

ANCIENT MAYA MUSIC NOW WITH SOUND

A Thesis

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ABSTRACT

The subject of Maya music is by no means a new field of study for Hispanic cultural scholars or Mesoamerican anthropologists. For example, the archeological reports of Dr. Norman Hammond and Dr. Paul Healy have greatly increased the information in this area of study. The instrumentation utilized by ancient Maya musicians and the raw materials that were the essence of their production have been the major themes in these previous publications. However, these perspectives exclude the sound of music and aspects of ancient Maya society. This thesis has been planned to examine ancient Maya music according to archaeology, society and the sound of music.

The first chapter of this study will deal with the known facts surrounding Maya musical instrumentation based on the more popular studies published by Hammond, Healy and other prestigious scholars. The purpose of the first chapter will be to introduce the main forms of instrumentation: idiophones, membranophones and areophones. Then, the second chapter will involve the most popular known exhibition of Maya musical performance, the Bonampak frescoes of Chiapas, Mexico. The analysis of these frescoes will include the sound of the instruments of this performance to draw conclusions about musicians and hierarchy. Next, the third chapter will pertain to ancient flutes and ocarinas, the most common instruments surviving today. I will use the sound and physical characteristics to identify which musical instruments were status symbols. My fourth chapter will deal with the recreation of Maya music that occurs in media productions such as Patricia Amlin's "Popol Vuh: The Creation Myth of the Maya". Master flute makers such as Robin Hodgkinson and Guillermo Martinez will be discussed along with their work to give insights public perception of ancient Maya music. The final chapter will be a summary that will reiterate issues surrounding the instruments, sounds and the musical

hierarchy of the Maya. This last chapter will demonstrate how the sound of ancient Maya instruments has been used to further the classification and information known about this musical culture.

CHAPTER 1: INTRODUCTION TO ANCIENT MAYA MUSIC

The ancient Maya inhabited what is today known as northern Central America and southern Mexico. The Maya area includes the modern Mexican states of Chiapas, Yucatan, Campeche and Quintana Roo. In Central America Guatemala, Belize, El Salvador and northwestern Honduras indicate the southern most extensions of the Maya area. The Maya territory can also be divided geographically into the Northern Maya Lowlands of the Yucatan, the Southern Maya Lowlands of the Guatemalan Peten and the Southern Maya Highlands at the Pacific Coast.

The people of the ancient Maya are studied according to time periods. The Preclassic Period began in 1800 B.C. and marked the Maya's transition from wandering tribes to stationary village dwellers. During the Late Preclassic Period, 300 B.C.–A.D. 250 the culture of the ancient Maya became more complex. Grander architecture with stuccoed exteriors was built by common class citizens for a well-defined elite class. The Classic Period, A.D. 250– 900, is distinguished by the Maya's use of long count dates, which they carved on stone monuments. These dates indicate the events and history of the Maya ruling class. The elite class of the Classic Period was important for reasons of religious ideology. The blood of the elites, for example, was believed to be superior and able to satisfy the gods. In the courts of these elite figures, musicians occupied a semi-elite status (Inomata and Stiver 1998). The Postclassic Period, A.D. 900-1500 refers to a time when the great cities of the Southern Lowlands were abandoned and records of the elite class ceased.

Today the ancient Maya are studied through dirt archaeology. Teams of archaeologists and graduate students go into the Maya area to excavate, map out sites and catalog artifacts. Artifacts, being the material culture of this ancient people, indicate numerous aspects of ancient

Maya life. Anthropologists also study the hieroglyphs of this ancient people. Hieroglyphs were carved in stone and painted on pottery and murals to dictate the story of rulers and of Maya mythological beliefs. It is noteworthy that these glyphs do not pertain to the musical knowledge of this culture. Four ancient Maya books, dating to the Postclassic Period, have survived. These almanacs preserve information about astronomical and agricultural dates and occurrences. Another way scholars study this ancient culture is through Colonial Period memoirs. The experiences of conquistadors and religious leaders offer a detailed perspective of the ancient Maya people.

Music played a significant role in many rituals and ceremonies of the ancient Maya culture. Evidence found in paintings, artifacts and Spanish chronicles indicates that music was present in Maya culture as a necessity. Music was essential to various facets of everyday life including religious events, agricultural and hunting ceremonies and elite communication. The sound of ancient Maya music is an attribute of this culture that carried a message. Analogous to language, carvings and artistic creations, the music of the ancient Maya served to communicate the meaning of the ritual or ceremony of which it was a part.

Symbolic of this complex civilization, music had various levels of complexity and functions. Music was a cultural activity that was performed by both child and adult, by commoner and elite. However, music was explicitly divided between classes. Certain musical instruments and instrumentation were limited to the elite class. One function of music was therefore to indicate prestige through the use of music and musical instruments. Certain instruments were not available to the common Maya because of the complexity involved in creating them. These instruments can now be identified and further aid scholars in determining

the social status of musical artifacts. Specific knowledge of music, materials and time were needed to produce elite instruments, supporting the division between elite and common music.

The musical instruments of the ancient Maya indicate that sound defined what was elite and what was not. Different materials and production techniques indicate that musical instruments were created according to who was using them. Aristocratic contexts where musical instruments have been unearthed depict this tendency. Music was also displayed on vessels belonging to elites where we can learn about how instruments were combined. The concept of bands or orchestras was important to the Maya and was associated with larger events, although smaller groups did play together. Murals, grave offerings and vessels have demonstrated groups of musicians as a characteristic of elite music.

Music was not only class specific, but created a musician's class. Depending on their experience, some musicians held higher social status than others. Being a musician was demanding and required rigorous training, although, music was unlikely a specialty. Musicians were artists who could perform various elite services including writing, painting and carving. Musicians were needed for performances celebrating life, death, peace and war.

Music was employed in every region of the ancient Maya culture as indicated by artifacts and artistic renditions. Instruments are found at nearly every Maya site, which presents music as an element in the social fabric of the culture. Individuals possessed knowledge of instrument building, musical techniques and repertoire that made this art form a commodity. The Maya made use of numerous materials and developed knowledge to produce their music.

Maya music is stigmatized by observations that date back to sixteenth century Spanish contact period. These observations continue to influence the opinion of scholars who study the ancient Maya. However, the history of ancient Maya music predates Spanish contact and should

not be overlooked when we consider the criticism of missionary chronicles. The constituents of pre-Hispanic rituals call for new descriptions of Maya music.

Today Maya music is defined in multimedia, which conveys a message about this ancient people. Craftsmen and ethnomusicologists display their interest in ancient Maya music by producing musical instruments inspired by Maya musical tendencies. Multimedia also includes CD and DVD, which serve as excellent examples of how Maya music may have sounded. This music features musical instruments that were characteristic of ancient Maya musical orchestration. These multimedia resources are useful examples of how ancient Maya music has affected modern culture and what is being done to preserve its authenticity. Examining this media demonstrates that public impressions of this ancient culture's music are accurate.

In this study I will clarify aspects of Maya music by combining archaeology with knowledge of sound and of Maya social hierarchy. My interdisciplinary approach will elaborate on the knowledge surrounding ancient Maya music and how it affected the elite class, musicians and religious ceremonies. These facets of ancient Maya society will be described in terms of music and musical instruments that acted as symbols of prestige and authority. What did music do for the ancient Maya people? Are there reasons that music was so important for this culture? This study is intended to broaden our understanding of the implications of Maya music.

Ancient Maya instruments will be the focus of the second chapter. Instruments that were commonly employed will be described briefly and categorized according to families. I will briefly describe the three instrument families, which provided the Maya with music for rituals, burials, celebrations and elite functions. My belief is that the musical antiquities of the Maya demonstrate certain cultural aspects of this ancient people. Other antiquities such as murals, carvings and vessel depictions will provide evidence of musical instruments and their use. Of

these antiquities I will study the Dresden Codex, a Maya book that dates to the Postclassic Period (A.D. 1200-1500). The Popol Vuh is the ancient Maya story of creation that will also provide evidence of musical significance. Through these non-instrument artifacts I will draw conclusions about music in Maya society.

Chapter three provides insights into various facets of ancient Maya music, instruments and social hierarchy. The murals of Bonampak serve as the reference for this analysis. The frescoes in room one of Structure one provide me with the evidence that a *holhop*, master musician, was among the musicians playing at this ceremony. My identification of the master musician will be supported by the clothing and the musical instruments depicted in the Bonampak murals. The musician playing the upright drum at this ceremony indicates that ancient Maya musicians were ranked according to their experience. Musical instruments of the frescoes will also be considered in terms of loudness and pitch. I will use the instruments presented in the Bonampak murals to demonstrate the complex organization of Maya music. My perspective will include evidence that certain musical instruments were appropriate for certain occasions.

In chapter four I will examine ceramic ocarinas and flutes of the ancient Maya. My goal is to explain the identity of these musical instruments. Although music is associated with noble events of the ancient Maya, I will specify which ceramic wind instruments indicate elite interaction. I will use reports on musical artifacts and modern social theory to support my hypothesis. Takeshi Inomata (2001) states that ancient Maya elites used architecture and artistic crafts to maintain power. This chapter explains how musical instruments enter as symbols of elite power. Finally in this chapter I will explain why ancient Maya music transcends the opinions of Spanish chronicles left by Diego de Landa.

The fifth chapter will analyze how ancient Maya music is presented in multimedia. I will present the websites of North American flute makers who offer musical instruments named after the Maya. I will review these instruments and their product descriptions to conclude that factual information is being portrayed about ancient Maya music. Multimedia such as CDs and DVDs will also be examined. From these sources I will demonstrate how modern musicians and film editors are using music to effectively portray ancient Maya music and culture.

CHAPTER 2: ANCIENT MAYA INSTRUMENTS

Introduction

Archaeology provides us with ancient Maya instruments while ethnomusicology elucidates their meanings. Along with the physical traits and beauty of ancient Maya instruments lies a purpose for their construction. The ancient Maya employed music in everything from rituals and wars to funerals and celebrations. By playing music the ancient Maya people enhanced these experiences. As Bruno Nettl (1956, 2004) explains about Precolumbian music: often times, passive listening was not the objective of music.

Archaeologists have unearthed musical artifacts as well as painted and carved depictions of the ancient Maya that demonstrate music as a complex social element. Understanding the instruments is an important step in understanding the ritual life of the ancient Maya. The abundance of excavated and pictorial representations of musical instruments shows music permeated many parts of society. Even though the Maya recorded no known musical compositions, the surviving instruments serve as a resource revealing musical techniques that would not exist otherwise.

There are three families of musical instruments that show how the Maya created sound. The aerophones or wind instruments are the most common musical artifacts. Although ceramic ocarinas and flutes are often excavated, the Maya also played wooden trumpets, bone flutes, conch shells and reed flutes. The second category of musical instruments is the membranophone, which are instruments that produce sound by the vibration of a tightly fixed membrane. The ancient Maya drums are the most frequent example of this instrument type, although not as plentiful as the aerophones. Whether or not this paucity has hindered our

knowledge of ancient Maya drum sounds will be discussed. The last of the instrument families is the idiophone that consists of rattles, turtle carapaces and drums with no membrane.

Ancient Maya Aerophones

To begin an explanation of what the Maya played is to examine their knowledge of how people produced sounds. By way of artifacts and images we know that the ancient Maya understood that wind columns were capable of generating vibrations that they converted into making music. The aerophones, instruments producing sound by air forced from players' mouths, are perhaps the most widely known and surviving musical paraphernalia in the Maya region. However, specifying how these aerophones survived is the essence of what we can learn about the ancient Maya sound. Previous studies of ancient Maya music are distinguished depending on whether or not ancient Maya musical instruments were preserved in an archaeological context (Hammond 1972; Healy 1988; Marti 1968; Payne and Hartley 1992). Being able to play ancient instruments is a pivotal point in their analysis.

The perfect instances of such instruments are the wooden hom or laconic trumpet and the reed flutes of the ancient Maya. Since no archaeological example of these instruments exists, other sources have been used to evaluate sounds they produced. Missionary accounts, the Bonampak frescoes of Chiapas, Mexico and polychrome vessels have encouraged musicologists and Mayanists to duplicate these musical apparatuses (Miller 1986; Miller and Martin 2004; Velázquez Cabrera 2000). However, how do we evaluate the authenticity of the Maya sound? If anything, the hom can be understood to some extent even though no tangible examples of this ancient aerophone exist. The next chapter on Bonampak will refer to the hom in more detail and to its recreation by craftsmen who have experimented with various materials in the process.

Similarly, the wooden reed flutes that Spanish chroniclers took notice of, including sixteenth century Bishop Diego de Landa, survive in these contact period memoirs and testimonies (Hammond 1972; Stevenson 1976; Tozzer 1941). Various visual depictions of the ancient Maya flutes can be observed in Grolier vase 33, the Dresden Codex and figurines (Girard 1995; Marti 1968; Miller 1986; Villacorta and Villacorta 1977). Whether or not these representations are of ceramic or wooden flutes is not known.

In contrast, various classes of ceramic flutes, ocarinas and whistles have been unearthed providing magnificent physical and functional references that benefit a multitude of scholarly disciplines. The durability of ceramic has aided numerous wind instrument specimens to survive archaeologically. Because of the anthropomorphic and zoomorphic aesthetics of the majority of these sonorous devices, every facet of Maya archaeology and anthropology has been provided with detailed evidence regarding clothing, death and the afterlife and gender roles. Ocarinas from Stingray Lagoon (Figure 1), Belize, a Late Classic Period salt works site, depict the image of a Maya man or woman and the explicit details of this person's attire.



Figure 1 Stingray Lagoon Ocarinas.

Ocarinas such as these are often mistaken for whistles by anthropologists. These ocarinas are from Stingray Lagoon, Belize and bear effigies. Photographs by Cameron Bourg.

Ocarinas displayed by Corson (1976) depict warriors, ball players and effigies of gods. Ceramic aerophones have further acted as catalysts in the field of ethnomusicology and will continue to be the most abundant examples of playable instruments of the ancient Maya.

Further understanding of ceramic aerophones depends on the differentiation of these instruments according to their musical traits. Mayanists Paul Healy (1988) and Norman Hammond (1972) and Mesoamerican ethnomusicologists Samuel Marti (1968) and Robert Stevenson (1976) emphasized the necessity of categorizing whistles, ocarinas and flutes for differences of physical and functional characteristics. These scholars used the conclusions of distinguished musicologists to avoid ambiguities during the identification of aerophones of similar physical and musical characteristics. Norman Hammond (1972) and Samuel Marti (1968), for example, have adopted parallel wind instrument definitions of T.A. Lee Jr. (1969) and Vincente T. Mendoza (1950), respectively.

For example, the term whistle designates an instrument that is limited to one sound or note. Whistles may actually have served less musical functions because of their minimal sound production. The ocarina is a globular instrument, generally the same size as a whistle, which has stops or holes in the chamber to allow for the application of musical techniques. The ocarina, as Hammond (1972) and Joyce (1933) point out, has been referred to as whistles in many scholarly publications. Depending on their construction, ocarinas were capable of producing five different notes by way of four to five stops (or holes in the instrument). The ocarina register of notes was often times identical to that of the flute. However, the flutes of the ancient Maya were longer in length than the ocarinas (Hammond 1972; Marti 1968; Payne and Hartley 1992). Flutes were also capable of more notes per instrument, which would have offered musicians a wider range of musical techniques.

The erroneous classification of ancient Maya ocarinas hinders my evaluation of the music of this culture because ocarinas differ greatly from whistles. The ancient Maya ocarina is a globular flute capable of a range of notes and techniques, which supports my idea that ancient Maya music demonstrated musical complexity and technique. Previous studies of the ancient ocarinas explicitly state the importance of the ocarina's musical capacity (Harcourt 1930; Hammond 1972; Healy 1988; Marti 1968; Stevenson 1976). Other studies and excavation reports of ancient Maya sites list the finding of ocarinas and speculate that their uses included small cult rituals and burial ceremonies (Borhegyi 1956; Hammond 1991; Healy 1988). I estimate that the accurate classification of these ancient musical instruments would be beneficial to understanding more about the music that accompanied the ritual events.

An impressive example (Figure 2) of the ancient Maya flutes was found at the site of Jaina, Mexico. This artifact is currently being replicated for academic analysis (Payne and Hartley 1992). This musical instrument is one way of understanding the various musical concepts with which the Maya of the Classic Period were familiar. Dating to A.D. 700, this block flute produces the diatonic scale of C major (Marti 1968; Payne and Hartley 1992).

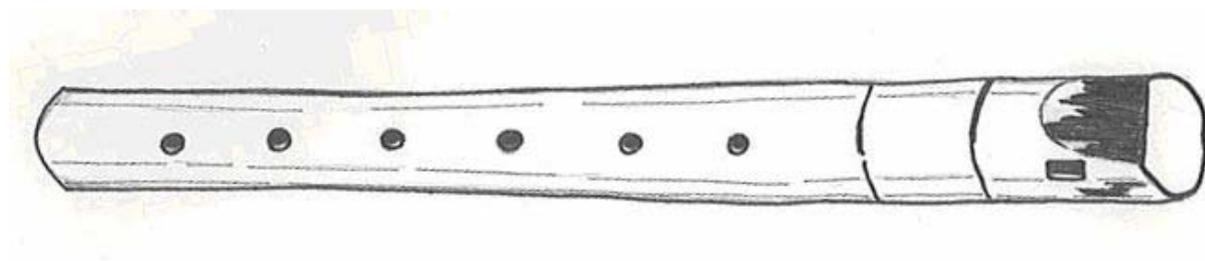


Figure 2 Jaina Block Flute.

Block flute found in playable condition from Jaina, Mexico. This flute bearing 6 stops is made a rare specimen when compared to the number of surviving ocarinas and flutes of lesser stops. It produces the complete musical scale of C major. This scale is a complete 7 notes in the Natural C scale. 23.5 cm length. Redrawn from Marti (1968: 157) by Loli Wiesner de Bourg.

Whether or not ceramic and wood flutes shared similar musical characteristics is not known.

The chronicles of Diego de Landa mention that reed flutes did exist during Spanish contact, but his account fails to mention any detail of their construction or sound (Tozzer 1941).

Even though examples of flutes have surfaced less frequently than ocarinas these musical instruments had a profound role in Maya ritual beliefs. Template 34 of the Dresden Codex displays the flute as an instrument associated with a fertility ritual or thanksgiving (Girard 1995; Villacorta and Villacorta 1977). Marti (1968) suggests that the less complex an aerophone was, the more secular or profane its relevance was. This idea is particularly true of the musical arrangements in template 34 of the Dresden Codex. The flutist in this template plays a six-holed flute and is further accompanied by two drums and a rattle.

I believe that the importance of the ceremony in template 34 is assumed because of the range of sounds that this flute could produce. For example, this music would have been less complex had an ocarina been portrayed in this template. Even though the ocarina and the flute were capable of producing the musical notes, the six-holed flute could produce more complex music. If this idea is true, the ocarinas were not the main instruments at elite functions and had to be accompanied by more complex musical instruments. The general lack of ocarinas from carvings, murals and vessels supports my perspective of flutes as elite musical instruments.

I hypothesize that ocarinas were more conducive to individual rituals or used with flutes for elite ceremonies. Excavations of ceramic aerophones do not discover ocarinas in elite contexts (Healy 1988; Houston 1998; Inomata et al. 2001; Inomata and Stiver 1998), which supports my perspective. The excavation of several flutes and ocarinas at an aristocratic grave offering at Pacbitun, Belize, administered by Paul Healy (1988), has been one of the most significant discoveries indicating the use of ceramic aerophones. The Pacbitun burial offering

indicates that ocarina music accompanied flutes in elite class ceremonies. Also, the ceramic vessels of the Classic Period do not portray ocarinas in elite contexts (Kerr 1998). From these archaeological examples, I can conclude that the ancient Maya had specific uses and class functions for ocarina music.

Burials are one known use of ocarinas and tend to follow certain trends. The Pacbitun grave excavated by Healy (1988) indicates that ocarinas may have been played for funerals and then left as a tribute. A much earlier burial was excavated at Cuello, Belize and dated to the Middle Preclassic (800-500 B.C). This revealed the skeletal remains of a child with a bird-effigy ocarina (Kosakowsky and Hammond 1991). The ocarina from the Cuello burial was capable of five notes and is considered by Kosakowsky and Hammond (1991) to be a child's toy. This supports my belief of musical endeavors and training beginning at a young age.

Since ocarinas were found at sites including Tikal, Piedras Negras and Escuintla in Guatemala, Jaina and Chiapa de Corzo in Mexico, Lubaantún and Pacbitun of Belize and Rio Claro of northern Honduras, I do not believe that all ocarinas and flutes were linked to elite ritual communication. However, previous studies portray general tendencies of ancient Maya music that involved these musical instruments. Why were these instruments so widespread in the ancient Maya society? This aspect of ancient Maya aerophones will be a topic discussed in chapter 4 of this study.

The ancient Maya modified conch shells and bones to make musical instruments as well. Previous studies indicate that the ancient Maya applied their knowledge of aerophone production to these naturally occurring materials by creating stops and mouthpieces on conch shells that would improve their register of notes and playability (Marti 1968). Perhaps if what Marti (1968) claims is true and the complexity of instruments actually does indicate the nature of their use,

conch shells with stops were reserved for elite rites and rituals more so than the unmodified examples. Still, Michael Coe (2005) reminds us that for ancient Maya sites in the interior of the Yucatan, conch shells were not readily available making it an import item in centers that used them for ceremonies, warfare and hunting. The depictions of the conch shell by Marti (1968) and Coe (2005), either modified or not, designate this instrument as an implement of noble interaction and culture.

One study of Aguateca, Guatemala demonstrates what may be commoner's household with a bone flute and a conch trumpet (Inomata and Stiver 1998). The lack of decorative beads and other prestige ornaments of this household represents the habitation of a lower class citizen. Perhaps musical instruments of bone and conch were available, but not limited, to lower classes. However, previous studies indicate that musical instruments, such as the conch trumpet, were not likely available to lower classes.

Kerr (1998) vase number 791 depicts one of the hero twins, from Maya mythology, playing a conch shell. I believe that this portrayal is noteworthy because the conch shell was modified to create a mouthpiece. Another polychrome vase of unknown origin displays King Sihyaj K'awiil listening to three trumpet players (Miller 1986; Miller and Martin 2004). Two of these trumpets were made of wood and the other is a conch shell. I believe that these artistic renditions verify that the bone flute and conch trumpet excavated by Inomata and Stiver (1998) at Aguateca, Guatemala belonged to a lesser elite. The conch trumpet is perhaps emblematic of elite interaction because of the role it played in ancient Maya mythology. Future excavations of these musical instruments may provide data to better explain the role of conch and bone flute music in ancient Maya society.

Ancient Maya Membranophones

The membranophones undoubtedly played significant roles throughout the ancient Maya area. However, when introducing this class of sonorous devices we recognize a sharp decrease in actual instruments preserved. Evidence from mural depictions, Spanish chronicles, Maya codices and scant archaeological specimens support that the principle instrument in this family, the drum, was fabricated of hollowed logs and clay, analogous to the materials of the aerophones. The former of these materials is widely known for its rapid decomposition into Mesoamerican soils making ceramic membranophones of the ancient Maya precious references to Precolumbian music. The materials that served as membranes of surviving membranophones have also degraded, making their sounds unknown.

How early the drum was played in Maya society is not clarified by previous studies. One of the earliest Maya Lowland sites, Cuello in Northern Belize, has not provided evidence of drums as being part of Preclassic Period musical endeavors (Hammond 1991). However, whole and fragmented ceramic flutes and ocarinas dating back to the Early and Middle Preclassic Periods (900-400 B.C.) have been excavated at Cuello. This finding indicates that some events may have required music before the Classic Period. Whether or not the Maya used wooden drums to accompany flute and ocarina music in this city cannot be ascertained. However, Cuello is a Maya site with extensive deposits of pottery vessels pertaining to the Swasey complex, 1000 B.C.– 300 B.C. (Hammond 1991; Kosakowsky 1987).

The ceramic development of the Cuello Maya leads me to conclude that drums were made of wood unless specifically desired in ceramic. The need for more prestigious drums made of fired clay would be to satisfy the material culture of the elite class. The motives of an organized upper class during the early periods of Cuello have not yet been distinguished which

supports my theory. If my idea is accurate, the ceramic drum was a musical instrument that was produced for elite use. Until excavation efforts reveal ceramic drums did exist during the Preclassic, I will assume that the ceramic drum was a part of ancient Maya music of the Classic Period.

Our present knowledge of ancient Maya membranophones is relayed most effectively through artifacts belonging to the Classic Period. Murals such as those found in room 1 of Structure 1 at Bonampak display the largest known drum used by the Classic Maya. The pax, or upright drum, is found in the midst of eight other percussion players, which attest to the powerful voicing of this standing instrument. Bonampak is perhaps the finest visual example of this Maya membranophone that has survived. Another example of the pax is portrayed on Grolier vase 33 where this musical instrument is accompanied by numerous aerophone players (Miller 1986). On this vessel the pax is involved in a performance set before a ruling class elite. A series of vessels photographed by Justin Kerr (1998), including roll-out photos 2781 and 3009, indicate that the pax was used in elite functions. These functions included the aftermath of wars and possibly the sacrifice of war captives (Kerr 1998). These depictions of the pax are evidence that this upright drum was reserved for ceremonies of high importance. Each of these pictures demonstrates that the pax required accompanying musicians, which attests to the complexity of the music. Because of these depictions I believe that pax music was symbolic of elite culture. Being involved in grand ceremonies, the pax presupposes large groups of musicians that could be organized by professional personnel.

The Aztec tlapanhuehuetl (Figure 3) from Malinalco, Mexico has similar physical traits, most notably in the legs, as the Maya pax from the Bonampak murals and Grolier vase (Miller 1986). Hammond (1972) makes note that both Aztec and Maya drums were capable of

producing the same sounds. The pax was painted at Bonampak during the Classic Period (A.D. 300-600), whereas the surviving Matlatzinca specimen has been dated to the Postclassic (AD 900-1500). Based on this contrast of production periods, no conclusions should be drawn as to

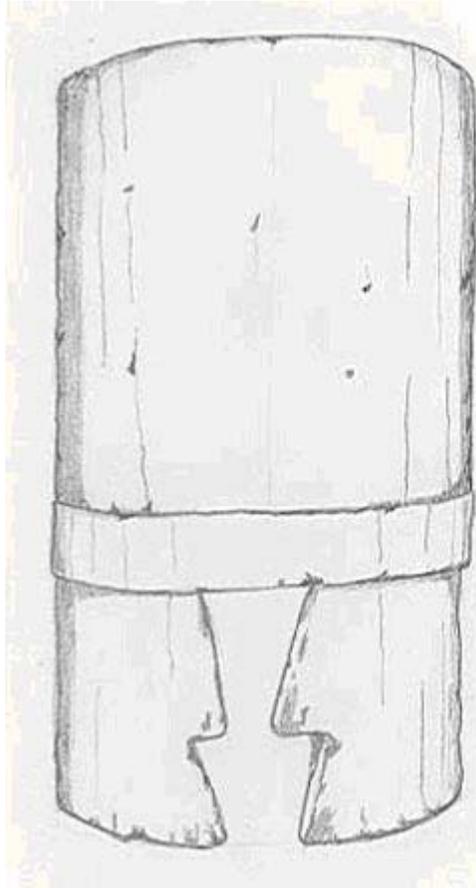


Figure 3 Aztec Tlapanhuehuetl.

Example of the Aztec drum tlapanhuehuetl similar in construction to the Maya pax. This specimen belongs to the late Postclassic period and was found in Toluca, Mexico. 97 cm high, 42 cm diameter. Redrawn from Stevenson (1976: Figure 4) by Loli Wiesner de Bourg.

the origins of this style of membranophone but serves to show the wide spread distribution of its aesthetic qualities throughout ancient Mesoamerica.

Visual depictions, such as Bonampak, have the power to display nearly every facet of the ceremonial presence that the pax was capable of delivering. The details of this artistic rendition

of the pax have been reserved for the following chapter where the orchestration will be observed placing this musical instrument at the center of the instrumentation.

Additional depictions of ancient Maya drums come into perspective and further explain the role that membranophones played in the ancient Maya area. Of the more sacred depictions, the most outstanding is template 34 of the Codex Dresden showing a drummer playing what Norman Hammond (1972) refers to as a “double miniature pax.” We should resolve that the term “double” is not fitting for this portrayal since only one of the shells, the technical term for a drum’s body, bears a membrane (Figure 4). The shell farthest from the musician bears no membrane, which I believe served as a sound hole where a thriving limb of corn has been produced. I will assume that this type of drum marked prestigious ceremonies because of its association with corn cultivation.

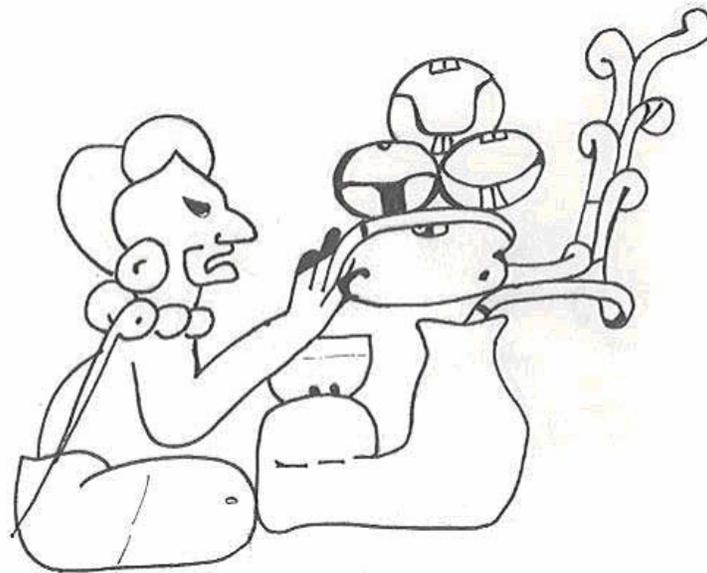


Figure 4 Dresden Codex Drummer.

Drummer from the Dresden Codex playing a single timbal with extra sound chamber. Redrawn from Villacorta and Villacorta (1977: 78) by Loli Wiesner de Bourg.

I must clarify that this is not a double pax because it explains Maya knowledge of acoustics and musical technique. Although double drums did exist (Figure 5), I believe that the drum from the Dresden Codex is emphasizing that music is related to the growth of corn. I believe that this drum (Figure 4) had this sound hole because the ancient Maya appreciated the effects of projected acoustics. I support my perspective with the corn stalks rising from the sound hole. The rattle from this same template has holes, which further defends my hypothesis. Examples of this ceramic drum exist in the Lacondon areas of Chiapas, (Figure 6) alluding to the enduring ritual importance of this particular musical instrument (Marti 1968; Sachs 1940).



Figure 5 Maya Double Hand Drum.

This double drum is an antiquity that indicates the importance of two distinct pitches in ancient Maya music. 14.5 cm high. Redrawn from Marti (1968: 49) by Loli Wiesner de Bourg.

Archeological specimens of membranophones continue to be excavated and provide more about the origins of Maya music. Lobed and pedestal style ceramic drum shells have been

excavated from Nebaj, Guatemala, Barton Ramie and San José, Honduras and from other sites to show a variation in membranophone styles during the florescence of the Classic Period (Hammond 1972; Healy 1988; Inomata et al. 2001; Inomata and Stiver 1998; Marti 1968; McKillop 1980).



Figure 6 Modern Lacondon Drum.

A modern example of a Lacondon Maya drum with a small sound hole. This membranophone may be related to the model of in the Dresden Codex. 16 cm membrane diameter. Redrawn from Marti (1968: 47) by Loli Wiesner de Bourg.

Turning to Paul Healy's (1988) excavations of aristocratic gravesites at Pacbitun, we are given insights to the uses of these drums. Healy's (1988) report on Pacbitun burial artifacts demonstrates a single ceramic drum buried with a rattle flute. Why some grave offerings contain certain instruments is unknown. However, this drum was used as a burial offering and is likely a prestige item because of other items within the burial context. Such items include the rattle flute, which is a rare specimen of ancient Maya aerophone instruments. Graves where complex musical instruments are found may indicate a certain level of social status of those buried there.

Ceramic drums of the ancient Maya were also employed in music within elite precincts. Discoveries made at the Late Classic (A.D. 600-830) site of Aguateca, Guatemala indicate that ceramic hand drums were used to create music for noble and elite citizens (Inomata et al. 2001;

Inomata and Stiver 1998). Similar hand drums were found outside of the elite precincts and belonged to semi-elite musicians, which is indicated by various flutes, green stone beads and intricately carved ornaments (Inomata and Stiver 1998).

The drums from Pacbitun and Aguateca represent small sections of the Maya Lowlands. However, I believe that ancient Maya ceramic drums were emblematic of a defined aristocratic class during the Classic Period. The examples of the ceramic drums belonging to these sites demonstrates an elite class that was not previously known in the Preclassic at Cuello, Belize. I believe that drums may have been used by ancient peoples of all classes. However, the lack of wooden artifacts creates a paucity of evidence for my claim. The most evident association of the drum in ancient Maya music is to elite culture.

Maya membranophones are explained in murals, codices and burials as being instruments of ceremonial significance. What their exact role was can be accurately imagined because of the detail that these sources display. The music of ancient Maya drums is clearly linked to religious beliefs through the Dresden Codex. Aguateca excavations have directly linked drums to elite functions (Inomata and Stiver 1998). Modern Lacandon Maya still employ drums in the ceremonial aspects of their culture (Marti 1968) and thus serve as an outlet of further ethnomusical study that may reveal more about the roles of drums in ritual events.

Ancient Maya Idiophones

The idiophones are another example of instruments scarcely surviving in an archaeological context. Low tolerance of environmental conditions limits the study of idiophones that were made of wood or gourd. Prominent idiophones include rattles, rattle ocarinas and rattle flutes, the tunkul or slit drum and tortoise shells and antlers. ancient Maya idiophones are portrayed in murals, vases and codices. The importance the idiophones played in

ritual life can be assumed by ancient artistic depictions and excavated examples of ceramic rattle flutes and rattle ocarinas (Corson 1976; Healy 1988).

Like the drum, the Dresden Codex reminds us of the corn stalks that the rattle is capable of summoning when accompanied by the flute (Girard 1995; Villacorta and Villacorta 1977). The musician who plays the rattle in Dresden Codex template 34 also plays either a wood or ceramic hand drum (Figure 7).

I consider this depiction of the rattle (Figure 7) further evidence of complex musical arrangements. The rattle made music that was distinct from the drum but could be played at the same time. The Dresden Codex verifies my perspective of the importance the ancient Maya placed on complex rhythms.



Figure 7 Dresden Codex Rattle Player.

Musician in the Dresden Codex playing the rattle. I believe that the ancient Maya put holes in this rattle to provide an intense acoustic quality to their music. This may explain why ancient and modern Maya hand drums (Figures 4 and 6) have sound holes pointing upward. Redrawn from Villacorta and Villacorta (1977: 78) by Loli Wiesner de Bourg.

The complexity of this music can be explained by pitch variation between the two instruments, which will be discussed in the next chapter. The Dresden Codex is evidence that the idiophone was an instrument that not only produced music but was also a symbol of sacred rituals. Adding the rattle to the Dresden Codex ceremony would provide more complex rhythm than two drums played alone.

I believe that the rattle was an essential instrument to ancient Maya music primarily because it was directly associated with mythological events. For example, the work of Justin Kerr (1998) provides evidence that the rattle was associated with the Hero Twins. The Popol Vuh is the Maya story of creation in which the Hero Twins appear. Kerr vase 791 indicates that one of the Hero Twins used the rattle while performing for the Lords of the Underworld (Kerr 1998). Since this story explains the creation of people and corn, the importance of the rattle may be intimately linked to the growth of corn in this way.

Also, in Kerr vase 3332 God L is seen leading a procession of animal musicians where the rattle is played by the last member. The rattle was wide spread throughout the Maya area whose spiritual role is understood through the Dresden Codex (Girard 1995; Villacorta and Villacorta 1977). The adorned rattles at Bonampak are believed to be made of gourds connecting them to the gourd blossoms on the dead tree in the Popol Vuh (Amlin 1989; Hammond 1972; Miller 1986). Why the rattle's musical qualities appear in the religious beliefs of the ancient Maya is unknown. However, I believe that the use of the rattle by ancient Maya elites is because of its connection to religious depictions.

Turning back to the types of idiophones used by the ancient Maya, the most depicted forms of rattles have not survived as artifacts from Precolumbian periods. The Maya tendency of crafting musical instruments of wood and ceramic fortunately applies to rattles and shakers,

allowing some examples of what I consider “eccentric” idiophones to have endured for my examination. These exotic creations involve the use of ceramic pellets or small stones inside the hollow cavities of crafted items including flutes, Jaina figurines, pan like censurs and vessel supports of open bowls and dishes (Corson 1976; Healy 1978; Healy 1988; Marti 1968; Miller and Martin 2004).

These ritual objects of the Maya have found their way into a musical context as the addition of ceramic pellets or small stones has given them musical qualities. With rattle like characteristics the pan shaped censurs, excavated by Paul Healy (1978) at Rio Claro, Honduras, may have caused a sensation amid onlookers who observed as their ceremonial leaders evoked sound and rhythms from these sacred items. The handles of these censurs, discovered by Healy, contained several pellets and date back to the early Cocal period (A.D. 1000-1400). Other examples of these eccentric idiophones designated for ritual use come from Jaina, Mexico in the form of figurines. The most extensive study of these ceramic figures, completed by Christopher Corson (1976), exhibits an inventory of over a hundred anthropomorphic effigies with pellets occupying the cavity. Corson (1976) has reduced that these specimens served the function of rattles possibly in burials or honoring the person associated with the figurine.

The excavations of Healy (1978, 1988) and work by Corson (1976) force us to recall Samuel Marti’s theories of instrument complexity. Secular applications, according to Marti (1968), are not appropriate for complex musical items and should be reserved for ceremonies of great religious or elite concern. Musical instruments that were difficult to manufacture are not as abundant as those that required less skill to create. These complex instruments were for use in elite events, where as less complex instruments may have been for commoners.

Healy's (1988) previously cited excavation at Pacbitun unearthed two flutes containing up to fifteen ceramic pellets each. Corson (1976) cites countless numbers of Jaina figurines functioning as two stop ocarinas and shakers. I believe that the ancient Maya's desire for complex music is why these eccentric rattles were created. These items were not readily available to commoners as Healy's (1988) aristocratic grave offerings affirm. The Jaina rattle figures also may have been reserved for aristocratic use given the status of the people that they represent. I will conclude that these idiophones were symbols of prestige and produced elite or semi-elite music. These musical instruments are also examples that fit Inomata (2001) and Hendon's (1991) description of objects that the ancient Maya ruling classes charged with political importance.

The turtle shell was another idiophone played in ancient Maya music. Among the artifacts that prove the possible origins of these ancient idiophones I have analyzed symbols from the Popol Vuh (Coe 2005; Tedlock 1985). This ancient story of Maya creation may reveal why the Maya employed the turtle shell as a musical implement. The result is an image of the idiophone that represented sacred facets of ancient Maya beliefs.

The turtle shell is the least complex idiophone in terms of its fabrication, yet it acted as one of the most sacred symbols of the Maya people (Benson 2001; Hammond 1972; Marti 1968). According to Elizabeth Benson (2001), the chelonian itself symbolized water, earth, fertility and the underworld to civilizations throughout Mesoamerica. In the Popol Vuh, the Maya story of people's creation, one of the final scenes involves the ascension of the maize god from the underworld by way of a turtle carapace (Amlin 1988). The shell, representing the earth in this story, divides allowing this deity a safe passage into the world (Amlin 1988; Coe 2005; Tedlock 1985).

Although the turtle shell is not used as a musical instrument in the Popol Vuh, the sacred nature of the carapace could attest to its involvement in a broad range of ancient Maya rites and ceremonies. Marti (1968) depicts the turtle shell played in such a way that suggests the origin of the tunkul (Figure 3). The chelonian shell has been portrayed in ceramic figurines and the Bonampak murals depicting musicians striking it with deer antlers (Marti 1968; Miller 1986). Vessels also portray the carapace accompanying upright pax drums in elite ceremonies and sacrifices (Kerr 1998). Much earlier than these examples are the murals at San Bartolo, which depict an Olmec figure playing the turtle shell (Coe 2005; Saturno 2003).

The Olmec of Tabasco, Mexico, the earliest ancient civilization in Mesoamerica, clearly influenced other cultures including the Maya in the Yucatan peninsula. Through trade and other communication, I believe that the Olmec may have induced a phenomenon explainable as “cultural propagation” in various parts of what would become the Maya state. Artifacts that demonstrate Olmec influence are found in the dispersal of architecture, jade carvings and beads all resembling those of the Gulf coast based culture. I believe that this cultural propagation included musical techniques and possibly musical instruments. The carapace as an idiophone involves very little fabrication, which does not detract from its musical value. Norman Hammond (1972) refers to experiments that have demonstrated the carapace emitted three differently pitched vibrations when struck in different places, which makes it capable of complex music.

I believe that the playing of the carapace in the murals at San Bartolo is evidence of Olmec influence on the development of Maya music. The detail and quality of the murals at San Bartolo demonstrate Maya fascination with Olmec culture and musical tendencies (Saturno

2003). Further excavations and discoveries may provide missing information to link the musical knowledge of the Olmec as an influence of the Maya at San Bartolo.

The *tunkul* is a slit drum without a membrane, thereby being classified an idiophone. Rather than it being struck with the hands, the musician employed a stick with a rubber coating on one end (Tozzer 1941). The *tunkul* is referred to by musicologists as a slit drum basically describing the H-shaped slit penetrating the wall of a hollow log. The perforation in the log forms two “tabs” that can be struck as described by sixteenth century Bishop Diego de Landa (Tozzer 1941). The *tunkul* was also known as being exceptionally loud when struck with force (Hammond 1972; Tozzer 1941).

De Landa’s famous description of “doleful and sad” music comes from this idiophone, eventually leading to the widespread belief that all Maya music should be negatively stigmatized. Without either wood or ceramic examples of the *tunkul* known from the Maya area, no tangible models can be consulted to defend the Maya against the harsh claims made by de Landa.

One way to interpret de Landa’s opinion of the *tunkul* is to examine his drawing of this instrument. The slit drum is a piece of wood that is not capable of producing melodies. This idiophone is struck to produce percussive sounds, which are not classified by musicologists as major, minor, “happy” or “sad.” Perhaps what de Landa stated is based on how the Maya played the *tunkul*. Popular music of sixteenth century Spain, known as the Gregorian Villancicos, was primarily made for religious purposes. These Gregorian musical pieces were not rhythmic but followed refrains and choruses with a determined musical count (Randel 2004). I believe that De Landa’s observation of ancient Maya *tunkul* music was biased since popular Spanish music was at that time religious.

The contrast between the tunkul and Spanish music of the sixteenth century leads me to assume that de Landa's opinion is based on his religious preferences. Perhaps his lack of interest in the music of this people was because of his devotion to his own religious music and beliefs. I am using the comparison of Maya and Spanish music to demonstrate that de Landa's opinion should be considered personal. However, Maya music was sometimes sad. Certain events or circumstances may have required solemn music. Thus, the occasion, not the instrument, made the music "doleful".

Conclusion

Before the musicians rehearsed for a performance, as depicted at Bonampak or the noble Pacbitun funeral, artisans set out to construct their instruments. Although the ancient sounds of Maya music are gone, Maya music will always endure through efforts of anthropologists, Mayanists and musicologists who evaluate the musical instruments recovered at Maya sites or depicted in Maya art. The aerophones, membranophones and idiophones of the Precolumbian Maya were created and used during a moment in time when the necessity of a ceremony or ritual was to be fulfilled.

Previous studies tell us that the ancient Maya used a combination of musical instruments per performance. Monophonic music, music where one instrument plays alone without accompaniment, may have existed, but the pictorial depictions of musical performances, as well as burial offerings of multiple instruments point to groups, even "orchestras" of musicians. ancient Maya music drew upon many methods of sound production. Whether a funeral procession or the celebration of vanquishing one's rival, the Precolumbian Maya enhanced their lived experience through sophisticated and diverse musical arrangements.

Previous studies also tell us that ancient Maya craftspeople were skilled in different disciplines. If the artisan who tuned the flute and carved the drum was the same person, instrument production implies a valuable skill in a community worth of a semi-elite status. Perhaps craftspeople made various instruments and showed no specialization in one particular craft (Inomata 2001; Inomata and Stiver 1998). ancient Maya music involved a process that began with instrument production and ended in the ritual.

In this chapter I have presented the musical instruments that are known in the ancient Maya area. I believe that some instruments of the ancient Maya were charged with ritual or political importance because of their involvement in cultural portrayals. For example, the Dresden Codex supports my theories about flutes being symbols of elite music. I believe that the flute in temple 34 affects the fertility of the fields, since the drums and the rattle aid in the production of what appear to be corn limbs. Excavations and site studies of Pacbitun and Aguateca demonstrate that flutes were highly involved in elite music, possibly because of this ritual charge. Even though the Dresden Codex is dated to the Postclassic Period (A.D. 1200-1500) the book is probably a reproduction of a Classic Period manuscript (Grube 2001). The Maya at Classic Period sites such as Pacbitun and Aguateca may have recognized the flute as a prestige item because of its sacred correlation.

I have also given evidence verifying that the ancient Maya desired complex music. The characteristics of musical depictions demonstrate that the elite Maya of the Classic Period used and enjoyed ensemble music. The music group and its instrumentation were symbolic of elite class culture.

CHAPTER 3: THE BONAMPAK FRESCOES

Introduction

The objects of Maya rituals can be interpreted either from pottery, frescoes, colonial period missionary accounts or surviving codices. These sources offer detailed descriptions that aid in the reconstruction and understanding of Maya rituals. However, a problem becomes evident to any researcher who wishes to delve farther into the actual sounds that were produced, the rhythms they were capable of making, or the social organization of musicians that was once a part of the ancient Maya. At this point there is no evidence to suggest that the music of the Maya was preserved in a form of writing or musical notation (Gallencamp 1985; Nettle 2004; Stevenson 1976). However the frescoes of Bonampak give an insight into this facet of pre-contact Mesoamerican life.

Is Maya music lost? What are the ways that we can understand the role of the music of this culture without hearing it? This chapter will focus on what is known about the instruments of these frescoes and how they were used. I will also focus on the level of sophistication that this people had developed with respect to their instruments, their orchestras, and the possible roles of music in their societies and rituals.

In order to answer the questions surrounding this theme I will evaluate the information that provides modern scholars with the evidence of music in the classic Maya society. In the process, some of the most formidable artwork produced by the Maya becomes of high importance due to its richness in detail and vivid recreation of ritual music performance. The frescoes of Bonampak will be the source of data in this chapter.

Charles Gallencamp (1985) discusses the importance of Bonampak in his book, Maya: The Riddle and Rediscovery of a Lost Civilization, by elevating the sites overall importance in

piecing together a clear picture of classic Maya culture. Bonampak, located in Chiapas, Mexico was discovered by John G. Bourne and Carl Frey. However, the frescoes that are of ethno musical value were not discovered by these two explorers.

The accidental discovery of the frescoes of this site is credited to Giles G. Healy who was sent on a photographic assignment of the Lacondón, a modern Maya tribe thriving between the Jatate and Usumacinta rivers (Gallencamp 1985). He noticed that groups of Lacondón men occasionally made excursions to shrines that were camouflaged from public view by dense vegetation. Through bribes the Lacondón men led Healy to the site where he stumbled upon the murals unintentionally. The Structure which displays this valuable knowledge of Maya musical performances exists on the interior walls of a flat-roofed building that is elevated on a platform in the north eastern corner of the acropolis (Gallencamp 1985; Hammond 1972; Miller 1986).

Ethno-musical Evaluation of Bonampak

In this section, I will evaluate ancient music as depicted by scenes with musicians on the interior walls at the Maya city of Bonampak, Chiapas. The task of organizing descriptions and information of ancient music sounds would be difficult without the frescoes of Bonampak. The importance of the corresponding acropolis and frescoes at Bonampak are essential for the enrichment of our knowledge in this field of analysis. The outstanding quality of this work of ancient Maya art is that it has dramatically increased our knowledge of the social and ritual importance that music played in the ancient Maya society (Miller 1986). Intermixed with the elite class, their families and deities are Maya musicians working to contribute the art of music to this prestigious ceremony recorded in the frescoes. In room 1 of Structure 1 are images of “musicians playing rattles, drums,...trumpets, and beating on tortoise shells with deer antlers.” (Gallencamp 1985). This scene by far is the most complex musical performance recorded in

such a prestigious fashion: over twelve musicians are depicted playing at this ceremony being attended by dozens of dignitaries.

I believe that first matter of importance is the level of sophistication that this fresco implies in terms of the Maya's capability to organize an orchestra of more than six people playing different instruments. However, not all of these musicians and instruments contributed to the same aspects of the rituals. The variety of instruments at Bonampak leads me to conclude that the coordination of these Maya musicians was a serious undertaking that was crucial if they were to perform in a ceremony of magnitude. Without highly proficient musicians, a graceful tribute to the dignitaries would be a display of unorganized cacophony. The Popol Vuh, the Maya story of people's creation, indicates that the Lords of Xibalba were angered by noise (Amlin 1989; Coe 2005; Tedlock 1985). Therefore music should also be well organized to avoid offending the gods.

We are made aware of the importance of the musicians by the status of the attendees in the event. The fresco depicts the *halach uinic*, or supreme ruler, flanked by his wife, children and an arrangement of elite dignitaries dressed in full ceremonial attire (Gallencamp 1985; Miller 1986). Such a display of elegance in this ceremony is further expressed by the details of the adornments that the dancers were wearing, clad in costumes with exotic quetzal feathers and the participation of actors who played the role of the earth gods, in fantastic masks (Gallencamp 1985; Miller 1986).

I also conclude that a high level of professionalism was associated with the players and their understanding of time, rudiments and pitch. The aesthetic value of this ceremony is evidence to eliminate the possibility of improvised music as the basis of a performance such as this. The Bonampak frescoes, as Miller (1986) and Gallencamp (1985) point out, attest to their

lack of written musical notation. Ethnomusical expert Bruno Nettl (1956) insists that all American Indian music was and continues to be dependent on oral transmission. Robert Stevenson (1976) states that a large repertory was necessary for musical performances. These ancient musicians prepared for this ceremony by extensive rehearsal of musical pieces that were committed to memory (Stevenson 1976).

The Maya may have planned to use orally preserved “folk music” to satisfy the needs of this ceremony. Maya folk music implies that the musicians at Bonampak played music that was pre-composed and conserved orally, perhaps for generations. A large repertoire of songs portrays the Maya as a culture dedicated to musical endeavors. Children’s burials with “youth” instruments (Hammond 1991; Payne and Hartley 1992) may indicate music education initiated at childhood. I believe that a lifetime of rigorous training could explain how the ancient Maya repertoire was preserved.

Improvised music is also unlikely since the frescoes depict dancers that may have been accustomed to rehearsing with certain rhythms (Gallencamp 1985; Miller 1986; Sachs 1937). The concept of music and dance forming a single group or company brings up several points to consider. If musicians were hired into the orchestra to perform without having practiced together extensively, were there specific songs or standard rhythms that were recognized by the Maya people? Could career musicians and dancers execute rehearsed pieces on command? Perhaps, but few conclusions can be drawn given the lack of knowledge surrounding Maya transmission.

Transmission is a musical term that can hardly be applied to the ancient Maya outside of an ethnomusical context. Transmission specifically refers to the way that a culture preserves music over time, thus transmission can be written or oral (Randel 2004). The most formidable example of written transmission is the familiar musical notation that has maintained detailed

western musical compositions and techniques. At this time, there is no known verification of the ancient Maya using written transmission to conserve musical advancements.

The elite presence and need for an organized repertoire at Bonampak leads me to conclude that the musicians depended on an authoritative master versed in Maya transmission. The Popol Vuh indicates that sound could either please or offend the Lords of the Underworld, tying music to religious belief (Amlin 1989; Coe 2005; Tedlock 1985). The Popol Vuh supports my idea of highly organized music because it indicates that unorganized noise was offensive. ancient Maya music could not be off time, especially in a ceremony of this importance.

The Conductor at Bonampak

Whether there was a conductor or master musician at the performance displayed at Bonampak has not been concluded by Maya scholars. A conductor leads an ensemble with the gestures of the hands and arms. The frescoes lack visual information to conclude that the Bonampak orchestra had a director. However, I have stated sufficient evidence of the music being organized before the performance. I propose that the drummer standing behind the upright drum, the *pax*, is likely the conductor at the performance.

Several factors indicate the necessity of a *holhop* or conductor. I must re-emphasize that the elegance of the elites and the dancers, together with the earth gods, is evidence of religious significance. These musicians and dancers were performing to appeal to the gods as well, thus requiring the skill and experience of a *holhop*. Being well versed in Maya oral transmission would have provided his accompaniment with material.

Giles Healy, discoverer of the frescoes, was explicit in his account of the musical instruments in the frescoes. There was only one drum at the performance. This fact can be noticed in the reproduction of the corresponding fresco (Figure 8) even though recent analysis

and commentary has disproved this idea. For example, Norman Hammond (1972) has observed that there were two drums at the performance, although the second drum played a minor role in comparison. Although he is not explicit about the drums ramifications, Roberto Velázquez Cabrera (2004) published a study of ethnomusical importance declaring that this drum was a *zacatán*, a hollowed tree trunk with an animal skin pulled tightly over one end. The Maya term for this drum varies. Velázquez Cabrera (2004) claims this to be a *zacatan* whereas Hammond (1972), Stevenson (1976) and Marti (1968) have referred to it as a *pax*.

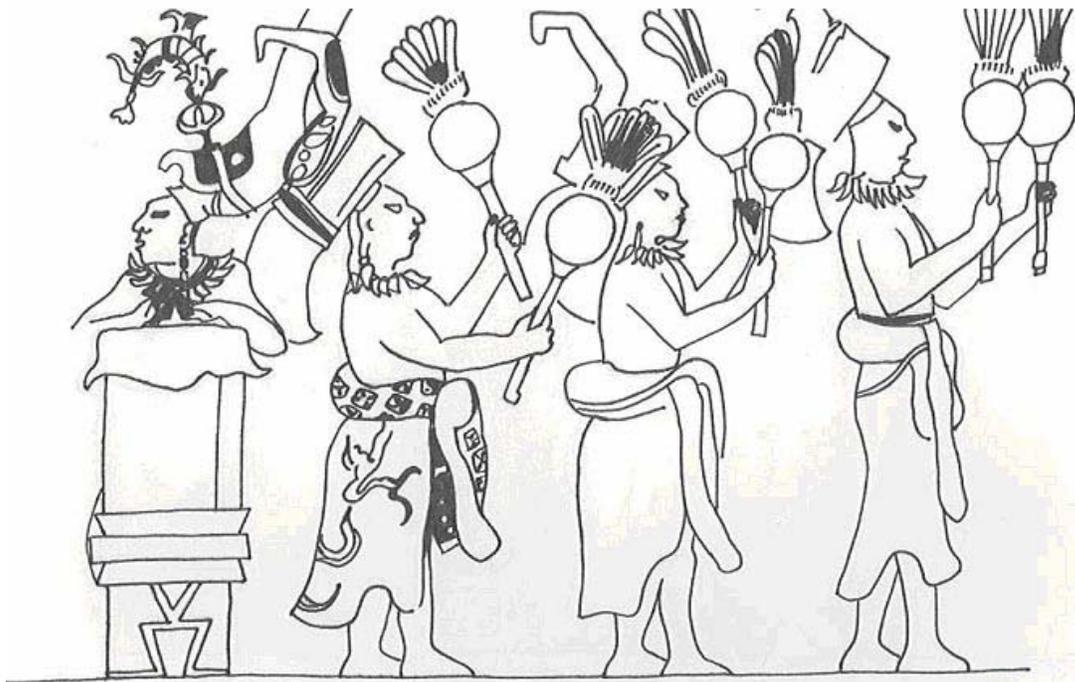


Figure 8 Drummer on the Pax.

Drummer on the *pax*, a vertical drum played standing up, flanked by percussionists playing adorned rattles. Redrawn from Miller (1986: Plate 4) by Loli Wiesner de Bourg.

Several membranophones, percussion instruments made of wood or ceramic with a skin tightly covering one end, existed during the ancient periods of Mesoamerican civilization. The pax had several relatives throughout Mesoamerica (Donahue 2000; Marti 1968; Sachs 1940; Stevenson 1976). For example, the tlapanhuehuetal was a drum of considerable size that was 250 cm tall. Another drum worth mentioning was the panhuehuetl, similar in size, if not slightly larger, when compared to the pax and only used in large ceremonies. When struck correctly, it could be heard at distances of up to 12 km, making it more suitable for announcing gatherings or interaction (Donahue 2000). The size of the drum depicted in the frescoes of Bonampak has been estimated to be 105cm tall and will be referred to as a pax (Hammond 1972; Velázquez Cabrera 2004).

I will make the assumption that the pax in this ceremony was the main instrument or “heartbeat” of the orchestration and that its musician was the *holhop* whose musical knowledge was superior to the other performers. Mary Miller (1986) states that the timekeeper of this band is behind the last trumpet player. This musician plays a hand drum and perhaps a rattle. However, the size and loudness that is associated with the pax makes this musical instrument the most audible at the performance. My interpretation could explain why there are three tortoise shell players and five men each playing feather adorned rattles at his side, perhaps competing in loudness. His ability to control the sound he was emitting attests to his skill and endurance as a musician. If the drummer lacked control he risked offending the gods and losing the time of the ceremony.

If the pax player, using call and response methods, needed to place emphasis during a song or end a song at a moments notice, he could do this by striking his instrument accordingly to guide the other musicians in an acceptable manner. I will assume that the size and loudness of

his drum gave him the most command. My perspective could be a logical explanation for how the Maya music ensemble communicated during the presentation especially since most call and response guided sections of performances require the leader separate from the other performers (Randel 2004). The pax drummer's elbow behind the turtle carapace is an indication of his slightly distant position in relation to his accompaniment.

Facts that are essential to the deciphering of this musical arrangement, with the drummer as the *holhop*, are:

1. The pax is clearly the most audible instrument which keeps everyone else in time; if the drummer was to miss a beat the dignitaries would notice it and the dancers, actors and other musicians would be in danger of going off time. He was clearly the most experienced musician.
2. In the fresco he is apart from the other musicians. He faces the others such as a conductor would face an orchestra.
3. Finally, his headdress bears the elite symbol of the fish that as Linda Schele points out, is used throughout Maya history by rulers and other superior leaders as noble identification (Angier 1981).

Accounts of Spanish missionaries, in a study by Robert Stevenson, give insights to the professional qualities that could make this drummer the percussion expert in attendance:

“Training of an extremely rigid kind was prerequisite to a career in music; since music itself was always thought of as a necessary adjunct to ritual, absolutely perfect performances, such as only the most highly trained singers and players could give, were demanded. Imperfectly executed rituals were thought to offend rather than to appease the gods, and therefore errors in the performance of ritual music, such as missed drumbeats,

carried the death penalty. Singers and players [and, at least for the Maya, courtly dancers], because of the important part music played in [ritual] life, enjoyed considerable social prestige” (Stevenson 1976: 89-91).

The fresco reveals that the pax player was more prestigious than the other musicians because of his headdress. The pax player was the *holhop* of the orchestra, keeping time, and the most knowledgeable of the musicians performing. The manner that the artist opted to represent the drummer illustrates him with his instrument, a pax that is chest high in proportion to him, directing his attention to three men who are playing tortoise shells. These three musicians by his side are clad in a dignified manner, certainly more elegant than the trumpet players, yet not as prestigious as the drummer. The drummer’s headpiece, a round head dress with a wave shaped brim (Figure 8) displays the fish biting a water lily (Miller 1986).

The tortoise shell players have headpieces similar to the drummer except for lacking the image of the fish. According to Linda Schele (Angier 1981), the fish was an elite food as well as a symbol of noble authority. The drummer portrays his privileged status, which the other musicians lack. One of the earth god impersonators wears the fish as well making this embellishment rare at the ceremony. Playing the loudest instrument and clad with the symbol of nobility, the pax player is singled out. This separation exposes musicians as belonging to a musical hierarchy of ancient Maya classes. Over time possibilities may have existed for the accession of less experienced musicians into more prestigious positions.

I propose that the pax player was the most prestigious and experienced musician at the Bonampak ceremony. However, not all ethnomusicologists may agree with my point of view. Bruno Nettl (1956, 2004) disagrees with the notion of professional musicians in Native American culture and suggests that people who played music in ceremonies did so because they

were shamans, medicine men or priests. Nettle (2004) claims that ancient music, such as that dictated at Bonampak, should not be considered using musical criteria alone.

The pax player is the most distinguished of the musicians at Bonampak. I believe that his instrument, his attire and his physical position in the orchestra confirm his leadership. Whether or not this drummer is a religious leader having been chosen for his ability to appeal to the *halach uinic* and the gods is not certain, but his presence at this ceremony was essential for the success of the production.

Pitch and Complex Percussion Arrangements

The sound of the pax and corresponding musician were important, but the adjacent idiophones make the Bonampak ceremony an example of complex music. The detail of this performance leads to complex rhythms that the Maya needed for their dances and rituals. I have already stated the differences between the player of the pax and those who played the tortoise shells both in terms of prestige and musical expertise. The last percussion topic to be discussed is the pitch distinction that took place at the ceremony.

Maya archaeologists have provided a clear image of an ancient people with the ability to arrange complex instrumentation (Amlin 1989; Girard 1995; Hammond 1972; Healy 1988; Houston 1998; Inomata et al. 2001; Inomata and Stiver 1998; Tozzer 1941; Villacorta and Villacorta 1977). The combination of instruments used by the Maya was rarely simple. The ancient Maya commonly produced music with multiple instruments. ancient sources such as the Dresden Codex and the stories of Bishop Diego de Landa tell of music being made in small and large ensembles (Girard 1995; Tozzer 1941; Villacorta and Villacorta 1977). Excavations conducted by Paul Healy (1988) at Pacbitun, Belize discovered over ten aerophones for a single aristocratic funeral. Michael Coe (2005) also discusses private orchestras of the ajaw of Tikal,

comprised of every Maya instrument. The performance at Bonampak is another example of diverse instrumentation. The percussion that the ancient musicians organized at Bonampak is an example of elaborate instrumentation serving a ceremony.

The term pitch is most easily described as high and low sounds that create a more heterogeneous music. For example, if all the Maya had played were the pax or the rattle, they would have lacked the distinctive sound of a leader. The most evident distinction in pitch found in this percussion ensemble was between the pax and the rattle. Because of its robust size and depth, the membrane on the pax could have easily vibrated the lowest pitch, much like a bass drum in a modern orchestra. Smaller instruments vibrate less air, making a higher pitch.

The tortoise shell with deer antler “drum sticks,” a percussion idiophone, falls into the mid range of pitch. The arrangement of instruments and their sounds, reinforces my previous claims that the conductor had been rigorously trained to guide a three pitch rhythm section. As I have discussed, musical iconography has not survived or is unknown at this point (Gallencamp 1985; Nettl 2004; Stevenson 1976). The task of recreating rhythms of this ancient ceremony is a difficult undertaking. The rhythms of the Classic Period Maya only survived by oral transmission, which makes this part of Maya music unknown.

The Aerophones at the Ceremony

There are several trumpets, or horns, represented in the Bonampak murals. However, only the two horns from room one of Structure one are important to this study. This mural reveals only two wooden trumpets while seven trumpets are found between the murals of rooms two and three (Miller 1986). The aerophones may have been of greater importance to the more theatrical or religious performance by the actors who played the earth gods. The role of wooden

trumpets varies. In Maya culture this musical instrument was employed in noble courts, warfare and public announcing (Coe 2005; Miller 1986; Miller and Martin 2004; Stevenson 1976).

The level of musical organization at Bonampak is evident given the range of musical instruments involved. However, the organization of the Bonampak festivities becomes more complex considering the separation of the areophones from the percussive orchestra. I believe that the trumpet players of the Bonampak ceremony in room one of Structure one belong to the Earth God performance (Figure 9). I confirm my assumption by the colors and style of clothing. The trumpet players waist cloths and headdresses are similar to the Earth Gods costumes.

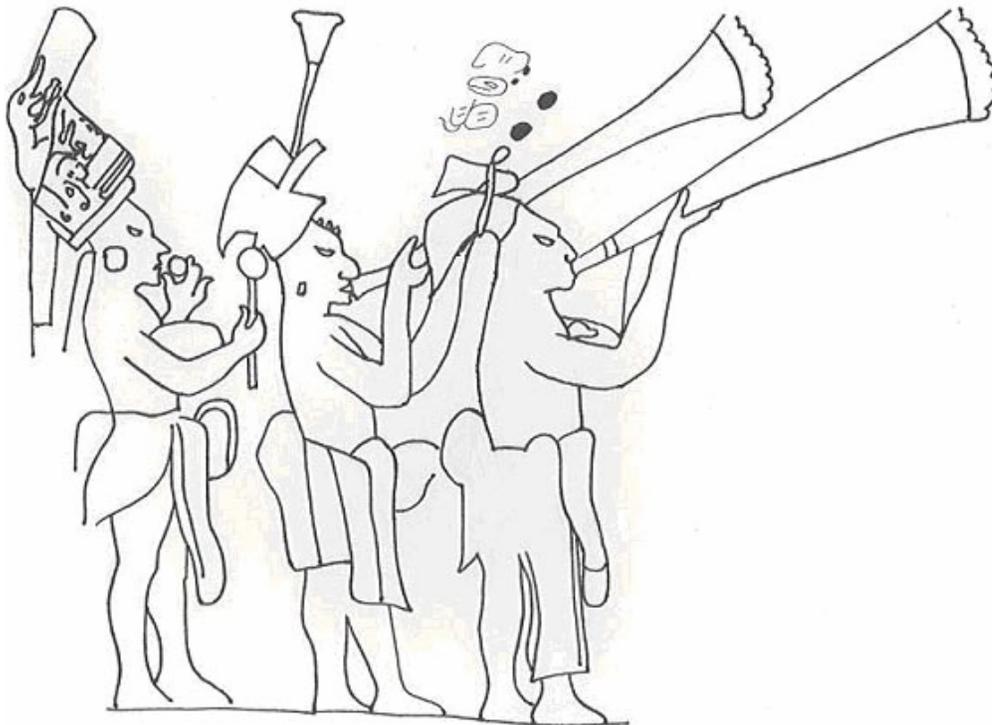


Figure 9 Aerophones at the Ceremony.

Replicate of Bonampak fresco with musicians published in *Arqueología Mexicana*. Because of their dress, I assume that these trumpeters accompanied the actors who played the god of wind, lobsterman, god of corn and, crocodile or caiman-man. The trumpets are sounded as a part of this ritual, along with the rattle just behind them. Redrawn from Miller (1986: Plate 7) by Loli Wiesner de Bourg.

The music and sound that the trumpets produced for the Maya can be discovered through replication. The contributions of Velázquez Cabrera (2004) have increased our understanding of the hom in this way. His attempts to construct trumpet replicas have determined that pitch and melodic capacity were not easily controlled. The hom may not have produced harmonious accompaniment at Bonampak. My assumption is that these wooden trumpets would have been of spiritual relevance since they are more associated with the earth gods.

Conducted under the approval of Professor Neville Fletcher, Velázquez Cabrera (2004) postulates the diameter for the majority of the areophones represented at Bonampak was between 3 cm for the mouthpiece to 12 cm for the bell. According to Velázquez Cabrera, gourds may have been used for the trumpets of Bonampak given Diego de Landa's writings of the instrument:

"They have little drums which they play with the hand, and another drum made of hollow wood with a heavy and sad sound. They beat it with rather a long stick with a certain gum from a tree at the end of it, and they have long thin trumpets of hollow wood with long twisted gourds at the ends" (Tozzer, 1941).

According to Miller (1986) and Coe (2005), the frescoes of Bonampak were produced before A.D. 800 during the Maya Classic Period. The ethnography of Bishop de Landa can only give insights to how the Bonampak ceremony may have sounded since the ritual and his observations were off by several hundred years (Hammond 1972; Stevenson 1976; Tozzer 1941; Velázquez Cabrera 2004). De Landa obviously did not hear the trumpets employed at Bonampak, but his account is one of the most insightful resources known to exist regarding these aerophones.

Recent studies and experimentation by craftsmen point to the quiote plant as a potential material employed by the ancient Maya during the fabrication of the wooden trumpet (Velázquez Cabrera 2004). The modern replicas have strikingly similar aesthetic qualities as those depicted in the ancient frescoes. Although no definite conclusions can be made about the wooden trumpet's materials, the quiote resembles the trumpets more so than twisted gourds. This distinction places the use of twisted gourd trumpets in the Postclassic period while wood was used during the Classic Period.

Conclusion

The Maya at Bonampak may have needed music that was intense and lively to mark the fall of their opposition. This view could explain why the spiritual sounds of the Maya flutes were excluded and the trumpets limited. Miller (1986) believes that the flutes may not have had a dulcet tone making them inappropriate for this occasion. However, from my experimentation with ocarina-flutes from Stingray Lagoon (McKillop 2002: Figure 3.39) I estimate that ceramic flutes and ocarinas could have been heard above the drum, carapaces and rattles. From this analysis I will conclude that certain instruments were appropriate for certain occasions. I believe that this percussive performance is a symbol, which marks the occasion. This ceremony was lively and a necessary response to the vanquishing of their enemies. In contrast, somber funerals or spiritual rituals needed flutes and ocarina music more often than percussion (Borhegyi 1956; Healy 1988; Houston 1998; Inomata and Stiver 2001; Marti 1968). The ancient Maya had cultural definitions of when instruments were appropriate.

Modern standards set by Eurocentric musical influences may give Maya music an offensive or rather primitive quality at first glance. Perhaps, as Bruno Nettl claims, the judgment of such indigenous music should not be based on musical criteria alone. The ancient Maya

ceremonial production of Bonampak clearly served a celebratory purpose that satisfied the elites in attendance and the gods existing in ancient belief. This factor alone gives no other culture acceptable grounds to claim that this manifestation of ancient Maya music was anything less than a remarkable accomplishment. The preceding examples of social hierarchy that was associated with the musicians, in the case of the pax player, show that ancient Maya commoners and elite both acknowledged the status and power of professional musicians. Possessing knowledge of oral transmission and being able to organize a ceremony of magnitude portrays devoted musicianship. Musicians had to work consistently if performances were to be flawless. Robert Stevenson states that for a Maya man to become a musician an enormous commitment was necessary. Any performance that was less than the best of his ability could mean death. The highest moment in an ancient Maya musician's career could have been the privilege to perform in the intensity of this ceremony and living to tell about it. This fact gave musicians a high regard.

My analysis of the Bonampak Frescoes has concluded that large ceremonies of the ancient Maya required rigorous organization. I have used the visual details and instruments of this depiction to conclude who was responsible for this organization. I believe that the *holhop* was an elite class member because of his attire, instrument and musical professionalism. My identification of this musician is supported by instrument analysis, elite symbols and ethnomusical information.

I also have proposed that the magnitude of this ceremony called for highly complex music. The pitch distinctions that the ancient Maya employed in this particular ceremony can attest to the musical skill and knowledge that this ancient culture possessed. I find this analysis to be particularly important since musical notation of the ancient Maya does not exist. The

depiction of diverse instrumentation at Bonampak acts as a recorded form of music. Even if the exact rhythms cannot be recreated and studied, these murals are the best resources for understanding the complex music of the ancient Maya.

CHAPTER 4: CERAMIC AEROPHONES OF THE ANCIENT MAYA

Introduction

In chapter two, wooden and clay aerophones were described with emphasis placed on the latter. Ceramic flutes, ocarinas and whistles were widely used throughout Mesoamerica (Borhegyi 1956; Hammond 1972, 1991; Healy 1988; Marti 1968; Stevenson 1976), although their exact role is not certain. Today these musical instruments serve as references to ancient Maya music. Unlike the ceramic membranophones, the ceramic ocarinas and flutes can be played by scholars to determine the principles of ancient Maya music (Cresson 1884; Harcourt 1930; Marti 1968; Payne and Hartley 1992; Stevenson 1976). The antiquity of these musical instruments has not had any effect on their sound (Cresson 1884).

Examining the archaeological record of excavated aerophones dictates that the ocarina was the most widely employed instrument among the Maya. This sonorous device is basically a flute with a globular body capable of varying ranges of tone and pitch. Although the ocarina is found in nearly every part of the Maya area, many aspects of the use of these musical instruments and their sound capability remain unknown. The ocarina has been associated with non-musical figurines, tripod incense burners and other clay artifacts throughout the Maya area (Borhegyi 1956; Stone and Turnbull 1940; Valdez and Mock 1991). The large quantity of clay ocarinas from Jaina Island, Mexico may offer insights about the ritual significance, innovation and elite demand of music by the ancient Maya (Corson 1976). Although moulds have been found for some of the figurine ocarinas, not all ceramic aerophones were mass-produced since they were hand-made. The abundance of ancient Maya ocarinas may indicate that elites needed

more privileged music than what this musical instrument was capable of providing (Corson 1976; Healy 1988; Joyce 1933).

In this chapter I will summarize what previous studies have revealed about ocarinas and flutes of the ancient Maya. Distribution patterns of these musical instruments will be reviewed and applied to make conclusions on social statuses of the different classes existing in Precolumbian Maya times. I will identify musical instruments that were elite symbols and I will explain how recent social theories may be applied to these symbols. Finally, my definition of the Maya sound will take form and give us a perspective different from what Spanish chronicles have provided anthropologists for centuries.

Ancient Maya Ocarinas

Before I begin with any musical analysis I must make the reader aware of my data interpretations. For decades, scholars have made erroneous claims by stating that the Maya played whistles. The Maya did play whistles but far less than publications indicate. Today a growing number of researchers agree that these instruments properly be known as ocarinas or globular flutes (Hammond 1972; Healy 1988; Joyce 1933; Marti 1968). The majority of Maya ocarinas produce two more notes than a whistle. Very few of the instruments found in the Maya area can correctly be categorized as whistles (Hammond 1972; Payne and Hartley 1992). The following interpretations are based on this type of classification.

How the ocarina was introduced to the ancient Maya people is yet to be discovered, however, by no means is this study of the instrument's origins. More specifically, rituals that displayed these musical instruments may be explained by excavated ceramic aerophones in Mesoamerica. The parallel existing between musical instruments and rituals can be supported in several ways, which include the concepts of energy and power through visual decoration

(Hendon 1991; Inomata 2001). The best example of the embodiment of ritual power in an instrument is the innovative whistle pot.

Belonging to Precolumbian cultures, including the Olmec and Teotihuacan, the whistle pot was employed throughout different periods of civilization (Marti 1968; Payne and Hartley 1992; Stevenson 1976). I believe that the whistle pot explains the role that ceramic aerophones played in ancient rituals. In chapter two I explained that aerophones are played by wind columns from the musician's breath. The whistle pot is an exception to this definition because it is a musical instrument played when water is poured from it. Samuel Marti (1968) suggests that this instrument could evoke amazement from ritual participants. Priests or ritual leaders could obtain a distinguished status and gain power by using this musical instrument.

The whistle pot is a model aerophone for explaining music in rituals because its sound is associated with a ceremonial gesture. These instruments do not rely on a musician's breath for sound. Two ceramic vessels are linked together by a hollow tube and one of these bears a spout. The other is sealed and decorated by a zoomorphic or anthropomorphic effigy. The closed vessel is completely sealed with the exception of a whistle aperture, which allows a passing airflow. Examining these devices has revealed that when water is poured from the spouted vase, the change in air pressure produces a whistling tone through the aperture of the sealed vessel. The association of sound with a pouring gesture ritually charges this instrument providing a display of privileged artistic knowledge (Inomata 2001). Any Maya artisan or shaman who could produce this device and use it properly would be worthy of an elite or semi-elite position. The whistle pot also bears the oldest known double whistle dating to the early Preclassic period, 500 B.C. (Marti 1968). Why this musical instrument produced two sounds for ritual use is unknown.

Nonetheless, the whistle pot and the double whistle pot demonstrate an evolution in ancient music with ritual use as its catalyst.

The ocarina is capable of a musical quality similar to that of the whistle pot. Although much information is still required to make accurate conclusions, some scholars believe that the ocarina was used in ancient Maya rituals of agricultural and fertility cults and burial ceremonies (Borhegyi 1956; Healy 1988; Marti 1968). Effigy ocarinas and figurines of pregnant women and agricultural peasants from the Preclassic Period, 1000 B.C.-A.D. 250, in the Highlands of Guatemala have led Borhegyi (1956) to believe that these rituals were designated for common class Maya.

Excavations demonstrate that the Maya frequently used the ocarina with other ceramic implements such as censers and figurines, associating this musical instrument with certain contexts. The work of Borhegyi (1956) also indicates that the use of the ocarina was confined to the peripheral areas, outside of elite precincts. Borhegyi (1956) suggests that the absence of the ocarina in elite areas makes this instrument a symbol of lower class interaction. He notes that this usage is dated to the Preclassic (1000 B.C.- A.D. 300) and Early Classic Periods (A.D. 300-600).

Evidence supporting the spread of the ocarinas use and production comes from the Sula-Ulúa delta of northern Honduras (Stone and Turnbull 1941). A rare example of an ancient kiln was preserved in a Sula valley mound four feet below the surface. Inside the kiln were preserved ceramics including ocarinas, non-musical figurines and tripod dishes among other types of pottery. In Sula-Ulúa ritual ocarina music was widely used since moulds for the figures were included in the kiln. Stone and Turnbull (1941) have assumed that these artifacts are from the Late Postclassic period (A.D. 1200-1500).

Similarities between the archaeology of Borhegyi's (1956) research and Stone and Turnbull's (1941) discovery indicate the widespread use of ocarinas in ancient Mesoamerican music. Ocarinas found throughout Belize and the Yucatan from the Classic Period also support the idea of this instrument's usage (Corson 1976; Healy 1988; Joyce 1933; McKillop 2002; Valdez and Mock 1991). The presence of the ocarina must have prevailed in certain events throughout Maya history. Whether or not the intentions of rituals were similar cannot be concluded by instrument analysis alone. The presence of tripod censurs, figurines and moulds give ancient Maya ocarina music similar material accompaniment. But, these similarities of ancient Maya rituals cannot determine if the music employed was the same throughout this culture. Nevertheless, excavated ocarinas from the Late Classic and Postclassic Periods (A.D. 650-1500) prove that common class music resisted innovations such as ceramic block flutes and triple flutes (Hammond 1972; Healy 1988; Marti 1968; Payne and Hartley 1992). I believe that this resistance was driven by class limitations because ceramic flutes were not available to Maya commoners of the Classic Period (Healy 1988; Inomata et al. 2001; Inomata and Stiver 1998). I also assume that the abundance of Maya ocarinas suggests that this musical instrument satisfied the need for music of a more common class. The ocarina was an essential part of music making for the ancient Maya culture.

Ancient Maya Flutes

Maya flutes are less familiar to scholars than ocarinas because of their scarcity. The chronicles of Torquemada, Herrera and Diego de Landa clearly describe the Maya's use of reed flutes (Hammond 1972; Stevenson 1976). Several flutes may have existed during the Maya colonial period but have little representation. The limited number of specimens found means that such flutes were wooden leaving few artifacts for study. The scarcity of ceramic flutes

could also indicate them as a prestige item designated for the elite class (Cresson 1884; Houston 1998; Healy 1988; Inomata 2001; Inomata and Stiver 1998). This would limit the number of flutes produced and demonstrate another elite symbol.

Since flutes and ocarinas are capable of producing similar music, either more tone holes or chambers distinguished elite flutes. First, these characteristics made flutes more complex than ocarinas. The extra features applied to flutes made their music distinguishable from ocarinas. Secondly, the instruments called for professional artisans and musicians displaying the use of privileged knowledge (Cresson 1884; Inomata 2001). I assume that the elongated aesthetic of flutes is also prestigious when contrasted to the ocarinas.

Burials have revealed data linking flutes to elite rites (Healy 1988; Houston 1998). At Pacbitun, Belize, evidence of an aristocratic burial included five flutes of complex construction and several figurine ocarinas (Healy 1988). A non-musical example of this burial being an elite affair is a shell necklace containing over 2,000 drilled beads (Healy 1988). These musical instruments also demonstrate a demand for greater orchestration than what has been known in ocarina rituals. The flutes in this burial-offering bear the complex musical features associated with elite power and knowledge. What were these features that set elite music apart from the music of common class?

Five flutes from this burial have bulb like protrusions making them double diaphragm aerophones (Marti 1968; Stevenson 1976). Aesthetically, flower motifs embellish the end opposite of the mouthpiece. These models are rare artifacts making this burial exceptional in terms of elite involvement. The double diaphragm flutes are musical instruments of complex construction and not known outside of elite contexts. These aerophones have internal chambers allowing them to reach more notes and higher registers when more air is exerted (Figure 10).

The high pitch they provided at this elite function may have imitated the gods of music in prehistoric belief (Marti, 1968; Payne and Hartley 1992). Socially, these features act as symbols that allocate power and embody energy (Hendon 1991; Inomata 2001), thus maintaining elite status. The theories of Hendon (1991) and Inomata (2001) state that the elite classes applied artistic knowledge to architecture and art works to create material symbols of power. I believe that musical instruments may now be added to this list of artistic symbols.

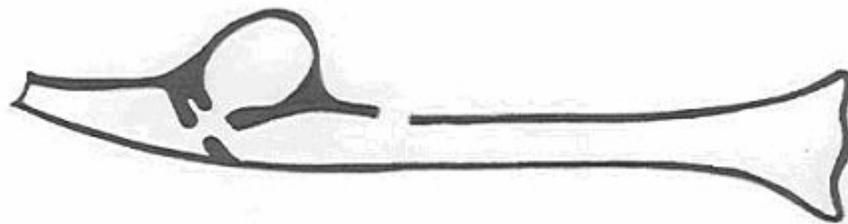


Figure 10 Double Diaphragm Flute Diagram.

This diagram displays the interior chamber of a double diaphragm flute. The base of the bulb like protrusion creates a second edge. An increase in breath allows this second edge to produce higher notes. These higher registers may have held some religious significance according to ancient Mesoamerican beliefs. This is an example of elite class instruments that was not available to common Maya. Redrawn from Marti (1968: 161) by Loli Wiesner de Bourg.

The melody made by the double diaphragm flutes creates new concepts of elite power. Scholars have theorized that power was maintained in privileged knowledge and visual decoration (Hendon, 1991; Inomata, 2001). Elaborate music demonstrated power in an audible form meaning that Hendon’s (1991) concept of energy can be extended to include musical instruments and melodies. The scarcity of this instrument makes it a commodity involving specialized production and musical knowledge (Figure 11).

Previous studies have not specified the elite importance associated with the double diaphragm flute. I believe, however, that this type of flute is a link between anthropology and

ethnomusicology studies involving ancient Maya music. My perspective includes the double diaphragm flute as an indicator of elite music because of its complex construction. This complex musical instrument thus serves as an example of Inomata's (2001) privileged knowledge, which aided the elite class in maintaining power. I believe that the music of the double diaphragm flute was also a characteristic that separated elite and common class events.



Figure 11 Double Diaphragm Effigy Flute.

An example of a Maya double diaphragm flute with jaguar effigy. 16 cm length. Redrawn from Marti (1968: 160) by Loli Wiesner de Bourg.

The orchestration at this burial is also a great indication of elite involvement. Healy's (1988) excavation of the site concludes that 14 musicians may have been involved in the ceremony. In the entire Maya society only Bonampak displays comparable orchestration. Again, the ability to organize proficient musicians raises several questions about the Maya's musical traditions. The complex instruments and orchestration at Pacbitun tell us that this was an elite affair.

I conclude that musical instruments served as an indicator of the class involved with excavated artifacts. Greater attention to the detail of musical instruments may aid researchers in distinguishing the social status of structural and burial remains. Flutes also act as tools for defining how ancient Maya elite music sounded. Flutes can also be examined through the findings of a grave site at Piedras Negras, Guatemala (Houston 1998). Here a triple flute dated to the Late Classic Period (A.D. 600-900) was found with an unspecified number of ocarinas marking an elite burial. Previous excavations indicate that triple flutes were not as common as ocarinas or flutes in the Maya area (Hammond 1972; Marti 1968; Payne and Hartley 1992). During the Late Classic Period, around A.D. 700, the triple flute marked the apex of musical knowledge, combining the musicality of three flutes in one instrument (Marti 1968). The role of the flute is mainly displayed in elite contexts which leads me to believe that elite necessities were responsible for this musical apex in the Maya area. Since there is only one triple flute at the burial, I also assume that a master musician played it. One musician playing the triple flute could then replace three flute musicians. The triple flute's complexity and scarcity are characteristic of commodities controlled by elites.

The Maya who produced flute music in elite contexts enjoyed considerable social statuses. Musical and artistic artifacts of Aguateca, Guatemala reveal the semi-elite status of

musicians. This site was suddenly abandoned during the Late Classic Period, A.D. 600-830, following an enemy attack (Inomata and Stiver 1998). The hasty retreat of Aguateca inhabitants left evidence of the elite involvement of flutes and social ranking of royal musicians.

From a single household, four flutes and seven drums were excavated. Inomata and Stiver (1998) have concluded that these instruments were personal possessions, eliminating the possibility of a workshop. This quantity of instruments belonging to one musician reflects music as a serious undertaking where flawed performances were not tolerated (Stevenson 1976). The social prestige of musical performers is supported at Aguateca where this musician's dwelling has provided researchers with decorative green stone and shell beads among other carvings (Inomata 2001; Inomata and Stiver 1998; Stevenson 1976). Artifacts discovered in the royal complex at Aguateca, including ceramic drums and aerophones, demonstrate the elite demand for music (Inomata et al. 2001).

Non-music paraphernalia of artistic importance including scribes implements and carving tools come from this Aguateca home and are assumed to have belonged to the musician as well (Inomata and Stiver 1998). Artifacts belonging to multiple artistic disciplines represent beliefs found in the Popol Vuh where certain gods controlled all aspects of creative arts (Inomata 2001). Even though ceramic flutes and excellent musicianship may have been necessary in elite contexts, we can now see that music was not a specialization. Artists may have devoted their lives to becoming proficient in all aspects of creation to serve the elite class. If this is so, we can understand music and the ceramic flute as parts of privileged knowledge. Playing the flute was one professional act that helped artists become more like their gods and be promoted to the elite class.

New Definitions for Maya Music

A study on clay ocarinas and flutes would not be complete without an analysis of their sound. By playing these instruments ritual music can be analyzed on a first hand basis. However examining the notes produced by ancient ocarinas is not a new field of study. Efforts by both European and American scholars have focused on the musical potential of these artifacts (Hammond 1972; Healy 1988; Marti 1968; Payne and Hartley 1992; Sachs 1937; Stevenson 1976; Stockli 2005). I believe that the examination of ocarina and flute music demonstrates a need for more informed critiques of ancient Maya music than what has been published.

Well known accounts of contact period Maya include Bishop Diego de Landa's *Relación de las Cosas de Yucatán* where organized music is briefly described (Tozzer 1941). This documentation is cited by Mayanists and ethnomusicologists looking to elaborate on visual evidence of music in murals, painted vessels and codices (Hammond 1972; Healy 1988; Marti 1968; Stevenson 1976). Although his chronicles are insightful, de Landa's writings can be misleading since ocarinas were not included in his observations. Flutes were not described sufficiently by de Landa to draw conclusions with regard to their sound. The lack of descriptive information in de Landa's chronicles is inconsistent with the abundance of ceramic ocarinas and flutes. I estimate that this largely undocumented portion of ancient Maya music can be investigated by recording composed music using the musical antiquities excavated in the Maya area.

Tuned flutes and ocarinas may thus disprove ideas of discordance and support melody as part of privileged artistic knowledge. Several tuning reports of ancient ocarinas provide evidence of complex musical content in rituals (Harcourt 1930, 1941; Marti 1968; Payne and Hartley 1992; Sachs 1937; Stevenson 1976; Stockli 2005). Importance was placed on musical

structure and harmony though what is considered discordant is defined by the culture making the music (Rolando Menchaca García and Velázquez Cabrera 2000). What appears to be dissonant to European listeners could have been harmonious to ancient civilizations. Some scholars criticize the documentation of ocarina notes in European notation claiming that indigenous musicians did not discern music with the precision of modern tone analysis (Stevenson 1976).

Testing two figurine ocarinas from Stingray Lagoon, Belize (McKillop 2002: 3.32) has provided me with insights to how Maya music may have sounded. Chromatic readings for these instruments conclude that specific notes can be readily produced and sustained. Musical techniques were also manageable allowing the production of sharps and flats. These techniques are not easily executed, which supports the rigorous training required by ritual leaders or performers of elite courts (Inomata 2001; Payne and Hartley 1992; Stevenson 1976). These instruments could have been combined to create complex harmonies as demonstrated at Pacbitun and Piedras Negras (Healy 1988; Houston 1998).

The ocarinas from Stingray Lagoon have led me to believe that burials and ceremonies involving numerous aerophones required great organization of trained professionals. Since I was able to sustain specific notes with these musical instruments, I assume that producing certain notes at precise moments was an important part of organized music. Archaeological examples of ocarinas and flutes clarify that the ancient Maya had a developed concept of harmony. Whether or not this harmony was associated with ritual powers is unknown. However, until these instruments are orchestrated once more, ritual music of the Maya should not be subject to the descriptions of Bishop de Landa. The musical instruments predating the arrival of Bishop de Landa offer new impressions of music.

Conclusion

Ceramic aerophones are an invaluable resource to understanding the music of the ancient Maya. This music was perhaps composed by individuals that could adequately play these instruments at the time of the event. Although the exact rituals and ceremonies that involved the ocarinas cannot be fully explained, this should not affect how we evaluate the sound of ancient Maya music. The music made by ceramic ocarinas was significant to the people of this culture. I make this assumption because of the great quantity of these musical instruments that have survived archaeologically. These instruments, in my opinion, are the most essential antiquities to recreating the sound of the ancient Maya. Since the most evident use of ocarinas was burial ceremonies, I believe that we can accurately know what the music of these occasions sounded like.

Greater prestige and musical technique are associated with flutes. Ceramic flutes of complex design, some having five to six tone holes, can now be defined as symbols of elite interaction. The flute was most likely a part of elite functions for the intricate music that it could produce and because of its complex construction. This distinction is where the major difference between the ocarinas and flutes can be determined. I have linked previous concepts of power and complex artistic creation to the double diaphragm flute. This representative of the elite class can be used to classify elite involvement of artifacts. These flutes also allow researchers to conduct studies of the sound of elite class music.

CHAPTER 5: MULTIMEDIA REPRESENTATION OF ANCIENT MAYA MUSIC

Introduction

ancient Maya music and culture is presented today on the Internet, compact discs and scholarly videos. The message that these multimedia sources offer may or may not represent the music of the ancient Maya accurately. Musical instruments described in multimedia as Maya may not have been used by this ancient culture. Being classified as Maya often emphasizes the sounds of a musical instrument. Certain flute replicas are considered Maya because of their spiritual or mysterious sounds. They do not resemble any of the ancient Maya artifacts aesthetically or musically. Other forms of multimedia include recordings of traditional Maya music made with instruments such as carapaces, the pax, flutes and trumpets. Available to the public is Land of the Feathered Serpent, an album of ancient Maya music produced by the group Xochimoki (Berenholtz and Galindo 2004). This music has been featured as the sound track for the scholarly video The Popol Vuh: The Creation Myth of the Maya (Amlin 1988). The message portrayed by this music accurately describes Maya culture.

Multimedia that present the ancient Maya culture conveys a message about this people. This message varies according to who is responsible for the media and what their motives are for presenting the Maya. How precise the information is that multimedia displays also affects the message that is conveyed. Why have musical instruments of the Aztec, the Valley of Mexico and elsewhere been called Maya? Are there public beliefs about the Maya that may help instrument makers sell their products? Similarly, why are Andean and Aztec musical instruments used to make the soundtrack for a film about the Maya Popol Vuh? What is the message behind this media?

Maya Musical Instrument Replicas

Coincidentally there are two flute makers who have been influenced by the ancient cultures of Mesoamerica and feature aerophones that are called “The Maya.” Robin Hodgkinson, based in Massachusetts, is a flute maker inspired by ancient Maya musical artifacts he has examined. The musical instruments he creates include ocarinas, flutes and vessel flutes. Hodgkinson has a vessel flute that he calls “the Maya” for the calming and spiritual tone that this aerophone produces (Campbell 2000; Hodgkinson 2005). Guillermo Martinez is another craftsman who has studied ancient Mesoamerican flutes and ocarinas. Martinez has been commissioned by the Oregon Flute Store to produce replicas of ancient Aztec and Maya flutes. This commissioning led to his production of a double flute called “the Maya.” Martinez’s work combines various aspects of pre-Hispanic musical instruments. Hodgkinson and Martinez both give insights into the production of ancient Maya musical instruments and influence public perception of how this ancient people sounded. What aspects of the ancient Maya culture do these musical instruments represent?

Are the Maya represented by the appearance and the sounds of these modern replicas? If certain aspects of these musical instruments are not taken from Maya culture, what is the message that the public receives about the Maya? Hodgkinson’s vessel flute, “the Maya”, is an original creation. Martinez’s double flute is called “the Maya” by the company that sells them. Maya archaeology indicates that these creations share no physical or musical characteristics of ancient Maya instruments (Corson 1976; Healy 1988; Marti 1968; Payne and Hartley 1992; Stevenson 1976). What are the reasons for naming these instruments after the Maya if their authenticity is inaccurate? Is there a message about the ancient Maya conveyed through these

musical instruments? Product descriptions on these websites contribute to how the Maya culture is portrayed in the media.

Robin Hodgkinson produces ceramic ocarinas, flutes and vessel flutes. Hodgkinson is a degreed scholar in anthropology and has studied several musical antiquities of Precolumbian Mesoamerica. Over a twenty-five year period, he has experimented with bamboo, acrylic, metal and exotic hardwoods for instrument making. Despite this experience, Hodgkinson has concentrated on making his aerophones from clay. In Hodgkinson's opinion clay is the most expressive in terms of sound and artistry.

Hodgkinson has created a musical instrument that he calls the vessel flute. "The Maya," belonging to this class of instruments, consists of two ceramic vessels that are connected by ceramic pipes. The vessels have tone holes on them to produce harmonies. "The Maya" is an original form of aerophone, which has not been discovered in the Maya territory. The form of this musical instrument differs from most Maya artifacts because it displays no effigy. Hodgkinson's vessel flutes and ocarinas display gold gilded areas and decorative finishes. The vessel flute is an instrument that is perhaps inspired by ancient Maya instruments and is not intended to be a replica (Campbell 2000; Hodgkinson 2005).

Hodgkinson's studies of Precolumbian aerophones have included specimens from the Museum of Natural History at the Smithsonian Institution, the Dayton C. Miller Flute Collection in Washington D.C. and the National Museum of Anthropology and Archaeology in Mexico City. Based on my experience with the ocarinas from Stingray Lagoon and ethnomusical reports, I estimate that Hodgkinson's "the Maya" is not meant to represent pre-Hispanic musical antiquities. The sound samples of the "Maya" vessel flute on Hodgkinson's website, [61](http://www.clay-</p></div><div data-bbox=)

wood-winds.com, indicate that this musical instrument is precision tuned to produce harmonies that are agreeable to consumers.

Hodgkinson's message about the Maya is not completely erroneous. Archaeology indicates that the ancient Maya valued ceramic aerophone music for ritual practices (Borhegyi 1956; Marti 1968; Payne and Hartley 1992; Stone and Turnbull 1941; Willey 1956). The exact reasons for the rituals in which the Maya used aerophone instruments has yet to be concluded. However, as a flute maker Hodgkinson is attracted to the Maya as a culture that emphasized ritual aerophone music. By featuring his Maya vessel flute, Hodgkinson conveys that the Maya produced music for spiritual and calming purposes. What Hodgkinson has provided is a way for people to understand this aspect of the ancient Maya civilization.

Guillermo Martinez is a flute maker based in California. As a native of Tarascan, Mexico he has been influenced by the ancient cultures of Mesoamerica. Martinez has no website of his own but sells his flutes through a site provided by the Oregon Flute Store. Product descriptions posted by this flute store describe Martinez's work as being of Maya origin. The two flutes that the Oregon Flute Store displays for Martinez are called "the Maya" and "the Tlapitzalli." The product descriptions inform us that these flutes are crafted according to artifacts to produce the same music as the originals. However, the archaeological record indicates that these musical instruments belonged to cultures other than the Maya.

Martinez is cited in the descriptions of the products for his knowledge of ancient Mesoamerican Culture. The double flute called "the Maya" is said to be a modified version of a Maya instrument that was used around 200 B.C.- A.D. 1200. There is no evidence that the Maya used a double flute during the Preclassic period or during any other period (Marti 1968; Payne and Hartley 1992). The description further portrays the flute as a replica of a surviving ceramic

instrument, indicating that Martinez's double flute represents the West coast cultures of Mexico. "The Maya" and "the Tlapitzalli" were instruments used outside of the Maya culture.

The Maya culture is further represented in the product descriptions offered by the Oregon Flute Store. Again the Maya are portrayed as a spiritual people that used music to enhance their rituals. The description of "the Maya" flute states that this musical instrument produces a haunting and mystical sound that grabs the attention of anyone listening (Calavan and Calavan 2005). Martinez then adds that these flutes were played in the pyramids to connect with the higher self (Calavan and Calavan 2005). This message portrays the ancient Maya as people who were absorbed in their rituals. This also indicates that they used music to heighten spiritual awareness within ceremonial precincts.

The work of Hodgkinson and Martinez convey the message of the ancient Maya as people that employed ceramic and wooden aerophones in ritual activities. According to Martinez, Maya music was haunting and mystical and made for spiritual purposes. Hodgkinson conveys the spiritual aspect with emphasis on the calming effects of aerophone music. The musical aspect of the ancient Maya ritual life is conveyed accurately by these multimedia sources.

Whether the ancient Maya made aerophone music inside the temples to connect with their "higher selves" is not certain. Nevertheless, aerophone music held a significant role in rituals and elite interaction of the ancient Maya. Grolier vase 33 depicts a musical performance taking place before a ruling elite (Miller 1986). This vase reveals that aerophones were the dominant musical instruments at this presentation. Excavations at Aguteca, Guatemala have connected flute musicians to royal palaces (Inomata et al. 2001; Inomata and Stiver 1998). A polychrome vase of unknown origin displays King Sihyaj K'awiil listening to three trumpet

players as he gazes into a mirror (Miller 1986; Miller and Martin 2004). Martinez's message about the ancient Maya is also supported by the various ethnographic chronicles of Torquemada, Herrera and Diego de Landa who took note of numerous flutes played by contact period Maya (Hammond 1972; Miller 1986; Stevenson 1976).

Ancient Maya Music on Film and CD

Ancient Maya music can be heard on CD and DVD. The sound track to The Popol Vuh: The Creation Myth of the Maya uses many of the same instruments that the ancient Maya employed in Precolumbian times (Amlin 1988). This film, directed by Patricia Amlin (1988), is made with the music of Xochimoki, a recording project run by Jim Berenholtz. Berenholtz is an ethnomusicologist who composes ancient music of the Aztec and Maya peoples using authentic replicas of ancient musical instruments. Although some of the instruments used in the recording were not Maya, this recording is a formidable source of how ancient Maya music sounded. Together with flautist Mazatl Galindo, Berenholtz created "The Land of the Feathered Serpent," an album dedicated to the music of ancient Mesoamerican cultures (2004). In this recording, the traditional music of the Maya is recreated. From this album editor Todd Boeklheide selected portions of the music for the sound track to Amlin's (1988) video.

"Land of the Feathered Serpent" contains a booklet of liner notes that indicates which instruments were used in each track. In addition, the liner notes contain basic information about how the tracks were composed by brief explanations of Maya culture. The instruments featured in this recording include the carapace and deer antlers, ceramic flutes and ocarinas, gourd rattles, horns or wooden trumpets, conch trumpets, the tunkul, the pax and ceramic hand drums (Berenholtz and Galindo 2004). The tracks of this album are named after ceremonial centers and

characters that were significant in the ancient Maya culture. Track titles include Tulum, Xibalba, Yaxchilan, Nah Chan and Bonampak.

One example is track 14, titled Hunahpu and Xbalanka after the Hero Twins. This music is meant to evoke the adventures and trials of these brothers. The corresponding liner notes give a brief summary of the hero twins as well. However these notes are not intended to educate readers. For example, it is not mentioned that the Hero Twins were associated with Maize, which is the essence of the myth (Graulich, 2001). The liner notes simply mention the aspect of ancient Maya culture that inspired the compositions.

The music of Hunahpu and Xbalanka was made with ceramic flutes and ocarinas. These aerophones should be considered authentic replicas of ancient instruments for the sound they produce. There are moments during “Hunahpu and Xbalanka,” track 14, that may seem discordant to listeners. This dissonance is likely because of the tuning of these flutes. Even though the ancient Maya tuned their flutes, their tunings were not done with modern chromatic devices. Several studies demonstrate that ceramic aerophones were not tuned precisely to each other (Harcourt 1930; Payne and Hartley 1992; Stevenson 1976). When Berenholtz and Galindo play simultaneously they miss and produce harmonies perhaps intentionally. However what we consider discordant may not have been so for the ancient Maya (Stevenson 1976; Velázquez Cabrera 2004). Moments during this track demonstrate the harmonious music these aerophones can produce and are excellent representations of ancient Maya music.

Although this album represents the music and instruments of the ancient Maya, there are some instrumentation features that should be addressed. Instruments that were not used by the ancient Maya are used to portray cultural aspects in Land of the Feathered Serpent (Berenholtz

and Galindo 2004). The use of large Andean panpipes in the track titled “Xibalba” is one such example.

The liner notes for this track indicate that Xibalba was the Maya underworld but do not portray it as the “place of fright” as believed by the ancient Maya (Amlin 1988; Coe 2005; Tedlock 1985). Berenholtz and Galindo (2004) state that voices, conch trumpets and the Andean panpipes were used to suggest the many realms of this underworld. The music that these composers have recorded to represent Xibalba would be better explained if the liner notes gave more information about the underworld. The deep and forceful sound of the panpipes were what Berenholtz and Galindo chose to emphasize the Maya place of fright. This CD uses music to portray cultural aspects of the Maya as well as represent their ancient music. The use of panpipes is not intended to represent the ancient music of the Maya.

Music editor Todd Boekelheide decided not to use Berenholtz and Galindo’s “Xibalba” for the scene depicting the descent of the Hero Twins into the underworld (Amlin 1988). However, Boekelheide did find that low-pitched panpipe music was appropriate. There is a quality in the Andean panpipe that accurately conveys Xibalba as the home of the underworld lords. Similarly, the music of marimbas, upright bass and synthesizers in Amlin’s (1988) video is not meant to represent ancient Maya music. Music is used in the video to enhance the effects and quality of the animated story.

Reverberation, or echo effects, have been placed on the music of the conch trumpet and the panpipes in the “Xibalba” track. The sounds of these instruments thus appear to be played in a vast space. The application of this reverb further mystifies the esoteric sounds produced by these musical instruments. Since the composers were trying to evoke the many levels of this underworld, the music makes it clear that Xibalba was a vast place that was obscure and perhaps

dangerous (Amlin 1988; Berenholtz and Galindo 2004; Coe 2005; Tedlock 1985). “Xibalba” is a track that conveys a powerful message about the Maya underworld while exposing listeners to conch trumpet resonance.

A final observation of this music involves the use of an Aztec double flute music considered to be Maya. “Yaxchilan”, track 19 of this album, was inspired by this Maya site that lies along the Usumacinta River. This music should be considered authentic for the use of actual Jaina flutes and pax drums. However, during the fourth phase of this track, the Aztec double flute is played. I must restate that no known double flutes have been found in the Maya area. Despite this portion of “Yaxchilan,” this music accurately represents the Maya culture.

This music represents the ancient Maya sound accurately and expressively. How Berenholtz and Galindo have chosen to play these instruments affects the message that this music conveys about the ancient Maya. Both musicians are specialists in pre-Hispanic music and have used cultural aspects of the Maya to recreate the lost sound of this people (Berenholtz and Galindo 2004). An additional characteristic of this album is the portrayal of Maya culture through music. Instruments such as the Andean panpipes emphasize mythological places that the Maya believed in.

Conclusion

Multimedia displays Maya music both correctly and incorrectly. Instrument makers and vendors use “Maya” as a term to describe a certain sound quality. The descriptions of the flutes made by Hodgkinson and Martinez are expressed as being haunting, spiritual, and calming. Although the instruments of Hodgkinson and Martinez bear no semblance to Maya musical antiquities, the musicians were inspired by the Maya’s use of aerophones as ceremonial elements. Essentially the Maya are portrayed as ritualistic music makers. This is an acceptable

message since Maya archaeology associates ceramic ocarinas and flutes with rituals, burials and other functions. Modern recordings and video sound tracks accurately define what ancient Maya music sounded like. The musical instruments that Berenholtz and Galindo employ make Land of the Feathered Serpent a reliable source for scholars to understand how ancient Maya music sounded.

CHAPTER 6: THESIS CONCLUSION

How musical instruments have survived is one of the most important details of ancient Maya music. When musical instruments have not survived archaeologically, the Maya codices, vessel depictions and mural paintings become valuable sources of information. The ancient Maya made music with three families of instruments. The aerophones consisted of flutes, ocarinas, whistle pots and trumpets. The membranophones were represented by various types of drums. The idiophones were rattles, turtle carapaces with deer antlers and tunkul drums. Categorizing these instruments has clarified many aspects of ancient Maya culture and ideology belief. Further emphasizing the sound of music has added to this categorization.

The aerophones of the ancient Maya can be examined in terms of their complexity, class association and ritual significance. Ocarinas are the most abundant Maya musical artifacts, which makes their involvement in common class rituals and events probable. This musical instrument is also absent from all vessel depictions, murals and codices indicating that the ocarina was not an elite object. ancient Maya flutes and trumpets, however, hold an elite status. Block flutes from the Late Classic (A.D. 600-900) and Postclassic (A.D. 900-1200) display more complex construction and are scarcely available in archaeological contexts. These differences in the aerophones indicate a specific hierarchic designation for certain musical instruments.

Careful examination of ancient Maya membranophones and idiophones from depictions on vessels, murals and codices provides some reasons why the Maya made music. The Postclassic (A.D. 1200-1500) book, the Dresden Codex, demonstrates that music may have directly been associated with the growth of corn. This association is made through the correct classification of the drum featured in this book. By accurately observing this instrument I have concluded that corn is produced by the sound of drumming. Examples of the Maize God in the

San Bartolo murals and the Hero Twins performing music further support the accuracy of my theory (Kerr 1998; Saturno 2003). Ceramic hand drums belonging to the Late Classic Period (A.D. 600-900) are seldom found outside of noble precincts. Ceramic hand drums were reserved for the elite class because of their association to the ancient Maya creation myths.

Furthermore, I believe that the absence of complex musical instruments at early sites is because of the lack of a distinguished elite class. At Cuello, Belize, the Preclassic Period indicates no evidence of elite organization and also lacks ceramic drums and rattle aerophones. The ceramic complexes discovered at Cuello demonstrate that these ancient Maya had the technology to produce ceramic drums but did not find this necessary. Similarly, ceramic ocarinas in the Highlands of Guatemala during the Preclassic Period demonstrate ceramic technology was used to produce ocarinas and not drums. This leads me to conclude that the music of the ceramic drum was not a necessity for early periods of Maya civilization. Although there is a lack of evidence to support that wooden drums and rattles were used, perhaps the ancient Maya of early periods used these instruments as accompaniment.

The idiophones were not complex in construction, but greatly contributed to the complexity of musical performances. The pitch of the rattle contrasts to the music of drums and demonstrates the use of different pitches. Complex musical arrangements can be examined in codices, murals and vessels. I believe that the chelonian carapace is one of the most sacred and oldest idiophones used by the ancient Maya. This instrument's appearance in the Popol Vuh and the San Bartolo murals attest to my theory (Saturno 2003; Tedlock 1985) The creation myth of the ancient Maya people made this musical instrument symbolic of religious ideology.

The Bonampak murals of Chiapas, Mexico offer insights to complex musical performances and perhaps a musicians' hierarchy. Distinctions in the instruments played and

ceremonial dress have allowed me to conclude that the player of the upright drum was the most knowledgeable musician at the performance. The instrumentation of Bonampak, in conjunction with archaeological evidence from Pacbitun, Belize (Healy 1988) demonstrates that the ancient Maya of the Late Classic Period (A.D. 600-900) may have expected certain instruments to be used at certain functions. Complex percussion may have been reserved for celebratory events while aerophone music was perhaps reserved for more solemn occasions. Further research in this field is required to draw more accurate conclusions.

The use of complex musical instruments to maintain the power of the elite ruling class is applicable to the ancient Maya. Hendon (1991) and Inomata's (2001) theories of privileged knowledge are exemplified in the double diaphragm flute. Musical instruments may now be added to the list of artistic accomplishments that maintained the ancient Maya elite ruling class. Although the rituals involving the ceramic aerophones require more research to effectively be deciphered, I believe that these musical instruments were used according to class. I believe that ocarinas were involved in secular musical productions because of their abundance and their absence from elite depictions and precincts. Exactly how they were played is unknown, but can be hypothesized through experimentation with surviving artifacts. I believe that the flutes were a major part of Classic Period music because of the wide range of musical notes they brought to performances and their involvement with religious depictions. As previously stated, flutes were one of the instruments used for the embodiment of energy and power. The flute was a musical instrument that served as a symbol of the noble class.

How ancient Maya music is represented in today's media, according to my research, is fairly accurate. Flute makers label their products "Maya" because of the large role that aerophones played in this ancient culture. Although the specific ritual significance of

aerophones remains unknown, these flute makers portray the Maya as making music for spiritual reasons. Music of the ancient Maya has also been reproduced by musicologists to portray the Maya culture. The Popol Vuh features music that may be considered authentic because the instruments that made the sound track greatly resemble those used by the ancient Maya. The presence of ancient Maya music in today's multimedia indicates the lasting impact that this art form has had on anthropologists and ethnomusicologists.

Ancient Maya music can be studied in great detail with the use of artifact and non-artifact sources of information. This field of study is universal in that it can contribute to knowledge about ancient Maya religious principles, agricultural values, hierarchy and ceremonial events. Musical instruments communicate valuable information about this culture that cannot be concluded otherwise. The benefit of including sound in the study of ancient Maya music is a deeper understanding of this culture's essential beliefs and ideology.

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VITA

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