

AN ETHNOMUSICOLOGY OF MUSICAL INSTRUMENTS: FORM, FUNCTION, AND MEANING

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Introduction

WHILE the study of musical instruments¹ is unified within the field of organology,² these objects of material culture are also studied within areas such as musicology, ethnomusicology, anthropology, archaeology, area studies, art history, iconology, and museology. The range of these fields clearly illustrates some of the diverse aspects embraced in the study of musical instruments (e.g. van Gulik 1940; Sachs 1940; Grame 1962, 1972; Winternitz 1967; Grame and Tsuge 1972; de Vale 1977, 1988, 1990; Tsuge 1978; Simonson 1987; Kárpáti 1989; Brincard 1989; de Vale and Dibia 1991; Johnson 1993).³

1. The terms 'musical instrument' and 'music' are used initially on the surface level of inquiry. Indigenous concepts would, of course, predominate throughout a specific analysis, where it could be seen that certain forms of behaviour and ways of conceptualising sound-producing instruments may relate directly with similar terms cross-culturally.
2. Descriptions of the range of organology are provided by, for example, Hood 1971, Wachsmann 1984, Dournon 1992, De Vale 1990, and Kartomi 1990.
3. These authors, among others, have examined musical instruments beyond their purely physical form and have tended to look at such aspects as cultural meaning, symbolism, mythology and iconology, seeing musical instruments more as signifying objects of music material culture than as sound-producing objects alone.

None the less, although the main focus of ethnomusicology is on the music or sound object in its socio-cultural context, the discipline might also explore the study of musical instruments in a way that is generally more holistic than that of some other fields. This is primarily because ethnomusicology can combine aspects of organology, musicology and anthropology to produce a study of instruments that includes an examination of the interrelationship between the material object, its context and its music, together with an understanding of the meanings connected with each of these areas in specific and general environments (i.e. the contexts in which a sound-producing instrument is played or understood).

The present discussion deals with four main areas of study that illustrate some of the ways in which ethnomusicology may study musical instruments: form, context, performance environment, and the interrelationship between instrument, performer and sound object. The identification of the form of the material object and the context in which it is found, which may include its performance environment, show the function of the instrument in specific situations. The importance of studying the event in which a sound-producing instrument is used, in order to understand its functions and meanings in culture, is illustrated in the penultimate section of this article. It is argued that the object of analysis is not just the instrument itself, but the combination of the player and the sound produced, together with the underlying meanings that are connected with the event in its entirety.

Form

A basic question that is fundamental to an ethnomusicological examination of musical instruments is, What are they? This brief but very challenging question is intended to provoke an analysis of the form, function and meaning of musical instruments and other objects so that they may ultimately be understood in a way that is not alien to the different cultures and contexts in which they exist. While this question necessarily makes a predetermined judgement as regards certain sound-producing objects by classifying them as 'musical instruments', the actual aim of the inquiry is to motivate analysis of sound-producing objects and not to assume that they have the same attributes as similar objects in other cultures. Just because some objects of sound-producing material culture are used in a way that can be directly compared cross-culturally does not necessarily mean that the objects used are conceptualized or function in the same way. Ethnomusicology must aim to produce an organology which is an anthropology of sound-producing objects, in the same way that it aims to produce an anthropology of music.

Cross-cultural comparisons of sound-producing objects might well conclude that there are objects that can be classified universally as musical instruments, but as Kartomi (1990: xvii) has pointed out, 'not all cultures have classifications of

instruments', although 'few cultures may be isolated as having no musical instruments at all'. This is directly relevant to ethnomusicology, which recognizes that not all cultures have a distinct concept of music. 'There are many societies that have no word for "music" and do not isolate it conceptually from dance, drama, ritual,⁴ or costume' (Blacking 1987: 3).⁵ Should ethnomusicologists look at dance instruments, drama instruments, ritual instruments, costume instruments, etc.? Such classifications and others should be isolated for examination, but only if that is how they are classified in the cultures concerned. It goes without saying that even though the concepts of 'music' and 'musical instrument', together with their equivalent translations, are found in many cultures, initially the sound and its sounding objects should not be compared directly with the same concepts in other cultures. Concepts must not be confused cross-culturally, even though such cross-cultural comparisons may actually help explain culture at further levels of analysis. The main concern here is that sounds do form part of a mode of human behaviour in which the term 'musical instrument' may be applied cross-culturally, although it must be regarded as a general term only, even though it may initially bestow false meanings upon the objects concerned.

Even musical instruments themselves do not always function primarily as producers of humanly organized sound,⁶ but their involvement in music conceptualization gives them the status of musical instruments, and they should be studied as musical instruments even if they are never played. The conceptual divisions between musical instruments, sound-producing instruments and even objects that are capable of producing sounds are categories which should be considered the standard starting-point in any research concerning sound-producing environments. Some objects of material culture may well be classified as musical instruments, and others may be seen as sound-producing objects (whose function is found outside the 'music' environment). An object is not always seen as a musical instrument just because it is capable of producing sound. Also, even if the object concerned is not conceptualized as a musical instrument playing music, it may still be demarcated for study as a musical instrument because of the human behaviour involved during the 'performance' of the sound-producing object. In this case, it is the human behaviour and conceptual frame involved that is studied in relation to sound-producing material culture and not just the concept of a musical instrument (cf. Merriam's 1964 ethnomusicological model for the anthropological study of music). The example of sound aesthetics in traditional Japanese gardens helps illustrate this point. As Schafer (1992: 40–1) notes:

4. See De Vale 1988 for a discussion of the use of musical instruments and ritual.

5. The lack of an understanding of the functional contexts of musical instruments helps to explain the lack of an organological theory of dance and voice. While for practical reasons it is difficult to capture the dancer or voice for museum display, the human body must be seen as a musical instrument if that is how it is used.

6. 'Humanly organized sound' was the term used by Blacking (1973: 26) to define 'music'.

Japanese gardeners traditionally cultivated the many variations [of sound] which water produces, not only in their placement of rocks in the beds of streams to modulate the sound, but also in their use of decorative bamboo irrigation pumps which tip when filled with water and drop back against stones producing pleasant hollow pitches. One researcher, Ya Wakao, had devoted himself to the study of water harps...resonating jars [*suikinkutsu* 'water, *koto* (zither), cave'],⁷ buried under rock basins where the hands were washed before entering the tea house. The jars, which served no purpose, were set so that the spilled water which dropped into them would produce a melodic cascade of hollow pitches from below. The water harps are found only in the oldest gardens; the tradition seems to have been abandoned about two hundred years ago, but the soundscape group hopes to revive it.... It would be futile to debate whether such things are music; I would call them examples of soundscape design.⁸

It is not being maintained in this instance that all objects which produce sound are musical instruments, but it is suggested that sound-producing objects should not be ignored in ethnomusicological discourse concerning sound environments, because all sound-producing objects are surely capable of being objects which produce sound during a form of human behaviour that may generally be labelled music-making. A musical instrument makes music (or an equivalent or related concept), and a sound-producing instrument or object only makes a sound during everyday behaviour or in the conceptualization of that behaviour. Only when the conceptual frame functions to negate the mundane does the object become a musical instrument. This distinction is primarily intended to show that a musical instrument is a sound-producing object of material culture used to make humanly organized sound during a context which is aesthetically removed from everyday behaviour.

A discussion of the form of sound-producing instruments must be followed by an analysis of their function. If they are objects used in music-making, whether or not they are sound-producing objects of material culture, they must be studied as part of that event. The function of the object can only be understood in the context of its primary environment and not in a secondary environment or conceptual frame. While there are indeed objects of material culture which produce humanly organized sound that is not used during music-making, and other objects used during music-making that do not necessarily produce humanly organized sound as their primary function, a category of material culture may be delimited and studied as a musical instrument because it is used essentially as the means by which humans meaningfully construct sound during performance and ritualistic contexts.

7. For an introductory discussion of the *suikinkutsu*, see Tatsui Take No Suke (ed.) 1990.

8. See Schafer 1973 for a further discussion of soundscape, and Feld 1982, Roseman 1991 for examinations of signifying sound environments.

A basic concern of an ethnomusicology of musical instruments should be not the identification of musical instruments, but rather the behaviour and concepts associated with the objects of material culture in the first place. Using such an approach, one is able to assess not only the form and function of material culture, but also the relationship that such objects have with the human structuring of sound. An object may immediately be seen as a musical instrument by a member of one culture, but not by a member of another.

Although organology has mainly examined musical instruments in terms of their physical dimensions, I am not arguing in the present discussion that such demarcation is not beneficial to ethnomusicological dialogue, but I am suggesting that the form of a musical instrument is not always a simple structure separate from other cultural processes and structures, whether physical or conceptual. Musical instruments are usually discussed in terms of their primary form without considering the many extensions of the primary object that would inevitably help to reveal the true musical instrument by interrelating the object to the performer and the contextual environment. A musical instrument or equivalent, to use a general definition of the term, can only be understood fully once its form is known in direct relation to its function and meaning.

Context

The form and function of a sound-producing object must be identified at the initial stage of the ethnomusicological analysis of musical material culture in order to establish whether or not it is directly relevant to the study of music. It goes without saying that the context in which a musical instrument is found and the rationale concerning the presence of an observer who acknowledges its existence may be seen analytically as the two areas in which the meaning of the material objects concerned may be examined.

The relative lack—though by no means absolute neglect—of consideration of the meanings of instruments outside their academic or museum forms has done little for the development of an ethnomusicology which is able to examine comprehensively the performance event in which sound is structured aesthetically with musical instruments. Ethnomusicologists have often approached the study of musical instruments by using a methodology that misrepresents the true and functional portrayal of instrument form, function and meaning. To separate the object of analysis from its performer—or performance (physical or conceptual)—and context is to take away the true environment in which the musical instrument and its culture can be understood.

The universally used classification system established by musical instruments of Hornbostel and Sachs (1961 [1914]) has become the paradigm of organology in many cultures in the same way that the use of five-line staff notation has proved

to be inadequate in the ethnomusicological depiction of music sound. Just as ethnomusicologists find it difficult to depart from their often ethnocentric visual forms of sound, so too do organologists face a difficult task in parting with a classification system that is practically ubiquitous to the field. As a legacy of the colonial age, museums catalogue their collections of 'exotic' musical instruments in a methodological and consistent way which covered all instruments. The Hornbostel and Sachs system and its modifications (see Kartomi 1990) do help in conveying knowledge about instruments, but I contend that such information says more about the cultural frame of the analyst than the musical instrument itself. The observer of an instrument in the context of a museum, for example, is usually confronted by an abstract display of the primary form of the material object, in which it is very often understood aesthetically in terms that are alien to its indigenous culture. In this context, the musical instrument is displayed in such a way that little more than just the basic structure of a sound-producing tool of material culture is shown, very often with little visual presentation of even the way in which the instrument would be positioned by the player in a performance setting. Aspects concerning the performance environment and the interrelationship between instrument, performance and music are rarely found.⁹ Without undermining the heuristic function of museums in helping to give the viewer a visual representation of an object outside its cultural or performance context, such an initial medium of representation should be seen as an abstraction of the object's more complex and extended structures.

In the case of a musical instrument, the signification of meaning must be concerned primarily with the practical function of the instrument in the first place. Of course, instruments which are not played will be examined in connection with their cultural meaning and importance in signifying aspects of the culture's concept of music. While any context will have a plethora of signifiers and signifieds, the performance (or playing) context is part of the musical instrument's functional environment and should be considered in its entirety during ethnomusicological discourse.

Performance Environment

Based on the premise that a main function of a musical instrument is to play music and that ethnomusicology is mainly concerned with the sound object itself, it may be postulated that the true context of the musical instrument in ethnomusicological

9. Some museums do aim to provide a 'working' environment for their artefacts, or else additional audio and/or visual mediums with which to enhance the display. See Arnold-Forster and La Rue 1993 for a discussion of the problems of museum displays of music and musical instruments.

analysis is the performance environment.¹⁰ In order to emphasize the importance of studying music and musical instruments during performance, in this part of the discussion I argue that while the abstraction of an object for analysis can reveal certain physical features within a limited contextual frame, such a process can never obtain a full understanding of the functional meaning of an instrument without taking into consideration the event that constitutes the human behaviour and concepts in which the objects are found and used meaningfully during music-making. An examination of the sound object might also attempt to include the sounding instrument as part of any holistic analysis. As de Vale has commented (1991: 255), 'trying to understand musical sound without first investigating the musical instrument is akin to trying to interpret the meaning and function of a disembodied voice or attempting to understand vocal music without understanding the text'.

Musical instruments may not always be made primarily to play music, but the study of instruments made for this purpose should aim to identify the relationship between sound-producing objects and their performers in the musical context. Even if an object is not considered to be a musical instrument by either the culture concerned or the field-worker but still produces sound during music-making (or an event where sound is conceptualized as being removed from the mundane), its performance (or conceptualization) may be seen to constitute an event which can help in the understanding of how cultures structure sound, which may itself be directly related to musical structures within that specific culture and others.

The performance context is the true functional environment in which a musical instrument signifies its primary meaning in music-making. All other concepts and contexts concerning the instrument should be seen comparatively in direct relation to this primary context. Using such an approach, even the form of an instrument can be extended in order to understand exactly how it interacts with its performer and performance context. For example, as Sorrell (1990: 20) comments in connection with the *gamelan*, instruments that are held are regarded as 'essentially extensions of the human body (and voice) and those which are not held as essentially depersonalized. . . . The gamelan is in fact hardly touched at all. It is the mallets which make the contact, and only on some instruments are the hands used, usually in the secondary function of damping.'¹¹ Indeed, this is actually how the *gamelan* gets its name; as Lindsay (1979: 9) has noted, 'the name "gamelan" refers to the method of playing the instruments—by striking them—as they are almost entirely percussion.'

While the intermediary devices that connect the instrument to the performer are basically finite in form, the extension devices that connect the musical

10. Waterhouse (1986) and Yamaguti (1986, 1991) have also argued in favour of a more holistic approach to the study of the performance event.

11. Sorrell (*ibid.*) makes an analogy with bells and organs in churches in order to stress that the extensions of instruments are fundamental parts that must be taken into consideration: 'the ropes intervene between ringers and bells, and the organ keys serve to unlock the sound'.

instrument to its performance context may be seen to occupy two distinct levels of analysis.¹² On the one hand there are the immediate objects that may support the instrument (including the performer), and on the other hand there are the objects that extend from the supporting objects. The former are the primary extension objects and the latter must be seen as secondary, although they will certainly help in the holistic study of the instrument in general.¹³ The musical instrument, performer and performance context are examined in an attempt to understand not only the music and its function, but also the cultural form and function of the material objects involved in the performance environment in general.

Instrument, Performer, and Sound Object

The examination of musical instruments in their performance contexts while they are being played during music-making will help show the interrelationship between material object (musical instrument), performer, and sound object (music), thus allowing the performance event to be understood in its entirety and revealing how material objects are used in the production of organized sound, whether or not the event is actually seen as music. Using such an approach, the object of analysis can also be correlated with the total environment of the event, taking into consideration such aspects as aesthetics, meaning, the function of the performance, its reception, and temporal and spatial features. The function of a musical instrument often goes beyond the purely musical, and in many instances the playing of music is secondary to the symbolic function of the music, instrument or event. While the form, function, and meaning of instruments is the main focus of this discussion, the tripartite model of instrument, performance, and music that forms the object of the study should be seen as an initial stage in an ethnomusicology of musical instruments. In this approach, the function of sound-producing instruments is related directly to the behaviour, and concepts that contribute to the events in which musical instruments are the main focus of attention.

The type of approach being put forward in this paper may thus be seen to be directly related to Merriam's (1964) tripartite model, which regards the interrelationship between music, behaviour and concepts as fundamental to

12. This area has been analysed by the author (1993: 213–38) in connection with the Japanese *koto* (thirteen-stringed zither).

13. As Wachsmann notes (1984: 408), the organological approach of Dräger (1948) included physiological features that 'led him to consider not only aspects of the object as they present themselves to the eye but also the many linkages that tie a musical instrument to the player's person', although he still aimed at producing a classification system for cross-cultural analysis.

ethnomusicology. While Merriam did briefly consider musical instruments (ibid.: 64), the application of such a model to instruments themselves during their function of music-making is seen to be equally useful to ethnomusicology. An ethnomusicological examination of musical instruments must aim at not neglecting the concepts and behaviour that underlie the function of these material objects. Through an analysis of musical instruments in ethnomusicology, the principles of organized sound may be examined in direct relation to the behaviour and concepts that contribute to the performance event. This is not to say that such an approach is a unified theory for ethnomusicological research, but it is a method that can help show how musical instruments are meaningful objects of material culture that are just as much part of the music as the sound itself.

In connection with the Afghan *dutār* (long-necked lute), for example, Baily (1977: 275) has commented that

The way the human body is organized to move is, in certain respects, a crucial element in the structure of music. A musical instrument transduces patterns of body movement into patterns of sound. The morphology of an instrument imposes certain constraints on the way the instrument is played, favouring certain movement patterns that are, for ergonomic reasons, easily organized on the instrument's spatial layout. Thus, the interaction between the human body and the morphology of the instrument may shape the structure of the music, channelling human creativity in predictable directions.

Music is therefore determined by the range of the instrument, the physical and 'musical' ability of the performer, and the relationship between the morphology of the instrument and the human body. Stockmann too pointed out (1991: 326) that 'the construction of . . . instruments may materialize and fix the basic features of a musical system, and their shape and function, moreover, may signify extramusical meaning.'

The actual 'architecture' of the instrument itself, which thus reflects structures within the cultural whole, may also be related to the organization of the music. This point has been made by de Vale and Dibia (1991: 35) in connection with the Indonesian *gamelan* orchestra, in which 'the "three-ness" which informs the structure and design of the *plawah* [resonator cases] and the bronze sounding parts is also inherent in the nature and function of *gamelan* music'. Such correlation is seen to be a fundamental aspect of the structuring of material and sound culture. De Vale and Dibia's remark that 'the orchestration of *gamelan* can be explored as a musical icon of social structure' (ibid.: 40) seems appropriate in this instance, emphasizing the importance of correlating music structure and the environment in which the music is played (see also de Vale 1977).

The spatial layout of the construction of the instrument may correspond to the organization and use of space in the context of the instrument's performance or even to aspects of the instrument's society in general. Even such areas as the dress of the performer and notations can be seen to contribute to the meaning of

the performance of musical instruments in general.¹⁴ The visual analysis of the performance event can also contribute to ethnomusicological analysis. The basic movements of the performer will obviously correspond to changes in pitch in the music and thus become a visual means by which one can read the performance. Tokumaru (1986: 116), for example, in connection with the *shamisen* (three-stringed Japanese lute), noted the importance of the practical position of the pitch and the performer's fingers. He also shows (*ibid.*: 111) how music, instrument, and performer are interrelated by noting Abraham and Hornbostel's transcription (1975 [1903]: 51, n. 41) of Madame Sadayakko's *koto* performance at the beginning of this century in Berlin:

They [Abraham and Hornbostel] must have visually observed Madame Sadayakko playing the *koto*, and on the basis of this were able to discriminate between 'the tones raised by pressure on *koto* strings' [indicated with x in their transcriptions; called *oside* (*oshide* 'pushing hand') in traditional terminology; Abraham and Hornbostel 1975: 68] and the unpressed tones. They must have read the facial expressions of the Japanese musicians, because they wrote 'we should mention here that the innate politeness of the Japanese makes it very difficult to obtain an unfavourable opinion'.

Through a study of the interrelationship between musical instrument, performer, and sound object, one is able to understand the functional context of performance as a meaningful event that can be related to other areas of cultural analysis.

Conclusion

This article has not aimed to produce a critical history of organology or ethnomusicology, nor has it attempted to devise a new system of musical-instrument classification (a common concern of many organologists). What it has done is to show that ethnomusicology can contribute further to a study of musical instruments by examining these specific sound-producing objects of material culture in a holistic way which does not exclude the performer or music. The main object of study should not be just the instrument itself—even when the main emphasis is on it—but the interrelationship between the instrument, performer, and music in the functional environment. The performer is, after all, essential to the event, and the music is the primary, though not, of course, the only function of the instrument.

A musical instrument is more than just a sound-producing instrument. It is essential for music-making, and an analysis of the performance event can enhance

14. See Tsuge 1983, 1986 for an examination of these areas in connection with Japanese music.

and contribute directly to ethnomusicological, anthropological, and organological discourse. Musical instruments are not only part of music culture, they are very much part of a wider context where they can contribute directly to cultural analysis. It has been suggested here, therefore, that an ethnomusicology of musical instruments can offer an anthropology of instruments as part of a wider anthropology of music.

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