughout the world, contacts between cultures using differing systems has made the acceptance of music across such cultures, often difficult. Nonetheless gradually over time, neighboring peoples adopt the music and the tonal systems of each other's cultures.

How people sing is in many cultures regarded as something very close to the pure expression of the human spirit. It should not be surprising then that fierce pride concerning one's music and its tonal system is expressed along with disapproval and disdain for other systems. Although the particular tonal system used by any culture is the result of arbitrary cultural or historical processes, the importance given to such systems is a reflection of how importantly music is regarded in the culture.

B. Tones and Textures

The number of ways in which music can be organized are thousands. Yet, out of numerous possibilities we become so accustomed to what we usually hear that we do not often try new schemes. In most cultures, people are content to use the same practices over and over again and over long periods of time. However, as we live in our own time and culture, we may believe that great changes are occurring constantly in our music. It is only when we look across cultures that we can note broad continuous patterns that are the result of repeated usage of certain culturally preferred forms.

Let us consider just a few of the virtually numberless possibilities which man has devised for organizing sounds and voices.

Monody

In a predominant number of cultures throughout the world if there are only a few forms of music, most or all of them will be vocal. Vocal music is the most widespread form of musical expression globally. In many cultures, the voice either sings alone or if in groups, the group sings in a culturally defined form of unison. This means that the voices may not sing with the precise cohesiveness of a trained Western choral group, however, within that culture, they consider what they are doing as singing together as one and to be singing one melodic line. Whenever a group of people sing together without harmony and sing the same melody, such singing constitutes monody.

Diversified Monody

One of the first ways by which man alters and enriches the texture of vocal music is in the recognition of different vocal functions. Sometimes this takes the form of a leader of the group singing part of the song and then being joined by the remainder of the group. In the way in which this can occur can vary greatly. In some cases, the leader completes the song and stops before the group begins. In other cases, the group may enter before the leader completes the opening section. Still in other cases, both the leader and the group may be singing together all the time and the leader by singing differently than the others exerts influence on the group performance. There are cases in which the leader sings essentially the same as the group, but only the timing of the singing is different. In other cases, the leader's part may be greatly ornamented compared to the group, or even freely improvised.

There are cultures in which, we might suspect that there was no leader at all, just a group singing in a loosely structured manner. Careful study will reveal that the leader or leaders are within the group, may even be standing in among the singing group and visible indistinguishable from the others. They may be singing the same melodic line as the others, but by small accents and emphasis, by slight anticipation they can be leading the group from within. Such cases, of course, require that the group be very well accustomed to this practice and sensitive to the suggestions of the "soft spoken" leader. Another example of modified single line singing occurs when in the group women take a variant line from that of the male singers.

All of these variants of group organization tell us something about the organization of the society as well as about the musical structure. The role of the lead singer to the group naturally arises out of ideas within the group about leadership. A society in which there is no elected or appointed leader or in which leaders are selected from within the group on the basis of age or experience rather than wealth or status will organize differently into singing groups than in more highly stratified societies. Think about what happens at a birthday party when everyone decides to sing "Happy Birthday". We usually just start and no one in particular says, "Okay, here's the pitch!". We just all start out at once and eventually it starts to come together. Whose voice pitch do we usually follow? That of the best singer in the group? The one with the loudest voice? Perhaps we all just adjust to the one voice that persistently sings on in spite of all the pitches around it.

Should we deduce that we have some special system for group singing, a unique cultural interpretation of monody?

Heterophony

The tonal organization structure that ethnomusicologists call heterophony is sometimes difficult for Westerners to grasp. This is because examples of it occur rarely in the Western European traditions. Heterophony is said to occur when two or more voices or instruments performing together deliberately vary a single melodic line differently. It is a reflection of predominant unity because all are iterating the same theme, however, it is also a reflection of acceptance of individual freedom. We define and identify heterophony when it is not the natural variations in vocal quality between performers on the one hand, nor deliberate free improvisation on the other. It is that medium line when all are performing the same melody, but each with his/her own unique nuance or flair.

This practice occurs most frequently in the Far East and in the Middle East. An excellent example occurs in the Cantonese Drama tradition of Southern China. At the end of the play, after the story has resolved and concluded, all the main characters, perhaps seven or eight singers appear on stage and together stand and sing a closing song to the audience. Each of the singers sings this song in the style of the character portrayed in the play. All sing in the same tempo. The hero sings the melody in a strong vigorous style, the heroine sings it with delicacy and refined ornament, the judge with deep and slow moving articulation and so on. The audience hears the main melody clearly while at the same they hear it slightly blurred by the differences in human character reflected in the individual variations in the singing.

Polyphony

Polyphony occurs when two or more voices sing in complete independence. This style of performance indicates a higher degree of individual freedom than in heterophony. In the case of polyphony the voices or instruments are much more clearly independent of each other.

Although the individual lines are closely related structurally, a round is a good example of polyphony. When singing "Row, Row, Row Your Boat", all are singing the same melody, however, the staggered entrances of the voices produce a result in which, when all three parts have

entered, truly independent and simultaneous melodic lines are being heard.

Although we are accustomed to thinking of polyphony as an attribute of Western music, because it appears in our classical, popular and religious music, it does occur with great frequency in many cultures of the world. We may think of polyphony in its familiar Western manifestations. The singing of rounds, like, "Row, Row, Row", the singing of complex masses by composers like Johann Sebastian Bach, or the rich singing of Black Gospel Choirs in the major urban areas of the US. All these are examples of polyphony, but there are many more.

One of the simplest types occurs when one singer or a group of singers sustains a single tone and another sings a melody over it. The singing drone accompaniment as a type of polyphony is widespread and seems to be the origin of polyphony in both Western and Eastern Europe. Another common and widespread type occurs when the difference between the leader and chorus is so great that they can be labeled two independent melodies.

In the areas of the world in there is a tradition of choral singing, often mixed choruses of man and women, there is a tendency to also have varied melodic lines for different parts of the chorus. This kind of choral polyphonic singing is traditional in much of Polynesia and Central and South Africa. In such examples as these, many times it is not entire independent melodic lines which identify this as polyphony, but the introduction of sporadic harmonic notes in the context of an otherwise unison singing texture.

Sometimes, the use of polyphony is blended in with other sounds. In societies in which women have a high degree of independence, the female vocal line can be independent and simultaneous with the male vocal line. This occurs, for example, in the court music of Central Java in Indonesia and in the Royal Court music of Korea.

Relating Text to Music

There are many different ways in which text can be intoned or set to music. On one scale the voice can speak, barely emphasizing the tonal patterns of the spoken language. Tone patterns vary from one language to another. French and Japanese, for example, tend to be spoken in a even tone with little stress and a slight drop at the end of each utterance. German and English, by contrast are heavily stressed and accented. Other language

like Chinese and Vietnamese rely on tonal patterns for elucidation of the meaning of the word. In each of these cases, the idea of a spoken text passage that slightly intones would be different.

Voice Quality

The recitation of sacred texts by Hindu priests, Buddhist monks and in the old form, by Roman Catholic clergy used something close to the natural speaking voice with a slight exaggeration of the tone. It is an example of the human voice made divine by the addition of tone. In our own times and culture, the distinction between speaking and singing grows ever wider. In most societies poetry is always sung. Gradually, poetry in the Western world separates from song and one can now consider reading poetry or reciting it without tone. But even in the recent past, poetry was often recited with a slight emphasis on the underlying tonal pattern, not quite singing, but with clear intonation. Listening to the old recordings of the Welsh poet, Dylan Thomas, one can clearly hear a melodic pattern underlying the text. During the late 1920s, Kurt Weill and Bertold Brecht in Berlin were attempting to create a kind of theater in which the actors would seem to appear far away and quite small, as though seen through the wrong end of a telescope. This technique was called "Objectivism". If we listen to the original cast Berlin recordings from the late 20s, one can hear that the actors are really using the "sprechstimme" or speech-song technique. The voices are exaggerated if we hear them as speech and yet if we hear them as song, they sound like they are only halfheartedly sung.

In many cultures the idea of a beautiful voice is not something as highly regarded as the sense of music and the musical knowledge which is expressed through it. The spirit with which a singer interprets a song is thus more important than the natural beauty of the voice. Some highly respected singers may sound like they are not even clearly singing out the "notes" of the music, but this singing style, very close to the natural speaking voice may be regarded as very appropriate within that culture and may be regarded as highly artistic.

The degree and rate of tremor in the voice is another factor which is largely cultural. There is a great range of individual variation and much tremor in the voice may be natural and involuntary tremor. The degree of culturally prescribed tremor can range from only the natural and involuntary tremor which all humans possess to some

degree to the heavy and exaggerated tremor of singers in the Western Operatic tradition. These techniques for beautifying the voice are carried over to instrumental style as well.

Tremor or vibrato is something we are accustomed to in our music. It is more formalized and controlled in classical Western music but is widely used in popular music as well. Other vocal techniques used to modify the voice are raspiness, for example. In both Africa as well as in African American music, a raspy quality is used in the singing of certain songs or in particular styles to create a divine or extra-human effect. The Burundi songs with the inanga zither are love songs sung by moonlight and always use this raspy whisper. In the US, the Blind Gospel singer of the 30s, Blind Willie Johnson sang out his spiritual message using this raspy hoarse quality.

Yodelling is another special technique found in interestingly isolated regions. The singers of the European alps use a yodelling technique which has become incorporated into their folk song style. It is also to be found among the mountaineers of Northern Japan and preserved in old folk songs like, Ho-Hai Bushi. The Native American cultures of both North and South America made extensive use of yodelling as a singing technique. This yodelling style has been incorporated into several genres of the folk and popular music of Mexico. The style known as Sones Huastecas, from the inland area of the state of Veracruz uses a high pitched male voice sometimes holding a long high note before "breaking" the voice back down to the lower register. Songs such as "La Malaguena" come from this tradition and even modern popular groups in the US like Los Lobos perform songs from this tradition. In many Country Western music songs in the US, yodelling is mixed in with the singing, particularly in old cowboy songs. Rather than being related to the European alpine tradition, American cowboys borrowed this technique from the Native Americans and incorporated it into their own songs.

There are numerous other vocal techniques which, like these, evolve and develop in a single culture and later may be shared and loaned to other cultures. Some techniques, such as the raspy whispering style found in Africa and Afro America are not readily borrowed into other cultures and remain more exclusively tied to the single cultural tradition.

The listener, like the performer, hears music flowing through time. Its passage in time is marked by formal patterns that articulate the manner in which the time has been divided up. The pattern may, and frequently does include repetitions of previous material, or it can move through time with no repetitions and consist of a single continuous statement. Repetitions can be of simple short patterns repeated again and again with varying degrees of change and ornamentation.

Most often and in most musics, the pattern of repetitions and changes is complex and varied. A widely accepted pattern such as the sonata allegro form in Western music is a formal pattern that serves as the matrix for formal development in a great body of music in the European classical tradition. Individual compositions using this form are treated differently from one composition to another, so that virtual no two identical treatments of the form can be found in the canon of the European tradition. Still, the broad form of the pattern is audible and because we know that composers were consciously using it and performing variations upon we can recognize its importance in that period of Western music.

Short forms

Even in communities in which there is little more than vocal music, the forms of this music can demonstrate considerable complexity. Repeated phrases of a song, called strophes, can be combined to create a great variety of possible patterns and the differences in the use of such patterns between cultures can exhibit great variety. Such complex formal patterns may make use of numerous phrases and complex repetitions which then make an elaborate pattern for the piece.

For example, in simple songs such as “Mary had a little Lamb” or “Happy Birthday”, the song has but a single phrase. In the case of “Mary had a little lamb”, there is a second set of lyrics, beginning with the words, “Everywhere that Mary went...”, however, the melody is the same as that of the first phrase. For this reason the song can be thought of as having only one melodic section or phrase.

Let us consider another song, “Yankee Doodle”. In this song, the phrase, “Yankee Doodle went to town, a riding on a pony,” constitutes one melodic phrase. The next part, however, beginning with the words, “Yankee Doodle, Keep it up,” is sung to a new melody and this constitutes a second melodic phrase. Thus the first two examples, “Mary had a little lamb,” and “Happy Birthday” might be

described as having the simple form A + A, or simply A, in the case of "Happy Birthday", while "Yankee Doodle" would have the melodic phrase structure A+B.

Songs in which contrasting phrases are repeated in various patterns are frequently described as strophic in character. In the history of Western popular music there has been a slow but noticeable shift in the preferred formal pattern. For many years beginning around the time of the Civil War, American songs followed the pattern of European popular music and used a pattern that was based on that of the minuet of the previous century. In this form, an opening melodic phrase, A, was stated and then repeated, A A. After this, a new phrase, B, appeared which was closely related to, but still contrastive to A and this was repeated, B B. After this both As and Bs might be repeated giving the pattern AABBAABB. This was followed by a different melody, usually in a different key and often equal in length to the entire AABB section. This section, C, was called the trio and it too would be repeated.

This form served as the basis of most popular music until after the First World War and was the basis for most American marches, as well as for ragtime and the songs of the ragtime era. After the First World War and primarily during the 1920s a new short song form became popular. This had the form AABA, that is, a single phrase repeated twice and a single phrase of contrasting melodic material, and usually in a different tonality introduced only once, before the final repetition of the initial phrase. The AABA form gave rise structure to thousands of songs, from Broadway musicals, to the most popular songs in the country. It continued to serve as the basic form for American popular music until the late 1950s when songs gradually began to follow the irregular but more natural patterns of the song texts.

Throughout the world numerous formal types are used as the basis for songs and instrumental music. The idea of contrasting repeated phrase into patterns that created unique and congruent forms of musical statements is something that is used in many cultures. These forms served as a matrix for creating compositions that had the advantage of a pattern with which the audience was already familiar, which allowed the emphasis to lie in the uniqueness of the particular text and melodic structure.

Such songs made up of various phrase and using patterns of contrastive material are sometimes called "strophic" songs. Sometimes formal patterns in strophic songs are so complex that the entire performance of the composition

may consist of a single statement of the pattern, although two or more iterations of the formal pattern are most often encountered. There are also compositions that do not make use of a repeating phrase structure. These are compositions that contain no repeated phrases and instead flow from beginning to end with new material at each phrase, material which is never repeated during the course of the performance. Such songs are called “through composed”. “Through composed” songs were, for example, the most commonly for in traditional Japanese culture before the 1860s.

Longer Forms Connecting Two or More Compositions

The connecting of two or more compositions into a suite occurs in many cultures. Sometimes these are fixed compositions that are always played one after the other and in fixed order. Sometimes, each composition is classified according to type and then they are connected or played one after the other in alternating sets. The movements of the Western European symphony as it was practiced in the 18th and 19th Centuries is an example of this type of organization. The pattern consisted of an opening movement, followed by a second movement in slower tempo, a third movement which had a dance like rhythm, at first a minuet and then later a scherzo, and finally a faster closing movement. These four composition types in this order were what audiences came to expect when hearing a symphony. Variations occurred by they were in the nature of gradual expansions and redefinitions of the established form.

The need to provide music to accompany the dance motivated musicians to connect pieces with the goal of creating a diversity of dance patterns. This may have become formalized as musicians decided got into the habit of connecting certain songs, dance pieces, or rhythm types and as their audiences became accustomed to hearing them in this order and at last, came to expect them this way.

Slow and Fast Movements

One of the very common types of organization is to connect two compositions together, the first a slower introductory movement, followed by a livelier and faster second movement. This occurs in many cultures. Rarely if ever does one find a fast followed by a slow movement or two movements of similar tempo. We deduce, therefore, that either it is a very old idea which became popular in

many places and spread throughout the world, or it is a fundamental method of organizing musical events in time. Some of the common examples of this practice are the Renaissance European *danse* followed by the faster *contradance*, the more recent Hungarian practice of following the slow *romance* with a faster *czardas* or *friss* movement. In North Indian *khyal* singer the slower *vilambit* section is followed by the faster *drut*. In Latin America it was for a time common to begin a dance with a slow introductory *fandango* in which the male partner invited the female partner to dance, which was followed by the livelier *jota* in which she accepts the invitation. In the turn of the century Cuban popular dance form, the *danzón* was followed by the more intense and faster, *son*.

Accelerating Movements

Another very common form of organization is to connect a series of movements in gradually accelerating tempos. This type of organization is also so common as to suggest that it may be an extension of the two part slow and fast movement type of organization. In this type of organization, however, several distinct movements or fixed compositions can be connected and each one is a little faster than the one preceding it. Examples of this are the great formal compositions that still exist in the repertoire of the Korean and Japanese court music traditions. A full suite in either of these traditions can consist of over ten movements and can take as long as forty five minutes or an hour to perform.

The Southern Korean *sanjo*, a form traditionally improvised always consists of several movements in increasingly faster tempos. The classical suite of the Ottoman court of Turkey also tended to move from slower to faster compositions of various types, songs and instrumental compositions. In the lighter and popular *fasil* suites, which were sets of Turkish popular or light classical songs the slow to fast progress through a series of compositions, anywhere from five to 15 became the rule. This method of organization is quite widespread not only going back to the ancient court musics of Asia. It was also noted by the conquistadors upon their arrival in Mexico that the Aztecs were very precise in matters of pitch and tempo and that performances would begin at slow tempos and gradually get faster and faster with great accuracy.

Heterophonic Organization

There are collections of separate compositions that are

organized to create contrast between them rather than a gradual sense of acceleration. This heterophonic type of organization is noted more widely with dance music, although strictly concert music such as the European symphony and concerto also follow this principle. The idea of contrasting slow and fast movements noted earlier is amplified now to either alternate fast and slow movements, or to add a number of different rhythmic types and tempos to make greater contrast. The dance suite was used for listening music as well as dance music during the Renaissance and Baroque periods of Western music. Through its history it evolved from the two movement *danse* and *contradanse* to a series of contrasting dances in different rhythms. Although there were a great number of variants and different preferences in different countries within Europe, the *allemande*, *courante*, *sarabande* and *gigue* became well known and most frequently used by the 17th century.

The Irish *ceili* and American country dances are outgrowths of the European dance suite as it became more popular and widespread. In the same way 19th century popular dances such as the *mazurka*, *schottish*, *polka*, *gallop* and eventually the *waltz* were often grouped into sets of dances and spread with the increasing power and prestige of Europe and America in the last century. In classical Western European music the symphony and concerto forms used a contrasting system of organization between movements.

The *ngodo* suites played on the *timbila*, or xylophone orchestras, of the *Chopi* people of Mozambique and a good example of another culture in which this form of organization was developed, apparently without distant outside cultural influence. Here each year a group of up to 30 musicians, singers and dancers, perform a newly composed set of songs, dances and instrumental compositions. The performance is executed with great flair and polish and sometimes favorite compositions may be repeated in subsequent years.

In contemporary popular dance music, the practice changes as dance styles change. Today, there appears to be less interest in contrasting tempos between dance pieces and no attempt to organize dances into fixed sets. Instead, each dance seems to create its own mood and atmosphere that is manifest in the song text and in the musical structure of the composition.

Formalized Introductions

In a number of cultures there exists a practice in which the instrumentalist, or singer or an ensemble first performs what can be thought of as a warm-up preceding the performance of the main composition or compositions. This may be difficult to imagine because we have nothing quite like it in our culture. It is as though the warming up and noodling that singers and instrumentalists engage in backstage before a performance, sometimes on stage in full view and hearing of the audience, were formalized into part of the performance.

In these situations, the introductory part is not thought of as a warm up for the musicians, but an exposition of the mood of the composition to follow or an exposition of the technique and skill in free improvisation of the soloist or soloists. This practice occurs in at least two notable forms. One is a group performance, noted in the large ensembles of Asia, the patetan of the gamelan music of Central Java, and the netori of the court music ensembles of Japan, for example. Here, a smaller subgroup of the larger ensemble sets the atmosphere of the tonal or modal system of the compositions that will follow. The other type is that found in alap of India, both North and South, and in the taksim of Middle East. In this type of introduction, the soloist does set the atmosphere for the modal and tonal system in which the following compositions are to be performed, as in the previous type. In the alap and taksim, however, this can become a major part of the performance and the status of the performer may be judged by it.

Performances Organized into Theater

Although it is possible to think of theater and music performances as two separate activities, in most cultures of the world, theater and music are always joined. In fact, in many forms of music-theater a separation between the two is not possible. We can think of theater, a dramatic basis, plot, or story line even when it is only very sketchy, as another way of joining and extending music together into a larger form. In some cultures larger forms were created by connecting a series of separate pieces together to form a longer composition, but another means, sometimes occurring in the same culture was to connect several pieces together by means of a story line.

In the dance tradition of Okinawa, many dances are done to a single musical composition. There also a number of dances in Okinawa that consist of separate pieces, which are played one after the other in order to make a short

dance story in which the music supports the stylized action of the dance. In the Imperial Court of Japan, the musicians attached to the palace are required to perform for religious ceremonies in the palace as well as for the emperor's entertainment. One of the most important of these ceremonies is the sacred *Mi-kagura* which is a series of songs and dances performed as an entertainment for the gods which has been performed regularly, at least once a year, since the 9th Century. It is the idea of a ceremonial performance meant to be witnessed and enjoyed by the gods that serves as the thread linking several separate songs and dances together.

Entire stories can serve as a basis for cohesion in a theatrical performance and in this music can be incidental, that is played from time to time, to highlight certain highpoints. This occurs, for example, in the Vietnamese *Cai Lung* in which the singing of the *vong co* underlines the high emotional point in the dialogue. Songs were also used in this way in the class music movies in which the story would move along and at some point a song would be sung as part of the story, sometimes even as an unrealistic intrusion into the story line. In some films music appears at different points in the background to serve as a highlight for particular scenes.

There are other uses in which music provides an almost constant background to the drama. The Indonesian wayang, or theater, either with puppets or with live actors can have some kind of music going on at all times during the performance. The Western opera is another example in which all the dialogue is sung when the actors are not singing, music is usually playing to underline the action on stage or to create a mood.

To these numerous examples we could add the Noh and Kabuki theaters of Japan, the many forms of Chinese music drama, the Indian Ramlila and other theatricals and the numerous forms of traditional theater of Burma, Thailand, Cambodia, Laos and Vietnam. In all of these cases, music does not connect the performance through the logical flow of the music itself, but instead, music underlines and highlights the action on stage, and it is this action which cements the various independent musics together into a single performance.