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Theories of Music

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Theories of Music

During the late 1970s I was doing research in Romania on the music of the urban Gypsies. One Day in Bucharest I was riding in the car with Ionel Budisteanu, conductor of the Rapsodia Romina, the Romanian National Folk Orchestra. As we rode along, over the radio came the strains of a *Doina*, that free lyric, song form of the Romanian folk tradition which expresses the essence of the Romanian national style - similar in this regard to the blues in America. There are *Doinas* from many different regions of the country, each slightly different in certain details from the others. Many are difficult to distinguish, one from another. I asked Ionel, "What type of Doina is this?" "Ah," he said, "this one is from Banat", indicating the Southwestern region of the country. When I asked how he could identify the style as such, he replied, "The melody drops down a fourth going into the cadence." "Ah," I responded.

Why Theory

The information that concerns the music itself lies in the sound of that music. The study of ethnomusicology includes a great many different kinds of tasks and methods of study and each ethnomusicologist defines his or her focus or emphasis a little differently. Ethnomusicologists are as different from each other as are psychologists or microbiologists. The music of the entire world - the vast area of sound in which ethnomusicologists work - is their common turf. Yet the emphasis and point of focus in the research of each can be quite distinct. Each ethnomusicologist studies some aspect of one of the musics of the entire world, some concentrate on the social context of the music and yet others emphasize seek to understand the formal structure of these musics as both sound and symbol. The most popular stereotype is that, like the anthropologist of not too many years ago, they must travel far away to exotic realms to seek out their treasures, however, many today, study the music cultures right around them.

How Ethnomusicologists Work

Everyone who works as, or at something, at some time has to face the stereotype view by which others see his profession. In my own mind, two such stereotypes of the ethnomusicologist stand out. Both come from cartoons in the New Yorker magazine. In one, the pith-helmeted explorer, tied to a stake and awaiting the sacrificial fires, is surrounded by an entire village that could only be somewhere in

the darkest forest of Africa. Everyone in the village is theatrically lined up into massive groups of drummers, singers, rattle shakers, etc., like a Busby Berkeley musical. In the midst of this scene, the explorer says to the witch doctor, “say, have you fellows ever thought of putting this stuff on wax?”

I think of that New Yorker cartoon as exemplifying the general non-ethnomusicologists view of the discipline - running around to exotic places, being fascinated by remote and inaccessible musics. The other New Yorker cartoon again shows an African ritual in which the senior drummer is explaining to one of the young novice drummers, “Remember. Its boom after bam except before wham.” This one stayed on the outside of my faculty office door for years, because while it was a stereotype of the ethnomusicologist, it really, in my view, came very close to the mark as a description of what I was trying to learn.

Music Practice and Theory

A practical performing musician, like Ionel Budisteanu from Romania (see inset), may know hundreds of such formulas and patterns for distinguishing the various regional subtypes of Doinas as well as other kinds of Romanian music. The experience is gained over many years of performing in and conducting ensembles which played this music. He required this knowledge to be successful in his profession. It would never occur to him to devote himself to the study of Ethnomusicology. Such an effort would not improve his ability to do that at which he already excels. Neither would it occur to him to sit down and recite a list of the all distinguishing formal characteristics of the various Doinas of Romania although he certainly has the knowledge to do so. It would not occur to him lay out a scheme of the music in that manner. Yet, this is exactly the kind of information that might fascinate an ethnomusicologist. Why? Perhaps that knowledge might offer a key to the regional differences in the Romanian *doina*. This could lead to a study of the pattern of these regional differences and their possible cause in the regional differences found in the spoken language. But this is what one ethnomusicologist might do. Another might choose a different focus. Each is studying a specific aspect of a particular tradition in order to begin arriving at some of the broader parameters of music - those beyond the limits of any one cultural tradition.

A thorough knowledge of the forms and devices of the music enables the performing musician to better perform, create or interpret this music. The musician acquires knowledge needed in order to perform. He or she must have sufficient experience to understand enough of the structure of the tradition of the music. In an number of cultures, however, there appear individuals who seek to understand the structure of a music for the sake of that knowledge itself or sometimes in order to be able to explain it to others. In ancient China and in India, like with the music

theorists of ancient Greece, music theorists were akin to philosophers or metaphysicists.

Somewhere in the course of its development, the teaching of theory in Western music came to be regarded as an important adjunct to learning the performance and appreciation of the music itself. Music theorists become less philosophers of the nature and structure of music and instead veered towards an explanation of the practice of music as an aid to would be performers.

History of Theory

Pythagoras (5th Century B.C.) was the first known music theorist. We can think of him as one of the first scientists as well. 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. 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 for Pythagoras it was that the mathematical facts such as the low number ratios could also be heard as equally pure truths in sound that impressed him. The simple 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 began initially as a means of explaining sound as natural phenomenon. The ancient Chinese Tao Te Ching, or “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. But this cryptic proclamation also means that from the first tone we generate its own octave and from the octave (the two) can be generated a fifth (the ratio of $3/2$). From the fifth, by successive additions of $3/2$ fifths, can be generated all the possible tones which we are capable of hearing.

Gradually the study of theory in the West began to move away from the Pythagorean perception of sound itself as scientifically measurable reality. Theory in music became less concerned with the value of music as a manifestation of the cosmos and turned to explaining the specific stylistic elements of the great composers. Theorists began mapping out procedures followed in the creation and performance of music, and thus gradually the studying and teaching of music theory as part of the preparation for a professional study of music in the west became a means of enhancing performance rather than an explanation of it.

Theory and Practice

The teaching of theory has a tendency to become strong in and of itself. As such the music theory both in the West and in India developed a life of its own, apart from actual performance practice. There is a story told of the renowned composition teacher, Nadia Boulanger, who taught composition and theory in Paris to many of yesterday's and quite a few of today's great composers. While correcting a student's work in tonal counterpoint, the student is said to have protested that Bach had used this very same technique, to which Madame Boulanger is said to have replied, "Bach yes, but you, no!"

It is understandable that theory should be taught in a clean and efficient manner and with exceptions reduced to a minimum. The best way of achieving this is to avoid the ambiguous, and devise rules to be used as explanations. This is something that happens not only in the West. In India, in Turkey and Iran and in China and Japan musicians often argue that music theorists are talking about something removed from actual practice, while theorists often argue that the musicians have become corrupted and misguided because they do not understand the theory fully enough.

Separation of Theory and Practice.

Theory forms a major and certainly a fascinating part of the lore surrounding Indian classical music. This is also the case in the musics of the Arabic speaking world, and of Turkey, Iran, China, Korea, and Japan. Perhaps the pre-Colombian Mexicans and the Quechua and Aymara of South America had theories of music as well. Of this we shall never know since not only were their books destroyed during the conquest, but even all the individuals who had knowledge and skill in the performance of the music. While in all of the cultures where theory exists, theorists vigorously maintain that theory accurately describes the performance practice of music, in each of these cultures one finds that discussion with the practicing musicians reveals fascinating discrepancies between the regularity and neatness of the explanations and the intriguing complexities and variants required by actual performance.

Although it is impossible today to know anything of the theory of music in pre-Conquest America, in those cultures where it does exist such as Turkey, Persia, India, China, Korea and Japan, theory survives in a special place, remote from practice but not inaccessible. For example most of the best performing musicians of Turkish Classical music in a general way, know the theoretical writings of the important theorists like Dimitrie Cantemir, Sadettin Arel and Suphi Ezgi. A few might make a study of these works and all might at some time quote some

significant point made about some particular *makam*, often to show how practice differs from what the theorists say. Yet very few individuals would make the theory of Turkish Classical music the object of special study. They have imbibed the necessary amounts of theoretical information in the process of learning and performing the music. In the course of actual performance the musician amasses a sufficiency of theoretical information required for his performance. Therefore, one does not find among the performers of the traditional music of Turkey, or of China, India, or Japan a need for special classes or teachers of theory.

Theory need not always be remote from practice. It does seem that after a time, however, the ways of thinking and acting in music each begin quite easily to take on separate lives. Notwithstanding the tendency in most cultures for the practice and the theory of music to develop separately, the degree of this separation can vary considerably. In the Middle East and in both North and South India, the theory and practice of music are much more closely interdependent than are their counterparts in either the West or the Far East. The Indian musician is required to have a profound knowledge of the theory of his musical tradition before it is possible for him to perform. In fact performance in Indian music is very close to what we in the West think of as composition, but composition which requires deep and comprehensive knowledge of the underlying theoretical principles.

Theory as a Part of Practice

In India, music theory comprises those aspects of the modal system, ragas and the rhythmic system, tala, as are required for performance. In India, however, theory is taught in the course of teaching practice. As a young musician learns to play the music he is at the same time given increasing amounts of theoretical information which serve as a guide to his own efforts at creation in the newly acquired forms. In the case of India we might refer to this as the “practical” theory of Indian music. Apart from the Indian performing musician, the Indian theorist, usually an amateur performer himself will propose theories to explain the relationships between ragas, their possible paths of development, and theories of their history and interpretation.

The contrast between these two modes of thought in India and in the West is strong. In India musicians learn a practical theory of music which they continue to develop in the course of their professional performing lives, leaving “theoretical” theory to the theorists. In the West, virtually the only theory ever learned by practical performing musicians is in theory classes taught by theorists. Only rarely does theory ever enter in the process of the practical teaching of performance technique. In fact, few performing musicians in the West are particularly strong in their knowledge of theory nor does it appear vital to their ability to perform the music well. Nevertheless music theory in the West has continued to be vital to the

education of a well-rounded musician.

The theory and practice of music are separate traditions in the Western world just as is the case in so many other cultures of the world and this would be a natural outcome of differences in focus and approach between theorist and performer. The formalization of theory teaching and its incorporation into the curriculum of study may also be the result of the general concern in our culture with precise method and repeatability. This is much like the teaching of foreign language in which one can note emphasis on grammar at the expense of speaking facility.

New Looks at Theory

There remain yet many fascinating and important questions concerning music to which theorists do devote themselves. But many such questions are being considered by scholars outside the field of music theory. For example, the mathematical psychologist, Vladimir Lefebvre postulates with the support of mathematical formulae that people listening, even to the very high number ratios of the equal tempered system, are mentally adjusting to the ideal of low ratio frequencies.¹⁾ This intriguing hypothesis offers some explanation for our ability to listen to such discordant combinations as the violin and piano or the human voice and piano - dissonant because it is virtually impossible for the violin or the human voice to maintain regular pitch synchrony with the tempered piano. Objective measurement of this combination in performance shows great discrepancies in pitch while our “ears”, in fact, our brains, tell us that the performance is acceptably in tune.

Some of knowledge of the antecedents in Western music is important understand how practice may have evolved. Lefebvre also talks about the avoidance of the 32/45 and 45/64 intervals in the “just” intonation system, the so called *diabolus in musica*, “the devil in music” of the Middle Ages. In a system which used fourth and fifths as consonant intervals the appearance of the “tritone” in the diatonic series was disconcerting and to be avoided.²⁾ Avoidance of the “tritone” and attempting to “pacify” it may have lead to the addition of a flat at the lower pitch or a sharp at the higher pitch, either of which would cancel out the devil in music and replace it with a theoretical low number interval, 2/3 or perfect fifth. However in so doing, the path has no been opened to a new set of intervals, in fact a new key or tonality, and consequently the appearance on the seventh degree of another “tritone”, one which again requires pacification and subsequently yet another tonality or key and so on until a full cycle of twelve keys or tonalities has been completed.

Is this, in fact, the history of the development of modulation and multiple tonalities in Western European music? It is difficult to say. There is also the natural tetrachord imbalance which also plays into this as well. If one runs up the white

notes of the piano from c to c, the first four notes, c to f can be thought of as one tetrachord and the remaining notes, g to f, as the second tetrachord. Melodically however, the lower tetrachord commonly stretches to include g, with the result that one hear a whole tone, g down to f, as the top of this tetrachord. While the same can occur in the upper tetrachord by the incorporation of d above c, what has a tendency to occur is that the feeling of the lower tetrachord is duplicated and the upper b is flatted in order to reproduce the whole tone, f to g, in the lower tetrachord. Conversely the important tones b to c in the upper tetrachord can also be imitated in the lower tetrachord producing, not the usual e to f but f sharp to g. Both of these processes begin to create the same kind of generic imbalance which requires again another step to correct and eventually leads through the entire cycle of keys in the Western tempered system. While this might strike some as a rather far fetched idea, Nazir Jairazbhoy postulates that it is precisely this tendency to seek to correct the natural imbalance between tetrachords which may have occurred in the classical music of North India and which as a consequence gave impetus to the development of one successive raga after another.³⁾

Many ethnomusicologists avoid such purely musical considerations preferring to study the social interactions of musicians and audiences and the cultural context of the music. Certainly there is much to study and the area of focus is a matter of free choice. There is however, some sense that the form study the purely musical aspect of practice in a culture is more the realm of the musicologist than the ethnomusicology. But this would suggest that somehow, the music itself could be studied out of the culture that produced it any more than any other aspect of the culture. Clearly the study of it as much an aspect of the anthropology of that culture as anything else and certainly cannot be considered outside that context.

Notes

- 1) A. Lefebvre, "A New Approach to the Nature of Musical Intervals", unpublished paper. given Fifth Annual ANPA Meeting Divertissement In Natural Philosophy. January 28-29, 1989.
- 2) Even on the equal tempered piano some sense of the "tritone" can be heard on the diatonic series, or the white keys of the piano if one goes up in fifths, playing c and g together followed by d and a, e and b, etc. Upon arriving at b and f one notes a distinctive difference in character.
- 3) Nazir Jairazbhoy. *The Ragas of North Indian Music: The Structure and Evolution*. Middletown: Wesleyan, 1970.

