

SYMBOL AND SOUND: READING EARLY CHINESE INSTRUMENTS

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INTRODUCTION

In his marvelous turn-of-the-century compilation of information and misinformation known as *Things Chinese*, J. Dyer Ball made three points about Chinese music: 1) '... ancient music was of an extraordinary character—for Confucius was so ravished on hearing a piece, composed by the great Shun 1600 years before his time, that he did not taste meat for three years'; 2) this ancient music is indeed lost, for present-day Chinese music is 'deliciously horrible', like cats trying to sing bass with sore throats; 3) all that remains of early music are some abstruse theories, for musical instruments suffered the same fate as the great books, they were destroyed like any object that could give rise to remembrances of past times (Ball 1926, 408–9). Ball was probably not right about the extraordinary character of the ancient music Confucius heard, and what he says about Chinese music of this time must be considered a matter of understanding and taste. But he is certainly wrong on the third claim, for so much has been recovered of ancient instruments, graphics, and texts, that we are not entirely certain what to do with it all.

MUSIC ARCHAEOLOGY

One response has been the emergence of the small field of music archaeology which, to distinguish it from groups of archaeologists digging in the sun with walkmans on, some prefer to call 'palaeomusicology'. My discussion here turns on a particular understanding of the goals of this field. These goals are not to reconstruct music for analysis and performance, but to reconstruct contexts in which musical activity and associated objects had significance. Things found in tombs are things of value, and they have not only a social life, to borrow Appadurai's metaphor, they have an ideational and symbolic life as well.¹

Without adding the special considerations due music, the question of archaeological evidence and cultural meaning is vigorously debated today. The overall process of writing cultural history from archaeological evidence is a departure from material and processual analysis because it must attempt to reconstruct symbolic systems of the societies in question. These symbolic systems cannot be fully measured in terms of objective conditions and functions, but have to be studied 'from the inside', on their own terms. Such systems are crucial because they define the cultural contexts in which material evidence can be associated with human behavior, that is, the distance between the object and the behavior that was associated with it. These cultural transforms can be related to various contexts— intellectual, social, geographic, genealogical, political, and so forth. We can attempt, for example, to analyze musical instruments in any of these, intellectual (as

1. Arjun Appadurai in *The Social Life of Things* defines what he calls 'an anthropology of things' by reference to the values of commodities, their roles in exchange between individuals, and the avenues and constraints on exchange. Missing in this analysis of an anthropology of things is the relationship between things and their owner-users outside the exchange context. There is obviously much to be said about a crafted bone flute, perhaps made by and owned by an individual musician, or a magnificent bell-set, commissioned by a royal patron, two kinds of objects which play no role in commodity exchange but have discernible private and public functions.

I will do below with Jiahu flutes), geographic (as I will do below with Zeng Jou Yi bells), social, economic, political, and so forth. On the individual and community level, each context derives from an affiliation and the role it shapes for an individual.

A certain level of abundance in material residues and data on contexts makes possible a move toward the reconstruction of subjective meanings, the ideational sub-systems of the cultures under examination, meaning structures and ideology. We have to take material residues as texts, in that they have a material existence and serve as well as signs. Turtle plastrons with inscribed number patterns that we associate with hexagram divination provide evidence for many interesting queries into the material culture and deployment of resources (e.g., tribute systems, distribution of wealth, diet). They also provide for queries on ideology and symbolic systems that we understand existed in the culture, apart from any particular physical realization of them, among them things we can talk about as numerologies, hierarchies, cosmologies, and correlations.

But how do we get at these latter issues? In addition to scientific examination of the material, what other means do we have, especially when reaching back to times prior to extensive written records? The common tactic is to work backwards through cultural sequences, backwards from times when explicit, written records spell out various characteristics which, by analogy, illuminate the earlier cultures. A step beyond that is the use of the direct historical approach, studying living cultures (and extending by analogy back to extinct ones). K.C. Chang has identified this possibility as a unique strength of archaeological evidence in the Chinese cultural sphere, combining several kinds of data not available elsewhere, in an interactive sphere continuous to the present day (Chang 1989, 155). This is what most interpretative archaeological reporting from China does, sometimes self-consciously and sometimes self-critically. We would be able to say much less about the number symbolism and divinatory function of the Shang trigrams from Sipanmocun if the culture subsequently terminated and we did not have the Eastern Zhou and Han texts in the *Book of Changes* textual sequences.

Establishing musical contexts from scant material residues, the working backwards from much later materials, requires inference and speculation, arguments that have been called 'accommodative' because we use coherence and correspondence to seek historical meaning in early times rather than positive proof (Hodder 1991, 100). With China, 'much later materials' are largely textual materials that reside in a descendant cultural family, including the oracle bone records from the thirteenth to eleventh centuries and the received textual canon, originating around the ninth/eighth century BC. The construction or reconstruction of early historical meaning from analogy is where judgement is most crucial and where discipline need be strictest. It is also, not just coincidentally, where lies the clearest prospect for advancing our understanding of China in the Neolithic and pre-Imperial age.

In the course of this essay, I will look at proposed symbolic functions of certain sets of flutes, shakers and bells. To talk about something like music culture requires a full deployment of the two tactics suggested here: a careful look at archaeological evidence excavated under scientific conditions; and a disciplined reading back. This is not remarkable in itself, but I will argue that laying out an area called 'music culture' and looking with special care—I should say 'listening' with special care—at material residues associated with it, can be particularly productive. As evidence, the musical objects and representations have certain inherent strengths for this project.

One such strength has to do with the nature of the objects themselves, another with the nature of music. Musical objects, unlike many other ritual objects recovered from prehistoric and early historic Chinese graves, encode significant information about their use which distinguishes them from the many recovered things typed with the default

name 'ritual object'. We at least know that instruments were played. We know what to do with a bone flute we pick up; but we do not know what to do with a jade *cong* or *bi*. We do not know what a jade *cong* or *bi* was, although we have hundreds of examples. We cannot say that this is a good *cong*, except to comment on its general craftsmanship. We can say that the man buried at Situn near Lake Tai with fifty-seven finely made jade *cong* was enormously powerful (Chang 1986a, 255), but we have no idea why he was shrouded in *cong*, what they meant to him in life or in death, or what their designers and makers sought in creating them.

Fabrication of musical instruments was always related to certain technical acoustical ends, and we can know something of those ends from biophysics and acoustical science. If we know the desired musical capabilities of an instrument, we have knowledge of the ideal outcome of an object-making investment. That permits us to assess the level of success that technology and fabricating skills attained. We can know something of the music performed, from the physical features of the instruments, the ensembles in which they are found, other objects associated with them spatially and temporally in burials, and graphic depictions on the instruments, on tomb walls, and on other objects. The material residues of interest to us stretch from dust to dust, from the time the instrument was shaped and fired, carved, cast, or drilled, to the time it was interred in the tombs we discover. As we move from the very earliest period into the historic eras where first brief inscriptions and eventually lengthy texts are available, there is a sizeable corpus of texts that discuss music and relate closely to the objects, providing another very significant kind of evidence. Again, this differs from *liqi* ritual objects like *cong*, which have little or no presence in later textual records. In the case of China, there is cultural continuity always, since there was never a total ethnic or cultural replacement of the settlements that originated on the northern Chinese plains from the Neolithic to the state that is centered there now. Some instruments become extinct in Imperial times, but many others survive.

We assume certain universal things about music as an aesthetic and as a symbolic organization, making aspects of it a bit like astronomical data. Music itself, as the Pythagoreans demonstrated in their systems, and philosophers as widely dispersed as Plato, Xunzi and Walter Pater stated, is the most purely formal art; it is the realm of human behaviour in which significance is most fully encoded in structural relationships. At the same time, it links handily the conceptual and the empirical; through music numbers become pipes and strings and sounds. It renders concrete, both visible and audible, what in formal terms is purely abstract. A bone flute, set of graduated bells, and geometrically cut chime stone may be the closest we can get to a record of concepts in a prehistoric and preliterate culture. Because of this linkage, musical instruments directly preserve important vestiges of conceptual systems. Musical systems are inherently periodic and 'radioactive', by which I mean they operate according to a clearly rendered logic, and their materializations in things like flute holes, pipe lengths, string lengths, bell sizes, etc. are systematically incremental. Each materialization of a musical system has a ratio-defined series. The inquiry into systems of symbolic classification itself is inherently formal and highly structured (Needham 1979, 58), and it is clear in later historic China how central musical schemes like the *wuyin* and *shi'er lü* were structures that extended to broad symbolic systems of five and twelve. In time, rhythm is a strongly periodic feature. In space, instrument dimensions and placement, and dance choreography, encode significant geometries, geographies, and meterologies. Therefore, what is reconstructable from recovered instruments and representations is a music culture that we can call the symbolic organization of sound and space. Dance is integral to early music,

making it a kinesthetic activity as well as aural and oral, making it a geometric activity as well as temporal.

I want to explore the use of evidence and the interpretation of symbolization with two different periods and sites, two different aggregates of archaeological and textual data, that attend to different aspects of cultural history. Because this is cultural history, I am interested in culture in specific historic settings, and how specific manifestations might be related to other times and places. One discussion looks at continuities across a vast time span, the other at differences within closely proximate cultures.

A STUDY OF CONTINUITIES: JIAHU

Jiahu is a Neolithic site, dated as early as the seventh millennium, that was excavated between 1984 and 1987 at Wuyang in Henan, near the lower reaches of the Yellow and Huai rivers. It was identified by Zhang Juzhong (1989, 1) as belonging to the Taihao clan of the Eastern Yi tribes.² In the Jiahu burial complex, from a cluster of over 300 graves, several were found distinguished by a set of grave goods and the decapitation of the corpse. These graves are dated to the third period, which by carbon dating is put at 5017 BC \pm 131 years, and the material discussed here comes from two graves, M282 and M344. Among the distinct burial goods are two types of musical instruments or noise makers. These are bone flutes and turtle-shell shakers. The flutes were found in pairs, each member of a pair always of slightly different length, tuned to a major second apart. Nine pairs have been found.

The flutes are carefully crafted and well tuned, showing a tuning precision that indicates sophisticated divisional measurements were done to position the fingering holes prior to drilling. The flutes are seven-hole, eight-tone vertical instruments. The example pictured M282 at Jiahu (fig. 1) has a small tone adjustment hole over the lowest fingering hole. The hole-to-hole measurements are precise divisions apparently made by applying a measuring algorithm or through the use of a template. The adjustment made by the small addition of a tuning hole over the lowest fingering hole responded to variations in pipe diameter and shape and suggest that some kind of water-level tuning process was used empirically after the primary holes were laid out and drilled.³

The pairing of the flutes is uniform from tomb to tomb, one larger and one smaller, consistently a major interval apart. The pairing was designed for certain musical considerations, or at least the parameters of the match make possible certain musical uses. Each flute consists of a primary triad and a set of accompanying notes. The accompanying notes of one fit the major triad of the other. The persistent pattern of the pairing of flutes and the structured nature of the pairing reveal more than a nascent dualism in the conceptual stores of the Jiahu people.

The other sounding objects in the Jiahu tombs under investigation are turtle-shell shakers, rattles made by stringing on thongs eight turtle-shells filled with a number of pebbles. The pebbles are of assorted color, and appear to have been selected for four basic colors. Such shakers were already known from later sites, but this find now stands as the

2. For additional information on the Yi and their relationship to the Shang and Sandai history, see Chang 1983, 298.

3. Details of this technique are in Wu Zhao 1991b, 187–90. The complex process proposed by Wu is far from proven, and it is possible that something much simpler was employed.

earliest evidence for them discovered to date. The shell pictured in fig. 2, M344:18, has an inscription that resembles the character *mu* (eye).

The occupant of M344 at Jiahu is a young male buried supine extended. The burial goods were distributed around the skeletal ornament remains in an organized manner. The sketch of the burial arrangements in fig. 3 shows the skeletal remains, the pair of flutes at the left hand of the corpse, and the eight turtle-shell shakers replacing the missing head. In addition to the flutes and shakers, a number of bone arrows and fishing harpoons were at the feet, and below the left shoulder were found drilled bone ornaments that are thought to be headdress fittings.

Certainly many questions are raised by the objects and burial context. What was the purpose of the decapitation? What was the purpose of the hunting and fishing gear? Were these actual implements or were they props utilized in mediumistic rituals? Do the bone ornaments found in proximity to the top of the corpse attest to a shamanic headdress of some sort? Is there significance in the coincidence of the eight pitches and eight shell shakers?

The fullest interpretation of Jiahu musical culture provided by Wu Zhao involves a considerable spread from the Jiahu era, approximately 7000 BP, to the mid-late Zhou, roughly seventh-sixth century BC, when our texts codifying and interpreting the hexagrams were probably assembled. The texts in question here are part of a tradition called the *Zhouyi* (Book of Changes), which scholars believe has very ancient roots but was continually modified and expanded well into the Imperial period. The questions to be answered not only involve how compelling a case the Jiahu materials make, and what kind of evidence might secure the argument. They invite broader consideration of the status and durability of indigenous conceptual systems generally and rules we need consider in discussing them.

ANALYSIS

On the basis of these remains and other tomb goods, the burial context, comparative materials from outside, and analogous practices in later history, Wu argues that the Jiahu tomb holds a person who served a mediumistic and musical function in the society, and his decapitation was part of a burial ritual aimed at disempowering him prior to burial (Wu Zhao 1991b, 192). The persistent pairing of the flutes with a reliable intervallic relationship, the eight pitches of the flutes, the four colors of the pebbles, the assembly of the shakers in groups of eight, and the tentative identification of the inscription constitute evidence Wu uses to support the construction of a conceptual system in Jiahu culture and relate it to traditions of divination and numerology known from texts millennia later.

In Wu Zhao's work on Jiahu, the claim for ritual function of burial objects derives from the claims about the social function and status of the man who occupies Jiahu M344 and graves of similar class. Wu Zhao refers to him as a shaman, although the social organization of Jiahu equinoctial map on the jade plaque culture in particular, and the Neolithic anywhere in China in general, are not at all clear. Certainly, the notable features of these nine burials (decapitation, paired flutes, turtle-shell shaker headpiece) suggest a social context, at least for them as a set of features. In other words, they are close enough to each other in their salient features to rule out the possibility that M344 is an individual case. The only texts of certain value on early Chinese mediumistic cultures are those of Chu represented in the *Chuci* (Songs of the South); we have evidence that mediumistic flights involving trance and music were part of the Yangtze River

cultures of the first millennium BC. There is evidence for shamanic activity in Shang culture, including the interpretation of the character often read as *wu* (shaman), but it is inconclusive. In Chu culture the association of shamans and musical activity with birds is well-attested in decor on silk and bronze, instrument inscriptions and stands, and other forms of representation. But there are questions about extending this analogy to northern Henan.

The decapitation and apparent replacement of the head with the turtle-shell shakers is provocative in this context. The general speculation about decapitation burials falls into three classes, two of which relate to a possible social role as a medium or spiritual leader. The first argues that decapitation is done to reduce the chance that a person specially empowered in life will do mischief in death, that his post-mortem being could disturb or pollute the world of the living. I believe this fits closely with the conception of the post-mortem existence documented in texts from the late Bronze Age on and relates well to widely represented themes in later culture, themes about ghosts, avenging spirits, and other manifestations of dead who were not securely ensconced through proper ritual in proper physical facilities. The second explanation of decapitation argues that it is done so that something of a person specially empowered can be retained as an instrument by which the power itself is in some sense retained above ground and in the world of the living. This does not reflect any practices I know from later China. The third explanation suggests decapitation is a ritual of conveyance to speed the deceased on his way to a post-mortem abode. This also does not relate to any conceptions of death I know from subsequent textual or graphic materials.

For the Chinese Neolithic, we may be very far from resolving issues that turn on the social, political, economic and ritual roles of tomb masters like Jiahu M344. Does this mean we have to overlook this very appealing evidence? Can we talk about the ideational and symbolic life of the objects, apart from the role of the owner? The most serious conceptual issue is raised in connection with numerologies and their implied symbolic classification systems. Can we infer from the appearance of number systems, especially when reflected in several related but distinct manifestations (e.g., eight pitches, eight turtle-shells in a set of shakers) that the count itself was mapped to a classification scheme for a larger set of phenomena?

Dualism in China as we know it from the fourth century BC was most often codified as *yin-yang* and expressed as various pairs—white and black, male and female, hot and cold, heaven and earth, and so forth. The pairing and sizing of the Jiahu flutes has led Juang Xiangpeng and others to refer to them as male and female members of the set, although there are no claims made as to which is which. In the fifth century BC, there are paired *chi* flutes of the Warring States Marquis Yi of Zeng tomb, and there are paired *di* flutes in the Mawangdui finds from the second century BC. Jiahu is to date not only the earliest example by many millennia of the paired flute tradition, it is also the earliest site yielding finely crafted eight-tone instruments.

The existence of these pairs accords nicely with a mythological account that has a sage hero named Ling Lun tuning his bamboo pipes to the voices of the male and female phoenix. Ling Lun fashions twelve pipes, making six pitches of each gender, interlocked in a twelve pitch scale.⁴ This is reminiscent of the conceptual framework for the Jiahu paired flutes, although the Jiahu scheme includes eight pitches, not twelve. Interestingly,

4. *Lüshi chunqiu* (Spring and Autumn Annals of Mr. Lü), 5.8a–9a.

an early Han work, the *Huainanzi* (The Book [of Natural Philosophy] of Prince Huainan, c.120 BC) is quoted as defining an alternate received scale in eight pitches.⁵

The effort to interpret the dualistic or dyadic evidence raises questions about the cultural breadth of the structures and contexts at Jiahu. A highly systematized correlation scheme, involving much of the phenomenal world, was in use by the early centuries of the Han dynasty, and records of it are voluminous. The division into *yin-yang* is fundamental to these correlations. But this is already some five thousand years after the Jiahu strata that yielded the flutes, and the first textual mention of paired flutes is not found with trigram design until the medieval period, in the *History of the Jin*, compiled in the seventh century AD. Yet, there is little doubt that a symbolically rich dualism did attach to the sun and moon, and other central *yin-yang* metaphors much earlier. When we refer to the flutes as 'male' and 'female', is this categorizing a terminological convenience for us? or is it an argument that there was at Jiahu the genesis of a concept, whatever it was, that evolved into the dualism encoded in *yin-yang* thinking millennia later? or is it a claim that Jiahu villagers associated these paired instruments with a dualism that was already explicit and gendered as opposed to one that was gender neutral (as in a basic Marxist description of social moieties) (Needham 1979, 7–8).

In seeking evidence for a conceptual link beyond the numbers, Wu Zhao turns to the inscribed character on the turtle-shell shaker, arguing that it is a version of the graph *mu* (eye) as it was later used and can be related to the association made between the trigram Li and its reference to eyes in the 'Shuogwa' (*Shisanjing*, 185). This is obviously a highly speculative association, but it does invite us to consider what kinds of conceptual continuities can be soundly argued.

We have to start with what symbolic content can be objectively discerned from the recovered objects, and here this means the numbers themselves. In the Jiahu find, we can argue for the importance of certain numbers, especially two, four, and eight. We have to ask what indicates a meaningful level of uniqueness. Dualism, after all, is so universal that some anthropologists have identified binary opposition as a natural proclivity of the human mind (Needham 1979, 57). What endures in a numerological conception, the number, the broadened network of associations, the classificatory, analogic, or hierarchical extensions? To begin, it seems to me that the number itself is more important than a particular manifestation or manipulation of it. In other words, the appearance of eights is more significant than the casting of coins to derive them as opposed to the drawing of yarrow stalks to derive them. Eightness is more important in itself than its representation in a set of trigrams, or an eight-part equinoctial division of a compass, eight eyes on a *cong*, or an eight-pitch division of an octave. To argue the early emergence of an interest in eight is significant; we would have to find evidence that it continued over a certain stretch of time, and also evidence that it was not widely prevalent outside the Chinese cultural sphere.

In 1989 an interesting find was published from Hanshan in Anhui, the stratum datable to approximately 2000 BC and identified as a late Dawenkou culture site. Two finely fabricated jade pieces were recovered, one a jade turtle, the other a jade 'compass'. The compass, an oval disk approximately 11 x 8.2cm. had a very well developed directional vane based on an equinoctial division of the circle into eight and four parts. This discovery has been hailed by Chinese scholars as the earliest example of the *bagua*, eight trigrams composed of all combinations of three broken or unbroken lines, the basic building block of the complex numerological system later encoded in the *Zhouyi*. Since various geometric projections of the *bagua* are familiar from much later times, the Dawenkou plaque is

5. in *Yühai*, 483.

easily related by the authors of the analysis to a circular projection of the *bagua*. It bears a striking resemblance to Shipan well attested by the Western Han dynasty.

In one scholarly study of the plaque that attempts to unveil the symbolism and epistemology of this stratum of Dawenkou culture, the authors claim that circular projections represent the universe, and the equinoctial marking the changes of the seasons. Through this rendering the connection is forged to the numerology of fours and eights in the *Zhouyi* itself, which is itself explicitly linked to cyclicity in nature, especially seasonal changes (Chen Jiujin and Zhang Kingguo 1989). Although like Wu Zhao's analysis of the inscription on the Jiahu turtle-shell shaker, this set of connections reveals a lot of exuberance. The plaque is in fact a rich piece in this regard. It is a basic square shape, what in later Chinese culture is widely recognized as the symbolic representation of earth, within which is incised a circle, the symbolic representation of heaven. A multiple nesting of four- and eight-pointed forms leaves no doubt that the plaque records a numerologically significant system of symbols.

There are other pieces among Dawenkou relics that indicate an interest in eight. Among these are some simpler items, including a piece identified as a sharpening stone, pictured in fig. 5. Dawenkou culture is extensive, spanning the geographic range of Anhui, Jiangsu and Shandong regions. It is also durable over time, from 4300 to 1900 BC, with the latest strata associated most closely with complex inscribed pottery marks that are being examined as a possible clue to the origin of writing (Cheung Kwong-yue 1983). They are reminiscent of the lunar diaries and mobiliary art catalogued by Marschack and call for a study of patterning (Trigger 1989, 350–1).

At the very least, the Hanshan site makes a good case for bridging the late Neolithic to numerological traditions written into the major canon in the late Zhou, traditions very well known in the *shi* or *shipan* diviner's compass of the Han, which it resembles most markedly. The numerology is very close to that of Jiahu—eight shakers, eight tone pipes, four color pebbles, paired flutes, and turtle-shell motifs are central to both cultures; but how good is the case in that direction? We will need to look at other connections between Jiahu and Hanshan, or Dawenkou culture generally. A great number of turtle-shell shakers have been discovered in Dawenkou sites, which helps establish the continuity (Shandong 1974).

Eight is arguably a somewhat unique number, different from a gendered 'two', a natal 'three', an anatomical 'ten', or an astronomical 'twelve' or 'twenty-eight'. Rodney Needham in his *Symbolic Classification* does not record an eight in his chapter 'Forms of Classification', although he makes no claim to completeness. He includes 'two', 'three', 'four', 'five', 'seven', and 'nine' (Needham 1979, 6–15). As a hypothesis, I propose that eight derives from a skill in number manipulation itself, as opposed to an observation of cyclicity in nature, the convenience of fingers for counting, and the like. This skill can be constructed as a concept skill or a mechanical one. We can see its mechanical form as either the third order of a simple division into halves, as in the equinoctial rendering of the Dawenkou compass, or a counting/sorting product of gendered pairs and a scheme of four directions or colors, such as that indicated by the colored pebbles in the Jiahu turtle-shell shakers. Whether one reflects on a conceptual model or a mechanical model by which eight would emerge as a key number, one would expect to find an underlying dualism and some reflection of the importance of three, the power of two to reach eight in the conceptual scheme, the number of iterations of the basic division into two to reach eight in the mechanical scheme. There was one intriguing piece reported from the central Dawenkou site in Shandong's Tai'an prefecture, an ivory comb that shows a strong interest in three, with a course of hexagram-like three-line figures, dual three-mark edges, and three holes on top (26:15, Shandong 1974, 95). The significance of this piece and the

possible importance of twos, threes and eights in connection with Jiahu and Dawenkou culture can be tested as more of the information from the find is published and a clearer picture of the shakers emerges.

Hence, the musical materials at Jiahu are read as potential keys to the origins of various features of later thought, especially divinational practices in the *Zhouyi* traditions.⁶ This is a particularly challenging undertaking, given the great spans of time involved. But there is, at the very least, nothing glaringly inconsistent in the constructions made of Jiahu culture and the conceptual systems of its musical culture. Proof of the claims must await many more discoveries, for Jiahu and for intermediary cultures, but the speculation itself is productive as a tentative framework for understanding the material evidence as we know it.

Before leaving this set of questions aimed at uncovering cultural continuities over large stretches of time, I want to touch on the relatively less ambitious project of identifying roots of trigrams, hexagrams, and milfoil divination, because it presents a similar problem of tracing symbolic classifications over time with discontinuous records. It has been about fifteen years since Zhang Zhenglang associated certain graphs found at Zhouyuan sites with *Zhouyi* hexagrams. Other scholars were quick to gather examples of trigrams on Shang oracle bones from Sipanmocun, Zhou bones from Zhangjiapocun, trigrams and hexagrams from Zhouyuan bones at Qishanxian, other examples from early Western Zhou bronzes, and from pottery and jade seals for a total of thirty to forty examples predating the mid-tenth century BC.

These examples are mostly made up of sets of three or six numbers, which include only the digits 6, 1, 7, 8, 5, listed in descending frequency. A few early Zhou examples are made up of broken and unbroken lines. Intermediate accounts of milfoil divination, from the *Zuozhuan* and other records, bridge the evidentiary gaps from the early Western Zhou archaeological recoveries to the maturation of the *Zhouyi* texts perhaps one thousand years later.

A STUDY OF DIFFERENCES: ZENG HOUYI

I want now to move to the Warring States to look at cultural differentiation. Histories of the Warring States have frequently been written as political, social, and military histories, chronicling the process of alliance and conquest that reduced over one hundred Zhou kingdoms to a unified China under Qin. Less often told is the story of cultural interaction, which similarly led from a period of rather diversified cultural systems to something identifiable in the Imperial period as Chinese culture.

The writing system is a good place to begin this inquiry, because knowledge of writing was common to all stages, yet the precise forms differed, and scholars of the Qin unification have raised a serious question about the Warring States situation. Han sources (*Shouwen*) attribute the origins of the Zhou style inscriptional writing to Signmaster (*Taishi*) Zhou, of the early Western Zhou. Subsequently, tadpole script is associated with the areas of the Jin people, and bird script with the Chu, Yue, and Cai peoples. By the mid Warring States period, each of the six states east of Qin began to develop highly idiosyncratic writing styles, with various simplifications and substitutions that increasingly made them mutually intelligible. It remained for Qin to unify the script, possibly with their version of a Western Zhou script descendant, as one measure of a set

6. I am indebted to Wu Zhao for two recent publications and a great deal of personal explanation for the Jiahu discussion. See Wu Zhao 1991a, 1991b.

of unifications that extended from axle widths to ideology. Under the Qin, *li* script, long the official standard of Qin, became the standard for unified China (Li Xueqin 1985, 453–9).

I review this history because it raises questions about how we view the relationship between communities of people and their geographic location, and how we raise questions about cultural diffusion. Problems relate to the diversity of writing systems among states when 1) it occurred during a time when literate members of the states were highly mobile and nearly certain to be in touch with literate counterparts in and from other states, 2) received texts suggest that there was some kind of common canonical core of materials, 3) given the shifting political centers and generally menacing situation during the Warring States, there could have been a significant contribution to stability with a more uniform writing system, and we might expect it to develop as an adaptive feature of the literate states as a group, and 4) we expect cultural diffusion if not homogenization to occur when societies at comparable stages of development are in close proximity and contact. All of these problems are variations of a single question: why, when we expect China to be in the process of becoming culturally more uniform, are certain aspects of culture becoming more diverse?

THE BELLS FROM THE MARQUIS YI OF ZENG TOMB

In 1978, a rich hoard of instruments was recovered from the tomb of the Marquis Yi of Zeng, the tomb in Leigudun, Suixian county, Hubei, a short distance from the present city of Wuhan. The inventory includes instruments of bronze, stone, lacquered wood, and bamboo. Based on a dated inscription in a central dedicatory *bo*-type bell, the tomb has been dated to 433 BC or shortly thereafter. Instrument caches were found in both the central chamber, something of a ritual hall, and the side burial chamber in which the Marquis was entombed. The huge ritual instruments were together in the central chamber, a sixty-five bell bronze chime set and a thirty-two stone lithophone. Extensive pieces in Chinese and European languages are available on the Zeng Houyi instruments, so I will not review thoroughly other details of the find.⁷ The central bell set is a treasure of extraordinary value by any measure, and it is arguably one of the most important finds in the history of world music.

The ZHY #1 idiophones are larger than any discovered heretofore and far larger than anything pictured on known bronze pictorial vases. Beyond that, the several thousand characters inscribed on them are devoted to a naming tone and pitch gamut relationships, and that has challenged scholars to unravel the underlying logic of Zeng musical systems, compare the musical nomenclature to that from other states in Warring States China, and picture features of musical performance in the State of Zeng. The inscriptions provide names in two formats. What von Falkenhausen calls Type 1 equivalency inscriptions give tone names with various *lü* gamuts. Type 2 equivalency inscriptions relate different regional names for the same pitches (von Falkenhausen 1988, 746). Here I am interested in Type 2, which I call translation inscriptions, because they follow the formula: 'Gexian in Chu is named Lüzhong', 'Xuanzhong in Jin is named Liugao'.

7. See, for example, von Falkenhausen 1988, and Picard 1986.

STUDY OF INSCRIPTIONS, WITH REFERENCE TO VARIOUS STATES

The tomb dating relies on the dedicatory *bo* bell given to the marquis by Chu King Huiwang (Xiongzhang or Jinzhang) in the fifth–sixth year of his reign (Qiu Xigui 1979, 25–6, Li Xueqin 1985, 176–8, von Falkenhausen 1985, 166). But it also presents a problem, spelled out by Li Chunyi (1981), in that the Chu monarch described the gift as a *Zonglyi*, a term in the Zhou inscriptional lexicon that means a ceremonial vessel given a lineal descendant. The Zeng family was not related to the Chu. They were a minor branch of the Zhou family. The orthodox Zhou rulers were surnamed Ji, as were the Jin and Zeng rulers. The Chu family was surnamed Mi, and the Qi and Shen were surnamed Jiang. Zeng, therefore, partook of the formidable ritual authority of the Zhou family name (Li Xueqin 1985, 175–6, 182). Why did the Chu king claim him for the Mi lineage?

From the Han view, Chinese ritual music was performed on scales generated by the intersection of two systems, a twelve-pitch gamut of fixed tuning pitches and arranged in any order. In practice with the commonly specified five-tone interval system, a total of sixty performance scales could be generated. The twelve tuning pitches were related to twelve lunar months in the normal tropical year and to a range of other ritually significant taxonomies.⁸ Von Falkenhausen has shown that the relationship between *yin* and *lü* systems during the Eastern Zhou was complex and uncertain.

The charts attached lay out the relationship of names found in translation inscriptions correlated to the canonical Zhou nomenclature. Keep in mind that the Zeng column includes only those names that are at the head of translation inscriptions. There is no isolated list of nomenclature that could be called Zeng nomenclature. This is a key point. For example, on Mid 3 bells we are told that *hanyin* in Chu is named *wenwang*, *muyin* in Chu is called *muzhong*, and *ruibin* in Chu is called *pinghuang*. On Mid 2 bells, these so-called Chu names appear as the primary names. This raises the question of why some bells record this set—*wenwang*, *muzhong*, and *pinghuang*—as Chu names, others as Zeng names. A related problem is the curious distribution of the translation inscriptions. On the lower tier, they are all found in Low 2, except for one. On the middle tier, they are all found in Mid 3, except for one. In the chart comparing these systems of nomenclature, names attributed to the Zhou lineage and known from the received texts are shown in bold under the Zhou state.⁹

Among the canonical texts, the earliest listing we have of the twelve pitches is the *Guoyü* (Tales of the States) and the *Zhouli* (Program of Zhou).¹⁰ This unique inscriptional record suggests several points about musical cultures as they coexisted in Warring States China. First, what is entered in key records like the *Guoyü*, *Zhouli*, and eventually Sima Qian's *Shiji* (Record of the Grand Historian),¹¹ what I will call the canonical Zhou tradition, does not precisely represent any of the state's systems, including Zhou's, as they were known in Zeng in the fifth century BC and inscribed on the ZHY

8. For an introductory discussion of the mythology and practice of pitches and performance scales, see Needham 1962, 157–83, and DeWoskin 1982, 43–54.

9. A somewhat different chart based on the same evidence is found in von Falkenhausen 1988, 1277.

10. *Guoyü*, 'Zhouyü B', in the chronicle of Zhou King Jing's twenty-third year (522 BC). The list follows a story of the King's unsuccessful attempt to cast a bell at the Wuy pitch level. In the *Zhouli* the list is found in the 'Dashi' section of the Offices of Spring.

11. The first of China's twenty-five dynastic histories, completed about 100 BC. For a translation see Chavannes 1895–1905.

bells. But the Zeng system is clearly more closely related to the canonical Zhou system than to any recorded on the bells.¹²

Second, the systems differ one from another not only in the exact names given pitches, but in the underlying logic of their organizations. The Chu system is structurally different from the orthodox Zhou system in striking ways. The Chu system represented on the ZHY upper tier bells and some mid level bells consists of six basic pitch names, each of which (with the exception of the incomplete *lüzhong*) is diminished with the prefix *zhuo* (muddy/lowered). The Chu system consists of two sets of interleaved and equidistant hexachords, a structure that presents a strongly bipolar logic.¹³

Third, the most fully represented system in translation inscriptions is that of Chu, with twelve pitch names recorded. Next is Zeng with eleven names for seven pitches; then Zhou and Jin with two each, Qi and Shen with one each. In other words, the real interest in making the inscriptions was in establishing a translation between Chu and Zeng pitch systems. Moreover, there are many bells in the full set that use Chu as the primary names, without translation inscriptions and without any reference to the canonical Zhou nomenclature. This suggests that in terms of music and nomenclature, there was a significant flow between Zeng and Chu, and the great bell set of the Marquis could perform Chu musical pieces. However, the diffusion of nomenclature was not congruent with the diffusion of music.

Questions have been raised about the arrangement of the bells, and these influence the way to think about the translation inscriptions. A crucial example is Mid 2:11, which is the only bell outside Mid 3 with a translation inscription in the middle rack, and which would fit well musically and inscriptionally in Mid 3. In addition to having a translation inscription of a class with those in Mid 3, Mid 2:11 fits in between Mid 3:5 and Mid 3:6, precisely one octave below Mid 3:2. Von Falkenhausen (1988, 848–9) argues on the basis of decoration that Mid 2:11 clearly belongs in the set Mid 2. The differences in stylistics are glaring, with Mid 2 set lacking the *mei* nipples of all the other lower and middle tier sets. But I think we have to allow the possibility that replacement bells were made from time to time, either to repair damage or improve sound, and individual items could share features of other sets by virtue of specific historical factors at the time of fabrication. In this sense, Mid 2:11 might ‘belong’ to set 2 in terms of its decorative pattern and set Mid 3 in terms of its musical role and inscription. This could have come about by a replacement bell being made for Mid 3 when the bells for Mid 2 were being cast, to give one example. If Mid 2:11 were moved to Mid 3, the sets Mid 1 and Mid 2 would be musically identical, all sets on the mid tier would be balanced at eleven bells, and the only set on the middle tier with translation inscriptions on the Mid tier would be Mid 3. Such a move makes for a neater layout all round, and it invites a historical explanation of the differences.

If we make this rearrangement or not, it remains true that of the twenty translation inscriptions, on the bottom and the middle tiers, where all occur, there is only one exception each that is not in a single set. The interest in and use of translation inscription

12. Von Falkenhausen (1988, 791–812) takes important steps toward determining what systems of nomenclature might have preceded all of these late fifth-century BC systems, an effort to reconstruct a protosystem from which the variations might have descended.

13. Although the *Guoyü* pitch names closely resemble those associated with Zhou, the *Guoyü* also classifies Zhou pitches into two hexachords, the first set called *lū* and the second called *jian*, imposing a structure that is reminiscent of the Chu structure. Set side by side with the Chu nomenclature, the *lū* notes of the *Guoyü* gamut correlate to the basic notes of the Chu gamut; whereas the *jian* pitches in the *Guoyü* system correlate to the Chu pitches that are diminished with the *zhuo* prefix.

either came into use or went out of use between the time the first and the last bells for the set were made. This process was probably complementary to the appearance of Chu pitch names as primary names on the bells that do not have translations, e.g., most of set Mid 2.

Regional variations have to be compared in two ways: similarity in names and organizational logic of the nomenclature, and actual musical resources. The Zeng system of naming the pitches is nominally and logically more akin to the canonical Zhou than to the Chu. Yet the evidence also suggests that musically Zeng was closely related to Chu. Indeed, the equivalencies established between Zeng and Chu pitch names proves that the pitches were interchangeable, the Chu names were known to the Zeng, and the Zeng chose to maintain a different system of nomenclature. Roughly contemporaneous ideological statements, in the *Zuozhuan* and *Lunyü*, argue that actual musical performance differed dramatically from state to state, yet Zeng created an instrument that may have been able to play them all.

Given the shared border and protectorate relationship between Chu and Zeng, evidenced by the magnificent *bo* dedicatory bell given to Marquis Yi of Zeng by the Chu king, why was the Zeng pitch nomenclature more akin to the Zhou than the Chu systems, even though their actual sounds were interchangeable? Keeping in mind that most of these inscriptions were not even visible to players of the suspended bells, puzzled scholars have asked, 'Why was the labor invested in these inscriptions?'

I believe the answer to this question, significantly, returns to the issue of family lineage. The relationship of bronzeware to family records and preservation of lineage status is amply documented from the early Western Zhou, and it should not surprise us that as late as the Warring States the demands of lineage preservation continued to constrain the inscriptional use of bronze. The lack of musical function of the inscriptions underscores the primarily sacramental, as opposed to musical, significance. It is evident in the stylistics of the bells and their musicality that considerable exchange occurred between Zeng and Chu in the development of the large bell set. In contrast, the nomenclature was a conservative dimension to the Zeng bell-making project. The relationship of the bell nomenclature to family lineage underscores the significance of the bells in particularized and differentiated ancestral ritual practices. For both their potential in political legitimization of the rulers and for effective communication with ancestral spirits, at some point in time but not others, the inscribed texts had to accord meticulously with correct systems, systems that preserved ritually important symbolic property of the lineage.

The ZHY bells and stones document that diversity existed in China in terms of basic tuning gamuts and in terms of performance scales, their generation processes and their contents. They further prove that there was interest in the small state of Zeng in this diversity, and that it went to some lengths to protect the particular lineages and traditions to which the Zeng rulers held. The bells represented a commitment of vast resources to the ritual activities of the state, and eventually to the burial of the Marquis. Instrument making competed with weapon making for available bronze, and there is in the tomb much less weight invested in bronze arrow and spear heads. Since the founding of the Zhou dynasty some six centuries before the Zeng interment, bronze was closely associated with sanctioned political power. Vessels of investiture were cast and inscribed to record for posterity the accomplishments of glorious ancestors. The vast resources that the interred instruments represent suggest that the making of the bells was a central concern to the Marquis and his descendants.

In this analysis of the Zeng bells, I am proposing an argument about cultural diffusion and cultural differentiation located precisely in terms of two specific contexts, one of genealogy and one of geography. Apparent contradictions in the material and textual

record, whether about the proliferation and unification of writing styles or the proliferation and unification of musical nomenclatures, can be resolved if we recognize the plurality of contexts in which culture evolves. There are forces at work that determine and sustain cultural difference, and these may be strongest between adjacent territories, especially where a degree of negative reciprocity characterises the relationship between the two people. Second, that among the determinates of this differentiation process, location is likely to be only one of them. Genealogy, with its implied ritual affiliations, is another.

From the standpoint of the Marquis and the ruling family, we can understand the evidence in the inscription in terms of different affiliation frames in which the Marquis, as any individual and as a ruler, was self-defined. He was Chu'ish in terms of his geography, politics, and security arrangements, but Zhou'ish in terms of genealogy and ritual status. The administrative documents on bamboo strips in his tomb used Chu administrative terminology (von Falkenhausen 1988, 96). His huge bronze bell set was the collision point of these two affiliations, because of the nature of bronzeware itself. Bronzeware historically served political needs: documenting investiture and demonstrating control of weaponry, territory, and military might. It also served the genealogical needs of historiography, sacrifice, and lineage posterity. It is this collision that not only engendered the variety of nomenclatures, but also the remarkable inscription on the *bo* bell, which can now be seen as a kind of adoption by fiat of the Zeng marquis by the Chu king, an effort to detach Zeng from his Ji surname and the Zhou lineage, and make him all the more Chu'ish.

By examining together a diverse range of materials bearing on early Chinese music, it is possible to study both integrating cultural features that pertain to a central notion of Chineseness prior to Qin unification and differentiating cultural features that preserved the cultural integrity and political authority of local cultures and their leaders. Using archaeological and historical methodologies, we can uncover processes which are themselves archaeological and historical, for late Warring States China cultural centers were engaged in an effort to find historical justifications for determining difference, a process of uncovering, analyzing, rationalizing, and maintaining cultural features, like tuning systems and pitch nomenclatures, that they constructed as unique to the empowerment of their particular royal lineages. Competing groups may use material culture to delineate their differences in contexts where they are overtly competitive, and to minimize their differences in contexts where they are cooperative. For Zeng vis-à-vis Chu, material evidence demonstrates the difference between *wen* and *wu*, for the *wen* aspects of Marquis Yi's offerings belong to Zhou, the *wu* side belong to Chu.

CONCLUSION

Reference to the paired flutes of Wuyang, Jiahu, as male and female pairs shows a kind of interpretive exuberance, unless they are used strictly as insubstantial counters. But it is very difficult to ascertain when the symbolic sets associated with *yin* and *yang* became elaborated around paired objects. We might ask what kind of material residues we would need in order to establish symbolic values of objects in this sense.

Typically, archaeological work has to begin with a primarily material look at the evidence, focusing on human interactions with the environment (the processual agenda), then moving upward to human interactions within a society (the New Archaeology agenda), and lastly turning toward ritual and ideology. This search for the structured content of ideas and symbols seeks a high order of understanding that can be meaningful-

ly tied to very dry and dusty things. This invites a higher level of construction of object signification than, say, Middle Range theory employs, and it is closer to what Ian Hodder (1991, 121–55) calls ‘contextual archaeology’. It is essential to explain the diversity and the uncertainty in the evolution of human cultures.

The people that come together at conferences to discuss early music cultures are a pretty motley group, mostly musicologists, with a few archaeologists, cultural historians, physicists, and philosophers. They treat the issues with varying degrees of adventurousness. The least courageous take cover in detailed physical descriptions, taxonomies, organologies, classifications, and charts of physical and acoustical data.

This is essential work, but objects that once made music demand more than this. I have attempted to show that they have voices and tell about themselves in ways that other ritual objects cannot. The disciplined study of the ideational and symbolic achievements of musical instruments will be informative about their cultures in general, not just musical culture. Pursuing this work is consistent with the goals of new trends in archaeology itself, variously called ‘symbolic’, ‘structural’, or ‘critical’ consciousness (Trigger 1989, 339). The understanding of early music culture will make a major contribution to what Colin Renfrew dubbed ‘The Archaeology of Mind’ about a decade ago. The key to the contribution is the discipline brought to the effort, and that requires us to keep one eye and one ear open to the descendant cultures as we read the relics for their significance, but one eye and one ear closed to them as well.

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