Aztec Musical Styles in Carlos Chávez's *Xochipilli: An Imagined Aztec Music* and Lou Harrison's *The Song of Quetzalcóatl*: A Parallel and Comparative Study

by

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ABSTRACT

Aztec Musical Styles in Carlos Chávez's *Xochipilli: An Imagined Aztec Music* and Lou Harrison's *The Song of Quetzalcóatl*: A Parallel and Comparative Study

by Shawn M Roberts

From the appearance of Amaldeo Roldán's *Ritmica No. 5* and *No. 6* in 1930 and Edgard Varese's *Ionisation* in 1931, until the United States involvement in World War II brought a hiatus to the genre, over fifty works for percussion ensemble were published. At the height of this outpouring, two works for percussion ensemble on a similar cultural topic were written, Carlos Chávez's *Xochipilli*: *An Imagined Aztec Music* (1940) and Lou Harrison's *The Song of Quetzalcóatl* (1941).

Within Chávez and Harrison's titles are the names of two well-known and highly revered Aztec deities, *Xochipilli* and *Quetzalcóatl*. Consequently, this project determines to what extent these pieces draw from pre-Columbian Aztec indigenous musical methods, material, and instrumentation.

A full analysis of both works identifies the various compositional techniques and musical elements of their respective composers. These components are then examined and compared to Aztec musical characteristics through three strains:

1. Archaeomusicology,
2. 16th century chronicles,
3. Survival in living traditions.

Both Chávez and Harrison's works are then compared to each other as to the extent of Aztec influence occurring in each, the extent each are representative of nationalistic and regional pieces, and each work's contribution to the modern percussion ensemble.

DEDICATION

To my loving wife, Leslie,
for her patience and endurance during the completion of this project.

And to Dave Gaston,
for without his kindness, I may never have had the chance to play drums.

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Preface

Composing for the Percussion Ensemble

Ferruccio Busoni wrote in his *Sketch of a New Esthetic of Music*, published in 1907: "All arts . . . aim at the one end, namely, the imitation of nature and the interpretation of human feelings."[1] This opinion stems from the humanistic movement of the nineteenth century in which literary giants such as Henry David Thoreau and Ralph Waldo Emerson wrote of humankind's need to rediscover the magnificence of Nature. Busoni continued such shared perspectives when he wrote:

> Let us take thought, how music may be restored to its primitive natural essence; let us free it from architectonic, acoustic and esthetic dogmas; let it be pure invention and sentiment, in harmonies, in forms, in tone colors (for invention and sentiment are not the prerogative of melody alone); let it follow the line of the rainbow and vie with the clouds in breaking sunbeams; let Music be naught else than Nature mirrored by and reflected from the human breast; for it is surrounding air and floats above and beyond the air; within Man himself as universally and absolutely as in Creation entire; for it can gather together and disperse without losing in intensity.[2]

Edgard Varèse was one such composer who searched for a means of expression akin to the infinite ways of Nature. He was quoted by his wife Louise: "Music, which should be alive and vibrating, needs new means of expression. . . . I dream of instruments obedient to thought – and which supported by a flowering of undreamed of timbres, will lend themselves to any combination I choose to impose and will submit to the exigencies of my inner rhythm."[3] While advances in electronics would fulfill his

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[1] Ferruccio Busoni, "Sketch of a New Esthetic of Music," *Three Classics in the Aesthetic of Music* (New York: Dover Publications, Inc., 1962), 76. orig. published G. Schirmer, Inc., ca. 1911, trans. by Dr. Th. Baker.

[2] Ibid., 95

[3] Louise Varèse, *Varèse: A Looking Glass Diary* (New York: Norton, 1972), 132.

dream by the middle of the twentieth century, Varèse temporarily satisfied his yearnings through the use of percussion instruments.

Henry Cowell published Varèse's *Ionisation* in 1931. The composition required thirteen players, twenty-nine percussion instruments, and one piano. *Ionisation* was the first piece written strictly and entirely for percussion ensemble and would influence other American composers to do the same.

For the next decade, composers such as John Becker, Johanna Beyer, Gerald Strang, Harold Davidson, John Cage, Lou Harrison, and Ray Green wrote pieces specifically for the percussion ensemble, the majority of which were published in issues of Henry Cowell's *New Music Quarterly*. Between the years 1930 and 1941, when the United States involvement in World War II brought a hiatus to the genre, over fifty works for percussion were written.

Lou Harrison: The Song of Quetzalcóatl

The trend of American composers writing for percussion ensemble culminated and was most concentrated in the efforts of two composers living in California, John Cage and Lou Harrison, who combined for more than twenty-five plus compositions. Between the years 1939 and 1941, they staged several concerts of their works and others, exposing a large population to this genre and thereby contributing to its post-World War II survival.

On May 14, 1941, one such concert premiered Lou Harrison's *The Song of Quetzalcóatl*,[4] a work of meticulous design and programmatic intrigue. Scored for four percussionists playing fifteen different types and thirty-nine individual percussion instruments, *The Song of Quetzalcóatl* typified the percussion ensemble precedent Varèse set forth, while equally exhibiting Harrison's unique compositional style. Such an expression of Harrison's "inner voice" perhaps realized Busoni's wishes for music to return to its "primitive natural essence."

Primitivism and Nationalism

Busoni's term "primitive" generally referred to mankind's original expression in creating music versus a systematic method based on a system of accepted principles. The term "primitive" may extend to another trend present in the writing of percussion ensemble music from 1930 to 1942, entailing the use of indigenous elements and/or programmatic influence. The earliest example of such use is Amadeo Roldan's *Ritmicas*. The *Ritmicas* were a suite of pieces written in a Cuban folkloric style. *Ritmicas No. 5 and No .6* were written exclusively for percussion instruments native to Cuba: guiro, bongos, claves, maracas, timbales, marimbula, and quijada (the jawbone of a donkey that rattles when struck). Likewise, composers such as Cowell, Cage, and Harrison would utilize instruments native to countries other than the United States such as Korean dragon's mouths, Japanese temple gongs, Egyptian sistrums, and Mexican teponaztli.

[4] The title as it appears here corrects Harrison's original misspelling of Quetzalcóatl as Queztecoatl.

Composers such as John Becker also relied on "primitive" themes for inspiration such as in his *The Abongo* based on West African practices as discussed in Richard Wallaschek's book *Primitive Music* (1893) and in the aforementioned work by Harrison, *The Song of Quetzalcóatl*, named after the most famous icon in Mexican history.

When a composer employs such practices from his native country, the term is often referred as "nationalism." Roldan was promoting Cuban culture in his *Ritmicas* as was Carlos Chávez with Mexican culture in his earliest piece for percussion ensemble *Xochipilli: An Imagined Aztec Music*.[5]

Carlos Chávez: *Xochipilli*

In 1940, Carlos Chávez was commissioned to write "Mexican" music when Nelson Rockefeller requested that he organize a program that would complement an art exhibit entitled "Twenty Centuries of Mexican Art" at the Museum of Modern Art in New York. Chávez complied, collaborating with Mexican composers Blas Galindo, Luis Sandi, and Gerónimo Baqueiro Fóster in presenting six individual compositions for the exhibit. Among Chávez's contributions was the aforementioned *Xochipilli: An Imagined Aztec Music* that premiered May 16, 1940.

Although the instrumentation includes wind instruments, piccolo, flute, e-flat clarinet, and trombone, *Xochipilli* is included in the percussion repertoire due to its characteristic rhythmic (rather than melodic) style and use of a large quantity of percussion instruments indigenous to Mexico, and more specifically, the Aztec. These

[5] Originally entitled *Xochipilli-Macuilxochitl*.

instruments include the teponaztli, huehuetl, omichicahuaztli or rasp, rattles, and copper Hawksbells.

Statement of the Problem

Shortly after Spain's conquest of the Aztec Empire in 1521, Spanish monk Fray Bernardino de Sahagún observed of an Aztec celebratory dance: "If one of the singers made a mistake in singing, or if one of the teponaztli [one of the two most important percussion instruments in Aztec civilization] players erred in the execution of his part . . . immediately the chieftain ordered him seized, and the next day had him executed."[6] If errors in a simple festival dance carried the possibility of capital punishment, then imagine the momentous weight of Aztec sacred music performed specifically in homage to their gods. Thus, in respect to this ideology, a composer must take a serious approach when alluding musically to Aztec subjects, especially deities.

Carlos Chávez and Lou Harrison entitled their respective works *Xochipilli* (1940) and *The Song of Quetzalcóatl* (1941) after the Aztec gods of the same names. This project will determine to what extent these pieces draw from pre-Columbian Aztec indigenous musical methods, material, and instrumentation.

[6] Bernardino de Sahagún. *Historia General de las Cosas de Nueva España*, Bk. VIII, chap. 17, par3, as trans. by Robert Stevenson, *Music in Aztec and Inca Territory.* (Berkeley and Los Angeles: University of California Press, 1968), 104.

Methodology

Since Carlos Chávez was at the forefront of Mexican nationalism and thereby engaged in the research of Aztec musical styles, an investigation into his work *Xochipilli* will precede that of Lou Harrison's *The Song of Quetzalcóatl*. Sources specific to the composition will be examined followed by those concerning Chávez's general compositional style.

A full analysis of *Xochipilli* will permit the identification of elements attributable to 1) Chávez's compositional style and to 2) Aztec influences. To determine the latter, knowledge of Aztec musical style is necessary, thus a thorough examination of available scholarly literature will be necessary. Particular attention will be paid to instrumentation, pitch organization, and function.

Little has been written specifically about *The Song of Quetzalcóatl*, thus, a full analysis of this work will be provided. This endeavor will require a thorough reading of Harrison's *Music Primer*, and an examination of his techniques as used in various pieces. Following the example set by previous Harrison scholars Miller, Baker, and Von Gunden, *The Song of Quetzalcóatl* will be analyzed guided by methods as outlined by Harrison in his *Primer*. Once the various elements that comprise *The Song of Quetzalcóatl* have been identified, the extent that these elements are reflective of an Aztec musical style will be assessed.

Following the analyses, both pieces will be compared to each other. This comparison will include to what extent both have incorporated an Aztec musical style as well as a commentary on Mexican nationalism and its influence on an American

composer, and the contributions of both pieces to the percussion ensemble repertoire in America.

Scope and Limitations

Despite the wealth of observations by Spanish missionaries in the 16th century, research of Aztec music is fairly new. Many manuscripts, hidden away in Spanish cathedrals, were not rediscovered until the 19th century, and thus have been examined only to a limited extent.

Additionally, interpretations of these sources have strayed from a true picture of the Aztec through acculturation. For example, Aztec documentation was only in the form of pictographs and oral methods prior to the arrival of the Spanish, who introduced the Aztecs to a Latin alphabet. Thus, Aztec pictographs translated into the Aztec language of Náhuatl using a written Latin alphabet, Náhuatl translated to Spanish and presently, Spanish translated to English must have inevitably undergone influential changes. Furthermore, the modern concept of "music" is different from that of the Aztec. As Stevenson explains: "As a concert-hall art leading a straitjacketed existence apart from the other arts, 'music' never came alive in pre-Cortesian Mexico. Just because it always remained a twin to ritualistic dance, in any fair estimate of 'music' in the Aztec scheme the reader needs to be reminded constantly that Aztec concepts and usages are being passed through the colander of our own categories."[7] This project will indeed categorize Aztec "music": first by isolating it from its "twin, ritualistic dance" and secondly, by

[7] Stevenson, *Music in the Aztec,* 5.

identifying characteristic elements in terms foreign to the Aztec ideology. Furthermore, any definitions are mere educated speculations derived from, at best, secondary observations.

One could embark on an exhaustive study of the work of scholars who have explored pre-Columbian Aztec music; this project, rather, will focus on prior research in order to illuminate Aztec musical elements present in two works for percussion ensemble whose titles allude to important figures in Aztec folklore. As stated, the research will delineate between elements attributable to Carlos Chávez and Lou Harrison's typical compositional styles and those attributable to an Aztec musical style.

Purpose

Percussion ensemble music today is still heavily influenced by the revolutionary, even rebellious efforts of Edgard Varèse. His innovations in timbre, texture, and form still permeate the literature: Andre Jolivet's *Ceremonial* (1968), Tora Takemitsu's *Rain Tree* (1981), and Paul Reller's *Snowflake* (1991) are important and relatively recent examples of this influence. The often over-shadowed approach of Amadeo Roldan, however, is becoming evermore present.

With advances in technology and the growing field of ethnomusicology, music from regions of the entire planet is accessible. "World Music" is influencing the percussion repertoire, for example, Christopher Rouse's *Ogoun Badagris* (1976), Akira Nishimura's *Kecak* (1979), and Nebojsa Jovan Zivkovic's *Uneven Souls* (1992). The study of historical precedents set by composers such as Roldan, Becker, Harrison,

and Chávez during the period between 1930 and 1941 is important to this present trend. By examining these historically groundbreaking works, present composers can appreciate the depths in which these works captured indigenous musical styles, and thus, strive to appropriately represent the various cultures from which they currently derive their influences.

This project will examine two of these historically significant works for percussion ensemble written at the height of the genre's outpouring, Carlos Chávez's *Xochipilli: An Imagined Aztec Music* (1940) and Lou Harrison's *The Song of Quetzalcóatl* (1941), both based on similar cultural topics. Such an examination will bring to light two percussion works during this period that have received little notice, and will also inform performers and audiences of the depths in which these two pieces draw from Aztec musical styles, thereby contributing focus to a music in need of further study.

Re-emphasizing that since these works are based on indigenous culture, a thorough study of that specific culture by the composer should precede the creation of their influenced composition. The following will examine to what extent each composer had access to such information and to what extent they incorporated an indigenous style in creating an informed work. Likewise, a thorough examination of Aztec culture and musical styles will precede the examination of both works in this paper.

Outline of Sections/Chapters

The document is divided into four sections, each with inclusive chapters. The chapters will begin anew with each section. Section 1 is divided into three chapters,

Section 2 is divided into four chapters, Section 3 is divided into four chapters, and Section 4 is divided into three chapters. A brief description of each follows.

Section 1 examines current research on Aztec music. Chapter 1 specifically discusses "archaeomusicology" and "music archaeology" as it pertains to found Aztec specimens. In Chapter 2, primary sources of Spanish priests, Indian noblemen, and surviving codices will be introduced, including commentary of their acculturated perspectives of Aztec lifestyle. These sources as they pertain to the Western sense of "music" will be addressed, particularly in light of their translations and interpretations in Robert Stevenson's anthology, *Music in the Aztec and Inca Territory*. Chapter 3 introduces living traditions as they relate to Aztec music, particularly those mentioned by Stevenson, by Chávez, as detailed in his various program notes, interviews, and his work *Musical Thought*, and by Carl Lumholtz, as detailed in his *Unknown Mexico*.

Section 2 first introduces the Aztec deity Xochipilli, the subject of Chávez's composition, and then analyzes the composition itself. Chapter 1 of Section 2 provides a brief chronological outline of Chávez's compositional education, the inception of his composition *Xochipilli*: *An Imagined Aztec Music*, and a general commentary on Chávez's "universal" compositional style. Chapter 2 examines the archaeological foundations Chávez applied in composing *Xochipilli*, followed by a full analysis of the work in Chapter 3. Chapter 4 focuses on the comparison of Chávez's musical composition to primarily that of the plastic arts found in Aztec archaeological specimens, but also as found in living traditions. Particular attention is given to the subject of symmetry.

Section 3 provides a focused examination of Harrison's *The Song of Quetzalcóatl*, parallel to that of *Xochipilli* in Section 2. The Aztec deity Quetzalcóatl is first introduced, followed by the inception and brief description of Harrison's composition in Chapter 1. Chapter 2 of Section 3 details the compositional methods Harrison applies in creating *The Song of Quetzalcóatl*. Chapter 3 provides a full analysis of the work. Chapter 4 determines to what extent Harrison's composition is attributable to Aztec musical styles with particular attention given to symmetry. Included in Chapter 4 is commentary on Harrison's compositional methods as representative of a generally indigenous style.

Section Four provides a comparison of the two works with respect to issues of Aztec musical substance (Chapter 1), Mexican nationalistic and regional influence (Chapter 2), and contributions to the modern percussion ensemble repertoire (Chapter 3). Included in Chapter 1 of Section 4 is a sonic comparison of Harrison's instrument selections with that of Aztec instruments.

Introduction

Defining World Music

The term *world music* was first used by ethnomusicologists in categorizing the "diverse local musics of the world . . . . [originally] contesting the notion that only Western art music was of value."[8] This definition included the continuing identification of the previously named "folk" music within the Western world, and indigenous musics lying geographically outside. The identifications of these ethnic-musics are archived in the form of field recordings and written documents by ethnomusicologists of individual case studies.

The influence and incorporation of these ethnic-specific styles into hybrid styles has led to the broadening of the definition to "any . . . available music of non-Western origin."[9] Take for instance Claude Debussy's "Pagodes" from his *Estampes* (1903). It is well documented that this piece for solo piano was influenced by his seeing a Javanese gamelan ensemble at the Paris International Expositions of 1899 and 1900.[10] While Debussy tried to capture the sound of the gamelan ensemble–for example, long resonances achieved through the sustain pedal and borrowed Javanese traditional modes–the piece is still clearly in a European form and progresses through traditional Western harmonies. The influence, however, was of a "non-Western origin," thus categorizing the work as *world music* according to the broadened definition.

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[8] Carole Pegg, "World Music," *The Oxford Companion to Music*. Ed. Alison Latham. *Oxford Music Online*. 10 Aug. 2008 <http://0www.oxfordmusiconline.com.wncln.wncln.org:80/subscriber/article/opr/t114/e7391>.

[9] Steven Feld, "Notes on World Beat" and "From Schizophonia to Schismogenesis: On the Discourses and Commodification Practices of 'World Music' and 'World Beat'," *Music Grooves* (Chicago: Chicago Press, 1994), 238–46, 257–89.

[10] See Paul Roberts, "The Origins of a Style: The Javanese Gamelan," *Images: The Piano Music of Claude Debussy* (Oregon: Amadeus Press, 1996), ch. 7, 153–175.

Two works in the percussion repertoire, Carlos Chávez's *Xochipilli: An Imagined Aztec Music* and Lou Harrison's *The Song of Quetzalcóatl* may also be described as *world music* according to this broadened definition; the influence, however, is Aztec, a once-great civilization of Mexico. Chávez commented that "every land exerts on its men, whether they sense it or not, its own telluric influence."[11] We look briefly at the land in and of which Chávez speaks.

The Land of the Tenochca

Teotihuacán, the first large city of central Mexico, "was built upon the remnants of a once-small folk society that had grown out of its self-sufficiency."[12] The folk societies were a collection of Náhuatl, Otomí, and Totonac ethnic groups. Meaning "the dwelling place of the gods," Teotihuacán's architecture, dating as early as 200 B.C., included the Pyramid of the Moon, Pyramid of the Sun, and the Temple of the Plumed Serpent, Quetzalcóatl. The civilization at Teotihuacán mysteriously disappeared in 700 A.D.

By 950 A.D. the Toltecs would surface as the dominating culture, although upholding the ideals previously established in Teotihuacán. Known for their magnificent works of art, their name derives from the Náhuatl *toltecatl* meaning craftsmen. The Toltecs would reign peacefully from Tula (in what is today Hidalgo), through religious doctrine, for 350 years.

[11] Carlos Chávez, *Musical Thought* (Cambridge, Massachusetts: Harvard University Press, 1961), 17.
[12] Neil Baldwin, *Legends of the Plumed Serpent*. (New York: Public Affairs, 1998), 27.

The Toltecs, like the Teotihuacános, revered the high priest Quetzalcóatl. They believed this creator of humanity was exiled but vowed that he would "return to reclaim his people's land." The Aztecs, however, would claim this land first in 1427.[13]

From the northwest lands of the Tenochca ethnic group, a tribe called the Mexica, pronounced "me-SHEE-ka," descended into the valley of the Toltecs. The noble Toltecs considered the Mexica barbarians and tried to drive them away, but the Mexica were told by their gods that they were to settle in this land and were not to be denied. Impressed by their courage and persistence, the Toltecs hired them as mercenaries against neighboring states and even attempted an alliance with the Mexica. This alliance ended in bloodshed; the princess daughter of the Toltecs, sent to form a matrimonial bond, was sacrificed to the Mexica's gods. War ensued, pushing the Mexica to an area of land surrounded by the great Lake Texcoco. There, the Mexica would see a sign telling them that this was to be their home; an eagle perched on a cactus. The capital city of this land is named today Mexico City, but in 1325, it was Tenochtitlán, land of the Tenochca.[14]

On this land the Mexica built an empire rivaling that of the Toltecs. Despite further attempts for alliance, the Mexica would eventually conquer the Toltecs in 1427. The Mexica ruled over their destined lands in what is today Mexico Valley. They were now a nation called the Aztec, named after their homeland in the northwest, Aztlan.[15]

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[13] Ibid.
[14] Ibid. and Richard Hooker, "The Mexica/Aztecs." *Civilizations in America* (1996) [available online]; http://www.wsu.edu/-dee/CIVAMERICA/AZTECS.HTM (Accessed 4/22/2004).
[15] Hooker, (Accessed 4/22/2004).

The Return of Quetzalcóatl

As one nation absorbs another, the new consequentially acquires customs of the old. The Aztecs, like the Toltecs, believed in the prophecy of the high priest Quetzalcóatl. In their adaptation of the story, the god was tricked by demons. These demons brought Quetzalcóatl a gift, a mirror covered in blankets. When Quetzalcóatl uncovered the mirror, he saw reflected a human face. Being a god, he did not believe he had human form, but the demons had proved otherwise. If he had a human form, then he must have a human destiny. Distraught by this possibility, Quetzalcóatl became drunk and committed incest with his sister. Banished from the land, Quetzalcóatl claimed that he would some day return to insure the prosperity of his people.[16]

The year of Quetzalcóatl's return was prophesied to be in the year One Reed of the Aztec calendar. Every 52 years, the orbits of Venus and Earth align. To the Aztecs, this marked the rebirth of El Quinto Sol, the Fifth Sun. El Quinto Sol was the last of five suns, and when this fifth sun died, so would its people. In order to keep it alive, the Aztecs believed it required human blood through human sacrifice.

Preceding this renewal of the sun, a ceremony would commence:

> For five full days, activity in the normally bustling metropolis has ceased. Commerce has been suspended, ceremonial and household fires extinguished, clothing, furniture, crockery and religious idols torn, broken and smashed. It is time of fasting, sexual abstinence and uneasy waiting. But the *nemotemi*–empty days–that mark the end of the solar cycle are about to come to an end.
>
> At the summit of Uixachtecatl–the Star Hill–overlooking Tenochtitlán, the city's astronomer-priests anxiously watch the heavens. Each is outfitted in the

[16] Carlos Fuentes, "The Conflict of the Gods," *The Buried Mirror*, produced by Michael Gill, directed by Christopher Ralling, 59min., Sogetel, S.A production in association with the Smithsonian Institute, Films Incorporated, 1991, videocassette.

> image of one of their many gods. They await nature's sign, for not until the Pleiades appear on the horizon can the sacred New Year's ritual begin.
>
> Finally a noble captive is guided to the sacrificial stone. At the moment the brilliant star cluster reaches its zenith the priests jump into action. With one swift stroke of a razor-sharp obsidian knife they slash open their honored victim's chest. They work furiously to kindle fire within the gaping wound, and as the first spark turns to flame, cut out the heart, casting it upon a brazier. One by one, a line of waiting couriers step forward to ignite their torches, then turn back towards the darkened city to relay the New Fire first to the altars of the *Templo Mayor* and thence to every temple and hearth throughout the empire.
>
> For the next 12 days Tenochtitlán will erupt in unbridled festivity, for this ceremony marks not only the commencement of the new *xiuhmolpilli*—year bundle–but also the start of a new 52-year calendar cycle. According to Mexica belief, if the New Fire failed to ignite, the sun would surely perish. But on this night it seemed that the gods were pleased; *El Quinto Sol*–the Fifth Sun–would continue to illuminate the Mexica Empire. Once again the forces of darkness had been routed by the powers of light.[17]

But these powers of light would not last long, for in the following year, 1519, the year of One Reed, Hernán Cortés would arrive on the very same shores of the Gulf of Mexico as Quetzalcóatl left years ago.[18]

Emperor Moctezuma believed that Quetzalcóatl had returned as Cortés and thus welcomed him and his men, but the Aztec's benevolence would be returned with violence. After three years of war and political deceit, the Spanish would conquer the city of Tenochtitlán, the land of the Tenochca. Had the Quetzalcóatl of the Toltec's returned to reclaim "his people's land" or were the Aztecs simply deceived? Whatever the

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[17] Dale Hoyt Palfrey, "The Mysteries of the Fifth Sun: The Aztec Calendar," *El Ojo del Lago* (1993) [available online]; http://www.mexconnect.com/mex_/mysfifthsun.html (Accessed 4/12/2004).

[18] The alignment of Venus, Earth, and the Sun occurred in 1518 according to NASA author Fred Espenak, "Transits of Venus: Six Millennium Catalog: 2000 BCE to 4000 CE," *Eclipse* [available online]; http://sunearth.gsfc.nasa.gov/eclipse/transit/catalog/VenusCatalog.html. (Accessed 4/22/2004).

conclusion, the nation of the Aztecs would soon be absorbed by the nation of Spain, but unlike their absorption of the Toltecs, few customs of the Aztecs would remain.

Section 1: Current Aztec Research

To judge the extent to which Carlos Chávez and Lou Harrison utilized Aztec musical elements in writing their respective works *Xochipilli: An Imagined Aztec Music* (henceforth referred as *Xochipilli*) and *The Song of Quetzalcóatl*, one must be familiar with Aztec musical styles. Unfortunately, due to a vast campaign by the Spanish to eradicate native society, no one can undeniably define those characteristics. Hence, such a judgment relies on a general consensus of scholarly, historical research, and observations of living traditions. Robert Stevenson defines these "three lines of investigation most fruitfully pursued by Mexican scholars who . . . have studied pre-conquest music:"

> 1) the systematic study of musical instruments known to have been used by Aztecs . . .
> 2) the assembling of opinions on Aztec music from sixteenth-century authors who were friendly to Indian cultures rather than opposed;
> 3) the collection of melodies from certain out-of-the way Indian groups which even today, after the lapse of centuries, may still preserve some of the basic elements found in the pre-Cortesian system.[19]

[19] Robert Stevenson, *Music in the Aztec and Inca Territory (*Berkeley and Los Angeles: University of California Press, 1968), 18.

Chapter 1

Archaeological Findings

Of these "lines," the study of musical instruments offers the most tangible and substantial conclusions about Aztec music. Whereas no written documentation about music can be dated before the arrival of the Spanish, a plethora of archaeological findings can accurately so be dated.

"Archaeomusicology" is "the study of music through archaeology."[20] For example, one characteristic derivable from museum specimens is pitch preference. Daniel Castañeda and Vicente T. Mendoza investigated fourteen teponaztli, hollowed logs in which two tongues have been cut in an "H" shape.[21] Of these, six emitted the interval of a minor third, three an interval of a fifth, and three the interval of a major second. One each sounded the interval of a major third and perfect fourth. Thus, it can be summarized that Aztec's used intervals ranging from at least a major second to a perfect fifth. Of note is the quality of craftsmanship of the museum specimens. The majority were hollowed out precisely to "reinforce the fundamentals sounded by the two wooden keys" suggesting a specific acoustic intent.[22]

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[20] Dale A. Olsen, "Approaches to Musical Scholarship," *Garland Encyclopedia of Music: South America, Mexico, Central America, and the Caribbean*, ed. Dale A. Olsen and Daniel E. Sheely (New York: Garland Publishing, Inc., 1998), 7.
[21] Daniel Castañeda and Vicente T. Mendoza, "Los Teponaztli en las Civilizaciones Precortesianos," *Anales del Museo Nacional de Arqueología, Historia y Etnografía* 4, no. 8 (1933).
[22] Stevenson, *Music in the Aztec*, 63.



Figure 1: Teponaztli Drum
c. 1521, early colonial
Museo Nacional de Antropologia, Mexico City, CONACULTA-INAH, 10-220924
Reprinted by permission, *Aztecs*, #338
Photograph by Michel Zabé

Music archaeology is "the study of archaeology through musical instruments."[23] Stevenson explains that Aztec instruments are "not so much . . . remains of a bygone art . . . as the sacred sound symbols of a now vanished cult."[24] Such a statement suggests that the instruments themselves give insight into the thinking of Aztec society. Pictograms, such as those carved into the huehuetl pictured below (Fig. 2), exemplify this point.

[23] Olsen, "Approaches," *Garland Encyclopedia*, 7.
[24] Stevenson, *Music in the Aztec*, 30.



Figure 2: Huehuetl Drum
ca. 1500, Aztec
Instituto Mexiquense de Cultura:
Museo de Antropología e Historia del Estado de México,
Toluca, A-362300/10-102959
Reprinted by permission, *Aztecs,* #156
Photograph by Michel Zabé

Daniel Vázquez deciphers this huehuetl's carvings:

> The vertical drum (huehuetl) is covered with reliefs relating to war. It is divided horizontally by a [wide] band containing two [narrow] undulating bands, five round shields adorned with circles, arrows and a flag. On one side of the upper section the symbol of the present world-era, Nahui Ollin ("4 movement") is flanked by two warriors in the costume of a jaguar and an eagle respectively; the *atl-tlachinolli* ('burnt-water'), the symbol of sacred war, emerges from their mouths and tears drop from their eyes. The design is completed on the opposite side by a man dressed as an eagle, probably Tonatiuh (the sun). The lower section

> of the drum shows two jaguar warriors and one eagle warrior carrying flags as they walk in procession, singing or shouting. All the figures wear the feather headdress characteristic of warriors.[25]

From markings such as this, music archaeologists can infer aspects of Aztec folklore, but likewise, the ethnomusicologist can infer about music: "Drums so finely wrought and so elaborately decorated can never have been drudges to a merely 'simplistic' music."[26]

The instruments themselves were also expressions of Aztec thought. The huilacapitzli (clay ocarina**)** pictured below (Fig. 3) is indicative of the Aztec's association with nature.



Figure 3: Huilacapitzli
c. 1300–1521, Aztec
Trustees of the British Museum, London, 1865.6-10.9
Reprinted by permission.
© Trustees of the British Museum

[25] Daniel Granados Vázquez, "Catalogue," in *Aztecs*, edited by David Breuer, Harry Burden, Carola Krueger, Fiona McHardy, Peter Sawbridge, and Nick Tite (London: Royal Academy Publications, 2002), 438.
[26] Vicente T. Mendoza, "La Música y la Danza," in Jorge R. Acosta and others, *Esplendor del México Antiguo* (Mexico: Centro de Investigaciones Antropológicas, 1959) 1, 323. As trans. by Stevenson, *Music in the Aztec*, 43.

Association to this degree suggests animism, a belief that the principle spirit manifested itself in organic or inanimate objects. Living plants and animals were sacred beings, while inanimate objects provided means in which humans could call upon the sacred. In the case of the teponaztli and the huehuetl, inanimate objects could even be considered as higher entities cast down upon the earth in solid form. The following recounts this Aztec belief:

> Seeing that they were utterly unable to prevail in their struggle with the newly created Sun [El Quinto Sol], the old gods of Teotihuacán in desperation decided to sacrifice themselves. Xolotl, the appointed sacrificer, opened each of their breasts with a large knife and drew out the heart; he then killed himself. By their deaths, the Sun's anger was appeased.
>
> Each god bequeathed his sacred clothing to a priest who had worshiped him. Realizing the great weight of their responsibility for such sacred relics, the priests guarded the vestments most zealously. Their grief, however, on account of the deaths of their gods was not assuaged. . . . Their grief instead of abating, in time grew insupportable, and they therefore decided to undertake a pilgrimage, hoping that somewhere they might find solace for their anguish.
>
> After wandering about together for a time, they separated and one priest traveled toward the seacoast. When he arrived at the ocean he met there Tezcatlipoca, lord of being, who instructed him to proceed onward to the Court of the Sun, and there to beg the Sun for musical instruments. With songs and musical instruments man would be able fittingly to praise his new gods.
>
> When the priest arrived at the Court of the Sun he explained the motive of his visit. The Sun, however, not wishing to diminish his own retinue of followers, forbade any of his servitors to listen to the priest's sung entreaties. But so eloquently and earnestly did the earthly messenger sing his plea that two servants of the Sun, the one named Huehuetl and the other Teponaztli, disobeyed and listened. For their presumption in disobeying him, the Sun cast them forth from his presence in disgrace. They then accompanied the priest in his return to earth.
>
> The huehuetl and teponaztli forever remember the sorrow they felt when first they heard the story of man's extremity. If man's anguish . . . has now abated and if instead he has learned how to dance and make merry in song and dance, the sounds of the huehuetl and teponaztli still continue to remind him of the sighs

> Huehuetl and Teponaztli long ago breathed in heaven when first they heard the sad entreaties of the earthly messenger.[27]

From this tale, a musical archaeologist may surmise the Aztec attitude towards the teponaztli and huehuetl, and in turn, their use. If Teponaztli and Huehuetl are former gods, most likely the instruments were played in religious ceremonies. It would also explain the severity of punishment shown in executing a performer for making mistakes while playing. The tale informs us the gods were sent to abate human anguish, thus the instrumental use in a folkloric, non-liturgical setting may also be surmised. Additionally, the appearance of the teponaztli and huehuetl in both settings, religious and folkloric, suggests widespread use of the instruments. Finally, it is highly likely the two instruments were often played together.

From such examples musical archaeologists can indeed infer Aztec ways of life, and equally, archaeomusicologists can infer Aztec music-making means. For the purposes of this project, the archaeomusicologist perspective shall be considered in assessing Aztec musical attributes in the aforementioned works for percussion ensemble.

[27] Gerónimo de Mendieta, *Historia Eclesiástica Indiana* (Mexico: Antigua Librería, 1870), bk. 2 chpts. 2–3, 79–80. Trans. by Stevenson, *Music in the Aztec,* 112–113. Paraphrased from Gabriel Saldívar, *Historia de la Música en México: Épocas Precortesiana y Colonial* (México: Editorial "Cultura," 1934), 4–5.

Chapter 2

Earliest Encounters: Spanish Accounts

Some of the earliest written accounts of Aztec music came from a member of the ranks of Spanish invaders, Bernal Díaz del Castillo. He described the music he heard and observed as "a most dismal sound . . . terrifying . . . like an instrument of demons."[28] Díaz's harsh critique was undoubtedly influenced by the witness of his fellow soldiers' gruesome sacrifices for which the music accompanied; nonetheless, such negative opinions would have impact on twentieth-century musicologists' concepts of pre-colonial music.

For example, Alba Herrera y Ogazón, a former faculty member of the National Conservatory of Music in Mexico, expressed similar opinion in her treatise of 1917: "We may infer that the music of that people [the Aztec] during the pre-conquest era was as barbarous and frightful as were the ceremonies at which their music was heard. . . . The music must undoubtedly have been as lugubrious, incoherent, and macabre as the passions that inspired it."[29]

Conclusions such as Ogazón's are understandable due to a heavy campaign launched by the Spanish in 1523 to eradicate the discovered "heathen society." Spanish conquistadors were responsible for "the elimination of all manifestations of Indian belief: they leveled temples, smashed idols, burned codices, banned celebration of traditional rites and the public recitation of ancient poetry, and often relocated entire villages. . . . In

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[28] Bernal Díaz del Castillo, *Historia verdadera de la Conqvista de la Nueva-España* (Madrid: Imp. del Reyno, 1632). Trans. by Alfred P. Maudslay, *The True History of the Conquest of New Spain* (London: Hakluyt Society, 1912), vol. 4, 142, 149–50, 154.

[29] Alba Herrera y Ogázon, *El Arte Musical en México* (México: Dirección General de las Bellas Artes, 1917), 9–10. Trans. by Stevenson, *Music in the Aztec*, 15.

flames fueled by this missionary fervor, centuries of priceless 'primordial titles' were incinerated."[30]

Not all Spanish, however, were as destructive:

> Along with the campaign to eliminate idolatrous documents . . . there developed a movement to collect, reproduce, and interpret selected parts of the native pictorial and oral tradition so that they could be used (a) to inform European society, especially the Spanish court and literate public, about the natives of New Spain, (b) to organize the developing colonial society, and (c) to enhance the missionary work of the New World Mendicants and insure the effective conversion of the natives who had so abruptly become a part of the Spanish colonial society.[31]

Pioneers in this endeavor were priests Pedro de Gante, Toribio de Parades, and Bernardino de Sahagún.

Pedro de Gante (c.1480–1572)

Pedro de Gante was born in Iseghem, Belgium c. 1480. He spent several years in royal service before committing himself to the Franciscan order at Ghent (Gante in Spanish). When Holy Roman Emperor Charles V received news of Cortés's conquest, he happened to be in Ghent. Several Franciscans zealously sought permission to journey to the New World. Because of his previous royal service, his ardent passion, or perhaps his alleged illegitimate relation to Charles V, Pedro de Gante was chosen along with two others; Jan van Dak de Tecto and Jean d'Aire succumbed under the hardships of the New World and returned to Spain, but Pedro de Gante remained until his death in 1572.

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[30] Neil Baldwin, *Legends of the Plumed Serpent*, (New York: Public Affairs, 1998), 116.

[31] Davíd Carrasco, *Quetzalcoatl and the Irony of Empire*, (Chicago: University of Chicago Press, 1982), 15.

Pedro de Gante landed in Veracruz on August 30, 1523, and was quickly appalled by the treatment of the natives. As Franchón Royer describes:

> Many of the Indian princes and their noble vassals, the only really "cultivated" class among the native populace, had been put to death, while the majority of their subjects had been pressed into menial service by the conquerors. Pedro knew that this must be a very bitter fate for the proud Aztecs, and he was not by any means satisfied that the substitution of Christianity for the horrid religious rites practiced in México was being handled in the proper spirit. He could not accept the excuses of many Spaniards who were writing to say that the Indians were an "inferior race," incapable of education in the European sense. The evidence of the Indians' past achievements was against any such conclusion.[32]

Impassioned by his belief that the Aztec were capable of receiving a European education, Pedro de Gante established Spanish schools in Texcoco, Tlaxcala, and Mexico City in which native youths attended.[33] In a letter to Emperor Charles V, dated October 31, 1532, he describes the accomplishments of these schools:

> We take all the children of the caciques [noble families] and also children from other of the more influential Indian families, hoping to separate them from heathen influences by rearing and educating them in our monasteries. We devote much time to them, teaching them not only to read and write, but also how to sing both plainchant and polyphonic music. . . . We strive to inculcate the highest standards of living and conduct.[34]

The Aztec, before the arrival of the Spanish, documented their existence in the form of pictograms, totaling thousands of beautifully painted manuscripts that, with accompanying oral translation, told of Aztec history and folklore. The Spanish, as we know, destroyed most of these documents, and thus, modern historians have few pre-

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[32] Franchón Royer, *The Franciscans Came First* (Paterson: St. Anthony Guild Press, 1951), 5.

[33] The Aztec capital Tenochtitlán was renamed Ciduad México (Mexico City) by the Spanish in 1524.

[34] As translated by E.A. Foster in his *Motolinía's History of the Indians of New Spain* (Berkeley: The Cortés Society, 1950), 52.

colonial originals on which to rely. Instead, they must depend almost entirely on retellings of Aztec culture as documented by native noblemen educated in Pedro de Gante's schools. These noblemen learned to write using a Latin alphabet, preserving their culture bilingually in Náhuatl and Spanish.

Toribio de Paredes (c.1490–1565)

Toribio de Paredes is accredited with accurately documenting Aztec life at the time of conquest. He was one of twelve Franciscans that landed in New Spain in 1524. The natives called him "motolinía," meaning "poor," as he was often seen in a dilapidated habit and barefoot. This being the first word he learned in the native language of Náhuatl, Toribio de Paredes changed his title to Fray Toribio de Motolinía, or simply Motolinía.[35]

Motolinía is noted for his two works *Historia de los Indios* and *Memoriales.* They were drafted between 1536 and 1542, circulated widely in manuscript form, but remained unpublished until 1858 and 1903 respectively. Motolinía acquired information for these works primarily through native interviews and most likely with assistance from native noblemen educated in Spanish schools created by the likes of Pedro de Gante.[36]

The *Memoriales* is a work of primary importance in the documentation of Aztec music. Observations in this manuscript are more factually based than the earlier,

[35] See Stevenson, *Music in the Aztec*, 94.

[36] This latter point has yet to be scholastically verified. To this point, the most notable and truly studied publication is Fray Bernardino de Sahagún's *Historia General de las Cosas de Nueva España*. This manuscript has undergone careful examination in realizing its origins; see Wigberto Jiménez Moreno's "Fr. Bernardino de Sahagún y su obra," in Sahagún's 1938 edition of *Historia General*, bk. 1, xxxvi–liii. Additional commentary on this matter is found below in the discussion of the collection of Aztec songs entitled *Cantares mexicanos*.

emotionally opinionated ones of Diaz.[37] They are also the earliest observations of music after the Spanish conquest, therefore aiding in giving the purest idea of Aztec music prior to the arrival of the Spanish.

Motolinía laid the foundation for other musical studies, especially Gerónimo de Mendieta's Book II of *Historia Eclesiástica* (completed 1596) and Juan de Torquemada's *Veinte i vn libros rituales Monarchia Indiana* (1723), which was for Carlos Chávez a point of reference, development, and even borrowing.

Bernardino de Sahagún (c.1500–1590)

In 1529, Bernardino de Sahagún arrived in New Spain. Previously, Sahagún was educated at Salamanca University where he was a student of languages. He quickly learned Náhuatl and sought to preserve it in its purest form as opposed to the various dialects surrounding Texcoco, not to mention its bastardization by Spanish tongues. His project of creating an official dictionary of Náhuatl flowered into an expansive 12-volume encyclopedia entitled *Historia General de las Cosas de Nueva España*, which was developed from the years 1565 to 1585.

Three manuscripts from which Sahagún derived material for his encyclopedia are the "Primeros Memoriales," the "Códices Matritenses," and the "Códice Florentino." These three manuscripts have undergone careful scholastic examination in attempts to discover their origins. Scholars have discovered that the "Primeros Memoriales" and the

[37] In fact, Motolinía was accused of petitioning for the removal of all Spanish not of the clergy, due to their rapacious ways and ill concern for the natives, quite contrary to Diaz's stance. See Stevenson, *Music in the Aztec*, 96.

"Códices Matritenses" were created from information gathered from natives in Tepepulco, a city north of Mexico City, during the years 1558–1560 and in Tlatelolco from 1564–1565, respectively. With Sahagún in Tlatelolco were "eight or ten especially selected (Aztec) nobility, those best informed in their antiquities and most competent in Náhuatl, together with four or five trilingual students."[38] Sahagún and his team would translate gathered material from Náhuatl to Spanish in Mexico City from 1565–1569, resulting in the aforementioned manuscripts.

Of clergymen who preceded and followed him, Sahagún is perhaps the most prolific not only of works published and unpublished that he wrote himself, but also the works and manuscripts of those under his service (see *Cantares mexicanos* below). A wealth of information concerning Aztec music may be derived from especially his *Historia General de las Cosas de Nueva España*, and from a number of associated sources.

If not for the efforts of these three clergymen, Aztec music would have died in disdain amongst the fires and degradations of the Spanish conquistadors. Modern opinion would have only commentary from the likes of Diaz from which to draw. However, due to the labors of these men and others following, a wealth of information is available, and indeed, these sources will be applied in investigating Chávez's *Xochipilli* and Harrison's *The Song of Quetzalcóatl*.

[38] Wigberto Jiménez Moreno, "Fr. Bernardino de Sahagún y su obra," in preface to Bernardino de Sahagún, *Historia General* (México: Editorial Pedro Robredo, 1938), bk. 1, xxxvi–liii.

Acculturation

While the sixteenth-century chronicles of the aforementioned clergymen depict Aztec life shortly after the conquest and give scholars an idea of what pre-colonial Aztec music sounded like, "it is clear that a thick Spanish, colonial, Christian gloss has been brushed across the ideas, beliefs, symbols, and dramas of ancient Mexican culture."[39] Thus, when referencing these sources, one must do so with caution. David Carrasco explains: "Social, religious, and political developments in New Spain altered the style and content of . . . documents that are today classified as primary sources," which therefore, "reflect not only the world views, beliefs, and artistic styles of ancient Mexican society, but also the world views, beliefs, and millennial dreams of the dynamic conquest culture of New Spain."[40] The *Cantares mexicanos*, a source significant to this project, will serve to illustrate such a convergence of Aztec and Spanish ideologies.

The *Cantares mexicanos*

The *Cantares mexicanos* is a collection of indigenous songs "taken from the lips of native informants during the 1550's, 1560's, and 1570's (with one or two songs as late as the 1580's)," and currently appears "as entry no. 1 in a bound volume of miscellaneous Náhuatl and Spanish manuscript items."[41] John Bierhorst, who offers an English translation of the *Cantares*, states that of these nine "miscellaneous items," the collection of two have "been convincingly attributed to . . . linguist-ethnographer Bernardino de

[39] Carrasco, *Quetzalcóatl*, 12.
[40] Ibid., 11–12.
[41] John Bierhorst, *Cantares Mexicanos: Songs of the Aztecs* (Stanford: Stanford University Press, 1985), 9. Preserved as MS 1628 bis at the Biblioteca Nacional in Mexico City.

Sahagún." Thus, it can be surmised that the collector of songs printed in the *Cantares* "was an acculturated Indian, probably in the service of Sahagún."[42]

While the Spanish influence is clear from the documents being recorded in a Latin alphabet (see Pedro de Gante), Bierhorst argues that the subject matter of the collected songs indicate Aztec authorship. From song XVII of the *Cantares mexicanos*:

> Where are you singer? Here, let the flower drums appear. They're twirling down as plumes. They're littered as golden flowers.
> . . . . . .
> Ah, he's descended. The singer's at the drum. He's setting them free as plumes. He's dispersing the songs of Life Giver. Bellbird gives him the echo, singing along, spreading flowers. Let's have these flowers.[43]

Diego Duran commented of such song texts:

> All their cantares are composed by means of certain metaphors so obscure that there is scarcely anyone who understands them unless they are studied and discussed very intently in order to understand their meaning. I, myself, intently, have set about to listen very closely to what they sing and among the words and terms of the metaphor, and it seems nonsensical to me.[44]

Project leader Sahagún's words attest to Aztec authorship as well, "They sing the old cantares . . . and no one understands what they say."[45]

The fallacy of Duran and Sahagún lies in their insistence upon finding a rational equivalent for the figurative language of the Aztec verses. The assumption of metaphors, the replacing of words with other words which share similar characteristics, is a strategy

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[42] Ibid., 7–9.
[43] Ibid., 161.
[44] Diego Durán, *The Aztecs: The History of the Indies of New Spain*, tr. Doris Hayden and Fernando Horcasitas (New York: Orion Press, 1964), bk. 1, ch. 21, 164.
[45] Bernardino de Sahagún, *Historia General de las Cosas de Nueva España*, ed. Wigberto Jiménez Moreno (México: Editorial Pedro Robredo, 1938), bk. 10, ch. 27, 164.

befitting the Spanish, but foreign to Aztec thought. The "songs of the *Cantares mexicanos* type are composed [rather] in a special vocabulary . . . a closed system, unintelligible to those who have not been initiated." To understand these "esoteric idioms," one must approach them "from within."[46] To do so requires an understanding of the Aztec written language, different from the utilized alphabetic system.

Aztec Written Language

As stated, the Aztec songs assembled in the *Cantares mexicanos* were recorded in alphabetic script, a system non-existent before the arrival of the Spanish.[47] Obscurity lies partly within the Aztec scribes' attempts to convey their thought into a foreign writing system. The Aztec, rather, kept records in the form of pictograms, a semasiographic system that "conveys meaning directly to the reader without usually having to form words."[48]

Pictograms, Ideograms, and Alphabetic Systems

Bierhorst specifies the "special vocabulary" of the *Cantares* as relying "heavily on such terms as bird, flower, [and] song," all present in the above stanza from song XVII.[49] Let us focus on one of these words, *flower*.

The word *flower* is a human's phonetic, cognitive response to an object of the natural world. A visual rendering or pictogram of a flower is also a response, but absent of phonetics, or more specifically, speech. For example:

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[46] Bierhorst, *Cantares*, 161.
[47] Joyce Marcus, *Mesoamerican Writing Systems* (Princeton: Princeton University Press, 1992), 19.
[48] Elizabeth Hill Boone, *Stories in Red and Black* (Austin: University of Texas Press, 2000), 31.
[49] Bierhorst, *Cantares*, 16.



Figure 4: Lily

The photograph (a modern pictogram) duplicates identically the image of a specific flower. An infinite number of pictures could be taken or hand-painted of specific flowers, and all of those would convey to a human the image without the use of speech.

Speech is a human's cognitive response to internally processing the mental imprint of the above image, a "unique human instrument which man has designed for the purpose of elaborating within his own mind an actual mental picture of the material world."[50] Having committed the image to memory and designated a word for that image, humans can now mentally retrieve the image through speech.

Lily, specifically identifies the above image; *flower* categorizes the image according to an established criterion of shared traits. *Flower* can recall an infinite variety. Likewise, a symbol can represent an infinite variety of pictures.

The Aztec symbol for *flower* was:

[50] Richard Albert Wilson, *The Miraculous Birth of Language* (New York: The Philosophical Library, 1948), 54.



Figure 5: Aztec Pictogram for "Flower"[51]

The symbol depicts traits identifiable and common to most flowers, leaves, petal, a stem, and pistils, and thus, efficiently recalls the mental image of any variety that a human holds in memory. Furthermore, Aztec natives would have been taught that this symbol identifies f*lower*, thereby being initiated into the "closed system" of Aztec writing.

The Aztec did have a word (phonetic utterance) in response to the viewing of this symbol, *Xochitl*, but one would not be aware of this word without an interpreter to speak it. The above symbol generally replicates the image of the object rather than codifying a phonetic utterance, as does an alphabetic script.

Lying between the pictogram and alphabet in the evolution of written language is ideographic writing: "a script [first] capable of conveying abstractions and multiple associations" and secondly, "a convention of using symbols to represent syllables."[52] We see this in the following figures:

[51] Redrawn from the C*odex Magliabechiano*, folio 11, freely available online: http://en.wikipedia.org/wiki/File:Xochitl.svg (Accessed 10/13/09).
[52] Marcus, *Mesoamerican*, 18–19.

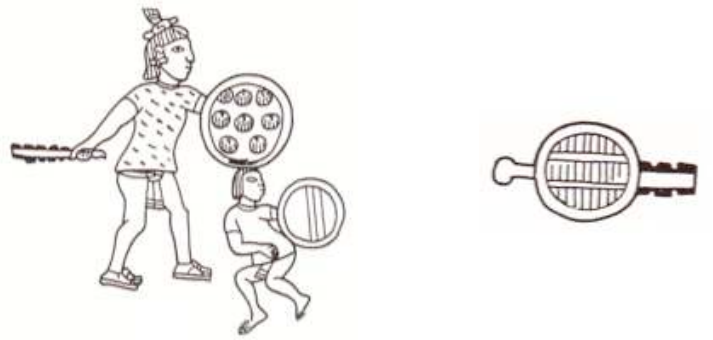


Figure 6: Aztec Pictogram and Ideogram Representing "War"[53]

The first image (Fig. 6) replicates a warrior overcoming an enemy. Context clues such as a shield and club affirm the scene. The second image is derived from the previous. That which affirmed the scene, a shield and club, is now used solely to represent "war."[54] The image could be taken literally as a shield and a club, but its association with war is sufficient to a reader to signify the act of war. Depending on the context in which the ideogram is presented, the shield could also represent a warrior, bravery, or a place of battle. Ideograms of this sort were commonly found in Aztec writings.

Examples of the latter convention, defined as the *rebus principle*, in which symbols were used to represent syllables, were also evident, but far less common. An example of this principle in the English language follows:



Figure 7: Rebus Principle – "Belief"

[53] Drawings by John Montgomery as found in Boone, 33. Original source taken from the Codex Mendoza, specifically James Cooper Clark, *Codex Mendoza: The Mexican Manuscript Known as the Collection of Mendoza and Preserved in the Bodleian Library, Oxford*. 3vols. (London: Waterlow and Sons, 1938) vol. 2

[54] Boone, *Stories*, 32.

The above images (Fig. 7) may be viewed literally as depictions of their corresponding objects. When the spoken words for the images are said aloud, however, "bee leaf" can be morphed homonymously to the abstract thought "belief."

Aztec examples of the *rebus principle* are most prevalent in place names. The depiction of "Ahuilizapan" includes, 1) the image of a man with arms raised representing "glee" or "merriment," or *ahauializpan* in Náhuatl, and 2) a symbol representing "irrigation" or *ahuilia*. These two terms combined "provide most of the sounds needed to generate 'Ahuilizapan'."[55] Again, this combination of sounds would initially be interpreted to a reader.



Figure 8: Place Name Ideogram[56]

Another example of an ideographic place name is "Teotitlán," (Fig. 9):



Figure 9: Place Name Ideogram[57]

[55] Marcus, *Mesoamerican*, 57.
[56] Drawing from Marcus, *Mesoamerican*, 56.
[57] Drawing from Marcus, *Mesoamerican*, 56.

"The disk of the sun suggests the sun deity Tonatiuh, and by extension any deity or *teotl*."[58] The image below the sun is a pictograph of a hill sign, *titlán*, meaning "place of." Combined, the images translate "place of the deity" or phonetically indicated "Teotitlán."

Although verging on an alphabetic system, the majority of Aztec writing relied on pictograms, the primary stage of written language development.

Writing Stages

In his *Eassai sur l'origine des langues*, Jean-Jacques Rousseau categorizes written communication in three stages: pictographs, ideograms, and the use of an alphabet.[59] He describes these stages: "The depicting of objects is appropriate to a savage people; signs of words and of propositions to a barbaric people, and the alphabet to a civilized people."[60] Ignaces Gelb adheres to these stages with the further division of ideograms into two categories. Gelb's descriptions, unlike Rousseau's, are void of judgment:

1. *Pictography*, in which pictures act as signs called pictograms.
2. *Logography*, in which a sign stands for a word and is called a logogram.
3. *Syllabary*, in which individual signs stand for one or more syllables.
4. *Alphabetic*, in which a sign stands for one or more phonemes.[61]

The evolution of Aztec writing through these stages has been exemplified above, but important to the present discussion is the above model. Whereas the Aztec system of

[58] Marcus, *Mesoamerican*, 56.

[59] Gary Tomlison borrows from John H. Moran, *Two Essays on the Origin of Language: Jean-Jacques Rousseau and Johann Gottfried Herder*, trans. John H. Moran and Alexander Gode (1966; reprint, Chicago, University of Chicago Press, 1986). For the original, see Jean-Jacques Rousseau, *Eassai sur l'origine des langues*, ed. Charles Porset (Bordeaux: Guy Ducros, 1970).

[60] Ibid., 17.

[61] As paraphrased by Marcus, 18; taken from the work of Ignaces Gelb, *A Study of Writing* (Chicago: University of Chicago Press, 1965).

writing was primarily pictograms, the Spanish were familiar with primarily an alphabetic system. Herein lies the inability of Duran and Sahagún to interpret the Aztec.

Coinciding with the rational evolution of the alphabet was prose. Prose, like the alphabet, seeks to capture the material reality around us in concrete terms. Upon reading the Aztec verses, Spanish interpreters naturally assumed poetry (versus prose). Poetry combines written alphabetic words in attempts to capture the figurative essence of our surroundings. According to Rousseau, "Poetry was devised before prose. That was bound to be, since feelings speak before reason."[62]

A common tool in writing poetry is the metaphor, "a de-rationalizing ornament added as a surplus to rational speech and a primal link between language and passion [i.e., essence] before rational speech [i.e., prose]."[63] Metaphor is therefore a modern method of replacing rational prose with poetic gesture in attempts to capture the essence of a material object.

The Aztec, however, were not attempting to return to figurative language through the device of poetry, but rather, were attempting to translate their already figurative language, which was grounded in the "essence" of an object or concept, into a writing system that was designed to isolate the infinite. In so doing, they brought with them the "multiple associations" which their previous writing system allowed. The Aztec noblemen were coming from the opposite direction than the Spanish in Rousseau and Gelb's hierarchy. They were not applying metaphors in an attempt to recapture essence, but were rather transcribing a multitude of phonetic utterances suggested by pictograms

[62] Moran, *Two Essays*, 50–51.

[63] Gary Tomlinson, "Ideologies of the Aztec Song." *Journal of the American Musicological Society* 48, no. 3 (Fall 1995): 352.

into an alphabetic form that represented "reality rather than participating materially in it."[64]

Metaphor versus Metonymy

The representation of reality versus material participation equates to the difference between metaphor and metonymy. Whereas a metaphor is a linguistic, symbolic replacement of a word which more poetically captures the essence of a comparable word, a metonym is a word that is not a replacement or comparative, but in fact an equal representation of the fundamental essence. As stated, pictograms abound in infinite associations whereas the alphabetized word isolates those associations to the finite. Thus, the difficulty in interpreting the *Cantares mexicanos* lies not in linguistics but in ideological interpretations and expressions of "the reality around us."

Let us return to the example of the "flower." To the Aztec, flower evokes beauty, the same as hearing a song evokes beauty. Both song and flower communicate beauty to the Aztec and therefore, "flower" and "song" share essence and are thus interchangeable. Throughout the *Cantares* are examples of this exchange. From Song XVII, "From heaven, ah, come good flowers, good songs. They put away our cares, they put away our pain."[65] In this case, the two words appear adjacently, but within the same song, the separation is less distinct. The stanza from previous:

> Where are you singer? Here, let the flower drums appear. They're twirling down as plumes. They're littered as golden flowers.
> . . . . . .
> Ah, he's descended. The singer's at the drum. He's setting them free as plumes. He's dispersing the songs of Life Giver. Bellbird gives him the

[64] Tomlinson, "Ideologies," 370.
[65] Bierhorst, *Cantares*, 163.

echo, singing along, spreading flowers. Let's have these flowers.[66]

Evident is not only the free exchange of flower and song but also the association with plumes and birds. Birds sing and have as much diversity and beauty as flowers. Thus, in this instance, the essence of beauty is trimorphic: flower, song, and bird are all understood as representing the same essence.

In summary, music is a temporal art form, and without the aid of written notation, exists only during its presentation and conscious recollection. Since the Aztecs relied on oral conservation of their music, modern scholars have only the written observations of those present during its performance. Those observations came from untrained ears, and thus were recorded in a nontechnical language. Schools initiated by Pedro de Gante allowed natives to participate in the modern retelling of their story but by means of a writing system foreign to their previous system of primarily pictograms, incapable of capturing wholly their art of music. Despite the heavy Spanish influence of these documents, "a remarkable amount of valuable information about pre-Columbian life can be mined from these sources."[67] Carlos Chávez adds, "nothing will be likely to give with better authority a clear general idea of the development of these arts [music and dancing] in Mexican antiquity."[68]

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[66] Ibid., 161.
[67] Ibid., 18.
[68] Carlos Chávez, "Mexican Music." In Hubert Herring and Hubert Weinstock, *Renascent Mexico*. (New York: Covici-Friede, 1935), 203.

Chapter 3

Living Traditions

The third and final method in determining Aztec musical characteristics is through the study of living traditions. Being that Aztec music was maintained through oral methods, it is the hope of the musicologist that these traditions continue to be upheld in current indigenous groups known to have been historically engaged with the pre-Colonial Aztec. Stevenson warns, though, that "it is too much to suppose that from 1519 . . . the musical culture of any people, however primitive, would have remained completely static."[69] Regardless, a study of living traditions Carlos Chávez was known to have encountered in Mexico will contribute to revealing the origins of his musical output, and, in turn, aid in determining what is attributable to a specifically Aztec musical style.

How reflective are these living traditions, however, of an "Aztec" musical style? This question must be approached bilaterally and generates two other questions: 1) How does one define what is "Aztec" music; and 2) How loyal and regionally close were the living traditions in question historically to the urban centers of definitive Aztec civilization?

Defining Aztec Musical Styles: High Art versus Folk Music

In defining Aztec music, Stevenson identifies two categories 1) "court music" and 2) "rural music." He claims, "Court music . . . differed as much from the music of the *macehualli*, the lower classes, as court speech differed from the rude Náhuatl . . . spoken

[69] Stevenson, *Music in the Aztec*, 126.

by the common clay."[70] Stevenson's claims reference the work of Sahagún, a student of languages. Sahagún identified differences in Náhuatl dialects, inspiring him to create a dictionary of Náhuatl to prevent its decay into a barbarous tongue.[71] "The ethnomusicologist who assumes uniform levels of musical accomplishment among Náhuatl-speaking tribes joins company with the linguist who presumes upon a similar uniformity of speech habits."[72]

Stevenson's term *maceualli* identifies one of these "uniform levels."[73] From16th century Spanish lexicographer Molina (a contemporary of Sahagún), "*maceualli* was thought to be common: *maceuallatoa* meant 'to speak boorishly,' and *maceualtic* meant 'vulgar.'"[74] Or, as Sosutelle paraphrased Motolinía: "The Aztec word *maceualli* stood, in the sixteenth century, for any person who did not belong to any . . . social category . . . and yet who was not a slave – the 'common people' or the 'plebeians,' as the Spaniards often translated it."[75]

Accepting Stevenson's premise that two levels of Aztec music exist, we will designate *maceualli* or Mexican "folk" music as music found in indigenous, living traditions, and that of Aztec "high art," as found in the Aztec court. Since 16th century chroniclers were indeed living in centers of Aztec power, teaching nobility, and writing documents to Spanish nobility, it is safe to presume that their accounts are of their

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[70] Ibid., 91–92.

[71] For more concerning this matter see Gerónimo de Mendieta, 663; and Wigberto Jiménez Moreno, "Fr. Bernardino de Sahagún y su obra," in preface to Bernardino de Sahagún, *Historia General* (México: Editorial Pedro Robredo, 1938), pp. xlvi, lxxvi

[72] Stevenson, *Music of the Aztec*, 102.

[73] For a collection of various Spanish sources that include this term see Francisco J. Santamaría, *Diccionario de Mejicanismos*. (México: Ed. Porrúa, 1959), 673–674.

[74] Jaques Soustelle, *Daily Life of the Aztecs*, (Stanford: Stanford University Press, 1961), 70; paraphrasing Fr. Alonso de Molina, *Vocabulario de la lengua Mexicana* (Mexico 1571), 50 verso. Facsimile edition, Leipzig 1880.

[75] Ibid., 70; paraphrasing from Fr. Toribio Motolinía, *Memoriales* (Mexico, 1903), 344.

observations of Aztec "high art." On the other hand, those musical characteristics in *Xochipilli* and *The Song of Quetzalcóatl* that are comparable to present day living traditions will be defined as *maceualli* or Mexican "folk" music and can only be determined as representative of Aztec "high art" according to historical loyalties and proximities to Aztec urban centers.

A discussion of the region of Tlaxcala and the Huichol Indians of Jalisco will serve as examples in light of these arguments.

Determining Aztec Musical Representation: Region of Tlaxcala and the Huichol Indians

As a boy, Carlos Chávez made several trips to and was exposed to music from the region of Tlaxcala. Texcoco, an historically Aztec city second in power only to Tenochtitlán (present day Mexico City), bordered the highland region of Tlaxcala. The Spanish occupied Texcoco, and from this urban center Spanish chroniclers identified that which was demonstrably "Aztec," including the "proper" Náhuatl dialect. Due to its closeness in proximity to a definitive Aztec urban center, one could presume that music from the region of Tlaxcala would be representative of definitive Aztec "high art."

Care, however, must be taken since other distinct ethnicities existed in Tlaxcala, identified in part through speaking distinct languages. Charles Gibson indicates: "The greatest single exception to Aztec unity and domination lay within the boundaries of the modern state of Tlaxcala. . . . Here the persons of Náhuatl, Otomí, and Pinome speech had successfully defended a territory of some size, and had maintained an independent enclave while the Aztec empire gradually enveloped them on all sides."[76] Gibson

[76] Charles Gibson, *Tlaxcala in the Sixteenth Century* (Stanford: Stanford University Press, 1967), 1.

continues, "The Pinomes, with the Olmecs, Xicalancas, and Zacatecas, were among the earliest known inhabitants of Tlaxcala. . . . More important as historical peoples than any of these earliest groups were the Otomíes, who entered the territory later and who established the second major stage of Tlaxcalan population."[77] Furthermore, "The Otomies spoke and speak today a distinct language, unrelated to the Náhuatl."[78]

Therefore, while the Spaniards may be correct in identifying the purity of Aztec culture in Texcoco, a city of great Aztec concentration, the region of Tlaxcala might or might not yield such representation. Tlaxcala is a region whose inhabitants adamantly resisted Aztec rule and would thus be considered non-representative of Aztec high art music.

Music from Tlaxcala may, however, be defined as *maceualli* or "folk" music. The Tlaxcalan region currently comprises of indigenous groups whose ancestors were at the core of civilization and culture for the non-nobility. While political governance is easy to separate, common lifestyles have a tendency to amalgamate regardless of political borders.

Archaeomusicologists give evidence to such claims by finding similarities between instruments known to have been used by the Aztec and Tlaxcalans. The teponaztli is by far the most recognized instrument in the region, and each dated specimen adheres to tunings as those specimens found in verified Aztec regions.[79] Also recall Stevenson's claims that indigenous instruments are "not so much . . . remains of a bygone art . . . as the sacred sound symbols of a now vanished cult." This suggests that

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[77] Ibid., 1.
[78] Ibid., 2.
[79] See Daniel Castañeda and Vicente T. Mendoza, "Los Teponaztli en las Civilizaciones Precortesianos," *Anales del Museo Nacional de Arqueología, Historia y Etnografía* 4, no. 8 (1933).

groups that shared instruments also shared similar ideologies.[80] Stevenson points to the Huichol (pronounced VEE-tchol) Indians of Jalisco to illustrate this matter.



Figure 5: Huichol with Drum
Photograph by Carl Lumholtz
© 1902 by Charles Scribner's Sons, New York

The above picture is of a Huichol shaman singing and accompanying himself on a drum described as "a log cut from a big-leaved oak-tree, hollowed out, and covered at one end with a deerskin, while the other end has been cut to form three rude legs."[81] Not only is the drum the same as the huehuetl of the Aztec materialistically, but also ideologically. According to Carl Lumholtz: "It [the drum] is placed upright on a disk. . . . The statues of the gods rest on similar disks. . . and as the drum, like everything in the Huichol conception, is alive, it stands like a man or god."[82] The word *huehue* in Náhuatl translates "venerable man," according with the Huichol concept. Stevenson concludes, "Since the typical Huichol and Aztec instruments obviously resemble each other, many

[80] Stevenson, *Music in the Aztec*, 30.
[81] Carl Lumholtz, *Unknown Mexico* (New York: Charles Scribner's Sons, 1902; reprint, New Mexico: Rio Grande, 1973), vol. 2, 32 (page citations areto the reprint edition).
[82] Ibid., 32.

observers have chosen to draw parallels between existent Huichol [and one may include Tlaxcalan] and nonexistent Aztec melodies; this influence is drawn easily enough; as the instruments are demonstrably similar."[83]

Lumholtz addresses political proximity: "The Huichols, although related to the Aztecs, belong to the tribes which remained in barbarism while the main stock of the family developed and reached a state of culture culminating in the establishment of the Aztec Empire. Montezuma's reign came to a tragic end nearly four hundred years ago, while the humble Huichols have maintained themselves to the present in their almost inaccessible mountain fastness."[84] Two important concepts are conveyed in this passage: 1) The Huichol's were under Aztec influence, and 2) due to their geographically inaccessibility, the Huichol's have maintained their identity despite Spanish conquest.

So unlike the Tlaxcalan's, the Huichol have resisted Spanish acculturation, but they have also been quite remote and distanced from Aztec urban centers. While a look at the Huichol may provide a pure picture of life before the Spanish conquest, it strays further from Aztec "high art," representing more the music of the *maceualli.*

The Huichol and the Tlaxcalans exemplify two extremes in studying living traditions of Mexico. The Huichol are a tribe untouched by Spanish influence, but distant from Aztec urban centers, and thus far from representative of Aztec court music. The Tlaxcalans were a resistant nation that, while opposed politically to the Aztecs, might yet have performed music in a similar fashion to the courts of their Aztec adversaries.[85]

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[83] Stevenson, *Music in the Aztec*, 131.
[84] Lumholtz, *Unknown*, 22.
[85] Although, Spanish influence was so overpowering that reports as early as sixty-three years after the Spanish conquest reported nothing but European music. Fray Antonio de Cibdad Real, who surveyed rural

In tracing the origins of musical material in *Xochipilli* and *The Song of Quetzalcóatl*, comparisons will be made to that found in present day Tlaxcala and the Huichols, as well as the nations of the Cora, Yaqui, and Otomí. Each influence will be discussed in light of the current debate and will hopefully link musical material in both pieces to indigenous roots either current or historical.

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music while inspecting Franciscan missions, observed nothing but European music in Tlaxcala during his visit from October 26 to 31, 1585. This is no surprise considering the Tlaxcalan's quick alliance with the Spanish in 1519 to overcome the
Aztecs, not to mention the likely possibility of locals' attempts at impressing their Spanish visitors with Spanish music.

Section 2: Carlos Chávez's *Xochipilli*

Introduction

Xochipilli-Macuilxochitl

The Aztec understood the world through a pantheon of gods or spirits. In the words of Alfredo López Austin, these gods were to the Aztec "entities, made of a substance imperceptible to humans, who acted on the world that humans could perceive and whose origin predated the creation of that world."[86] Predate implies time, and "the Aztecs believed that time was the gods themselves."[87] From this notion we begin our understanding of the Aztec deity, Macuilxochitl.

The Aztec formed several calendars based on various natural cycles; the oldest and most important being the *tonalpohualli* "which consisted of a combination of 13 numbers with 20 non-numerical symbols [Fig. 1], corresponding to animals, elements, gods and artificial objects (crocodile, wind, house, lizard, snake and death, etc.)."[88] Each of these symbols represented a day. A complete rotation of these days with the coinciding 13 numbers resulted in a 260-day cycle. For example, Figure 1 has "Eagle" corresponding with number 1. One turn of the wheel would result in "Buzzard" coinciding with number 2. Another turn of the wheel would result in "Movement" coinciding with number 3, etc. For "Eagle" to once again coincide with number 1, the wheel must turn 260 times (plus one more to begin the cycle again).

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[86] Alfredo López Austin, "Cosmovision, Religion and the Calendar of the Aztecs," *Aztecs*, edited by David Breuer, Harry Burden, Carola Krueger, Fiona McHardy, Peter Sawbridge, and Nick Tite (London: Royal Academy Publications, 2002), 34.
[87] Ibid.
[88] Ibid., 33.

Mary Miller and Karl Taube speculate that since "in many parts of Mexico, humans and gods took their names from their date of birth in this calendar, [the *tonalpohualli*] was probably devised by midwives to calculate birthdates, working from the first missed menstrual period to birth, approximating the 9-month human gestation period."[89]

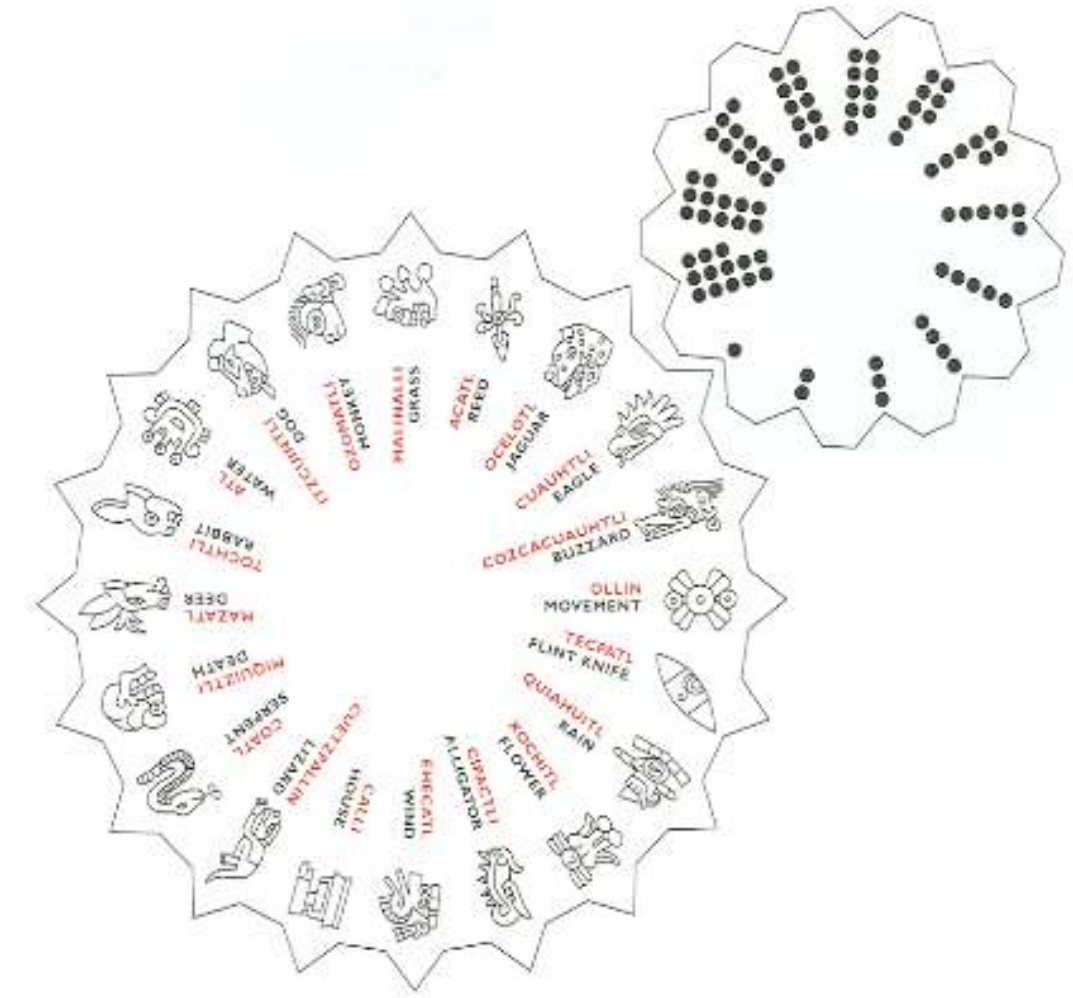


Figure 1: Symbols and Cycles of the *Tonalpohualli*[90]

[89] Mary Miller and Karl Taube, *An Illustrated Dictionary of the Gods and Symbols of Ancient Mexico and the Maya* (London: Thames and Hudson, Ltd., 1993), 48.
[90] Austin, "Cosmovision," 34.

Macuixochitl was born on the fifth number day in correspondence to the name day of Xochitl. Macui translates "5" and Xochitl as "flower." Thus, his name literally means "5 Flower." For the Aztec, *macui* or 5 alludes to excess. Five extends beyond the four cardinal points: a fifth drink of *pulque*, an alcoholic drink made from the maguey, was believed to induce drunkenness and loss of control and ultimately became the downfall of the deity Quetzalcóatl: and the fifth civilization of El Quinto Sol [the Fifth Sun] proved to be the last for the Aztec.[91] Human acts of excess, particularly in the pleasures of gambling, drinking, and fornication, were thought to lead to misfortune and disease. Punishment for these acts was embodied by five deities called the *Ahuiateteo*.

The names of the *Ahuiateteo* were derived from the correspondence of the fifth number day and the five name days associated with the southern direction (north, east, and west, were likewise each associated with five names). They were Macuilcuetzpalin (5 Lizard), Macuilcozcacuauhtli (5 Buzzard), Macuiltochtli (5 Rabbit), Macuilmalinalli (5 Grass), and Macuilxochitl (5 Flower).

The Aztec also developed a solar calendar coinciding with the 365-day cycle. The *xihuitl* comprised eighteen sets or "months" of twenty days with a remaining five "nameless" unlucky days. Throughout the days of this calendar, the Aztec would hold various feasts and festivals to honor their gods, "who successively exercised their influence on the world."[92]

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[91] See Bernardino de Sahagún, "De los mexicanos," *Historia General de las Cosas de Nueva España*, ed. Ángel M. Garibay K. (México: Editorial Porrúa, 1956), bk. 10, ch. 29. See also "The Life of Topiltzin Quetzalcóatl: A.D. 817–95," *The Annals of Cuauhtitlan*, trans. by John Bierhorst in his *History and Mythology of the Aztecs: The Codex Chimalpopoca* (Tucson: The University of Arizon Press, 1992), 34.
[92] Austin, *Cosmovision*, 34–35.

Whereas the *tonalpohualli* was used primarily for divination, the foretelling of future events, a matter of the "imperceptible" gods, the *xihuitl* was agrarian based, more pertinent to human activity and sustainability. In this sense, the gods were perceived with human qualities, and during these religious feasts/festivals, symbolically "transformed into worldly beings."[93] Sahagún described one such festival:

> The fifth month was called Tóxcatl. In this month was held a feast honoring the principal deity called Tezcatlipoca. At this feast they killed a faultless youth whom they had maintained a whole year amidst perfect delights, while he impersonated Tezcatlipoca. . . . Only the handsomest of captives could be chosen for this sacrifice, the most agile, the best speaker, someone without bodily spot or blemish. Moreover, the youth selected for the sacrifice was taught with the greatest care how to play the flute well and how to walk about with a smoking pipe and carrying flowers, after the manner of the highest nobility. Greatly venerated throughout the entire year, he was adored by all who met him. Day after day, he strolled the streets playing his flute, carrying his flowers and pipe, going whither fancy led him. Eight pages always attended him wherever he went. His garments were of the finest and his entire body was painted. . . . Twenty days before the sacrifice, he was allotted new clothing and four lovely maidens to live with him as wives entertaining him and disporting with him until he was taken out to die. Five days before his death, they began treating him as a god. All the court came to visit him and solemn banquets and magnificent dances were held in his honor.
>
> At last they took him out to a small temple three miles or so from the city on a deserted road. Arriving at the steps of the temple, he began mounting them of his own free will. At the first, then the second, then the third step, he broke in pieces one of the flutes on which he had played during his year of perfect felicity. Thus he continued until reaching the summit where the priests deputed to kill him waited. There they seized him, stretching him on the stone block, face upwards. Then with the swift surgery of the sacrificial knife the chief sacrificer cut open his chest, tore out the heart, and lifted it still beating as an offering to the sun. Thus indeed were all the victims sacrificed, but the body of the handsome youth was not tumbled down the steps. Instead the four who had held him during the tearing out of his heart carried his body reverently down the patio, cut off his head, and skewered it on a stick called *tzonpantli*. Thus ended the life of whom they had regaled and honored an entire year. Some said that his ending symbolized the end

[93] Ibid., 34.

> awaiting all those who flaunt riches and enjoy delights in life: for all shall at last come down to dust.[94]

Miller and Taube define instances such as the above described as "deity impersonation." Through this act "a human could become one with the gods. By having a living being perform as the god, individuals played out a collective history and a shared mythic past. Through trance and transformation, the performance of humans as deities distributed magical power and ensured the repeated efficacy of the gods."[95]

Deity impersonators achieved trancelike states through deprivation (primarily fasting), music, dance, and hallucinogens, according to Miller and Taube. A depiction of an impersonator in such a state is embodied by a sculpture found by Alfredo Chavero on the outskirts of Tlamanalco. R. Gordon Wasson says of the sculpture: "He is absorbed in *temicxoch*, 'dream flowers' as the Nahua say in describing the awesome experience that follows the ingestion of an entheogen."[96]

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[94] Bernardino de Sahagún, *Historia General de las Cosas de Nueva España*, ed. Wigberto Jiménez Moreno (México: Editorial Pedro Robredo, 1938), bk. 1, 134–137 as trans. by Robert Stevenson, *Music in the Aztec and Inca Territory* (Berkeley and Los Angeles: University of California Press, 1968), 103–104.
[95] Miller, *Dictionary of the Gods*, 76.
[96] R. Gordon Wasson, *The Wondrous Mushroom* (New York: McGraw Hill, 1980), 58.



Figure 2: Sculpture of Xochipilli
Photo used by permission
© Jorge Pérez de Lara

"He" is Xochipilli, the youthful manifestation of Macuilxochitl. Xochipilli translates "Flower Prince" for he is celebrated, according to the agrarian based *xihuitl* calendar, during the earliest part of the growing season when flowers make their appearance in abundance. For this reason, Xochipilli is revered as a god of the sun and of nurturing growth.

The Aztec honored Xochipilli during Tecuilhuitontli, the eight month of the *xihuitl* in a festival known as the "Little Feast of the Lords." During this time, noblemen would provide food for and were known to intermingle with commoners. Amongst the

people danced and sang the Xochipilli impersonator, adorned similarly to the figure in the sculpture above.

Wasson says also of the sculpture (Fig. 2): "One key to the enigma of this figure lies in the mask that the man is wearing. It can be seen in the eye-sockets and better still under the chin. . . . The mask takes on grave import. It shows the salient trait of character that the wearer portrays, a god living in ecstasy. . . . Here is one who is not seeing, not living as ordinary mortals see and live, who is seeing direct with the eyes of the soul."[97]

Wasson suggests that the figure obtained a state of ecstacy or *temicxoch* through the use of an entheogen or hallucinogen. According to Miller and Taube: "Hallucinogens played and continue to play an important role in Mesoamerican religious life. They have been used for communion with the gods and ancestors, divination, personal visions and self knowledge, and as a source of pleasure and entertainment."[98] So, not only did impersonators personify deities through attire and actions, but themselves strove to communicate and even enter the spiritual world in which those deities resided.

Supporting his theory, Wasson points out several emblems representative of hallucinogens on the Xochiplli sculpture. Seen below (Fig. 3) is a profile of the sculpture with three such emblems. Highlighted is the Morning Glory (*Ipomoea purpurea*), a flower whose seed (*Turbina corymbosa*), known as *ololiuhqui* in Náhuatl, was used by Aztecs in acts of divination.[99]

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[97] Ibid.

[98] Miller, *Dictionary of the Gods*, 90.

[99] See Hernando Ruíz de Alarcón, *Aztec Sorcerers in 17th Century Mexico: The Treatise on Superstitions*, ed. and trans. Michael Coe and Gordon Whittaker (Albany: Institute for Mesoamerican Studies, 1982).



Figure 3: Morning Glory Emblem



Figure 4: Morning Glory Flower

Also visible is the flower of the tobacco leaf (hip) and the psilocybe mushroom (right forearm). Not pictured but present on the sculpture are the *heimia salicifolia* and *poyomatli* flowers, also known to be hallucinogenic.

The "flowers" appearing on the sculpture were believed to transport a deity impersonator psycho-actively to a spiritual world in which the Aztec believed the gods resided. Art could also cause in the participant a euphoric experience. Miguel León-Portilla comments:

> The idiomatic expression, *in xóchitl*, *in cuícatl*, which literally means "flower and song," has the metaphorical sense of poem, poetry, artistic expression, in a word, symbolism. . . . An occult and veiled term that may sweep man off on the wings of symbol and metaphor stammering, may project him beyond himself, thus perhaps in a mysterious manner bringing him nearer to his origins.[100]

Recalling the previous discussion on metonymy (see Metaphor versus Metonymy), it is understandable then that Xochipilli is also the god of music and dance.

[100] Miguel León-Portilla, *Los Antiguos Mexicanos* (: México: Fondo de Cultura Económica, 1961), chpt. 4, 128. Trans. by R. Gordon Wasson, *The Wondrous Mushroom* (New York: McGraw Hill, 1980), 78.

If humans over-indulge in these euphoric pleasures and excessive indulgences mentioned previously, then Xochipilli can mete out punishment, and for this reason is closely associated with Macuilxochitl. Their difference is esoteric. Macuilxochitl is the imperceptible god, an entity beyond the scope of human thought, a timeless being dwelling in the cosmos. Xochipilli is the embodiment of the same spirit on Earth, perceived in the visible, tangible, and edible world. Chávez's composition therefore rightly implies both realms, for not only does the piece speak to human emotion, but remains timeless amongst works for the percussion ensemble.

Chapter 1

Carlos Chávez's Compositional Methods

Musical Education

Carlos Antonio de Padua Chávez Ramírez was born in Popotla, Mexico on June 13, 1899 of mestizo descent (Spanish and Mexican-Indian). He received piano lessons from his brother Manuel at the early age of nine before studying at the Nacional Conservatorio in Mexico City. Chávez studied first with Asuncíon Parra in 1909 and then with composer Manuel M. Ponce from 1910 to 1913. Under Ponce's direction, Chávez, at the age of eleven, opened a recital dedicated to the music of Debussy, whose works had never before been heard formally in Mexico. Chávez credits Pedro Luís Ogazón, however, with whom he would begin study in 1915, for "developing his musical taste and technical information" by introducing him "to the best classical and romantic music."[101]

Through Ogazón, Chávez met his harmony teacher Juan B. Fuentes whose book Chávez "admired for its simplicity in explaining ideas and concepts which he felt earlier and more celebrated writers had overcomplicated or had made too rigid in their application."[102] Fueled by this adversity to rigid training, Chávez chose to study composition independently rather than at the Conservatory; he later called its teachers' music, "a weak reflection of French, [and] Italian nineteenth-century music."[103] He instead independently analyzed works by Beethoven, Wagner, and Debussy made available by Albert Guiraud's publication *Traité d'Instrumentation et Orchestration.*

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[101] Robert L. Parker, *Carlos Chávez: Mexico's Modern-Day Orpheus* (Boston: Twayne, 1983), 2.
[102] Ibid., 2.
[103] As quoted by Roberto García Morillo, *Carlos Chávez: Vida y Obra* (Mexico: Fondo de Cultura Económica, 1960), 13.

The majority of Chávez's early works were written in European Classical and Romantic styles. His later works, however, were composed of his own developed techniques. Chávez states:

> Many people are inclined to think that technique is everything: it is a general belief that in order to become a composer you learn a technique and you learn to compose. In a sense, of course, that is true. But the technique that one gets from books is another man's technique; it is Palestrina's technique or a "serial" technique. That is all right as a way to start; at the beginning of his career Beethoven used Haydn techniques, but from that point on he developed his own. A composer wants to make his own music, and that can only be achieved by developing his own technique. We have to know the particular techniques of all the great masters well; first to learn from them and, second, to avoid them constantly.[104]

Chávez would develop his personal style during the Mexican Renaissance, a post-revolutionary movement in the arts from 1920–1934, and consequently pioneer Mexican nationalistic music.

Mexican Renaissance and the Development of a Nationalistic Style

Gerard Behague writes of the Mexican Renaissance:

> The post-revolutionary period 1920–1934, an era of reconstruction under Presidents Obregón and Calles, saw the emergence of the so-called Aztec Renaissance and a consequent Indianist movement in the arts of Mexico. In an attempted return to pre-Conquest Indian musical practices, the crucial factor was not so much authenticity in reviving those practices as it was a subjective evocation of the remote past, or of the character and physical setting of the ancient (and, for that matter, contemporary) Indian culture.[105]

[104] Carlos Chávez, *Musical Thought* (Cambridge, Massachusetts: Harvard University Press, 1961), 31.
[105] Gerard Behague, *Music in Latin America* (Englewood Cliffs, N.J.: Prentice Hall, 1979), 129.

Behague further comments on Chávez's role in the movement:

> Chávez has been particularly successful in assimilating the essence of folk-music elements. . . . His highly personal style and Mexican sense are so intimately connected that his music has been characterized as "profoundly non-European." As observed by the Argentine composer Roberto García Morillo, Chávez's basic concern has been to incorporate the essence of previously assimilated folk elements through the use of representative formulas, whether of a melodic, harmonic, rhythmic, or instrumental nature, that can confer on a piece a distinctly national flavor. His purpose required a fairly methodical process of synthesis and elaboration of the popular and folk musical elements at his disposal.[106]

Important in these commentaries is the observation of generalized efforts with the purpose not of authentically reconstructing music of the past, but instead of developing a range of personal styles with a "distinctly national flavor": that is, creating a music that could be identified as Mexican. Additionally, Chávez did so with what "elements were at his disposal." This project will specifically address those "elements" in light of *Xochipilli*.

Chávez's nationalistic interest began at age sixteen. At this young age, he wrote an article entitled, "The Present Importance of the Flowering of National Music," published in the 1916 issue of *Gladios*. Roberto García Morillo described the article as Chávez's defense of "his feeling of restlessness for music with a Mexican orientation."[107] Chávez's restlessness would indeed "flower" when the firm of Wagner and Levien in 1920 published six of his solo piano works that included arrangements of traditional and revolutionary songs of Mexico.

[106] Behague, *Music in Latin America,* 130.
[107] Morillo, *Carlos Chávez*, 14.

In the following year, the Secretary of Public Education in Mexico, José Vasconcelos, commissioned Chávez to write a ballet reflective of ancient Aztec culture. This resulted in *El Fuego Nuevo* [The New Fire] based on the Aztec fire ceremony historically performed every fifty-two years. According to Robert Parker, Chávez, "through his recollections of indigenous music of Tlaxcala . . . was able to evoke a hitherto unknown symphonic sonority of strikingly neo-primitive character without quoting a single Indian theme."[108]

Chávez compositionally visited Aztec culture again in 1925 with his ballet *Los Quatros Soles* [The Four Epochs] based on Aztec folklore: four civilizations of man, defined by the elements of water, wind, fire, and earth.[109] Parker describes Chávez's writing for this ballet as "a pseudoindigenous style with minimal reliance on Indian themes."[110]

Chávez took his first trip to the United States in December 1926 and remained in New York until June 1928. As Dan Malmstrom noted in 1974: "Since 1936, he has been there at least about once every year, usually conducting or otherwise on musical business. During this time he has conducted several of the more internationally known orchestras in the USA. He has become acquainted with some of the leading members of the musical life there and has succeeded in making himself comparatively well-known."[111]

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[108] Parker, *Carlos Chávez*, 4.
[109] For an account of these epochs see John Bierhorst's translation of the codex *Chimalpopoca*: History and Mythology of the Aztecs (Tucson: University of Arizona Press, 1992).
[110] Parker, *Carlos Chávez*, 6.
[111] Dan Malmstrom, "Introduction to Twentieth-Century Mexican Music" (Ph.D. dissertation, Uppsala University, 1974), 66.

His exposure in the United States led to the request of Nelson Rockefeller, in 1940, for Chávez to organize a program of music that would complement an art exhibit entitled "Twenty Centuries of Mexican Art" at the Museum of Modern Art in New York. Chávez complied, collaborating with Mexican composers Blas Galindo, Luis Sandi, and Gerónimo Baqueiro Fóster in presenting six individual compositions for the exhibit. Among Chávez's contributions was a piece entitled *Xochipilli: An Imagined Aztec Music,* which premiered May 16, 1940.

Universalism

Chávez's compositional style has been termed "universal." Mayer-Serra writes, "By universalism in Latin American music we mean the stage when the alien substances, whether folk or of European origin elaborated in countries with an ancient tradition, become transformed into original material elaborated by the composer's talent for manipulation by purely musical methods."[112] Behague adds, "Universalism is defined as the acceptance, but not imitation, of folk musical materials in combination with contemporary international techniques"[113]

Chávez's independent study of European models, coupled with his being influenced by the folk music experienced while traveling to various regions of Mexico in his youth, developed into a compositional style that is unconventional and personal. The analyses of his works, therefore, requires a knowledge of recurring tendencies amongst

[112] Otto Mayer-Serra, "El estado presente de la musica en Mexico," tr. Frank Jellinek (Washington D.C., 1946), 41.
[113] Béhague, *Music*, n. 48.

various pieces, of techniques identified through personal statements by the composer, and of identification of folk influenced elements. The following analysis of *Xochipilli* will depend on all of these.

Chapter 2

Xochipilli: Archaeological Foundations

Chávez describes *Xochipilli* "as an attempt to reconstruct–as far as it is possible–the music of ancient Mexicans."[114] His previous works *El Fuego Nuevo* (1921) and *Los Quatros Soles* (1925) were deemed successful in this endeavor of creating a "profoundly non-European sound,"[115] a sound, rather, nationally identifiable to Mexico. Gerard Behague credits Chávez's success to his ability to assimilate "the essence of folk-music elements . . . a fairly methodical process of synthesis and elaboration."[116] Otto Mayer-Sera's definition of "Universalism" allies with this notion: "the acceptance, but not imitation, of folk musical materials in combination with contemporary international techniques"[117]

By this definition, an analysis of Chávez's *Xochipilli*, a nationalistic piece, will require the identification of elements that make it identifiable as "Mexican," specifically those attributable to Aztec practice, and of Carlos Chávez's command and manipulation of those elements, thereby identifying his personal style.

Composing Archaeomusicologically

In composing a "music of ancient Mexicans," Chávez stated, "The elements we have on hand to achieve this attempt with a minimum of fidelity are extremely limited and if I have decided to do so at all, it is because we have at least one aspect that can be

[114] Carlos Chávez. *Xochipilli: An Imagined Aztec Music* (New York: Mills Music, 1964), preface.
[115] Béhague, *Music*, 130.
[116] Ibid.
[117] Ibid., n. 48.

considered as a sure basis; the pre-Cortesian instruments that exist in the archaeological museums of Mexico and of other cities."[118] Thus, one may approach the analysis of *Xochipilli* first from the line of the archaeomusicologist (see Archaeological Findings). A study of museum specimens in light of their influence on *Xochipilli* will establish the most verifiable of fundamental musical elements in creating a nationalistic, specifically Aztec, music.

The instruments required of *Xochipilli* will be divided into two categories according to their compositional function. *Tonal* instruments are pitch specific and generally serve to iterate an identifiable melody, theme, or motive. They include the teponaztli, trombone, piccolo, flute, and Eb clarinet. *Rhythmic* instruments are non-pitch specific and include the huehuetl and a collection of various shakers, rasps, and bells.

Tonal Instruments

For the use of the tonal instruments named above, Carlos Chávez consciously composed with intervals that he believed would be representatively Aztec. Chávez's theory as delivered in a lecture entitled *La Música Azteca*: "The Aztecs showed a predilection for those intervals which we call the minor third and perfect fifth. This type of interval preference . . . found appropriate expression in modal melodies which entirely

[118] Chávez, *Xochipilli*, preface.

lacked the semitone."[119] We concern ourselves first with the predilection for the minor third.

Teponaztli[120]

An identifiably Mexican instrument, widespread in Aztec accounts, is the teponaztli, "A hollowed-out wooden cylinder laid sideways [that] could produce two pitches. These were sounded by striking the two tongues of an **H**-shaped incision (cut laterally into the wood). Rubber tipped mallets called *olmaitl* were always used."[121] The interval formed by the two tongues varied from one teponaztli to another, "anything from a major second to a perfect fifth being possible."[122]

Vicente Mendoza and Daniel Castañeda, former students and colleagues of Chávez, identified a range of intervals from fourteen museum specimens.[123] They discovered that the most prevalent interval sounded by the teponaztlis (6 of 14) was a minor third.

No evidence exists indicating whether Chávez was influenced by any specific teponaztli specimen. Most likely, Chávez trusted the research of his fellow colleagues in creating a general compositional rule based on the majority of their findings. However, a

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[119] As summarized by Jésus C. Romero, *Musica precortesiana* (México: Talleres Gráficos de la Editorial Stylo, 1947), 252–253.

[120] The score indicates the teponaztli part can be played by the Westernized marimba, due to its widespread availability and proximity in sound being constructed of pitched wood.

[121] Stevenson, *Music in the Aztec*, 63. Confirmed in pictograms appearing in several codices; the *Codex Florentinus,* for example, and mendicant chronicles; Sahagun's *Historia General*, bk. 8, chpt. 17, par. 3.

[122] Stevenson, Music in the Aztec, 63.

[123] As catalogued in their "Los Teponaztlis en las Civilizaciones Precortesianos," *Anales del Museo Nacional de Arqueologia, Historia y Etnografia* 4, no. 8, (1933) : 9.

detailed look at two of Mendoza and Castañeda's studied specimens will provide a platform to compare Chávez's personal style and modifications to specific folk models, even if hypothetically.



Figure 5: Macuilxóchitl Teponaztli
ca.1500, Aztec
Museo Nacional de Antropología, Mexico City
Conaculta-Inah, 10–78329
Reprinted by permission, *Aztecs,* #126
Photograph by Michel Zabé

The Macuilxóchitl Specimen

Felipe Solis and Roberto Alonso describe the decoration adorning the body of the Macuilxóchitl specimen (Fig. 5 above):

> The nose and eyebrows of his stylised face consist of a flowering plant; he covers his eyes with the palms of both hands like a mask; the mouth is a stylised butterfly; and the ornaments characteristic of Xochipilli hang from his ears.[124]

[124] Felipe Solis and Roberto Velasco Alonso, "Catalogue," in *Aztecs*, ed. by David Breuer, Harry Burden, Carola Krueger, Fiona McHardy, Peter Sawbridge, and Nick Tite (London: Royal Academy Publications, 2002), 430.

One may take notice that this specimen is made of stone than of wood. Such material allowed for the repeated use of the instrument year after year, suggesting special ceremonial purposes. The above stone teponaztli was indeed used in ceremonies honoring the deity Xochipilli/Macuilxóchitl. Despite its far less resonant materials than common wood, the stone tongues, when struck, clearly emit pitches vibrating at 763.88 Hz and 857.52 Hz, or approximately the pitches G^{b}_{4} and A^{b}_{4} above middle C.[125]

In *Xochipilli*, Chávez assigns G^{b}_{4} as one of two available pitches for the teponaztli of percussion Player One, but only coincidentally. Had Chávez wanted to replicate this specimen, the second designated pitch need be A^{b}_{4} above G^{b}_{4}, coinciding with the specimen's second tongue. Chávez specifies, however, E^{b}_{4}, a minor third below G^{b}_{4}. Only for its significance in honoring *Xochipilli*, the subject of his composition, would this specimen have been of influence to Chávez, but again, no account of such connection exists.

[125] Stone playing is currently evident in living traditions of Mexico. The *lajas* "are naturally 'pitched' stones. . . Two smaller hand-held 'non-pitched' stones serve as mallets." – Christopher Moroney, notes for his score arrangement of Tomas Pascual's, *Asi andando*, (Schiller Park, Illinois: World Library Publications). Also of note, the ratio of tunings of the stone tongues is very close to 5:4, the just minor third.



Figure 6: Tlaxcalan Teponaztli
ca. 1500, Aztec
Museo Nacional de Antropología, Mexico City
Conaculta-Inah, 10–81663
Reprinted by permission, *Aztecs,* #157
Photograph by Michel Zabé

Had Chávez been influenced by any specific specimen, the Tlaxcalan teponaztli (Fig. 6 above) would be a more likely possibility. It is documented that this teponaztli was given to Cortés as a gift by the allied Tlaxcalans.[126] This politically significant instrument is prominently displayed in the National Museum of Mexico City. Chávez was no doubt aware of this instrument. Additionally, his trips as a boy to Tlaxcala must naturally have piqued his interest in an instrument from that region.

Furthermore, the specimen's sounding pitches of G and B^b correspond to those notated in *Xochipilli*.[127] Nowhere is it documented that Chávez was directly influenced by this specimen, however, the chances are much more likely than the Macuilxóchitl specimen.

[126] Castañeda, "Los Teponaztli," 9.
[127] Mendoza and Castañeda's findings show the teponaztli's tongues vibrating at 797.71 and 948.64 Hertz which is most closely related to the pitches G and B-flat two octaves above middle C (which vibrates at 261.6 Hertz.)

If Chávez had drawn directly from the Tlaxcalan specimen, he still manipulated its register. While the G_5 and B^b_5 pitches of the Tlaxcalan teponaztli may have inspired Chávez to choose those pitches in *Xochipilli*, the specimen's true register would have been in the same register as, and thus conflicted with, that of the wind instruments; thus, Chávez wrote these pitches a full two octaves below the original.

Additionally, had Chávez wanted to replicate exactly a museum exemplar, the most convenient would have been the Malinalco specimen that was on display at the exhibit *Twenty Centuries of Mexican Art* for which *Xochipilli* was composed.[128] This specimen emitted the interval of a perfect fifth. Despite the "predilections" of the Aztec for this interval along with the minor third, however, Chávez avoids its use. Therefore, Chávez's choice of pitches for the teponaztli evolved most likely from generalized theory than from specific specimens. That such a close comparison can be made, however, with existing specimens allows one to attribute Chávez's choice of teponaztli pitches as characteristically Aztec.

Atecocoli

As prominent in Aztec accounts as the teponaztli, but less identifiably "Mexican" due to its widespread use across North America as well as the Pacific, is the *atecocoli.*[129] The atecocoli (see Fig. 7), as defined by Molina, is a "large perforated conch shell blown as a trumpet."[130]

[128] See Figure 1 of Archaeological Findings

[129] Alonso de Molina indicates both *atecocoli* and *atecuculli* as spellings in his *Arte de lengua Mexicana.* (México: Pedro Ocharte, 1571), fol. 24v and fol. 7v, respectively.



Figure 7: Atecocoli[131]

Chávez commented that, "Peoples at least as early as the Toltecs made use of it," as evidenced by its appearance on the Temple of Quetzalcóatl at Teotihuacán (see Fig. 8 below).



Figure 8: Temple of Quetzacóatl at Teotihuacán

[130] Translated by Stevenson, *Music in the Aztec,* 31, from Molina's *Arte de lengua Mexicana*. See footnote 129 above.
[131] Manuel Aguilar-Moreno, *Handbook to Life in the Aztec World* (New York: Oxford University, 2006)

Shells like those highlighted in yellow are scattered across the face of this great pyramid amongst alternating images of Tlaloc (left), the ancient god of rain and lightning, and the Plumed Serpent, Quetzalcóatl (right).

As documented in the *Leyenda de los Soles* [Legend of the Suns, 1558], "the only [Aztec] creation epic to have survived in the Náhuatl language,"[132] Quetzalcóatl blew upon the atecocoli in summoning Mictlanteuctli, ruler of Mictlan, the underworld. Upon hearing the sound, Mictlanteuctli responded and allowed Quetzalcóatl to gather the sacred bones of the underworld from which he formed humans.[133]

The sound, as agrees Sahagún with Molina, is like that of the cornet or trumpet.[134] As predecessor to these metal European instruments, Chávez likens the atecocoli to an animal horn; "The marine snail-shell provided a long tube . . . as in ancient . . . cultures was served by the animal horn."[135] Each primitive instrument, whether shell, horn, or early trumpet, sounded only those notes existing in the overtone series. Chávez's transcription from a specimen on display at the National Museum in Mexico:

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[132] Bierhorst, *History and Mythology*, 7.

[133] *Leyenda de los Soles*, as translated by Bierhorst, *History and Mythology*, 145.

[134] "Caracol muy grande que sirue de bozina, o de coroneta" [Molina, *Arte de lengua Mexicana.* (México: Pedro Ocharte, 1571), fol. 24v]. Sahagún provides the following description, "Todas las noches, un poco antes de la media noche, los ministros de los idolos que tenían cargo de esto, tocaban los caracoles y cornetas y trompetas, y luego se levantaban todos a ofrecer sangre e incienso a los idolos, en los cúes y en todas las casas particulares." [Bernardino de Sahagún, *Historia General de las Cosas de Nueva España*, ed. Ángel M. Garibay K.(México: Editorial Porrúa, 1956) bk. 2, vol. 1].

[135] Carlos Chávez, "Introduction by Carlos Chávez," *Mexican Music: Notes by Herbert Weinstock for Concerts Arranged by Carlos Chávez* (New York: William E. Rudge's Sons, 1940), 7.
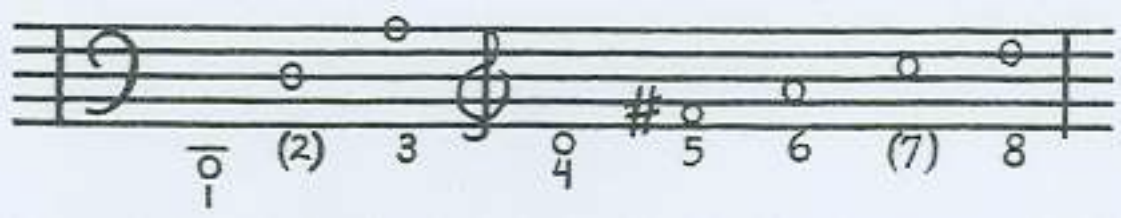


Figure 9: Overtone Series of Atecocoli Specimen[136]

Although Chávez does not suggest the use of the atecocoli as an indigenous alternative to the specified trombone, Herbert Weinstock does indicate that the trombone "approximate[s] the sound made by blowing into a sea snail's shell."[137] Weinstock's claims are verified in that the only four pitches sounded by the trombone in *Xochipilli* are naturally playable on the atecocoli. In the final measures of the composition, the trombone sounds D_4, and moves to the second interval of the overtone series, A_4, a fifth above. The trombone also sounds an $F^{\#}_4$ in mm. 251–254, a note also drawn from the overtone series. Lying outside of the overtone series but nonetheless within the pitch capabilities of the atecocoli, the trombone bends a half-step below D_4 to a $C^{\#}_4$ in m. 245.

Pentatonicism

> From the above overtone series, Chávez derives the following theory:
>
> The Aztecs understood and applied the natural phenomenon of harmonics. . . . The Indians based on this scale the foundation (conscious or instinctive) of a musical system using octaves, fifths, and thirds. Applying this knowledge, they obtained their pentatonic scale without semitones:[138]

[136] Chávez, *Xochipilli*, preface.
[137] Herbert Weinstock, "I. Xochipili–Macuilxochitl," *Mexican Music: Notes by Herbert Weinstock for Concerts Arranged by Carlos Chávez* (New York: William E. Rudge's Sons, 1940), 13
[138] Chávez, "Introduction," *Mexican Music*, 7–8.

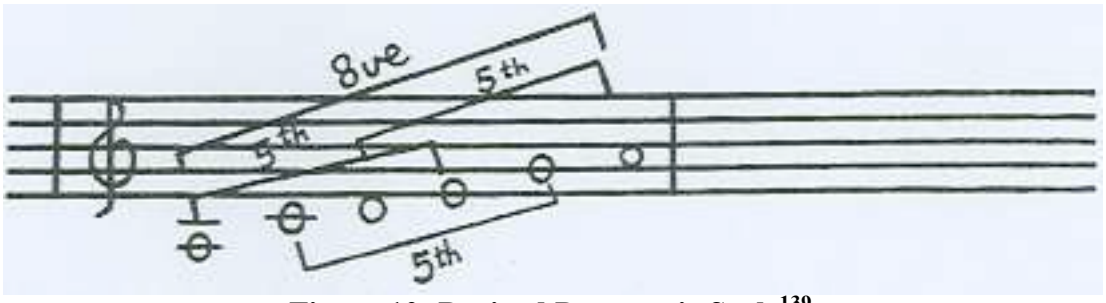


Figure 10: Derived Pentatonic Scale[139]

In accordance with this notion, Chávez tonally constructs *Xochipilli* using pentatonic scales, principally A, C, D, E, G illustrated above.[140] Chávez's theory stems from his observations of museum specimens of flutes. He states, "The archeological flutes generally produce diatonic series of 5, 6, and 7 sounds, the pentaphones being common."[141]

Observations of three scholars attest to the commonality of pentaphonic flutes. In 1933, Dr. Miguel Galindo examined five flutes from the National Museum of Mexico. All five yielded pentatonic scales as follows:

[139] Chávez, *Xochipilli*, preface.
[140] The following chapter includes a full discussion of Chávez's construction and manipulation of pentatonic scales.
[141] Chávez, *Xochipilli*, preface.

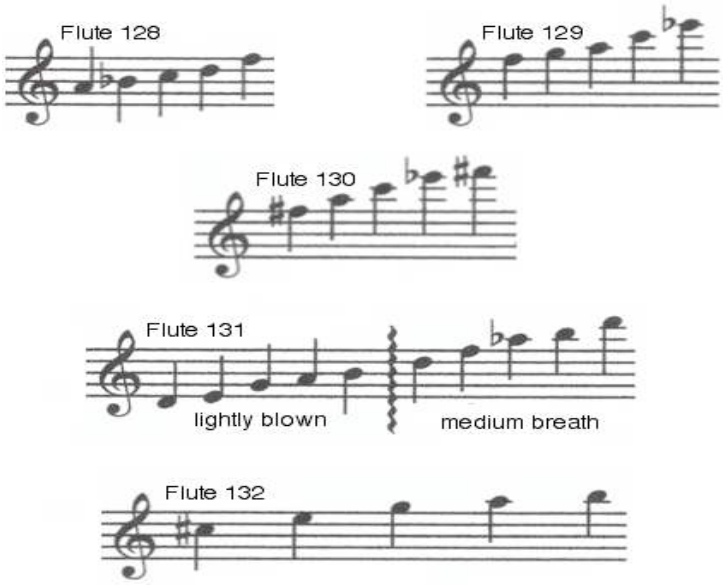


Figure 11: Pitch Findings[142]

Of Samuel Martí's 28 investigated flutes, 22 yielded five pitches. Three of these he specified as *flauto tipo azteca*, sounding the pitches:

F#, G, A, B, D
F, G, A, D, E
F#, G#, A#, B, C#[143]

In the program notes and as performed on the sound recording *Pre-Colombian* [sic] *Instruments of Mexico*, 9 of the 21 flutes are pentaphonic, three of which are classified as Aztec.[144]

Although the above notation implies Western temperament, the recording makes it clear that this is a misleading conception. Historian Francisco de Burgoa, in 1670,

[142] Findings derived from Dr. Galindo's *Nociones de Historia Música Mejicana*, (Colima: Tipografía de "El Dragón," 1933), transcribed from printing in Robert Stevenson's *Music in the Aztec and Inca Territory* (Berkeley and Los Angeles: University of California Press, 1968), 82.
[143] Samuel Martí, *Instrumentos musicales precortesianos* (México: Instituto Nacional de Antropología, 1955), 259–264.
[144] Lilian Mendelssohn; Pablo Castellanos; Jorje Daher, *Pre-Colombian Instruments of Mexico*, Folkway Records FW04177, 1972, LP Recording.

characterized native flutes as "out-of-tune," compared to those of Spanish origin.[145] Additionally, Robert Stevenson points out that Dr. Galindo's findings are presented "without using plus or minus signs to indicate their departure from tempered pitch."[146]

Despite the non-tempered qualities of museum specimens, Chávez made no attempt at replicating their intonations;[147] instead, he chose modern instruments designed to facilitate tempered playing: the piccolo, flute, and Eb clarinet. Although these instruments are similar in sound and range to museum specimens (see below), Chávez suggests no indigenous equivalents for a performance of *Xochipilli* as he does with the percussion instruments. He states only that "varieties of flutes, ocarinas, whistles, and sea snail shells" comprise the Aztec family of wind instruments.[148] One may nevertheless compare the piccolo, flute, and Eb clarinet with various *tlapitzali* (flutes) or *huilacapitzli* (ocarinas), and in so doing, aid in identifying the elements of *Xochipilli* that make it characteristically Aztec. The following will examine one such archaeological specimen in comparison to the piccolo.

[145] Francisco de Burgoa, *Palestria Historial* (México: Juan Ruyz, 1670): reprinted in *Publicaciones del Archivo General*, 24, p. 106, chpt. 13.
[146] Stevenson, *Music in the Aztec*, 81.
[147] The following chapter includes a full discussion of Chávez's construction and manipulation of pentatonic scales including his avoidance of the semitone.
[148] Chávez. *Xochipilli*, preface.

A Flute Exemplar

As stated, Chávez was aware that the Aztec played "great varieties of flutes, ocarinas, [and] whistles,"[149] identified by the Aztec as, *tlapitzalli* for long cylindrical types, and *huilacapitztli* for the globular flute or ocarina. Like the teponaztli, no account exists whether Chávez was influenced by any specific specimen, but one in which Chávez would have had contact will be examined.



Figure 12: Tlapitzali/Flute
ca.1500, Aztec
Museo Nacional de Antropología, Mexico City
Conaculta-Inah, 10–2431
Reprinted by permission, *Aztecs*, #159
Photograph by Michael Zabé

The tlapitzali pictured above (Fig. 12) was discovered in 1940 by Hugo Moedano Koer at Tizatlin in the region of Tlaxcala. It was among a collection of instruments in a temple dedicated to Tezcatlipoca and Xochipilli-Macuilxóchitl.[150] Felipe Solis and Roberto Alonso indicate that "the shape and especially the decoration at the end of the

[149] Chávez. *Xochipilli*, preface.
[150] Martí, Instrumentos, 175.

flute were closely connected with the deities being worshipped,"[151] and indeed, the flared bell is molded in the shape of a flower connecting with the "flowered deity" Xochipilli.

Marti's examination of this flute revealed that its "acute sounds correspond to the tessitura of the modern piccolo."[152] Specifically, it sounds the pitches F_6, G_6, A_6, C_7, and D_7. In Chávez's *Xochipilli*, this pitch set appears only in the piccolo (mm. 102–104 and 110–112), thereby coinciding with the range of the specimen. Furthermore, Torquemada, from whom Chávez gathered most of his accounts concerning Aztec music, refers to "clay flutes played before 1521 in the fifth Aztec ritual month of Tóxcatl (see Xochipilli-Macuilxóchitl) as very shrill."[153] The "shrill" range of the specimen and the location in which it was found corresponds to Torquemada's description. If Chávez were to be influenced by any particular specimen, the Tizatlán tlapitzalli would be the obvious choice.

[151] Felipe Solis and Roberto Alonso, "Flute," *Aztecs*, edited by David Breuer, Harry Burden, Carola Krueger, Fiona McHardy, Peter Sawbridge, and Nick Tite (London: Royal Academy Publications, 2002), 439.
[152] Ibid.
[153] As paraphrased by Robert Stevenson, *Music in the Aztec*, 8, n. 175. Taken from the original, Juan de Torquemada, *Veinte i un libros rituales i Monarchia Indiana*, vol. 2 (Madrid: N. Rodríguez Franco, 1723), 256.

Rhythmic Instruments

Unlike the wind instruments, Chávez does specify indigenous equivalents for the instruments serving a rhythmic than melodic function, all of which belong to the percussion family. In the section of the *Xochipilli* score entitled "Instruments," Chávez writes, "The percussion section was originally written for a group of primitive Indian instruments, but they can very well be replaced by their equivalents in common use."[154] These parallels are seen in Diagram 1.

Player	Modern Instrument	Indigenous Equivalent
I	Marimba	Teponaztli (small)
	Rasping Stick or Guiro (small)	Omichicahuaztli
II	Marimba	Teponaztli (large)
	Hawksbell in copper (small)	
III	Bongos	Two very small Indian Drums
	Clay Rattles (small)	
IV	Tenor Drum (snares released)	Huehuetl (medium)
	Soft Rattles (made of pasteboard)	
V	1 Timpani (any high pitch)	Huehuetl (large)
	Clay Rattles (medium)	
	Hawksbell in copper (medium)	
VI	Bass Drum (large)	Huehuetl (extra large)
	Rasping Stick or Guiro (large)	Omichicahuatzli

Diagram 1: Indigenous Instrument Equivalents

[154] Carlos Chávez, "Instruments," *Xochipilli: An Imagined Aztec Music* (New York: Mills Music, 1964).

These can be grouped into four categories:

Instrument Category	Instrument
Membranophones	2 Small Indian Drums
	Medium Huehuetl
	Large Huehuetl
	Extra Large Huehuetl
Scraper	Omichicahuatzli
Rattles	Clay Rattles
	Soft Rattle (made of pasteboard)
Bells	Copper Hawksbells

Diagram 2: Percussion Instrument Categories

The indigenous instruments will be described and then discussed in light of their use in *Xochipilli* and in relation to their Western equivalents.

Membranophones

Membranophones are drums with animal or plastic skins stretched across an opening. The huehuetl, "the most venerated of Mexican instruments," meets this definition: "The huehuetl was a cylindrical wooden drum sitting on three legs, the top of the drum stretched with animal hide, the bottom open. Beat on with the fingers and not mallets, it stood upright and could usually emit two well-defined tones–the higher by striking near the rim of the drum skin, the lower by moving toward the center."[155]

[155] Stevenson, *Music in the Aztec*, 41.

Despite the possibility of a percussionist being able to produce two distinct pitches on the huehuetl, Chávez makes no indication that the percussionist do so. In fact, Chávez does not specify pitch for any of the membranophones even though chronicles report such observance:

> Striking at the edge and then the middle of the drumskin made the interval of a fifth. When the singers shifted from one tune to the other, the huehuetl was retuned to match. . . . Hearing the sound of the drums at the beginning of the dance, the dancers started singing. The first songs were pitched low, sounding as if everything had been flattened, and the tempo was slow.
>
> Upon finishing one song, everyone stopped singing for several measures. . . . This interval gave the huehuetl time to tune for the next song. Then the leaders began anew at a somewhat higher pitch and in a faster tempo, thus ascending the musical scale as if a bass were to change by degrees into a soprano.[156]

Regardless, Chávez does indicate different sizes of huehuetl: medium, large, and extra large, an historically accurate request. From the work, again, of Mendoza and Castañeda, we know that huehuetl came in a variety of sizes.[157] From museum exemplars, measurements range from the largest at 98cm tall and 48.5cm wide to the smallest at 41.5cm tall.

Extra Large

The "extra large" huehuetl was called the *tlalpanhuehuetl*. *Tlapan* meaning "standing" in Náhuatl, the Malinalco specimen pictured earlier in Figure 2 (see Archaeological Findings) is of this type in that a human must stand to play. The sound of

[156] Toribio de Motolinía, *Memoriales* (México: Casa del Editor [Luis García Pimentel], 1903), 339–343.
[157] Daniel Castañeda and Vicente T. Mendoza. "Los Huehuetls," *Anales del Museo Nacional de Arqueología, Historia y Etnografía* 4, no. 8 (1933).

such a drum was described by Bernal Díaz, conquistador under the service of Cortés: "a most dismal sound indeed it was, like an instrument of demons, as it resounded so that one could hear it two leagues off."[158] Chávez's choice of the bass drum as a modern equivalent can certainly capture the cavernous depths of this massive drum.

Diaz's account of the tlalpanhuehuetl describes its use by Aztec military. The Western bass drum was also used for military purposes. In the 18th century, the Western bass drum "became fashionable in European military bands . . . [in] imitation of the Turkish Janissary bands."[159] The Janissary bands and their use of the bass drum, or *davul*, were likewise affiliated with the military.[160]

Aztec use of the huehuetl for military purpose has also been documented. Diego Duran (c. 1537–1588) recounts when Itzcóatl, Aztec king from 1427–1440, led his men to battle with "a small huehuetl hanging from his shoulder, and the sound of it excited the Mexicans to fight."[161] The specific military use of the very large *tlalpanhuehuetl* by the Aztec can only be assumed from accounts such as those given by Díaz. Likewise, the large and medium sized huehuetls have not been associated by any specific account as given above for small-sized ones, but nonetheless, Chávez specifies Western instruments with military backgrounds. Thus, the further examination of Aztec membranophones will be discussed in light of these specifications.

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[158] Bernal Díaz del Castillo, *Historia verdadera de la Conqvista de la Nueva-España* (Madrid: Imp. del Reyno, 1632). Trans. by Alfred P. Maudslay, *The True History of the Conquest of New Spain* (London: Hakluyt Society, 1912) vol. 4, 142, 149–50, 154.

[159] James Blades, et al. "Drum." *Grove Music Online*. *Oxford Music Online*. 15 Aug. 2008 <http://0-www.oxfordmusiconline.com.wncln.wncln.org:80/subscriber/article/grove/music/51410>.

[160] See Michael Pirker, "Janissary Music." *Grove Music Online*. *Oxford Music Online*. 15 Aug. 2008 <http://0-www.oxfordmusiconline.com.wncln.wncln.org:80/subscriber/article/grove/music/14133>.

[161] Diego Durán, *The Aztecs: The History of the Indies of New Spain*, tr. Doris Hayden and Fernando Horcasitas (New York: Orion Press, 1964), bk. 1, 76.

Large

Chávez suggests a small timpani as a parallel to the large huehuetl. The parallel is both apt and venerable. Reminiscent of Díaz's description of the *tlalpanhuehuetl* is Plutarch's (c. 50–c. 120) of the *tumpanon*, a Parthinian war drum that "made a sound like thunder mixed with the bellowing of beasts."[162] Similar to the construction of the huehuetl, this Greek drum "was made of hollowed out pine or fir with a single mouth covered with oxhide."[163] Another important difference, however, is that the *tumpanon* did not have an open end; its base, rather, was like that of a kettle.

Europe's earliest use of "kettledrums" was also martial. Retaining Greek origins in name, the *tympana* (Latin spelling) were usually played in pairs (*tympanum*) in like fashion to the *naqqära*, from which the instrument finds its Arabic roots.[164] Small *naqqära* were often worn on the sides of the player and used for folk purposes such as dances. Military *naqqára* were, "Large-sized kettledrums, hemispherical or egg-shaped, measuring approximately 60 cm and 50 cm in diameter and played mounted on camel or horse by Muslims (especially the Ottoman Turks) and Mongols, [and] had reached the West by the 15th century . . . [inspiring] the European use of cavalry kettledrums. . .

[162] Paraphrased from Plutarch's *Life of Crassus* by James Blades and Edmund A. Bowles, "Timpani." *Grove Music Online*. *Oxford Music Online*. 15 Aug. 2008 <http://0-www.oxfordmusiconline.com.wncln.wncln.org:80/subscriber/article/grove/music/27985>.
[163] James Blades and Edmund A. Bowles, "Timpani." *Grove Music Online*. *Oxford Music Online*. 15 Aug. 2008 <http://0-www.oxfordmusiconline.com.wncln.wncln.org:80/subscriber/article/grove/music/27985>.
[164] For a history of the Moor's Islamic influence and introduction of Arabic instruments in Spain see Ann Livermore, "Music of Muslim Spain and the Northern Kingdoms," *A Short History of Spanish Music* (New York: Vienna House, 1972), 24–47; and Julian Ribera, "Wide Diffusion of Arabic Music in Moslem Spain," *Music in Ancient Arabia and Spain*, trans and abridged by Eleanor Hague and Marion Leffingwell (New York: Da Capo, 1970).

During the 16th and 17th centuries the timpani evolved from a field instrument . . . to a supplemental instrument in the orchestra."[165]

Orchestral *timpani* (modern English spelling and as indicated in the *Xochipilli* score) have evolved to four standard sizes capable of four specific ranges:

Size: Diameter in Inches	**Range**
32"	$D_3 - A_3$
29"	$B^b_2 - F_3$
26"	$F_1 - C_2$
23"	$D_1 - A_1$

Diagram 3: Timpani Ranges[166]

When referring to a tympanum of any high pitch, Chávez was undoubtedly referring to the standardized orchestral type like in Diagram 3.

Medium

As a Western equivalent to the medium-sized huehuetl, Chávez specifies the tenor drum: "A cylindrical drum with a head about 40 cm in diameter and a depth of 40–50 cm. . . . [It] may be snared or unsnared."[167] As a military drum, it currently serves to 1) facilitate marching as a time-keeper, 2) accentuate important beats of the higher-

[165] Livermore, "Music of Muslim," 24–47.
[166] Mitchell Peters, *Fundamental Method for Timpani* (California: Alfred Publishing, 1993), 14.
[167] Blades, "Drum."

pitched snare drum, or 3) as in Scottish pipe bands, add spectacle through coordinated movements of players' beaters. "Tenor" describes the drum's "subdued tone . . . in comparison to that of the snared side drum [that] has been likened to the contrasting voices of the sergeant-major and the chaplain."[168] The designation of specifically a *tenor* drum, separate from the snare drum, did not emerge until the 19th century.

Prior to the 19th century, the European tenor drum and the snare drum were fundamentally the same drum, historically linked to the medieval *tabor*, "a double-headed drum with one or more snares on the struck head . . . beaten either with two sticks or, by players of the pipe and tabor, with one."[169] It had no definitive form but small and large types were identifiable: "The small tabor continued its function as a folkdance instrument, particularly as a companion of the pipe. The larger drum developed into an important military instrument."[170]

Carlos Chávez most likely chose the tenor drum for its familiarity in the Western Orchestra. Its use is specified in the following works: Handel's *Fireworks Music* (1749), Gluck's *Iphigenie auf Tauris* (1779), Haydn's *Military Symphony* (1794), Beethoven's *Wellington's Victory* (1813), Berlioz's *Grande messe de morts* (1837), Wagner's *Rienzi* (1842) *Lohengrin* (1850), *Die Walküre* (1870), and *Parsifal* (1882), Milhaud's *Suite Provençale* (1936), and the afore-mentioned *Ionisation* (1931) by Edgard Varése, to name but a few. Chávez, however, may have also been influenced by the drum's presence in Mexico.

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[168] Ibid.
[169] Ibid.
[170] Ibid.

Prior to *Xochipilli*, Chávez indicated a "Yaqui Drum" in his highly Western European sounding *Sinfonia india* (1935/36). The requested drum, comparable to the European tenor drum, may be found in Tlaxcala, an area Chávez frequently visited: "From as early as I can remember, from approximately the age of four years, I passed long times each year in the indigenous villages of the Valley of Tlaxcala."[171]

The Tambor Militar of Mexico

J. Arturo Chamorro describes a wooden drum as he observed it in Tlaxcala in 1983 as having two cattle-skinned heads; one side is struck with sticks, and the other vibrates in resonance. The vibration of the secondary head also excites one to three cords of gut or guitar string. These cords give the drum its characteristic timbre.[172] He references Sahagún in claiming that it is a European instrument introduced by the Spanish in the 16th century, played by Spanish military men in combat operations.[173]

Laura Boulton also observed and recorded the playing of the *tambor militar* by Yaqui Indians enlisted by the Mexican army, and stationed in Tlaxcala. She writes:

> The Yaqui, a proud, courageous, resourceful people living on the Yaqui River in Sonora, northern Mexico, were formerly very powerful. When the Spaniards came, the Yaqui fought for their independence. Ever since the arrival of the

[171] Carlos Chávez, "Mexican Music." In Hubert Herring and Hubert Weinstock, *Renascent Mexico*. (New York: Covici-Friede, 1935), 209.
[172] J. Arturo Chamorro, "El Tambor Redoblante," *La música popular en Tlaxcala* (México, D.F.: Premiá Editoria, ed. 1a, 1983), 24–25. My translation from, "El tambor es de doble cuero, cuyo material es cuero de res o de chivo. La caja acústica puede de soga de ixtle y otro material. El entorchado o bordonero se construye rudimentariamente a base de cuerdas de tripa o de guitarra. Puede llevar una, dos, tres o de cuerdas las cuales van pegadas al cuero inferior y vibran en el momento de la ejecución, dando al instrumento el timbre característico."
[173] Ibid., 24. My translation from, "Es un instrumento europeo que entró en México a partir del siglo XVI, según lo refiere Fray Bernardino de Sahagún (1956: 4: p. 66) al mencionar dicho instrumento como tambour militar o de guerra empleado por los españoles en acciones bélicas acompañado al pífano."

> earliest invaders, they have resisted the attempts of land-holders to take their land. Yaqui history, both dramatic and heroic, consists of a long series of wars, for they refused to submit to the political domination of the Mexican government. It is only since the Presidency of Cárdenas (1935) that the policy of the government has been friendly to them. During the long period of persecution many rebels escaped to the Sierras, and some of them crossed into Southern Arizona, where there are approximately 2,500 living in Sonora but practically the whole male population has been enrolled in the Mexican army, and three exclusively Yaqui regiments have been deported to other states in southern Mexico and Yucatán. . . . These recordings were made among the Yaqui at Tlaxcala where a Yaqui regiment was stationed.[174]

The *tambor militar* first appeared in Spain also as an import. In 711AD, the Moors under General Tariq Ibn-Ziyad, conquered most of the Iberian Peninsula. Although Christian Spain reclaimed most of the peninsula by the 14th century, it was not until January 2, 1492 that the last Muslim leader surrendered to a Spanish military united under Ferdinand II of Aragon and Isabella I of Castille.[175] Despite the ousting of Moorish political and religious ideology, their Arabic instruments left a great impression. Important to this discussion is the *tabl* and the *zolami*.

The Arabic *tabl* (Sp. *atabal*), a "double-headed cylindrical drum in the Arab Middle East, including North Africa (especially Egypt, Tunisia, Algeria, Morocco and the Sudan) . . . is central to Islamic musical cultures . . . used in military bands and . . . also played at village ceremonies such as weddings, circumcisions and funerals and on religious occasions."[176] The *tabl* was introduced to Spain by the Moors assuredly no later

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[174] Laura Boulton, "Description of Records (program notes)," *Indian Music of Mexico*, Folkway Records FW8851, 1941, compact disc.

[175] See Richard Fletcher, *Moorish Spain* (New York: H. Holt, 1992)

[176] Michael Parker. "á¹¬abl." *Grove Music Online*. *Oxford Music Online*. 19 Aug. 2008 <http://0-www.oxfordmusiconline.com.wncln.wncln.org:80/subscriber/article/grove/music/27336>.

than the 11th century since, in 1000, it was documented that, in the Moorish court of Al-Qadir, a "minister was allowed to beat a *tabl*."[177]

Almost always accompanying the *tabl* was the *zolami* (Sp. *chirimía*), predecessor of the modern oboe. Comparable to the *davul* and *zurna* of the Turkish Janissary bands, the Moors, like the Turks, utilized the *tabl* and *zolami* for military purpose. Aware of its existence in Spain and Mexico, Carlos Chávez describes the *chirimía*: "a double-reed instrument–probably introduced by the Asturians . . . quickly adopted by the pure natives and incorporated into the rural orchestras."[178]

The Asturians inhabited a small northwestern Iberian kingdom that remained a Christian enclave during the Moorish conquest of the peninsula. They initiated the *Reconquista* that led to the eventual recapture of Iberia as mentioned above. Although resisting Islamic religious domination, the Asturians nonetheless adopted the use of Moorish instruments. Being the first and in closest contact with the Moors, Chávez credits them with the introduction of the chirimía (the Spanish name will be used hereafter) to the rest of Christian Spain and eventually Latin America.

A Franciscan account from 1568 describes the chirimía's use in Spanish churches established in Mexico: "Accompaniment of flutes and chirimias is common. . . . The Indians themselves play . . . these instruments, and their harmonious sounding together is

[177] Livermore, "Music of Muslim," 31.
[178] Chávez, "Mexican Music," 213.

a truly wonderful allurement toward Christianity."[179] One such instance of this Spanish influence on native practices is seen amongst the Zapotec.

The Zapotecs

The Zapotecs are an indigenous group surviving in the present territory of Oaxaca. During the reign of Motecuhzoma Ilhuicamina (1440 – 1469), the Aztec Empire gained control of this area along with many others in a campaign led by the strategist Tlacalel. The extent of this campaign can be seen on the map in Figure 13.[180]

[179] *Nueva coleccíon de documentos para la Historia de México*, bk. 2 (Códice Franciscano), 169; trans. by Stevenson, *Music in the Aztec*, 163.

[180] For an account of the political and military conquests of the Aztec Empire, and from whence the map in Fig. 13 originates, see Eduardo Matos Moctezuma and Felipe Solis Olguín, "Introduction," *Aztecs*, edited by David Breuer, Harry Burden, Carola Krueger, Fiona McHardy, Peter Sawbridge, and Nick Tite (London: Royal Academy Publications, 2002), 12–18.



Figure 13: Map of Mexico and Inclusive Territories of Aztec Influence[181]

Unlike the inhabitants of Tlaxcala, the Zapotecs of Oaxaca embraced Aztec rule. Laura Boulton describes a ceremonial dance exhibiting such loyalty:

> The Zapotecan village of today is very picturesque, especially on its Saint's Day. For this fiesta is where one of the most colorful dances in Mexico takes place. It is the Plume Dance of the Conquest which represents the meeting of Moctezuma, the Aztec king accompanied by his courtiers, and Cortés escorted by his soldiers. Moctezuma and his courtiers wear incredibly beautiful tall headresses of many-colored plumes. In some places this dance is performed at New Year's when, as the Zapotecs believe, Moctezuma himself joins in the dance bestowing health, good crops and all blessings on those who bring him offerings.[182]

[181] *Aztecs*, ed. by David Breuer et. al. (London: Royal Academy Publications, 2002)
[182] Boulton, "Description," notes.

Music for this dance is archived on Boulton's field recording entitled *Fireworks Music*, in which the described Spanish drum is played together with the chirimia.[183] She describes the drum as "a hollowed-out log about two feet long with goat skin membrane, [that] is beaten with two sticks."[184] Of further Spanish influence are "the modern chirimias . . . thought to produce the same notes as the ancient [indigenous] flutes which they have replaced."[185]

Concluding the discussion of the specified middle drum, Chávez's selection of a *tenor drum* as a Western equivalent is primarily representative of European tradition, originating from Arabic influence. However, present indigenous use of the Spanish *tambor militar* in Tlaxcala and especially as observed in the Zapotec *Plume Dance of the Conquest* tie the drum to post-colonial Aztec high art.

Two Small Indian Drums

The existence of small huehuetls has been attested, but in lieu of these drums, Chávez does not indicate a drum associated with the Western Orchestra, but rather, specifies two "Indian" drums. Interpreting "Indian" as pertaining to living traditions in Mexico, the following will explore possible indigenous groups that may have been of influence for Chávez, and to what extent these groups' use of drums is representative of an Aztec musical style.

[183] Ibid., cataloged 96B.
[184] Ibid.
[185] Ibid.

The Otomí

We begin with the Otomí, a group whose area of habitation extends into Tlaxcala and is known to speak a language distinct from Náhuatl, the language of the Aztec.[186] Nonetheless, the Otomí continue to perform a dance chronicled by Spanish observers and whose symbolism is documented in the *Cantares mexicanos*, verifying the Aztec's awareness and domination of these people during the 16th century.



Figure 14: *Los Voladores*[187]

The dance is *Los Voladores* (Fig. 14). Laura Boulton, who has witnessed the dance and recorded its accompanying music, describes:

> The dance called *Los Voladores*, the Fliers, of the Otomí people goes back perhaps to a very early period in Mexican history. In a symbolism centuries old, the performers dance at the top of a pole as tall as a ship's mast, then 'fly' to earth on long unwinding ropes. . . . The fliers are dressed as birds, wearing tall feather headdresses, and represent the sacred birds which guarded the points of the compass. The ceremony is intimately connected with the old calendar,

[186] Gibson, *Tlaxcala*, 2.
[187] Alan R. Emery, available online: http://www.kivu.com/multimedia/mexindians.html

> representing the Indian 'century' or cycle of 52 years which was divided into four groups of thirteen years each. The dances and songs are in groups of four. The four fliers make thirteen years each. The dances and songs are in groups of four. The four fliers make thirteen rounds each while flying to the ground, that is four times thirteen or fifty-two, the number of years in the cycle.[188]

The "old calendar" that Boulton refers is the *tonalpohualli*. Based on the human gestation period, the *tonalpahualli* comprises 260 days. The *xihuitl* is also an "old calendar" that comprises 365 days corresponding with the cycles of the sun (see Xochipilli). Fundamental to both of these calendars is the myth of the cosmic trees.

The Aztec believed that "time, dictated by the gods, was ordered mathematically to flow inside the four pillars at the extremities of the cosmos and over the world through the eastern, northern, western, and southern trees, circulating anti-clockwise. . . . The erection of the cosmic trees marks the beginning of the ordered passage of time, in other words the order of the calendar."[189] The described calendar appears below in Figure 15:

[188] Boulton, "Description," notes.
[189] Austin, "Cosmovision," 33–34.

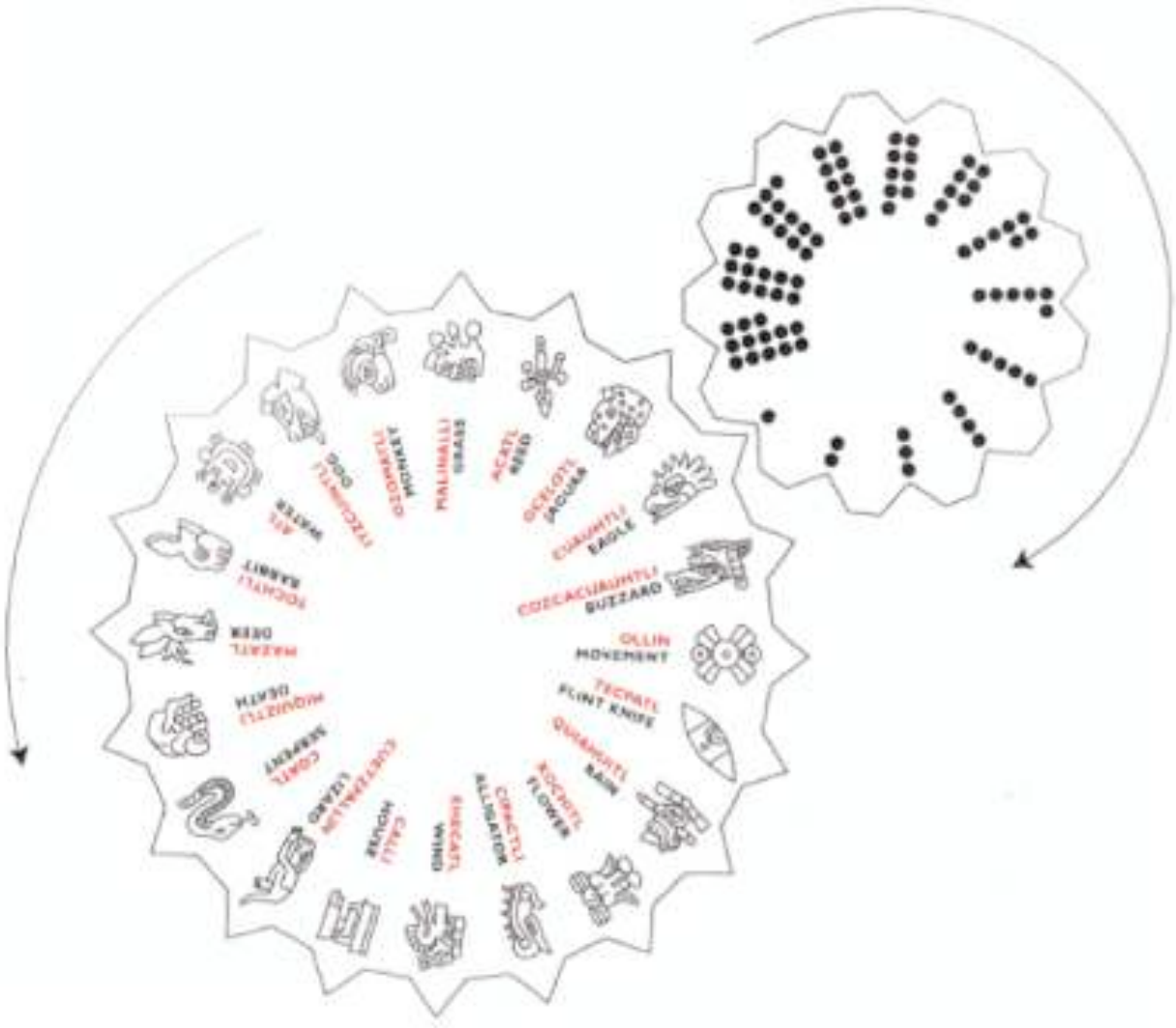


Figure 15: Calendar Sign Rotation[190]

So that the human gestation cycle and the solar cycle would correspond, 20 name-days were created occurring in cycles of 13 revolutions (13 x 20 = 260 days). Four of these name days, Flint, House, Rabbit, and Reed, were designated as pillars representative of the four cosmic trees or directions. Every 365 days, a complete cycle of the *xihuitl*, the first day of one of these pillars would correspond to the renewal of the solar cycle. For instance, 1 Reed corresponds to day one of the *xihuitl*. After 356 days, 1

[190] Ibid.

Rabbit would correspond with day one of the solar calendar. Of course, this 1 Rabbit would be day 105 of the *tonalpohualli* calendar. The simultaneous renewal of both calendars, each beginning on day one of their cycles, occurred only after fifty-two cycles of the solar calendar and seventy-three cycles of the human gestation cycle. The dance of the Otomí reflects this simultaneous renewal.

Undoubtedly, Carlos Chávez was familiar with this still notoriously popular dance in Mexico, both from personal experience and also because of his familiarity with the work of Torquemada. In his *Monarquía indiana*,[191] Torquemada describes the dance in much the same manner as Boulton, above, especially associating it with the Aztec Fire Ceremony occurring every 52 years, as described in the introduction of this paper, and the subject of Chávez's 1921 ballet *El Fuego Nuevo*. In light of these associations, Chávez's specification of an "Indian" drum could refer to that used to accompany the dance *Los Voladores*.

Approximately 70 miles southeast of Mexico City is the city of Puebla where Laura Boulton recorded music for the spectacular flying pole dance of the Otomí. "The music is furnished by an older man who plays a flute and a little drum simultaneously."[192]

[191] Juan de Torquemada, *Monarquía indiana.* 3 vols. (México: Porrúa, 1975. reprint of the 1723 ed.), 2: bk. 10, chpt. 38.
[192] Boulton, "Description," notes.



Figure 16: Simultaneously Playing of Flute and Drum
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Bureau of American Ethnology

The simultaneous playing of more than one instrument by a single player has long been observed amongst the Aztec and various indigenous groups across Mesoamerica. Eduard Seler mentions pictograms from the Aztec Codex Vaticanus of a "player pounding the drum with one hand and shaking the ayacachtli [rattle] with the other."[193] Likewise, such technique has been pictured on a temple mural near the Mayan village of Corozal, British Honduras,[194] and even more specific, in a clay figure of a musician playing simultaneously a flute and a drum predating the Incan Empire of South America.

The technique of playing a flute and drum simultaneously by one player is also observed in Western practices. Played by the Basque of Spain:

> The *txistu* is the original flute that together with the *tun-tun* (small drum) constitute the typical Basque orchestra. Both instruments are played by the same interpreter known as the *txistulari*, forming a one-man band.

[193] Eduard Seler, *Comentarios al Códice Borgia* (México: Fondo de Cultura Económica, 1963) vol. 1, 42; trans. by Stevenson, *Music in the Aztec*, 45.
[194] Thomas Gann, "Mounds in Northern Honduras," *Nineteenth Annual Report of the Bureau of American Ethnology 1897–98,* pt. 2 (Washington: Government Printing Office, 1900), pl. xxxi.

> The txistu has three holes. . . . The small drum hangs from the txistulari's left arm. He holds the drum-stick in his right hand and the flute in his left one.[195]

One of the earliest written accounts of a small drum in Spain, like that of the *tun-tun*, comes from Juan Ruiz. In his *El libro de buen amor* (c. 1343), he identifies the *tamborete*. Being a poet, Ruiz was no doubt referring to the drum's use in folk traditions used to accompany songs and ballads, versus the *atabal* used in Moorish and eventually Spanish courts.

Tamboril has become the general term. As a folkloric instrument, the tamboril was always played by a single player simultaneously with a three-holed notched pipe as an accompaniment to the dance. Such use was widespread in Europe: for example, in England, the *pipe* and *tabor* (colloquially the *whittle* and *dub*) and in Provence, France, the *gamboulet* and *tambour provençal*.

While the simultaneously playing of a drum and flute or pipe is attributable to both Western and Latin American traditions, the symbolism of the dance for which the music accompanies is associated with Aztec and Otomí beliefs.

Symbolism in Los Voladores

As stated, the Aztec dominated the Otomí people and, prior to and at the time of Spanish arrival, were aware and performed *Los Voladores*. Descriptions and illustrations of the dance appear in not only the accounts of Torquemada and Sahagún, but also in

[195] Juan Oñatibia, *The Basques: Songs and Dances of the Basque*, Folkways Records FW 6830, 1954, liner notes from CD.

both the pre-conquest *Códice Fernández Leal* and the post-conquest *El Códice Azcatitlan* (see Figs. 17 and 18).[196]



Figure 17: *Códice Fernández*: pre-Conquest



Figure 18: *Códice Azcatitlan*: post-Conquest

[196] See Antonio Peñafiel, *Códice Fernández Leal* (México: Secretaría de Fomento, 1895), plate 5, and Robert H. Barlow, "El Códice Azcatitlan," *Journal de la Société des Américanistes,* n.s., vol. 38 (1949), plate 27.

As concerns the "centuries old" symbolism, Boulton informs us that "most of the Indians have forgotten the symbolism of their sky dance but the old men remember."[197] Old men indeed:

> Otopame groups [of which the Otomí belong] are living exponents of the oldest culture of central Mexico. Their antiquity is supported by archaeological studies that have unearthed musical instruments from various parts of these territories. . . . During the colonial period, except for some dances whose aspects survive in contemporary indigenous practices, colonialists were more interested in describing warfare than art. Even in modern times, a predominantly mestizo culture's lack of interest in indigenous culture has led to few studies of Otopame culture. Still, [the Otomí] show multiple levels of extant musical traditions.[198]

Since little has been discovered concerning ancient Otomí musical practices, one must rely on corresponding work done concerning the Aztecs, with parallels made based on political unity.

In the *Cantares mexicanos* are verses that seem to describe *Los Voladores*. From Song XXII, folio 18:

> The flower tree stands blossoming at Origin, God's home, the place of tassel plumes. The troupial comes. The turquoise swan, the marvelous, the quetzal, arrives.
>
> All of you are coming in from Nonoalco, the eternal shore, you that are the swans of Life Giver, you that are his creatures. The troupial comes. The turquoise swan, the marvelous, the quetzal, arrives.[199]

Figure 19 below illustrates a *volador* in costume, depicting the described plumed figures:

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[197] Boulton, "Description," notes.

[198] E. Fernando Nava L., "Otopame (Chichimec, Oyomí, and Pame)" *Garland Encyclopedia of Music: South America, Mexico, Central America, and the Caribbean*, ed. Dale E. Olsen and Daniel E. Sheely (New York: Garland Publishing, Inc., 1998), 570.

[199] Ibid., 187



Figure 19: Plumed Flier[200]

Another stanza with a more specific parallel to *Los Voladores*:

> As a parrot, as a swan, I fly along on earth. My heart is wine-drunk.[201]
>
> I'm a quetzal arriving in the Only Spirit's place of rain, beautifully singing above the flowers. I utter songs, and my hearts rejoice.[202]

The verse harks to the end of a performance of *Los Voladores* when the musician who stands atop the pole as the four present day voladores descend, until his final song "which the musician actually plays while flying to the earth. He dives off into the air, throwing himself head downward in order to catch the rope with his feet."[203]

While these two examples are clearly glossed with Spanish influence, "God's home" and "the Only Spirit's," they nonetheless originate from the Otomi. Folio 6, from which these stanzas come, is introduced: "Old songs of the Otomí Indians, which they used to sing at feasts and marriages, translated into the Mexican language, and

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[200] Available online: http://www.earthdancer.org/TradeDays/flyers.html

[201] Bierhorst suggests "a figurative drunkeness, perhaps induced by the narcotic power of music" (Ibid., 29), however, Boulton gives account of dancers usually drinking "a considerable amount of *tequila* beforehand in order to be bold enough to begin." - Boulton, "Description," notes.

[202] Song XLVI, Canto C from folio 29, translated by John Bierhorst, *Cantares Mexicanos: Songs of the Aztecs* (Stanford: Stanford University Press, 1985), 227.

[203] Boulton, "Description," notes.

metaphorical images that they used to utter always capturing the substance and soul of song."[204]

John Bierhorst believes the metaphorical images are symbolic of ghost warriors, and the songs are sung in order to summon them. He describes the symbolism while alluding to *Los Voladores*:

> A musical performance in which warrior-singers summon the ghosts of ancestors in order to swell their ranks and overwhelm their enemies. In the more elaborate examples, the full ritual seems to have assumed the proportions of a mock battle, where singing, dancing, and drumming were equated with martial deeds. In response to the music, ghost warriors from paradise, led by ancestor kings, supposedly came "scattering," "raining," "flying," or "whirling" to earth in the form of flowers or birds, reminiscent of the well-known volador, or "flier" dance, still being reported from various parts of Mexico and Guatemala.[205]

While Bierhorst's military implications are debatable, the comparison of collected songs and the ritual symbolism of los volador is soundly justifiable. *Los Voladores* is truly representative of indigenous Mexico, both currently and in antiquity. Its descriptions in Aztec and Spanish codices also link it to the Aztec.

So, in choosing an "Indian" drum for Chávez's composition, the accompanying drum for *Los Voladores* would represent a convergence of both the traditional or *maceualli*, particularly because of "the sky dance's" associated calendrical symbolism, and of Aztec high art for its representation in the *Cantares mexicanos*, in addition to mendicant observations (Fig.18). The construction of the drum as observed by Boulton additionally converges Spanish influence.

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[204] Bierhorst, *Cantares*, 9. Trans. by Bierhorst from original Nahúatl, Ibid., 148.
[205] Ibid., 3–4.

A Yaqui Indigenous Drum

The use of the Spanish *tambor militar* by the Yaqui has been attested, but such outside influence is most definitely an anomaly among Yaqui tendencies. Evelyn Hu-DeHart says of the Yaqui of both today and historically:

> Four centuries of contact and warfare with the yori or white man had not forcefully assimilated or decimated a proud people bent on survival. Thirty thousand strong at the time of the Spanish conquest in the early sixteenth century, an estimated 15,000 still existed [shortly after the conquest], the bulk of them in the vicinity of the Yaqui River, their traditional homeland in Southern Sonora, Mexico.[206]

> The Yaquis stand out for having waged the most determined, enduring, and successful war against involuntary absorption into the dominant culture or integration with the larger society. In response to the persistent outside pressures to transform themselves irreversibly and on alien terms, they have held tenaciously to their land, community, and culture, guarantees of their autonomy.[207]

According to Hu-DeHart, the Yaqui were not only resistant to Spanish, but also the Aztec. Chávez believed that such a resistant group best represents Mexican music:

> The Indian music best preserving its purity is not what remains of Aztec culture, but that of more or less primitive or nomad tribes which never, properly speaking, achieved a culture. Such are the Yaquis, the Series, and the Huicholes.[208]

Far from Aztec urban centers, Yaqui culture remained distinct. Resistant also to Spanish influence, the Yaqui preserved traditional dances and music that are considered

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[206] Evelyn Hu-DeHart, Missionaries, Miners, and Indians: Spanish Conquest with the Yaqui Nation of Northwestern New Spain 1533–1820 (Tuscon: University of Arizona Press. 1981), 1.
[207] Ibid., 3.
[208] Chávez, Mexican Music, 10.

representative of pre-Conquest, Mexican indigenous music. Chávez recalls observing one of these preserved traditions:

> I remember as a most memorable experience the dance of the deer among the Yaqui Indians of the State of Sonora in Mexico. The Yaquis could not be subdued and remained for centuries in a seminomadic state, completely isolated from Western civilization, living by hunting and primitive agriculture. For the purpose of incantation, in order to seize and dominate the deer, the Yaquis developed one of the most remarkable 'dancer's imitations' I have ever known, reproducing the attitudes, movements, and rhythms of this remarkably beautiful animal.[209]

> [Such] indigenous music of today is a direct continuation of pre-Cortesian music. In many cases, in certain regions of Mexico, we can find that earlier music still intact. This is what confirms and gives validity to the insights we can gain by other means. Indigenous music is a present-day reality; its esthetic and expressive value is forceful and original, and the social role it consequently plays is irreplaceable.[210]

Thus, we can deduce that a discussion of the Yaqui Deer Dance is 1) a possible source from which Chávez drew indigenous influence for *Xochipilli*, and 2) an example of pre-Conquest music, albeit non-Aztec.

Water Gourd Drum of the Yaqui Deer Dance

Of the four instruments (not including voice) comprising the deer dance ensemble, the water gourd drum, or *va kuvahe*, is perhaps the most distinctively "Yaqui." A gourd cut in half, the larger half is set on the ground, bowl up and filled with water. The smaller half is placed bowl down in the water and is struck with two small sticks wound with straw or cornhusks.

[209] Chávez, Musical Thought, 42.
[210] Chávez, *Renascent Mexico*, 208–209.

Boulton suggests the sticks were called "serpents" and that according to one author, that she fails to cite, believes "that the water drum may have been connected with some kind of rain ceremony in ancient times."[211] Such ceremonies occurred amongst the Toltec and Aztec for their ancient rain god Tlaloc, but according to the Yaqui, their current use is only symbolic of the deer traveling to a body of water to drink.[212]

In that Chávez was aware of the Deer Dance, the choice of its accompanying water gourd drum as the indicated very small "Indian" drum in *Xochipilli* would be representative of pre-Conquest , indigenous or *maceualli* music, and most certainly not an example of Aztec high art. Representative of Aztec high art, then, would be the Spanish *tamboril* as currently used by the Otomi in the performance of *Los Voladores*, and ironically so as an influence of the Spanish military.

Thus concludes the current discussion of membranophones. The use of various sized huehuetls would be most representative of Aztec music. Chávez's indication of "two very small Indian drums" and his indicated Western equivalents, however, gives the performer some choice. From the above discussion, representative indigenous drums may be chosen from the Zapotec *Fireworks Music* or the Otomi *Los Voladores*, both dances symbolically sharing with Aztec beliefs but whose instrumentation is strongly connected with Spanish military influence. The Yaqui offer both the Spanish imported *tambor militar* and the indigenous *va kuvahe* of the Deer Dance. Regardless of the chosen instrument, Chávez's indications are representative of either Aztec high art (huehuetl),

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[211] Boulton, "Description," notes.

[212] Muriel Thayer Painter, *With Good Heart: Yaqui Beliefs and Ceremonies in Pascua Village*, ed. Edward H. Spicer and Wilma Kaemlein (Tucson: University of Arizona Press, 1986), 286.

Aztec *maceualli* (Indian drums), or Spanish influenced drums adopted by the Mexican people (snare drum and tenor drum).

Scraper

A scraper is "an idiophone with a corrugated surface that is scraped by a non-sonorous object."[213] Hornbostel and Sachs classify scrapers in the following groups:

1. Scraped Sticks
2. Scraped Tubes
3. Scraped Vessels
4. Scraped Wheels

In the score of *Xochipilli*, Chávez specifies instruments from two of these groups, scraped sticks and vessels.

A scraped vessel is "made by cutting or burning a row of notches on a gourd."[214] Of this form of scraper, Chávez specifies the *güiro,* most likely because of its popularity in the Western orchestra.[215] The *guiro*, however, is representative of the Caribbean, Panama, and South America, but not Mexico.[216] Chávez suggests the rasping stick as an alternative, and indeed lists it prior to the guiro in the score.

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[213] *Grove Music Online*. *Oxford Music Online*. 17 Aug. 2008 <http://0-www.oxfordmusiconline.com.wncln.wncln.org:80/subscriber/article/grove/music/25265?q=scraper&search=quick&pos=1&_start=1#firsthit>

[214] Ibid.

[215] For instance, Igor Stravinsky indicates it in his score of *The Rite of Spring*.

[216] John M. Schechter, et al. "Güiro." *Grove Music Online*. *Oxford Music Online*. 18 Aug. 2008 <http://0-www.oxfordmusiconline.com.wncln.wncln.org:80/subscriber/article/grove/music/12008>.

Rasping Stick

As a verb, *rasp* means to rub together, and thus, a rasping stick belongs to the group of Scraped Sticks. Muriel Thayer Painter describes its use in the afore described deer dance of the Yaqui:

> The rasping sticks are called *hirukiam*, or, in poetic usage, *hilukiam* (from *hiruki*, to scrape). They may also, in deer songs, be referred to as flower rasp. . . . The singer holds one end of the notched stick in his left hand between thumb and fingers. The other end rests on a half-gourd resonator (*beuha*), which stands inverted on the ground in front of him. In his right hand he holds the smaller stick between thumb and fingers. With an easy, even, and swift motion of the wrist, he moves it back and forth over the notches of the larger piece. The intervals between the teeth of the rasps of the two singers are the same. They move in unison. It is said the sound of the rasps imitates the sound of antlers against the brush.[217]

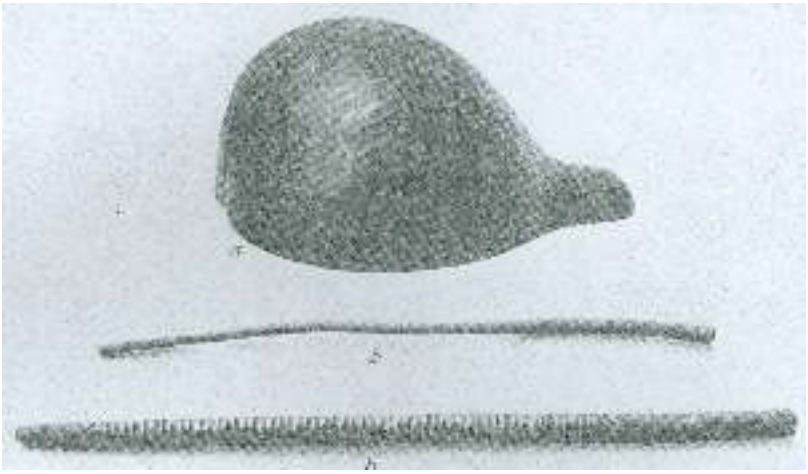


Figure 20: Rasping Stick of the Yaqui
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[217] Painter, *With Good Heart*, 285–86.

As with the water gourd drum, Chávez would have been familiar with the rasping stick of the Yaqui and was most likely influenced by its use in the deer dance. Thus, a rasping stick of this sort would be representative of *maceualli* music.

Among the specified Aztec instruments of his score, Chávez indicates that the rasping stick part can be performed upon the *omichicahuatzli*. Hernando Alvarado Tezozomoc, grandson of Moctezuma II, provides one of the earliest accounts of the *omichicahuatzli*: "Youths [scraping] dried, striated deer bones. Using a smaller bone piece for scraper, they made very 'doleful' music."[218] Diego Durán also describes the *omichicahuatzli* as "bones with small teeth cut into them like ladder rungs."[219] The occasions from which both authors make their observations are funeral rites.

Also originally believed to be an account of the *omichicahuatzli's* use in a funeral is an image (Fig. 21) contained in the Codex Vindobonensis Mexicanus 1, "dispatched from Villa Rica July 10, 1519, as one of Corte's earliest gifts to Charles V."[220] The codex is a collection of pre-Colonial pictograms that chronicles the activities of mythological beings. One such pictogram depicts Quetzalcóatl seen resting a notched femur on an Aztec symbol of death, a human skull.

[218] Hernando Alvarado Tezozomoc, *Crónica Mexicana* [ca. 1598] (México: Editorial Leyenda, 1944), 382–383, 389, 406; trans. by Stevenson, *Music in the Aztec,* 57.
[219] Diego Durán, *Historia de las Indias de Nueva-España* (México: Imp. de J.M. Andrade y F. Escalante, 1867–1880), bk. 1, 155.
[220] Stevenson, *Music in the Aztec,* 58–59.



Figure 21: Quetzalcóatl with Omichicahuatzli[221]

Jill Furst alternatively interprets the image as belonging to a collection of images depicting "a ritual that may represent the divine establishment, in primordial times, of the ritual consumption of hallucinogenic mushrooms for divination and supernatural communication."[222] She continues:

> 7 Flower sits on a jaguar dais, weeping and holding in his right hand a pair of mushrooms shown in profile [see Fig. 22]. He faces 9 Wind who plays a bone rasp with both hands and uses a human skull as a resonator.[223] 9 Wind sings or chants during the ceremony. Seven other deities attend and participate in the ritual consumption of mushrooms.

> That the focus of the mushroom rite seems to be on the weeping 7 Flower is interesting, inasmuch as this god is clearly connected . . . with psychoactive or stimulating substances . . . and resembles the Central Mexican god Xochipilli. . . . The Central Mexican Xochipilli . . . has been proposed by Wasson [see Xochipilli] as the god of some of the sacred hallucinogens of the Aztecs, on the basis of floral representations carved on his famous statue in the Museo Nacional de Antopología in Mexico City.[224]

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[221] Facsimile contained in Otto Adelhofer, *Codex Vindobonensis Mexicanus I*, recto 24 (Graz: Akademische Druck-u. Verlagsanstalt, 1963).
[222] Jill Leslie Furst, *Codex Vindobonensis Mexicanus I: A Commentary* (Albany, New York: Institute for Mesoamerican Studies, 1978), 197.
[223] 9 Wind corresponds to the calendar deity Ehecatl representing "Quetzalcóatl in his aspect as god of wind." See Mary Miller and Karl Taube, "Ehecatl," *An Illustrated Dictionary of the Gods and Symbols of Ancient Mexico and the Maya* (London: Thames and Hudson, 1993), 84–85.
[224] Furst, *Codex*, 204.



Figure 22: 7 Flower[225]

Chávez's general indication of rasping stick, like that of "Indian" drum, allows for several interpretations allowing for a broader representation of indigenous Mexico. A choice of the *hirukiam*, a rasping stick used by the Yaqui that Chávez was aware, would be representative of *maceualli* music. Accepting Furst's interpretation in addition to its accounts in Spanish chronicles, the choice of an *omichicahuatzli*, a rasping stick as named in Náhuatl, the language of the Aztec, would be representative of Aztec high art. The use of a *guiro*, however, would simply be one of convenience.

Rattles

"A shaken idiophone in a variety of forms and with numerous names,"[226] the rattle is found worldwide, South American *maracas*, the Egyptian *sistrum*, and the bamboo *anklung* of Java to name but a few. Rattles in Mexico appear as early as 790AD, painted on the walls of a temple in Bonampak (see Fig. 23). Stevenson claims that the

[225] Otto Adelhofer. *Codex Vindobonensis Mexicanus I* (Graz: Akademische Druck- u. Verlagsanstalt, 1963).
[226] James Blades and John M. Schechter. "Rattle." *Grove Music Online*. *Oxford Music Online*. 20 Aug. 2008 <http://0-www.oxfordmusiconline.com.wncln.wncln.org:80/subscriber/article/grove/music/22939>.

instrument's appearance on the Bonampak murals attests that the "Aztecs at the time of Cortés's arrival continued using essentially the same instruments in vogue eight centuries earlier."[227] Widespread use of the instrument is undeniable, and unites indigenous tribes across Mesoamerica.



Figure 23: Musicians on Bonampak Murals[228]

As to the Aztec's use of the rattle, we turn to Sahagún who wrote that they "were fine singers and while dancing or singing played drums and shook rattle sticks called ayacachtli."[229] Sahagún's drawings of such observations in his *Florentine Codex* also appear in the program notes to *Xochipilli*.[230] The Náhuatl rattles called *ayacachtli* are described as "small rattles, made of gilded gourds with pebbles inside that they shake to the beat of the music, adding gracefulness to the dance."[231] Such a description adheres to

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[227] Stevenson, Music in the Aztec, 1.
[228] Photo taken by Jacob Rus © 2004. Used by permission according to Creative Commons Attribution Share Alike: http://en.wikipedia.org/wiki/File:Bonampak_painting.jpg [Accessed 10/15/09]
[229] Bernardino de Sahagún, *Historia General de las Cosas de Nueva España*, ed. Ángel M. Garibay K. (México: Editorial Porrúa, 1956), vol 3, 188.
[230] See Herbert Weinstock, "I. Xochipili–Macuilxochitl," *Mexican Music: Notes by Herbert Weinstock for Concerts Arranged by Carlos Chávez* (New York: William E. Rudge's Sons, 1940), 13.
[231] Andrés Pérez de Ribas, *Historia de los Triunfos de Nuestra Santa Fe Entre Gentes Máas Bárbáras* (Madrid: Alonso de Paredes, 1645), 326

Chávez's request of "pasteboard rattles," and thus, a choice of such rattles would be representative of Aztec high art.

Gourd rattles are also, however, representative of the *maceualli*. Again we turn to the Yaqui deer dance:

> The dancer manipulates two gourd rattles, one in each hand. These are called *ayam*. . . . Each dancer has his own variations in shaking the rattles, some in very complicated rhythms. The head dancer in Pascua revolves his right rattle in a circular motion of the wrist, clockwise, and he shakes the left one up and down. He is expert and precise, and, if the light falls on his rattles, one may see a small circle of light revolving on the right rattle and a vertical bright line on the left.[232]

Also among the Yaqui are rattles they call *tenabari* made from the cocoons of the large silk moth. Dancers tie strings of *teneboim* (pl.) around their ankles. Carlos Chávez specifies the *tenabari* in his previous work, *Sinfonia india* (1935/36), which leaves one to believe that these cocoon rattles are also a reasonable choice, representative of current indigenous practices.

A rattle made of clay is the *cacalachtli*, so named in Náhuatl. Molina defines the term "clay jingle," and *cacalaca* as a "clay receptacle with small stony pellets inside."[233] José Alcina Franch discusses at length various examples of these receptacles, particularly as vases with hollowed tripod legs containing pellets that jingle when moved. Franch claims that such items were used ritualistically by the Aztec.[234] Chávez's indication of clay rattles thus allies with Aztec use, and especially with the *cacalaca*.

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[232] Painter, *With Good Heart*, 284.

[233] Molina, *Vocabularia en lengua Mexicana* (1571, fol. 10v)

[234] José Alcina Franch, "Sonajas rituales en la cerámica mejicana," *Revisita de Indías*, 13, no. 54 (Oct.–Dec., 1953) : 527–538.

Like "Indian drums," Chávez's indication of "rattles" allows for a number of choices. As concerns the use for a performance, an instruments whose construction matches that of specified materials is acceptable. For pasteboard, a rattle of gourd would match most to the described *ayacachtli* of Aztec high art and the *ayam* of the Yaqui, therefore also representative of the maceualli. A rattle of wood, such as a maraca, would also be acceptable and more readily available, although less sonically equivalent to the previous mentioned. The maraca would, however, be sonically comparable to the *tenabari* of the Yaqui, and thus representative of maceualli.

Rattles of clay are much less common than those of gourd, wood, or pasteboard. Such an acquired instruments, however, no matter its geographic origins, would sonically match the cacalaca, as described by Molina and Franch.

Bells

Stevenson proclaims that Aztec dancers also wore rattles "strung together and worn as . . . necklaces, bracelets, and anklets."[235] For such rattles he applies the Náhuatl name *coyolli*, "jingles . . . made of various substances–clay, nutshells, dried fruit, as well as gold and copper."[236] *Coyolli*, however, translates "jingle bells."[237] Since material such as dried fruit does not jingle, a more detailed examination of Aztec bells is necessary. This includes both bells worn on the body and those that are not.

[235] Stevenson, *Music in the Aztec*, 41.
[236] Ibid., 40.
[237] Frances Karttunen, *An Analytical Dictionary of Náhuatl* (Austin: University of Texas Press, 1983), 43. See also John Bierhorst, *A Náhuatl-English Dictionary* (Stanford: Stanford University Press, 1985), 93.

Coyolli

In reference to *coyolli*, Stevenson alludes to the Aztec goddess Coyolxauhqui (Fig. 24) who "wears on her cheeks the jingles that give her the name 'painted with bells.'"[238]



Figure 24: Mask of Coyolxauhqui [239]
ca. 1487

Coyolxauhqui and her brothers, Centzonhuitznáhuac, the stars, were defeated by their younger brother, Huitzilopochtli, an incarnation of the sun. Alfonso Caso tells the legend:

> According to legend, Coatlicue, the old goddess of the earth, has become a priestess in the temple, living a life of chastity after giving birth to the moon and the stars. One day while sweeping, she found a ball of down which she tucked away in her waist-band. When she finished her tasks, she looked for the ball of feathers, but it had disappeared. Then she suddenly realized she was pregnant. When her children, the moon, Coyolxauhqui, and the stars, Centzonhuitznáhuac, discovered this, they became so furious that they determined to kill their mother.

[238] Stevenson, *Music in the Aztec*, 41.
[239] Manuel Aguilar-Moreno, *Handbook to Life in the Aztec World* (New York: Oxford University, 2006).

> Coatlicue wept over her approaching death as the moon and the stars armed to kill her, but the prodigy in her womb spoke to her and consoled her, saying that when the time came, he would defend her against all.
>
> Just as her enemies came to slay the mother, Huitzilopochtli was born, and with the aid of the serpent of fire, the sun's ray, he cut off Coyolxauqui's head and put the Centzonhuitznáhuac to flight.
>
> So it was that when the god was born he had to open combat with his brothers, the stars, and his sister, the moon; and armed with the serpent of fire, he puts them to flight every day.[240]

While *coyolli* such as those pictured on the necklace in Figure 25 could be used in performing *Xochipilli* and therefore representative of Aztec high art, Eduardo Matos Moctezuma informs us that such rattles "played an important role in Aztec ritual as components of the dress worn by priests and warriors."[241] Whether *coyolli* were strictly ornamental, worn also by dancers as musical instruments, or played specifically as a musical instrument is not known.

[240] Alfonso Caso, *The Aztecs: People of the Sun.* trans. Lowell Dunham (Norman: University of Oklahoma Press, 1958), 12–13. Original source, *El Pueblo del Sol (*Mexico: Fondo de Cultura Económica, 1954).
[241] Eduardo Matos Moctezuma, "Catalogue," in *Aztecs*, edited by David Breuer, Harry Burden, Carola Krueger, Fiona McHardy, Peter Sawbridge, and Nick Tite (London: Royal Academy Publications, 2002), 470.



Figure 25: Necklace with *Coyolli*,
c. 1325–1521
Museo del Templo Mayor
Mexico City, CONACULTA-INAH, 10–252891
Reprinted by permission, *Aztecs,* p317, #282
Photograph by Michel Zabé

Regardless of the *coyolli*'s use by the Aztec, Chávez makes no indication of its use as a bell, but rather specifies a hawksbell. Before discussing specifically the hawksbell, let us define "bell," and identify such bells as existent in Aztec archaeological specimens.

Using Jeremy Montagu's definition: "All bells have a device at the apex for attachment. . . . Bells can be hollowed from wood or made from glass or ceramics, but most are cast or forged from metal. They come in many varieties of two basic forms: the cup or 'open' bell, and the hollow sphere or crotal."[242] The *coyolli* as appearing on the face of Coyolxaqui (Fig. 24) and on the necklace (Fig. 25) belong to the crotal type that

[242] Jeremy Montagu "Bell." In *The Oxford Companion to Music*, edited by Alison Latham. *Oxford Music Online*, http://0-www.oxfordmusiconline.com.wncln.wncln.org:80/subscriber/article/opr/t114/e710 (accessed September 27, 2008).

"usually contain one or more loose pellets, which bounce freely against the inside as the crotal is agitated."[243] Other examples of this type appear in Figures 26 and 27 below.



Figure 26: Pendant Bell
ca.1500, Aztec
The State Hermitage Museum, St. Petersburg
DM 321
Reprinted by permission, *Aztecs,* #183
© 2002 The State Hermitage Museum

Maria Dandamayeva writes of the above specimen:

> This pendant bell is shaped like a warrior in eagle attire. . . . Representations of warriors in eagle attire were quite common in Aztec art, but the present ornament seems to be unique. It is believed to have been worn by a prominent member of the order of eagle warriors, which consisted of representations of aristocratic Aztec families. . . . A copper pellet inside it rattles at every movement.[244]

Found in Oaxaca is the specimen in Figure 27 below. Felipe Solis and Roberto Velasco Alonso inform us that "probably after 1000, metallurgy reached southern and central Mexico as a result of contact with the Isthmus of Central America."[245] Sahagún gives

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[243] Ibid.
[244] Maria Dandamayeva, "Catalogue," in *Aztecs*, ed. by David Breuer, et. al., (London: Royal Academy Publications, 2002), 444–445.
[245] Solis, "Catalogue," 444.

testament from one of his Náhuatl informants that specimens such as these were the norm for royal dances,[246] but due to Spanish avarice, most evidence of this has been turned to coin.[247]



Figure 27: Bell
ca.1500, Mixtec
Museo de las Culturas de Oaxaca, Mexico City
Conaculta-Inah, 10–105430
Reprinted by permission, *Aztecs,* p249, #182
Photograph by Michel Zabé

Open ended bells "are sounded either by a clapper suspended inside the bell from the apex or from the outside by a hammer."[248] Molina mentions the *tetziláctl*, "an instrument made of copper, which was beaten at the dance; nothing exact is known concerning its form."[249] Alva Ixtlilxóchitl provides the only verifiable description of the *tetziláctl*, "a concave sheet of metal struck with a metal hammer and sounding very much like a bell."[250] Archaeological specimens as described by Ixtlilxóchitl were discovered at

[246] Bernardino de Sahagún, *Florentine Codex: General History of the Things of New Spain,* Books 1–5, 7–12; trans. Arthur J. O. Anderson and Charles E. Dibble (Santa Fe: School of American Research, 1950–1963), bk. 8, 28.
[247] Sahagún, *Historia*, vol. 2, 298–299.
[248] Montagu, "Bell."
[249] Alonso de Molina, *Vocabulario en lengua castellana y mexicana* (México: Antonio de Espinosa,1571) fol. III. Translated by Eduard Seler, "Altmexicanischen Knochenrasseln," *Globus* 74, no. 6 (Aug. 6, 1898): 86. English translation provided by Stevenson, *Music in the Aztec*, 79.
[250] Fernando de Alva Ixtlilxóchitl, *Obras históricas* bk. 2 (México: Editoria Nacional, 1952), 228

a principle temple in Tenochtitlán on December 13, 1900. Coincidentally, the specimens were believed to be offerings to a 40 inch vermilion statue of Macuilxóchitl.[251] Had Chávez wanted to honor Xochipilli, bells such as these would be an appropriate choice.

But did Chávez have a true and ancient Aztec bell in mind? What he specifies in the score of *Xochipilli* is the use of hawksbells. An early account concerning the hawksbell comes from a Spanish chronicle as documented by María Luisa Muñiz. It was known that the Arawak Indians, whom Christopher Columbus first met in the New World in what is now Puerto Rico, traded provisions and cotton for glass beads and hawksbells.[252]

Additionally, metallurgy was known to have "arrived late in Mesoamerica." Continues Stevenson, "The Mayas lacked metal at the time the Bonampak murals were painted (eighth century), nor did they know it except as an import later."[253] These imports were from Tabasco, Honduras, and Nicaragua, all nations that would have received contact with the Spanish prior to the Yucatan.

Further affirmation of the hawksbell's Spanish origins is its use as currency. Just as Puerto Ricans were using bells as trade with the Spanish, so too were they doing it amongst themselves, as observed by Juan de Grijalva in 1518: "The money which they used was little bells of copper."[254] Thus, the "hawksbell" as termed by Chávez is not indigenous at all, but a Spanish import.

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[251] Eduar Seler, *Gesammelte Abhandlugen,* bk. 2 (Berlin: A. Asher, Behrend, 1904), 890.
[252] María Luisa Muñiz, "Music in Puerto Rico" (Ph.D. diss., Columbia University, 1958), 1–2.
[253] Series of paintings discovered on the walls of the eighth-century temple at Bonampak in the Chiapas jungle. See Fig. 21 above and Robert Stevenson, *Music in the Aztec*, 74.
[254] Juan de Grijalva, *Cronica dela Orden de N. P. S. Augustin en las prouinciaas dela nueva españa. En quatro edades desde el año de .1533 haste el de .1592.* (México: Juan Ruyz, 1624).

Like the rattle, bells are widespread and in various forms. The selection of a bell matching that of the above described would be acceptable. Bells chosen that are similar to the hawksbell would of course be representative of a Spanish import, and bells chosen similar to the design of the coyolli would be more accurately representative of Aztec music.

Thus concludes the portion of analysis that relies on tangible evidence. While archaeological specimens give validity to Chávez's choice of pentatonic scales, instrumentation, and orchestration, some ambiguity remains concerning attributes to an "Aztec" musical style. Already, a reliance on living traditions gives more insight into indigenous influences, especially concerning "generalized" terms used by Chávez, such as "rattles" and "Indian" drums.

Chapter 3

***Xochipilli*: An Analysis**

The previous archaeomusicological investigation represents tangible evidence in the analysis of Chávez's *Xochipilli*. The forthcoming melodic and rhythmic analysis originates from plausible theory. Many comparisons of Chávez's composition will be compared to documented examples of living indigenous traditions from Mexico that will in turn decide to what extent Chávez's music is representative of either Aztec high art or indigenous or *maceualli* music.

The analysis will be divided into 1) melodic elements, including a look at music performed by the piccolo, flute, clarinet, and portions of the teponaztli, and 2) rhythmic elements, including all percussion instruments, including at times, the teponaztli. We begin with music of a melodic content.

Melodic Content

Chávez stated, "There are no melodies . . . that can be considered authentically pre-Cortesian."[255] His only clues to the origins of *Xochipilli*'s melodic content are indistinct:

> Many times during my childhood, I heard in the country Indian ensembles deeply rooted in their traditions – something that is now lost – and which, since then, made it possible for me to delve in the aesthetics of those cultures; sobriety, conciseness, purity, and vigour.[256]

[255] Chávez, *Xochipilli*, preface.
[256] Ibid.

Thus, a comparison of melodies from the several indigenous groups with whom Chávez had contact will be investigated. Furthermore, Chávez stated, "*Xochipilli* is a three part piece,"[257] therefore, the examination will be organized according to this division.

Part 1: mm. 1– 83

Part 1 (mm. 1–83) will be divided into three subsections: mm. 1–30, mm. 31–60, and mm. 61–83. These divisions are made according to texture/introduction of instruments, material repetitions, and utilized pentatonic scales. Following the analysis of those measures will also be a discussion of Chávez's use of pentatonic scales and overall harmonic design.

Introduction of an Indian Theme: mm. 1 –30

A piccolo solo with minimal percussion accompaniment begins *Xochipilli*. The choice of piccolo and its "very shrill" sound is analogous to the *tlapitzalli* as explained in the previous chapter.[258] While the sonority of the instrument is analogous to Aztec musical practices, what of the melodic material it presents?

Chávez surmised that Aztec music was composed of "a continuous melodic line more or less varied . . . based on the repetition of simple musical phrases,"[259] and thus constructs the opening passage in mm. 1–30 according these guidelines. Chávez qualifies:

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[257] Ibid.
[258] See A Flute Exemplar.
[259] Chávez, *Xochipilli*, preface.

> Some melodies that give us the impression of ancient survival lead us to believe that the basis of their musical construction was a *theme* as we now understand it: a musical idea properly speaking of four, six, or eight bars. This theme was probably repeated incessantly or was alternated with another. It would not be too hypothetical to suppose that in dance music the theme went through different variations as it was repeated.[260]

Chávez's description of theme aids in compartmentalizing the continuity of the melodic line, thereby allowing one to identify its structure. Guided by his concept of a musical idea comprising of four, six, or eight bars, the following will serve as an identifiable theme:



Figure 1: Piccolo, mm. 1–7

In addition to its length, albeit seven bars (an option not included by Chávez), the above is identifiable as a theme because 1) following in measure eight is an eighth note rest, the first rest since measure one, and 2) measure eight is identical to measure one, thereby marking a reiteration and allying with Chávez's concept of repetition. Furthermore, the percussion accompaniment beginning in measure five, presents two rhythmic statements (see Rhythm below), concluding on an agogically accented quarter note on the downbeat of measure eight.

Detailing the construction of this theme reveals the repetition of a motive, highlighted in the following diagram:



Figure 2: Motive

[260] Ibid.

This motive is what Chávez referred as a "small melodic pattern," an element of what he called magic song.[261] "Magic song," Chávez explains, "obeys the basic principles of imitation and repetition, imitation as being understood as a way of likeness acting upon likeness. . . . [It] proceeds by small melodic patterns constantly reiterated."[262] In other words, the motives are reiterated exactly while associative material is diverse. Roberto García Morillo similarly describes the construction of Chávez's themes as "a series of alternating repetitions of the same motives, presented in diverse ways."[263]

David McAllester considers the repetition of motivic material with "variations" as "a prominent feature in most North American Indian music,"[264] and it is from the songs of these living traditions that this surmised Aztec musical characteristic must be affirmed. The following excerpt of the Yaqui song "The Quail in the Bush," transcribed by Frances Densmore, is constructed using the same technique utilized by Chávez. Bracketed are repetitions of identical material, or an identifiable motive with variant material occurring between reiterations.

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[261] Chávez writes of magic: "We can understand magic as a body of practices by means of which man expects to impose his will. . . . Religious man addresses an omnipotent being, imploring blessing or mercy; the magic man does not pray but commands. . . . Magic has definite rules and principles, and its rites can be either manual–tracing geometric figures, making images or knots, mixing or burning diverse substances–or oral, mainly in song. Song or chant is the essential of the rite, and manual rites are incomplete without it." *Musical Thought*, 41–42.

[262] Ibid., 42, 45.

[263] As trans. by Ruben O. Gonzalez, "Carlos Chávez's *Concerto for Piano with Orchestra*: A Spiritual Fusion of the Ancient and the Modern," DMA diss., University of Cincinnati, Cincinnati, 1993), 35, from the original Roberto García Morillo, *Carlos Chávez: Vida y Obras,* (México: Fondo de Cultura Económica, 1960), 195–196.

[264] Jeff Todd Titon, ed., *Worlds of Music*, 5th ed., "North America/Native America," by David P. McAllester (Belmont, California: Schirmer Cengage Learning, 2009), 41.
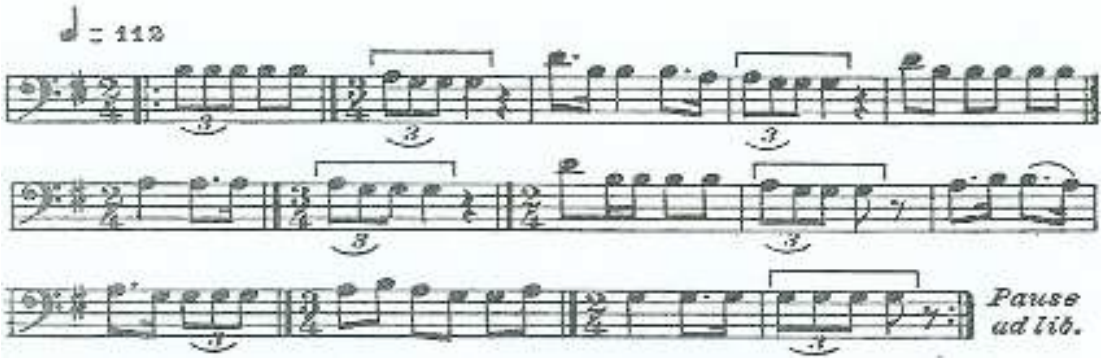


Figure 3: "The Quail in the Bush"[265]

Such technique is also observable in the following excerpt of a Cora song depicting the movements of a cricket (Fig. 4). Highlighted in yellow is a motive for this piece composed primarily of pitches A, D, G, A, G, and the occasional variation D, D, G, A, G:

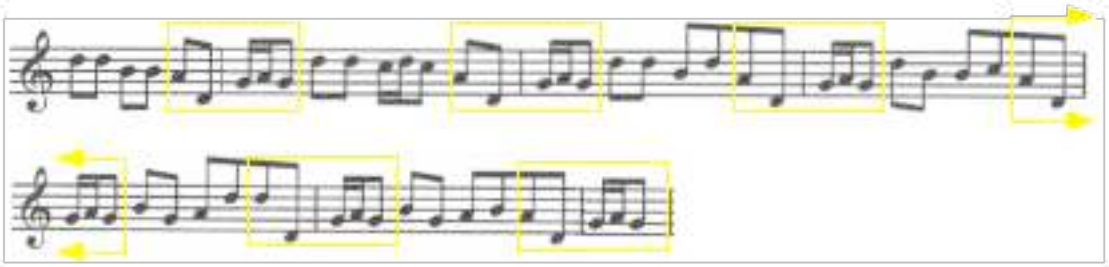


Figure 4: Theme from "Son de la Chicharra"[266]

In looking at the entire transcription of "Son de la Chicharra" (Fig. 5), we can see that the motive, again highlighted in yellow, occurs fifteen times.

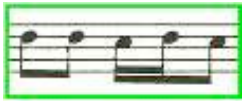
[265] Transcribed by Frances Densmore, *Yuman and Yaqui Music* (New York: Da Capo Press, 1972), 157.
[266] Transcribed from González Ávila, *Cuadernos* 4, no. 8, 36.
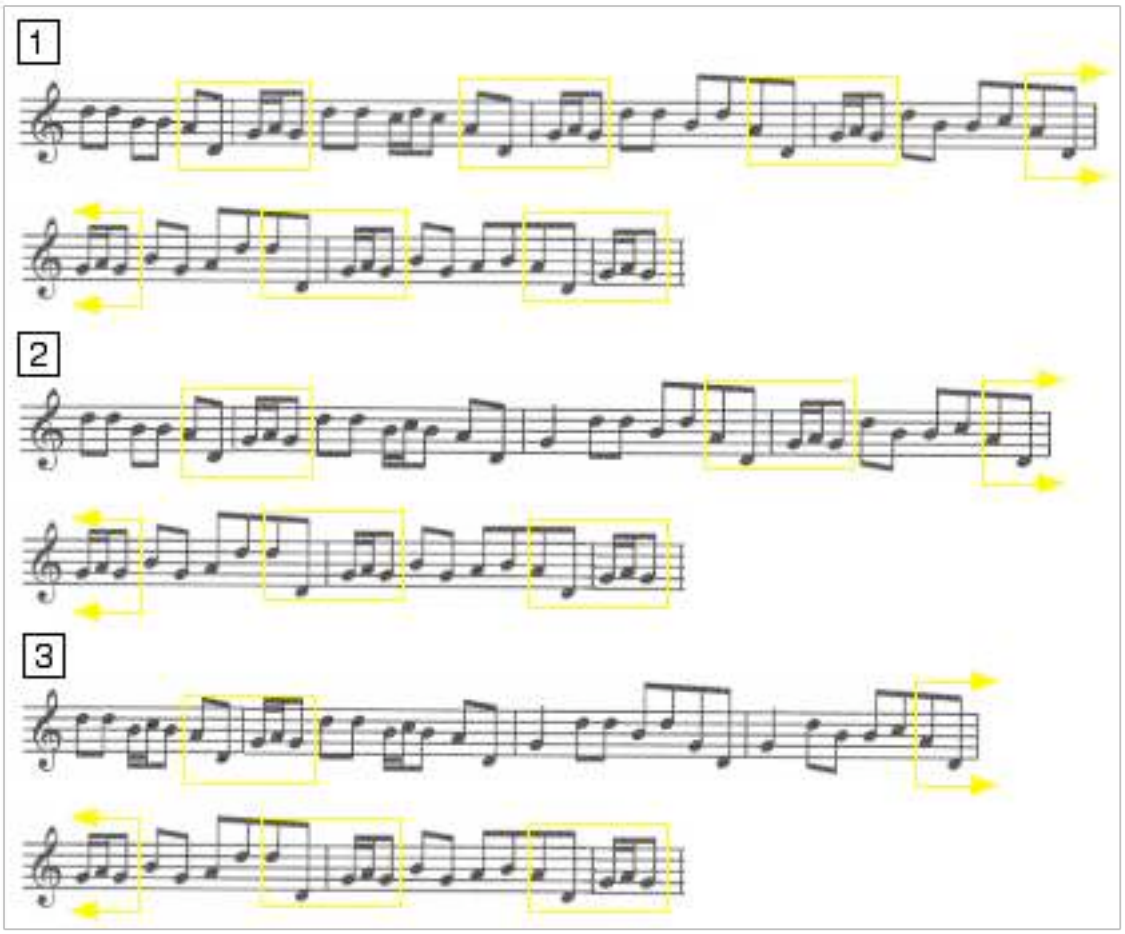


Figure 5: "Son de la Chicharra"[267]

Like Chávez's themes, variant material occurs between iterations of the motive. In "Son de la Chicharra," five types of variant material occur:

1  and variation 1.1 

2  and variation 2.1 

3 

[267] Ibid.

4  and variation 4.1 

And a final variant quite similar to the motive (thus highlighted in yellow), but different enough, in its lack of the identifying two sixteenth-note and eighth-note mordent, to be considered variant material.

5 

Figure 6 highlights each of these variants as found in the entire transcription:
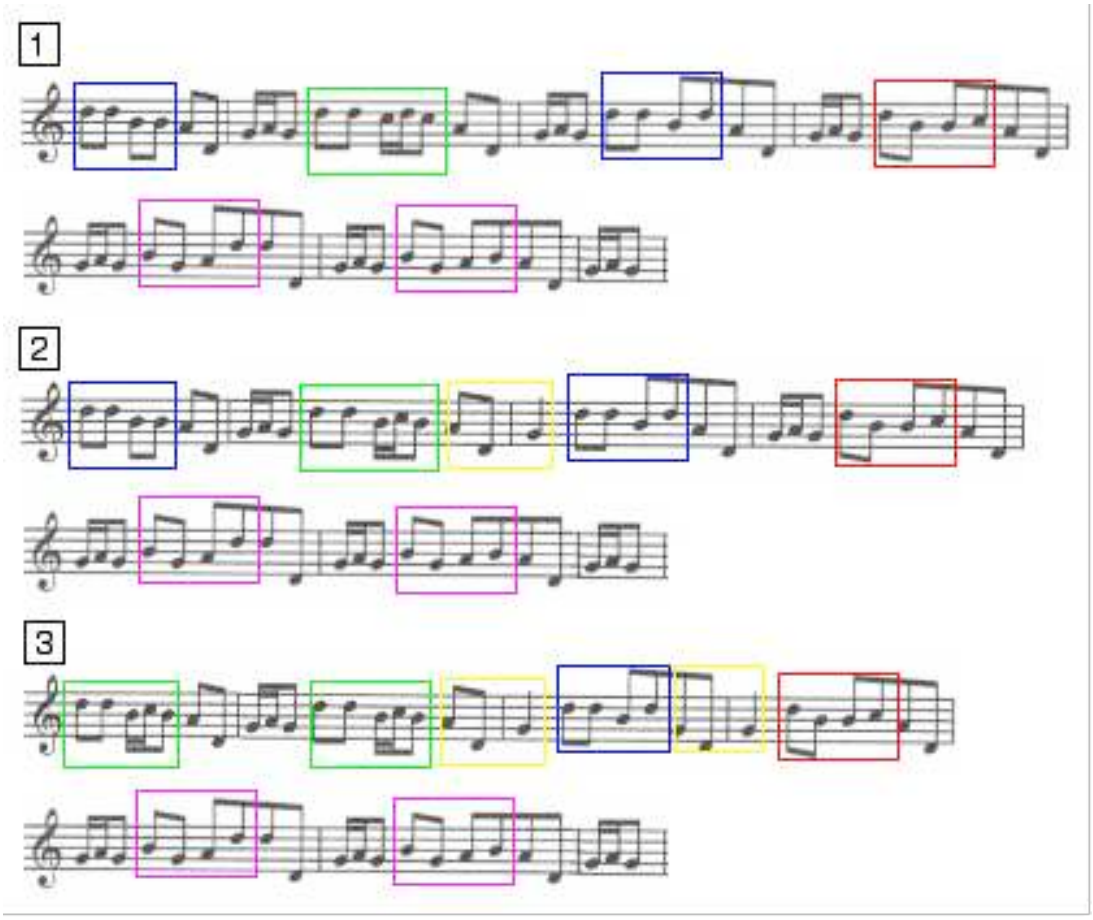


Figure 6: Variant Material

While the presentation of variant material may at first seem spontaneous, a second look reveals a relatively formal design. Using the numbers provided in the score (1, 2, and 3), "Son de la Chicharra" may be organized into themes as follows (variant material is numbered as above, presentations of the motive are designated as **M**):

1) **1** **M** **2** **M** **1.1** **M** 3 **M** 4.1 **M** 4 **M**

2) **1** **M** **2** 5 **1.1** **M** 3 **M** 4.1 **M** 4 **M**

3) **2** **M** **2** 5 **1.1** 5 **M** 3 **M** 4.1 **M** 4 **M**

Again, "Son de la Chicharra" is close to being formally organized, but not completely. Chávez observed a similar lack of formal design in Mexican and Peruvian visual art as well. He commented, "There were no stereotyped forms or patterns of any kind."[268] Nonetheless, *Xochipilli*, like "Son de la Chicharra," may be organized according to recurrent themes and identifiable variants. The remainder of *Xochipilli*'s opening passage, mm. 1–30, may thus be analyzed similarly.

Chávez's Themes

The identified motive presented in measure one of *Xochipilli* (see Fig. 2) occurs six times in the first 30 measures. Like "Son de la Chicharra," variant material occurs between reiterations. Themes are likewise identifiable by repetition and Chávez's statement of approximated length.

[268] Chávez, *Musical Thought*, 9.

"Approximated" is appropriate due to Chávez's tendency to resist conventional techniques; recalling his comment: "A composer wants to make his own music, and that can only be achieved by developing his own technique. We have to know the particular techniques of all the great masters well; first to learn from them and, second, to avoid them constantly."[269] Already, a theme comprising 7 bars (not 4, 6, or 8) has been presented, and following themes likewise comprise non-traditional lengths. Furthermore, the identified themes are variations of a single theme rather than newly composed. To facilitate identification, however, they will be designated as 1, 2, 3, 4, and T (see Figure 7 below).[270]

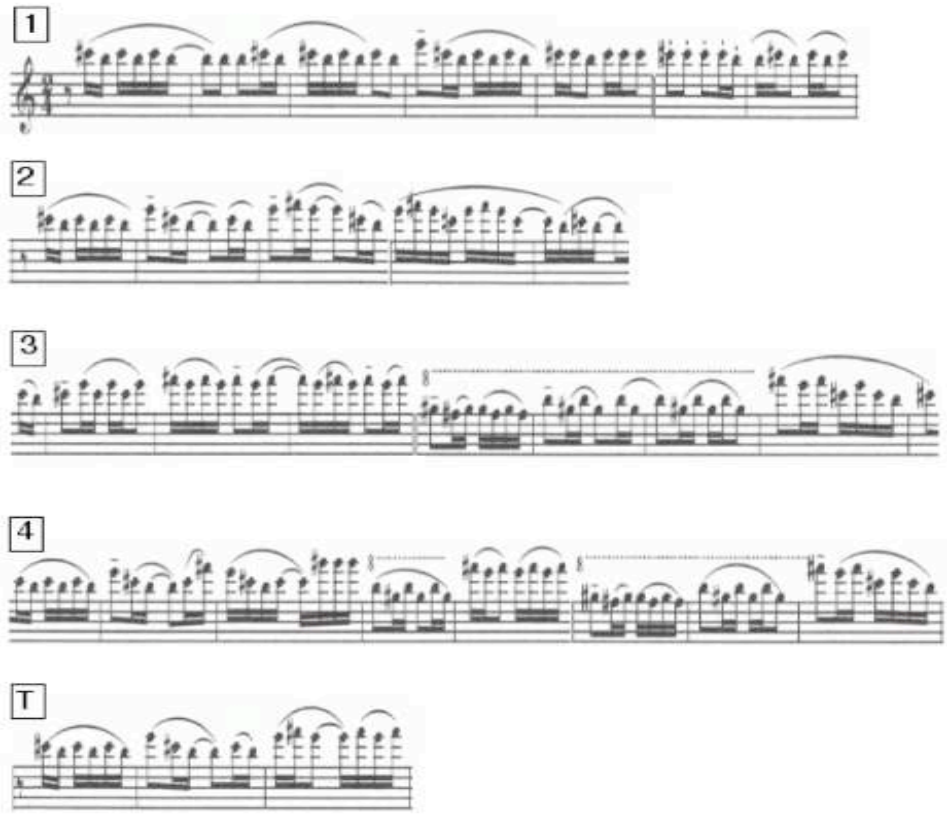


Figure 7: Part 1 Themes and Tail

[269] Ibid., 31.
[270] "T" designates "Tail" as explained below.

The second theme in *Xochipilli* begins with, and is thus discernable by, the repetition of the motive (Fig. 8).



Figure 8: Second Theme, mm. 8–12

The ending, however, is not as clear as the previous presentation, showing Chávez's creation of a "continuous melodic line." Based on the precedent set in the percussion, however, a break in the continuity may be discerned by the presentation of the same rhythmic sets as prior. Measures 9–10 repats mm. 5–6, and mm. 11–12 repeat mm. 7–8 with the addition of a single quarter-note. Just as theme 1 ended coinciding with the percussion downbeat of m. 8, the second theme ends on the second beat of m. 12, coinciding also with the percussion's final quarter note. Thus, the tied eighth note occuring on the second beat of measure 12 concludes the second theme.

The third presentation of a theme (Fig. 9) begins on the off-beat following the final quarter-note of the percussion (as in m. 8), and ends after seven additional measures. It is comprised of only one opening motive (highlighted in yellow), varied by transposition at the fifth above and by retrograde of the first two sixteenth notes.[271]

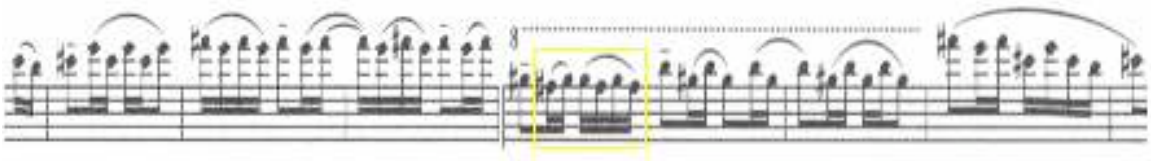


Figure 9: Third Theme, mm. 12–19

[271] The retrograde of these two notes 1) more clearly isolates the previous pitch (see discussion of emotive variants below and 2) makes more clear the contrapuntal relationship with the percussion (see Material in Counterpoint below).

Such slight variations of a motive is observable in living traditions; the final motive of "The Quail in the Bush" (Fig. 3) is altered by a single note, and to an even greater degree, the bracketed motives in the following transcription of a Yaqui song (Fig. 10) are rhythmically identical but have an overall descending contour, starting on successively lower pitches.

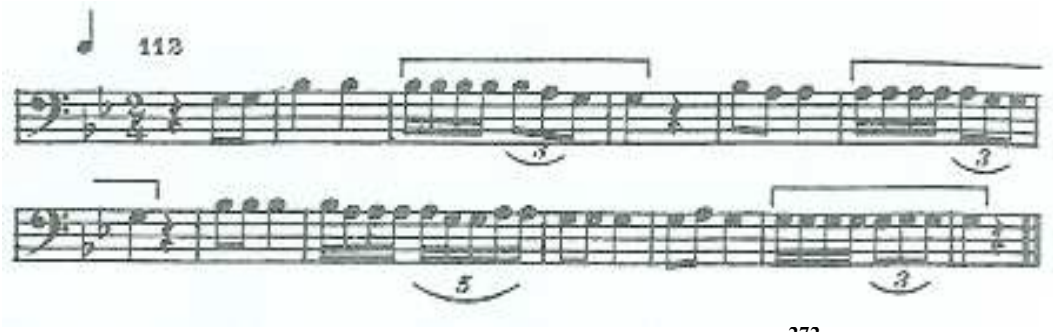


Figure 10: Yaqui "Dancing Song"[272]

The final presentation of a theme occurs in mm. 20–27. Like the first theme, it begins with the motive, and its end is marked by a reiteration of the motive in measure 28. The accompanying percussion affirms its identification through the simultaneous initiation of a new instrument, bongos, and ending with the completion of steady eighth-notes by percussion player 4 in mm. 23–27.
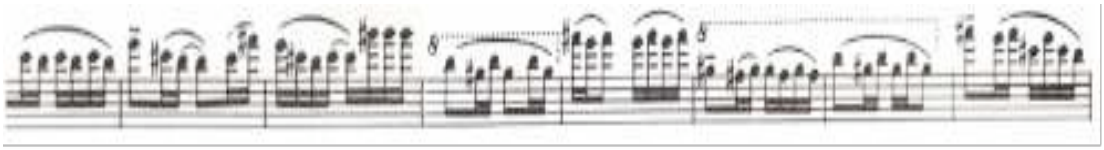


Figure 11: Fourth Theme, mm. 23–27

The final measures of the opening passage (Fig. 11) are more appropriately identified as a tail than a theme. According to McAllester, "Indian singers often call the

[272] Transcribed by Densmore, *Yuman*, 156.

last brief section the 'tail' of the song, which is also what the European musical term coda means."[273] It is also demarcated with the reiteration of the motive.
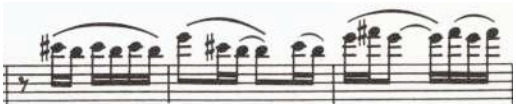


Figure 12: Tail, mm. 28–30

Each theme, and tail, is collectively figured below (Fig. 13). The motives for each are highlighted in yellow. The slight variations of this opening motive, mentioned earlier, are highlighted in orange. As was done for "Son de la Chicharra," variant material that is repeated identically is identified; i.e., identical if one ignores phrase markings (explained below in Material in Counterpoint). Unlike "Son de la Chicharra," Chávez's opening material is far less formally organized, and thus, giving the general effect of spontaneous variants than minutely designed variations.[274]

[273] McAllester, "North America," 37.

[274] Frances Densmore aesthetically describes such spontaneity in Indian song as "given to human beings by the spirits of the night, the morning star, the dwarfs of the mountains, the birds of the air and the animals of the plain." "The Melodic Formation of Indian Songs," *Journal of the Washington Academy of Sciences* 18, no.1 (January 4, 1928): 24.

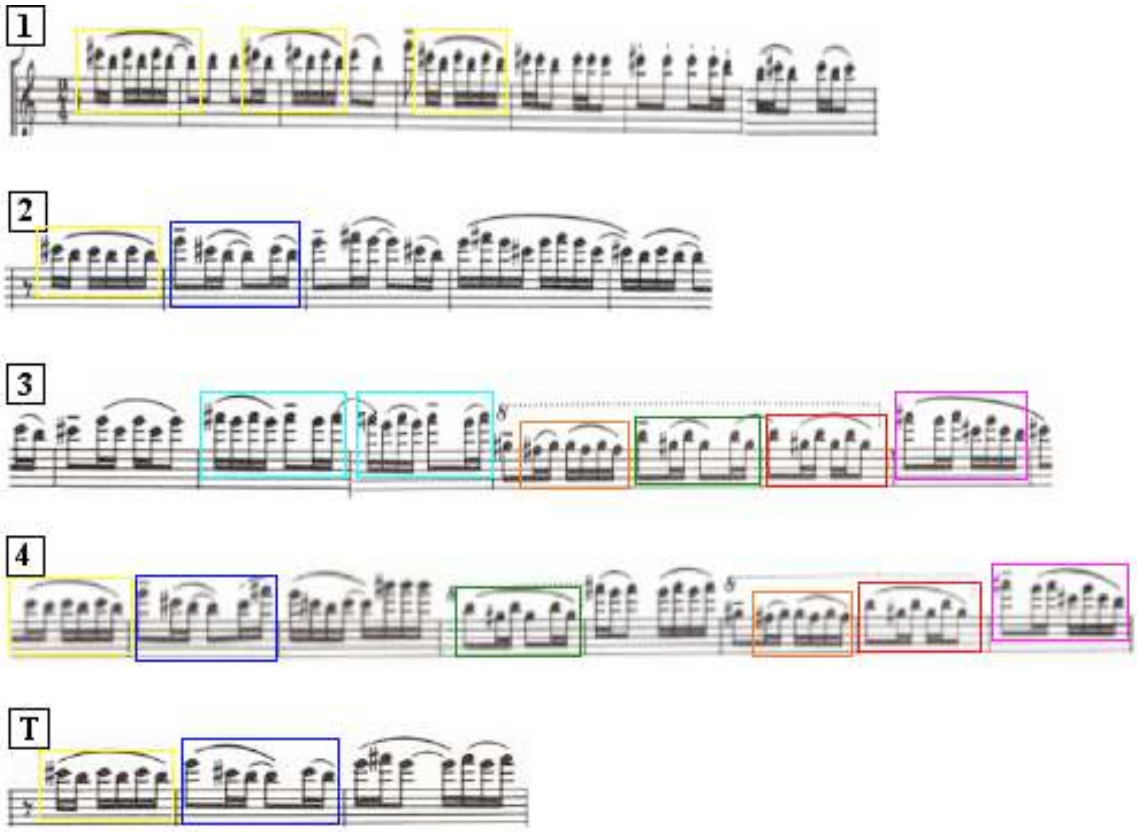


Figure13: Motives and Identical Variant Material, mm. 1–30

Included in the next figure (Fig. 14) is material that derives from the opening motive in m. 1. It includes material not highlighted above as well as some segmented portions of material that are highlighted above. Various colors are used according to similarities in character (explained below).
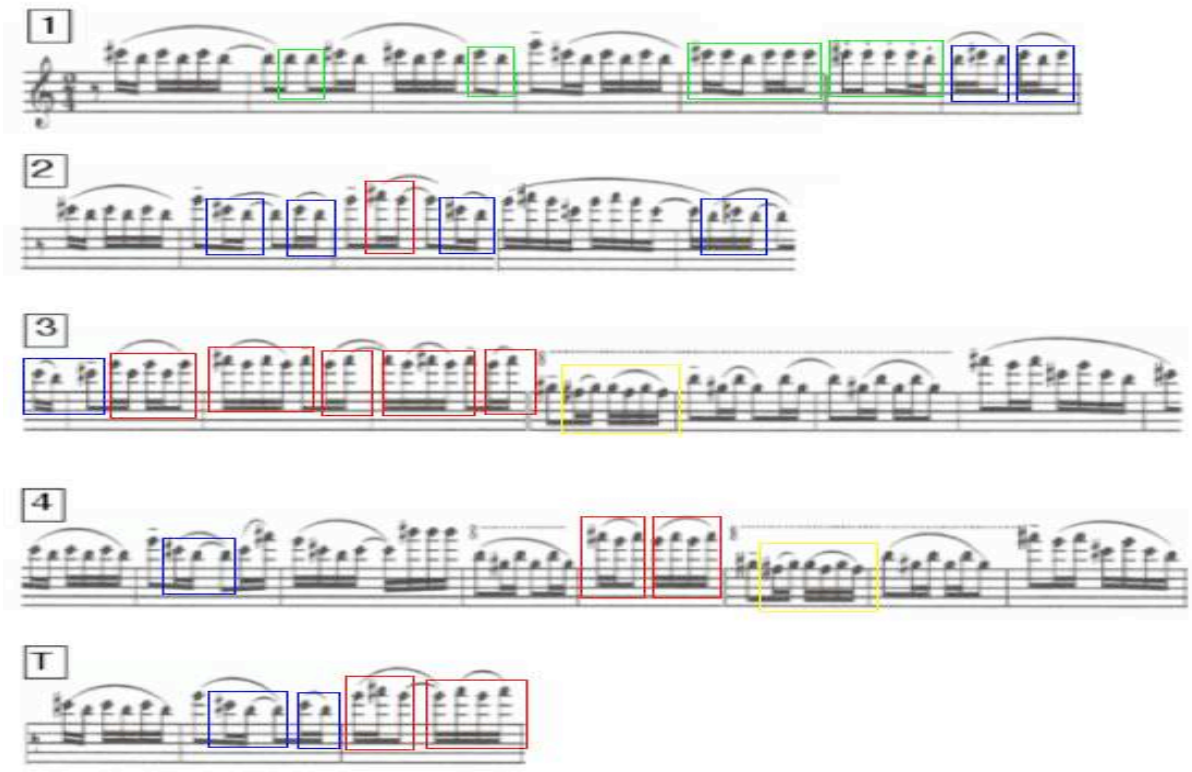


Figure 14: Variant Material Derived from the Opening Motive

The motion in the first seven bars is static due to 1) the frequent presentation of the identifiable motive, and 2) the delay of its presentation by fragmented, rhythmically elongated material, highlighted in green. Highlighted material in m. 2 delays the reiteration of the motive by remaining on the motive's final pitch for the duration of two eighth notes. Such delay also occurs in m. 3 now on the pitches of $C^{\#}$ and B. This figure gives the impression of a motivic "false start," interrupted excitedly by an E_6. Measures 5 and 6 present the most static material thus far. With the additional $C^{\#}$ sixteenth note of beat one, m. 5 is more rhythmically momentous than beat 2 of m. 3, but such momentum is quickly overshadowed by the lack of alternating pitches, i.e., B. In these first seven measures, the motive is never presented again in its entirety; rather, the listener is presented only with fragments of the motive highlighted in blue.

Material highlighted in blue is separate from that in green in that the effect of motivic delay is no longer present. The effect, rather, is one of spontaneous embellishment derived from the concretive motive. Material highlighted in red shares this effect, differing from that in green by utilizing pitches other than $C^{\#}$ and B. While material in red likewise differs from the original motive in pitch, it does share the characteristic feature of oscillating between two pitches an interval of a second apart. The only exception occurs in m. 13 in which the interval has been expanded to a third.

Material that has not been explained to this point occurs in mm. 4, 9, 10, 11, 16, 22 and 25, highlighted in purple in Figure 15 below.
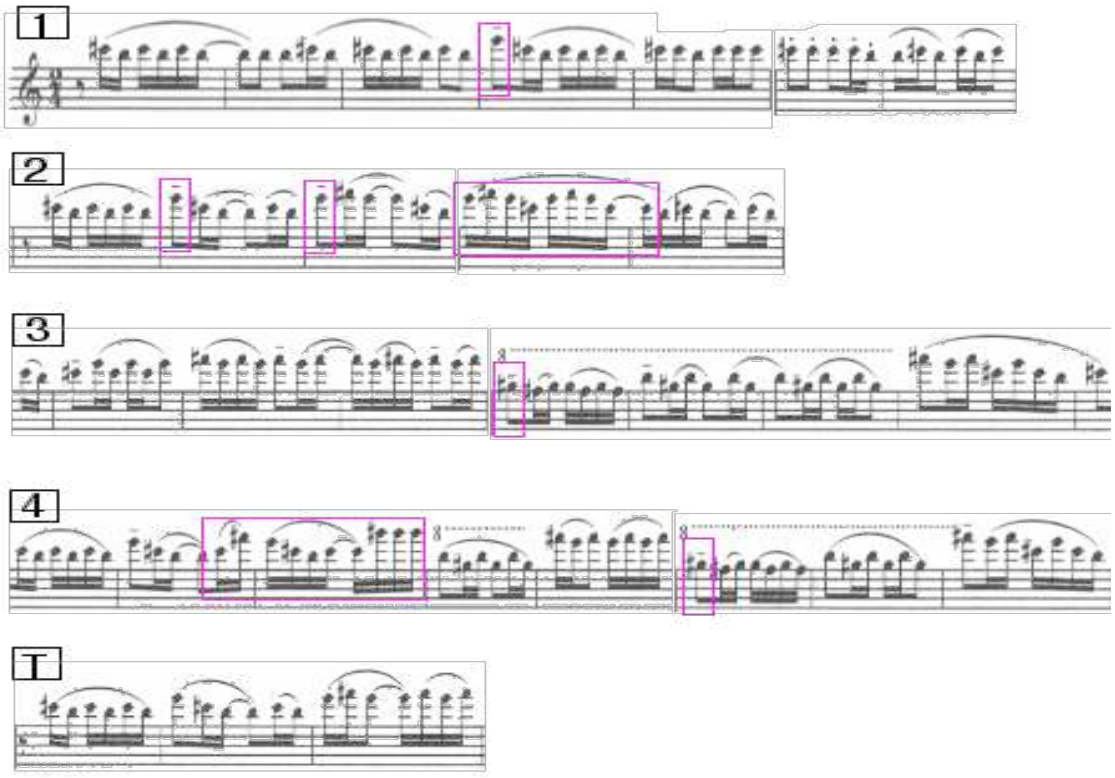


Figure 15: Emotive Material

We previously described the E_6 in m. 4 as "excitedly," arising out of heightened emotion. Being the highest pitch to that point, it does indeed capture the attention of the listener. In fact, many Indian songs begin with the highest pitch and descend to a nearly inaudible pitch. Curt Sachs defines this type of song as a *tumbling strain*:

> The most fascinating of the oldest melody patterns may be described as a "tumbling strain." Its character is wild and violent: after a leap up to the highest available note in screaming fortissimo, the voice rattles down by jumps or steps or glides to a pianissimo respite on a couple of the lowest, almost inaudible notes; then, in a mighty leap, it resumes the highest note to repeat this cascade as often as necessary. In their most emotional and least "melodious" form, such strains recall nearly inhuman, savage shouts of joy or wails of rage and may derive from such unbridled outbursts.[275]

Addressing the emotional origins of this song type, Frances Densmore theorizes:

> Granted the vibrant silence through which, if we were sufficiently sensitive, we might communicate; granted a musical expression as its resultant, what would be the tone which would spring forth? Would it not be the high tone which in all nature results from the quick, strong vibrations? Do we not find here a possible explanation for the fact that many primitive songs begin on a high tone?
>
> We must not forget our mysterious kinship with all that lives. Intensity of fear produces in bird and beast the high shrill cry, and intensity of distress produces the call for assistance. In all nature the love song and its prototype the love-call are intended to be far-reaching, and a tone low in vibration would not awaken a response.[276]

Chávez has certainly not composed a *tumbling strain* at this point, however, the shared technique of utilizing a high pitch to express and evoke excited emotion is mutual, and such awareness of this song type sheds light on an Indian trait. The E_6 occurs only

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[275] Curt Sachs, *The Wellsprings of Music*, ed. Jaap Kunst (New York: Da Capo, 1977), 51.

[276] Frances Densmore, "Scale Formation in Primitive Music," *American Anthropologist* 11, no. 1 (Jan-Mar, 1909) : 3–4.

once in the first theme as to not distract from the static quality of the theme, but, in contrast appears twice more by itself shortly after the presentation of the motive in the second theme. Measures 16 and 25 eventually increase the range to a $G^{\#}_{6}$.

Whereas the first theme was defined by stasis, the second is one of motion. Measure 11 presents material that adds to this motion by being composed of 1) consecutive sixteenths, 2) an $F^{\#}_{6}$, now the highest pitch to this point, and 3) presented in m. 11, a contour characteristic of a *tumbling strain* that rises to the now-highest pitch but quickly descends by a second and a third; all very "exciting" considering the limited pitches, $C^{\#}$ and B, of prior.

Mention must be given to mm. 19 and 27. Material in these measures, identified earlier (Fig. 13) for their shared identical material, share that which has just been described, 1) an isolated high pitch ($F^{\#}_{6}$), and 2) material from m. 11. And finally, the pick-up to m. 22 and m. 22 present the most exciting material yet with 1) a leap by fourth from $C^{\#}$ to $F^{\#}$, 2) a four note descent, and 3) ending with three sixteenth note iterations of a quite shrill $G^{\#}_{6}$ sounding four octaves above middle C on the piccolo.

Material in Counterpoint

Chávez theorized that the Aztec "produced an elemental polyphony in which the different parts were counterpointed in a very free and instinctive way, or perhaps in something like an entirely casual counterpoint."[277] Already a relationship between the

[277] Chávez, *Xochipilli*, preface.

percussion and piccolo has been perceived in defining themes, but contrapuntal relationship is also observable.
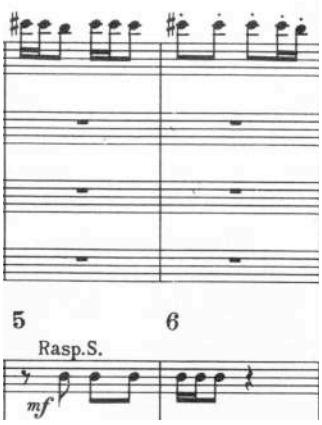


Figure 16: Counterpoint, mm. 5–6

Measures 5 and 6 present the first example of counterpoint. The percussion enters with the iteration of three eighth notes that is immediately echoed rhythmically by the piccolo. While the percussion ends with two sixteenths and an eighth, the piccolo answers with an eighth and two sixteenths, a radial symmetrical design that Chávez uses to great extent throughout *Xochipilli* (see Symmetry below). Furthermore, the staccato articulation of the piccolo affirms the rhythmic relationship.

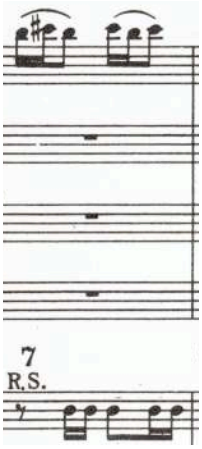


Figure 17: Composite Sixteenths, m. 7

Measure 7 likewise uses radial symmetry resulting in composite sixteenth notes. Such a result occurs again in mm. 15–19 (Fig. 18).
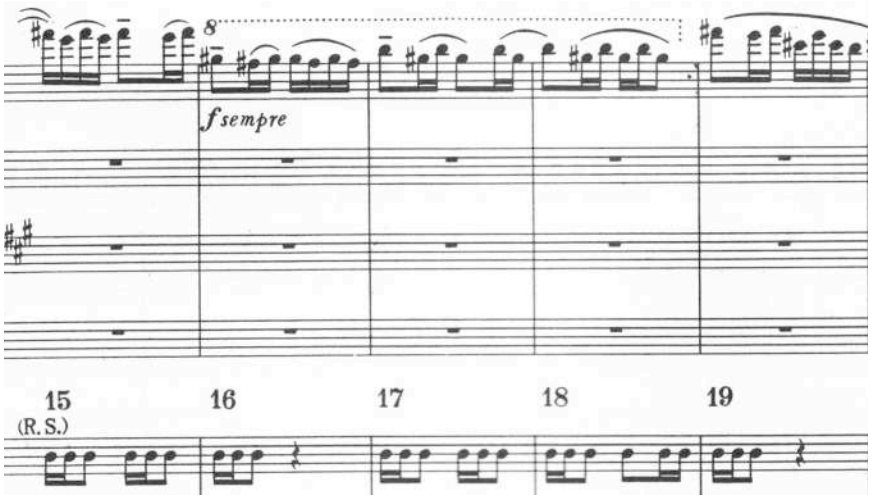


Figure 18: Composite Sixteenths, mm. 15–19

Further illuminating of Chávez's intentional use of radial symmetry is evident in mm. 17–18. Previously, the piccolo material in mm. 17 and 18 was likened to mm. 23 and 26 (see Fig. 13, highlighted in green and red) respectively with the request to ignore articulations. Although these measures are identical in pitch and rhythm, the articulations result from their contrapuntal relationships.

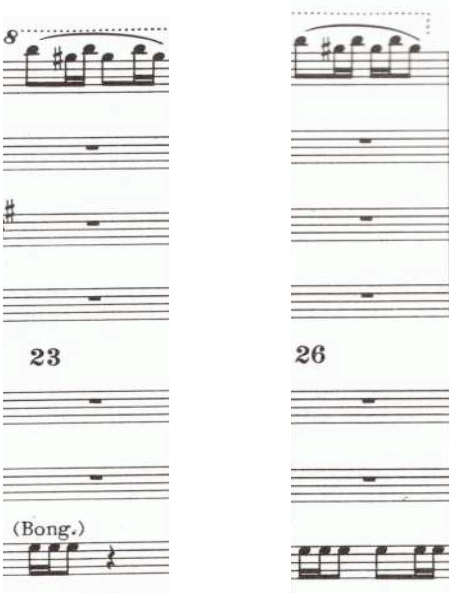


Figure 19: Differing Articulations, mm. 23 and 26

The piccolo material in mm. 23 (see Fig. 19), while having no composite relationship with the percussion that encompasses the entire measure (although the first beat is radially symmetrical), it is articulated as one unit. Measure 26 is also articulated as one unit, but does form a composite rhythm with the percussion. The composite, however, occurs for only that measure whereas by contrast mm. 17–18 form an undivided two-measure unit, hence the difference in articulation.

Measures 21 and 29 also present composite, contrapuntal relationships. Other such relationships occur momentarily and through apparent happenstance, or using Chávez's term, "casually." Instances occur in mm. 10, 23 (as mentioned), 24, 25, 27, 28, and 30. Again, the effect is one of intuitive, spontaneity versus "stereotyped forms or patterns."

Utilized Pentatonic Scales and Chávez's Harmonic Design
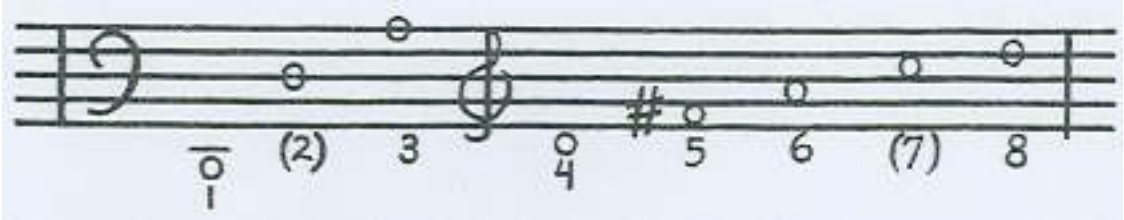
Before proceeding, it will be helpful to know the harmonic design of *Xochipilli*. The design is non-Aztec. Chávez states, "Everything leads one to believe that they [Aztecs] were never conscious of harmony . . . and that they never formulated principles on [the] subject, not even in an elementary manner."[278] Densmore also indicates "that the Indian apparently had no musical system,"[279] by which she seems to have meant that Indians had no preconceived set of rules or techniques from which to compose, including harmony and polyphony. Of her conclusive study of songs from the Chippewa, Sioux, Ute, Mandan, Hidasta, and Papago tribes, and inconclusive studies of the Pawnee, Yuma, Cocopa, Makah, Menominee, Winnebago, and Yaqui, Densmore determined that her observations were, "sufficient to show the futility of searching in such material for a conscious, preconceived tonal system."[280]

Utilized pentatonic scales will be listed in ascending order with a designated principle pitch, also a Western concept.[281] Densmore again: "The designation of keynotes in [Indian] songs should not be understood as implying that he has such a system. We are accustomed to keynotes and a melody is more readily understood if we refer its tones to one basic tone."[282]

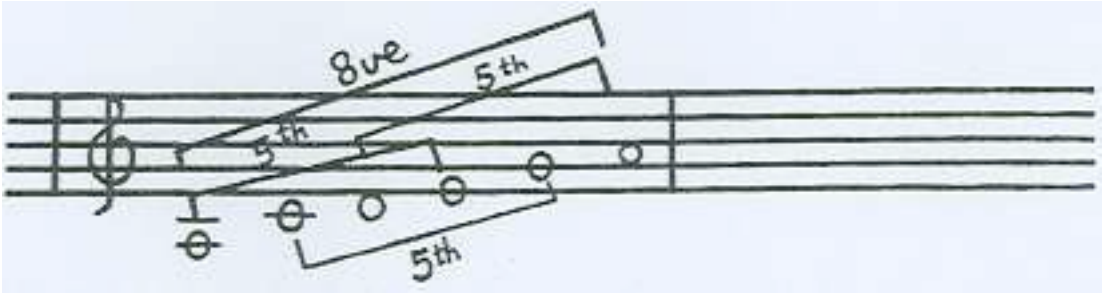
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[278] Chávez, *Xochipilli*, preface.
[279] Frances Densmore, "The Melodic Formation," 20.
[280] Ibid., 17.
[281] "There is a general impression that Indian songs are descending in trend. This is shown by the fact that 60 percent of the 26,777 intervals in the songs under collective analysis are descending intervals. Sixty-one percent of the songs begin with a downward progression, and in 74 percent of the songs the last tone is the lowest tone of the compass. It is particularly interesting to note this descending trend since the tone material of Indian songs has been shown to be so closely connected with the ascending harmonic series." Ibid., 23.
[282] Ibid., 120.

Chávez uses two basic tones, **D** and **A**, as principal, governing pitches. Recall that he derived the following scale from "a shell preserved in the National Museum of Mexico;" **D** being the principal pitch of the illustrated overtone series:



Recall, too, that Chávez believed "the Aztecs understood and applied the natural phenomenon of harmonics. . . . The Indians based on this scale the foundation (conscious or instinctive) of a musical system using octaves, fifths, and thirds. Applying this knowledge, they obtained their pentatonic scale without semitones:"[283]



The illustrated pentatonic scale of A, C, D, E, G is eventually arrived at in m. 62, and according to Chávez's concept of an Aztec musical system, exploits third, fifth, and octave relationships within this scale. Additionally, Chávez will exploit Western concepts of A-major and D-major modalities (Part 1 and 2), and the tritone and augmented 5th (Part 3). The following (Fig. 20) lists pentatonic scales used in Part 1:

[283] Chávez, *Mexican Music*, 7–8.

Measure #s	Piccolo	Flute	Clarinet
1–30	$C^{\#}$, E, $F^{\#}$, $G^{\#}$, B		
31–52	$F^{\#}$, A, B, $C^{\#}$, E	$C^{\#}$, E, $F^{\#}$, $G^{\#}$, B	
53–60	$F^{\#}$, A, B, $C^{\#}$, E $C^{\#}$, E, $F^{\#}$, $G^{\#}$, B	$C^{\#}$, E, $F^{\#}$, $G^{\#}$, B	
61–83	A, C, D, E, G	A, C, D, E, G	C, D, E, G, A

Figure 20: Utilized Pentatonic Scales, Part 1

In Part 1, third relationships between principal pitches pervade the pentatonic scales, $C^{\#}$-E, $F^{\#}$-A, and A-C. The minor third also organizes the pitches of these scales. To illustrate this, we begin with the flute solo in mm. 1–30 which is composed of the pitches, $C^{\#}$, E, $F^{\#}$, $G^{\#}$, and B.

The pitches are ordered according to the precedent of Chávez's pentatonic order, presented above and in his program notes, that shows a prevailing dominance of the minor third and fifth above a "principal" pitch (**$C^{\#}$**, **E**, $F^{\#}$, **$G^{\#}$**, B). As to the selection of a principal pitch, we turn to Curt Sachs.

The opening motive, oscillating between two pitches, is characteristic of what Sachs defines as *one-step* melodies. He writes:

> Side by side with tumbling strains, we meet on the lowest cultural level an apparently less emotional type of melody, which in its most rudimentary form consists of only two pitches sung in alternation. The voice moves up and down and more or less describes a horizontal zigzag line.
>
> The words alternation and zigzag might easily suggest a pendulum progression to and fro. Such subtle motion does not exist, unless we think of a

> trill at moderate speed. Sometimes the upper and sometimes the lower note is struck more often and assumes the role of a principal.[284]

Accordingly, $C^{\#}$ is the principal note due to its 1) being the first sounded pitch, 2) frequency in mm.1–30: $C^{\#} = 52$; B = 49, and 3) frequency in mm.1–30 in measures comprising both pitches: $C^{\#} = 47$; B = 38.

The piccolo transposes the motive in m. 35, oscillating now between the pitches $F^{\#}$ and E. Following is material composed of pitches $F^{\#}$, A, B, $C^{\#}$, E (and also D in mm. 45–46 and 52; see A-major and D-major Modalities below). This ordering of pitches reflects the same reasons as the previous ordering, $C^{\#}$, E, $F^{\#}$, $G^{\#}$, B. The piccolo presents the motive three more times in mm. 61, 73, and 81, oscillating this time between the pitches A and G. These statements occur in an environment of pitches, A, C, D, E, G, the pentatonic scale presented by Chávez.

The piccolo approaches the scale A, C, D, E, G through transpositions at the major third, $C^{\#}$, et. al. and the major sixth $F^{\#}$, et. al. The $F^{\#}$ pentatonic scale may be viewed inversely as a transposition at the lower minor third.

The flute material in mm. 31–60 is an exact repetition of the piccolo solo in mm. 1–30 except for m. 54 (Fig. 21).

[284] Sachs, *Wellsprings*, 59. Sachs credits Zygmunt Estreicher, *Teoria dwytonowych melodii*, in *Kwartalnik Muzycky* vol. 6 (Warsaw, 1948) and Mieczyslaw Kolinski, *The Structure of Melodic Movement: A New Method of Analysis*, in *Miscelánea de Estudios dedicados al Dr. Fernando Ortis* (La Habana, 1956), 881–918.

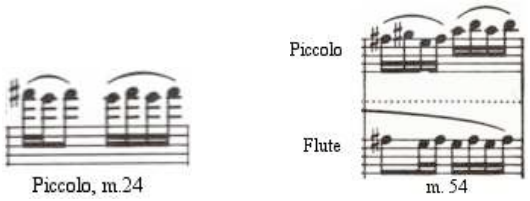


Figure 21: Repetition Variance

Chávez varies the first beat of m. 54 in the flute so that it may be in unison with the piccolo (see Unison below for further explanation). Otherwise, the material is a complete transposition of the piccolo solo at the octave.

In mm. 61–83, the flute, like the piccolo, presents material composed from pitches of the pentatonic scale A, C, D, E, G. The clarinet does as well, but with C, a major third above A, as the principal pitch, resulting in a reordering of pitches (see Clarinet: A Melody. . . below for further explanation).

In summary, Part 1 approaches the given pentatonic scale (A, et. al.) through transposition at the major third above C#, et. al., and, inversely, the minor third below, F#, et. al. The flute additionally presents a transposition of the piccolo solo at the octave, deriving from Chávez's notion of an Aztec musical system. Transposition at the fifth, also an extension of this proposed system, occurs in mm. 16 and 46 with the presentation of the motive on $G^{\#}$ and $F^{\#}$ (above the original $C^{\#}$ and B). Finally, the clarinet utilizes the presented pentatonic scale of A, C, D, E, G but with C, a minor third above A, as the principal pitch.

A-major and D-major Modalities

The presentation of the motive and its transposition in mm. 1–30 surround the principal pitch A with B and $C^{\#}$ a major second and major third above, mirrored with $G^{\#}$ and $F^{\#}$ a minor second and minor third below. Pitch A, however, never appears in the opening measures, and nor does pitch D. Had both been sounded, all the required pitches for an A-major septatonic scale would have been present.

A eventually makes an appearance, sounded by the piccolo for the duration of m. 34. Within the first beat of this measure, the flute sounds the pitches E and $C^{\#}$, collectively suggesting (in tonal terms) an A-major triad in first inversion. Other measures in which A, $C^{\#}$, and E occur, not simultaneously, but in close enough proximity to suggest such an A-major triad are mm. 34, 39, 40, 51, 52 (beat one), 57, and 59. Measures absent of the pitch E, but simultaneously sounding A and $C^{\#}$ include 36, 38, and 42.

Once the pitch A has been introduced in m. 34, it may be viewed collectively with the four other surrounding pitches forming a pentatonic set unique to the piccolo. In other words, the A is not an addition to the previous pentatonic set $C^{\#}$, E, $F^{\#}$, $G^{\#}$, B, thereby approaching an A-major septatonic scale. Thus, Chávez has compiled an aggregate of pitches that insinuates A-major while maintaining "Indianistic" integrity through pentatonicism in each specific passage.

Lying outside of the two pentatonic scales $C^{\#}$, et. al. and $F^{\#}$, et. al. in mm. 31–60 is the pitch D. Occurring in only three measures, D serves three purposes, 1) prefiguring the A, C, D, E, G pentatonic scale introduced in m. 61, 2) prefiguring D as a pitch center (Part 2), and 3) affirming the insinuated A-major.

As stated, Chávez's presented pentatonic scale, eventually arrived and utilized in mm. 61–83, includes the pitch D. At this point, A is unquestionably the principal pitch, the modal final. E, serving here as the dominant pitch to A in tonal terms, has been present since the beginning of *Xochipilli*, and now D, the subdominant to A, has been introduced. D's introduction in m. 45 is suggestive of a D-major triad with the inclusion of pitches $F^{\#}$ and A. D-centered modality, including the pitches of a D-major triad, will not, however, come into fruition until Part 2. Rather, the D-major triad, in the local context of the current A-major modality, is, in tonal terms, a IV chord. Affirming this notion is m. 52 in which D now belongs to the V^7 chord, E-$G^{\#}$-(B)-D. Furthermore, the V chord (E-$G^{\#}$-B) occurs in mm. 56 and 59. D also appears in m. 46 with pitches $G^{\#}$ and B, suggestive of a vii^{o} chord. Additionally, the presence of D completes all available pitches for an A-major septatonic scale.

Variant Material, mm. 31–60

As stated, the flute material in mm. 31–60 is an exact repetition at the octave of the previous piccolo solo of mm. 1–30. In contrast, piccolo material in these measures is highly variant, but nonetheless, may be categorized into three types: 1) motivic, 2) similar to material in mm. 1–30, or 3) new material.

Motivic material is derived from the original motive presented in m. 1. The only complete iteration of the motive is presented by the piccolo in m. 35, transposed a fourth above the original.



Figure 22: Transposed Motive, m. 35, piccolo

The motive is not presented again in its entirety until m. 61, which, in combination with the completion of the flute's repetition of the first 30 measures, denotes the end of a sub-section to Part 1.

The motive, rather, is presented in fragments or with extended material. Both types characteristically share with the motive its sixteenth note oscillation between two pitches a second apart. Fragmented material occurs in various transpositions, those being $F^{\#}$/E, B/A, $C^{\#}$/B, and one instance of E/D. Examples of each are figured below (Figs. 23 and 24).
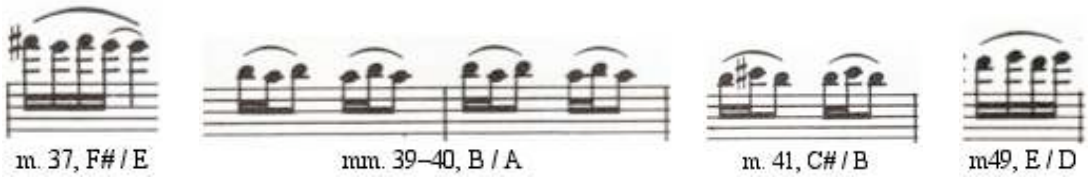


Figure 23: Motivic Fragments
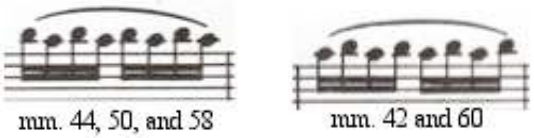


Figure 24: Motivic Extensions

Note that the order of oscillating pitches is reversed in m. 49 and mm. 42 and 60. This is another example of radial symmetry used to some extent by Chávez (see Symmetry

below). Other examples of fragmented material occur in mm. 49, 52, and 54. Fragmented material not illustrated above occurs in mm. 38, 47, and 55. Figure 25 summarizes:

Complete	m. 35
Fragment	mm. 37, 38, 39, 40, 41, 47, 55
Fragment w/ reverse oscillation	mm. 39, 40, 49, 52, 54
Extension	mm. 44, 50, 58

Figure 25: Motivic Variant Material

Material not deriving from the motive, but nonetheless from previous material in mm. 1–30 is summarized in Figure 26:

Similar Material, mm. 31–60	m. 36	mm. 43, 46, 56	m. 45	m. 49
Original Material, mm. 1–30	m. 9	mm. 13, 17, 18, 23, 26	mm. 9, 21, 29	m. 22

Figure 26: Material Similar to mm. 1–30

Interesting to note is the cluster of material in mm. 43 and 56 (see Fig. 27). Like the original material from which it was derived, rhythmic orientation of pitch varies. The piccolo material is first, doubly-inverted symmetrical (see Symmetry below) to that of the flute (m. 43), and secondly, in unison (m. 56).

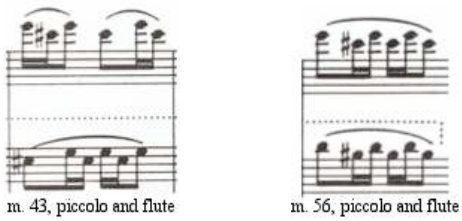


Figure 27: Doubly-Inverted Symmetry and Unison

Like m. 43, several other instances occur in which the piccolo and flute contrapuntally form a composite of steady sixteenth notes: mm. 38, 39–40, 46, and 47. One other instance of a partial, rhythmic and intervallic unison between the piccolo and flute occurs in mm. 54 and 58.

At this point, it is beneficial to the discussion of composite rhythms and unisons to include the percussion's role. Whereas the first few measures of mm. 1–30 were fairly static, the opening measures of mm. 31–60 are dynamic. In mm. 31–37, the flute and bongos of percussion player three form a contrapuntal composite of continual sixteenths. Measures 37–38 introduce a rasp that is in counterpoint with the bongos, thereby also forming composite sixteenths. In mm. 39–40, the rasp and piccolo are in rhythmic unison as are the bongos and flute, again collectively forming continual sixteenths. A final unison between the rasp and piccolo occurs in mm. 39–41 and briefly on the second beat of m. 47.

The creation of composite sixteenth note patterns is a sophisticated compositional technique exploited extensively by Chávez and will be discussed further in examining the percussion (see Rhythm below). Unison playing, however, and its relation to Aztec and indigenous practices will be discussed first.

Unison Playing

Observations of indigenous unison flute playing are rare, but, nonetheless, have been witnessed among the Yuma. George Escalanti, a Yuma living in Sonora, Mexico,

was quoted, "In old times the Yuma had no love songs, but two or three young men played . . . flutes in unison to attract the attention of the young girls."[285]

The Yuma, today called Quechan (Kwuh-tsan), inhabited the northern most regions of Mexico, and today, primarily Arizona of the United States. Being geographically far removed from Aztec urban centers, the Yuma were minimally, if at all, influenced by the Aztec. Therefore, the unison playing of flutes as observed amongst the Yuma is defined as *maceualli* with limited, if any, association to Aztec high art.

In chronicle observations of Aztec high art, no mention is given solely unison flutes; observations of unison dancing, singing, and drumming, however, are plentiful. One of the earliest accounts comes from Motolinía, "The singing, drums, and dancing remaining throughout perfectly coordinated."[286] He is echoed by Francisco López de Gómara, who wrote in 1554, "These two drums [teponaztli and huehuetl] playing in unison with the voices,"[287] and also by Diego Valadés, who wrote in 1579, "They [Aztecs] sing in the most perfect unison, and move in perfect synchronism."[288] Even as late as one hundred and twenty-four years after the Spanish conquest, Pérez de Ribas wrote in 1645, "What is sung always corresponds with what the teponaztli plays."[289]

If one were to assume that flute melodies are analogous to vocal songs, then instances of unison playing between percussion and flute or piccolo in *Xochipilli* would be representative of Aztec high art. Chavez, however, concluded–perhaps due to the lack

[285] Densmore, *Yuman*, 26–27.
[286] Motolinía, *Memoriales*, 339–343.
[287] Francisco López de Gómara, *Historia de México, con el descvbrimiento dela Nueva España* (Antwerp: Juan Steelsio, 1554), 106–107.
[288] Diego Valadés, *Rhetorica Christiana* (Perusia: Petro Giacomo Petrucci, 1579), 169.
[289] Andrés Pérez de Ribas, *Historia*, bk. 12, chpt. 11.

of mention of flutes in chronicle accounts–that "it is not easy to believe that all of the flutes played strictly in unison." Therefore, instances of unison playing between flute and piccolo are rare in *Xochipilli*.

Measures 61–83

As stated, the restatement of the entire motive by the piccolo, combined with the completion of the flute's repetition of the previous material from mm. 1–30, marks the beginning of the final subsection of Part 1. Additionally, the introduction of a second teponaztli/marimba and the clarinet further demarks the sub-section.

In m. 61, the piccolo restates the motive oscillating on pitches A_5 and G_5. Subsequent pitches include C, D, and E. Following precedent, the scale in use is A, C, D, E, G, that which was presented in Chávez's program notes. In fact, the piccolo material in mm. 61–83 is an exact repetition of its material in mm. 8–30, now presented a major third lower.

The flute, however, continues the trend set by the piccolo in mm. 31–60 of presenting material based on the motive, previous variant material, or new material. To this we now turn.

Variant Flute Material

At no time during mm. 61–83 does the flute present the motive in its entirety. It does, however, present motivic fragments and expansions, oscillating either on pitches E/D, A/G, or D/C.

Measures that present motivic fragments are 62, 63, second beat of 69, first beat of 72, and first beat of 80. Measures that present motivic fragments in radial symmetry, i.e., pitches whose initial oscillation is upwards rather than downwards, are second beat of 75, and second beat of 78.

Expansion of the motive occurs in mm. 67–68, oscillating on pitches E/D. Beginning on the second beat of m. 81 and continuing through m. 82, a motivic expansion in radial symmetry is presented in Figure 28:



Figure 28: Flute, Motivic Expansion

New material is far less prevalent than is the manipulation of previous motivic material. The only measures to present completely new material are 74 and the first beat of m. 75. Measure 70 presents new material that is quite similar to previous piccolo material (beat two of m. 18, see Fig. 29).



Figure 29: Flute, Similar New Material

Measure 77 is also similar to m. 18 of the piccolo, and even more so to m. 26 with respect to articulation, but intensifies the original models rhythmically with the addition of two

sixteenth notes. One may also view this material as the motive expanded rhythmically and intervallicaly, i.e. a third rather than the previous second (see Fig. 30). Beat one of m. 69, and beat one of m. 78 presents this material in radial symmetry.



Figure 30: Rhythmic Intensification of Previous Material

Remaining material is based on that previously presented by the piccolo. Figure 31 provides a table of this material:

Measure of Flute Material	Measure of Piccolo Material	Alterations other than transposition
64	19 – beat 2	
80 – beat 2	19 – beat 2	
65	19 – beat 2	Radial Symmetry
66	19 – beat 2	Radial Symmetry
71 – beat 1	59 – beat 2	
73	11	
76	11	Radial Symmetry
79	53	
71 – beat 2	53	Radial Symmetry
72 – beat 2	18 – beat 2	
83 – beat 1	18 – beat 2	
83 – beat 2	18 – beat 2	Radial Symmetry

Figure 31: Previously Presented Variant Material

Creating Momentum

Chávez states: "*Xochipilli* is a three part piece. In the first and last parts percussion and flutes would suggest great festivities. . . . The music of the sacred festivities was preponderantly rhythmical and active."[290] Part 1 of *Xochipilli*, mm. 1–83, evokes these characteristics, but gradually so. Through the thickening of instrumental texture and increasingly contrapuntal relationships, Chávez eventually arrives at a music that he describes as, "implacable in its rhythm, strong and obstinate."[291]

The beginning of *Xochipilli* is contemplative, limited in motion and activity. This is realized by the presentation of the motive three times in the first four measures by a solo piccolo. Motion becomes less static with the presentation of only fragments of the motive or wholly new material, i.e., a decrease in presenting the identifiable, concretive motive results in a more continuous, perpetually moving melodic line.

Adding also to the momentum of the first thirty measures is the contrapuntal relationship of the solo piccolo with the percussion. The combined parts in m. 7 create constant sixteenth notes, but only for that measure. This relationship occurs again, and at greater length, in mm. 17–19, briefly in m. 21, and to greatest extent in mm. 24–30. The addition of a second percussion instrument in m. 23 also adds intensity.

Measures 31–60 see a further increase in momentum. Although the flute repeats the solo piccolo, the previous stasis of the first four measures of that solo (now mm. 31–34) is offset by the contrapuntal relationship with the bongos of percussion player 3. In fact, most material in these measures has some contrapuntal relationship resulting in a

[290] Chávez, *Xochipilli*, preface.
[291] Ibid.

perpetual sixteenth note composite rhythm. Perpetual sixteenth notes also become a feature of single instruments, such as the majority of piccolo material in mm. 49–60. And of course, the thickening of instrumental texture adds to the intensity.

Measures 61–83 are the most active of Part 1. Composite sixteenth rhythms abound, particularly in the percussion, the flute material is composed almost entirely of sixteenth notes, and the instrumental texture is at its greatest.

Clarinet: A Melody of "Inner Concentration"

In addition to music for sacred festivities, Chávez distinguished music "which accompanied poetical expressions of a deep lyrical or religious character."[292] He remarks of *Xochipilli*, "the middle part could very well confirm the melodies of inner concentration which parallel the deep lyrical poetry [of the Aztecs]."[293] Indeed, Part 2 evokes this aesthetic, but prior to this section, Chávez introduces in mm. 62–83 a languid melody played by the clarinet to 1) prefigure the forthcoming second section, and 2) balance the momentum of the final portion of Part 1.

The melody begins on concert pitch C that, according to precedent, would make this the principal pitch. Furthermore, a preponderance of C major triads in mm. 62, 63, 64, 65 and 76 suggest a strong tonal center with C as the principal or final–in tonal terms, the "tonic" pitch. Accepting this notion results in a reordering of pentatonic scale A, C, D, E, G to C, D, E, G, A, a compositional technique described by Chávez: "In discussing their [Aztecs] music one might therefore appropriately speak of five different melodic

[292] Chávez, *Xochipilli*, preface.
[293] Ibid.

modes, each of them acknowledging a different tonic in the pentatonic series."[294] Thus, A, C, D, E, G would also yield C, D, E, G, A / D, E, G, A, C / E, G, A, C, D / G, A, C, D, E. Since Part 1 explores third relations, Chávez chooses the ordering whose principal pitch is a third from the original. Therefore C, D, E, G, A becomes the utilized pentatonic scale for the clarinet melody (Fig. 32).

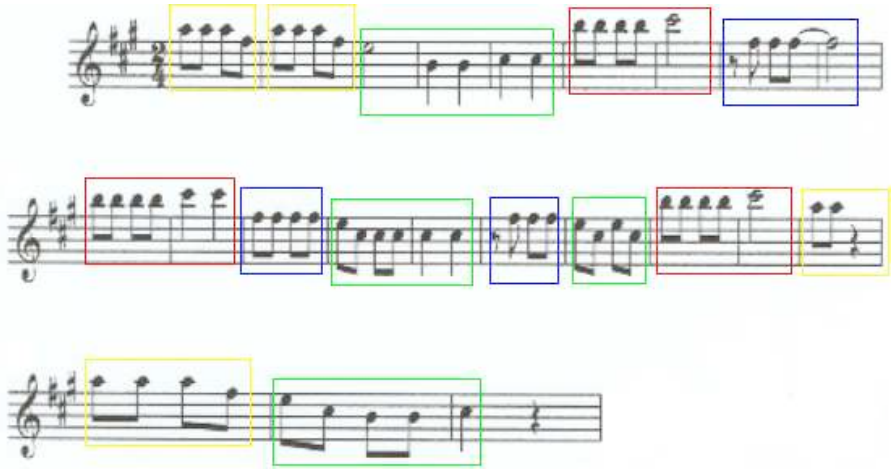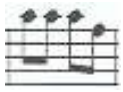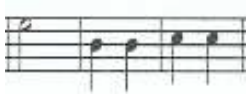


Figure 32: Clarinet Melody, mm. 62–83

Highlighted in the above clarinet melody (Fig. 31) are four identifiable motives and material that either repeats or is similar. These motives and a description of their characteristics are as follows: (Clef, key, and time signatures are maintained.)



Motive A
Pitch: Begins on A_5, leaps to and ends on $F^{\#}_5$.
Pitch Range: Minor third
Rhythm: Eighth notes



[294] As quoted by Romero, *Musica*, 252–253.

Motive B
Pitch: Begins on E_5, most often leaps to B_5, ends on $C^{\#}_5$
Pitch Range: Perfect Fourth
Rhythm: Half, quarter and eighth notes



Motive C
Pitch: Begins on B_5, ascends and ends on $C^{\#}_6$
Pitch Range: Major Second
Rhythm: Half, quarter and eighth notes



Motive D
Pitch: Comprises only $F^{\#}_5$
Rhythm: Half and eighth notes
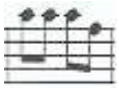
To facilitate the comparison of this melody to one of the Yaqui Indians, the above will be organized into a four-part form, determined primarily by the introduction and the return of the A motive, and consistencies in pairing motives.

Part 1 is composed of A, A, and B;
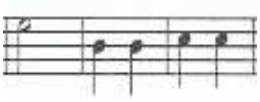
Part 1



(A)



(A)



(B)

Part 2 is composed of C + D iterated twice;

Part 2



(C + D)



(C + D)

Part 3 is composed of B + D and B + C;

Part 3



(B + D)



(B + C)

Part 4 is composed of A, A, and B:
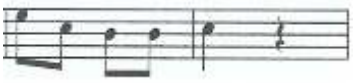
Part 4



(A)



(A)



(B)

The Yaqui song "Summer Rains" (Fig. 33) will be similarly analyzed.

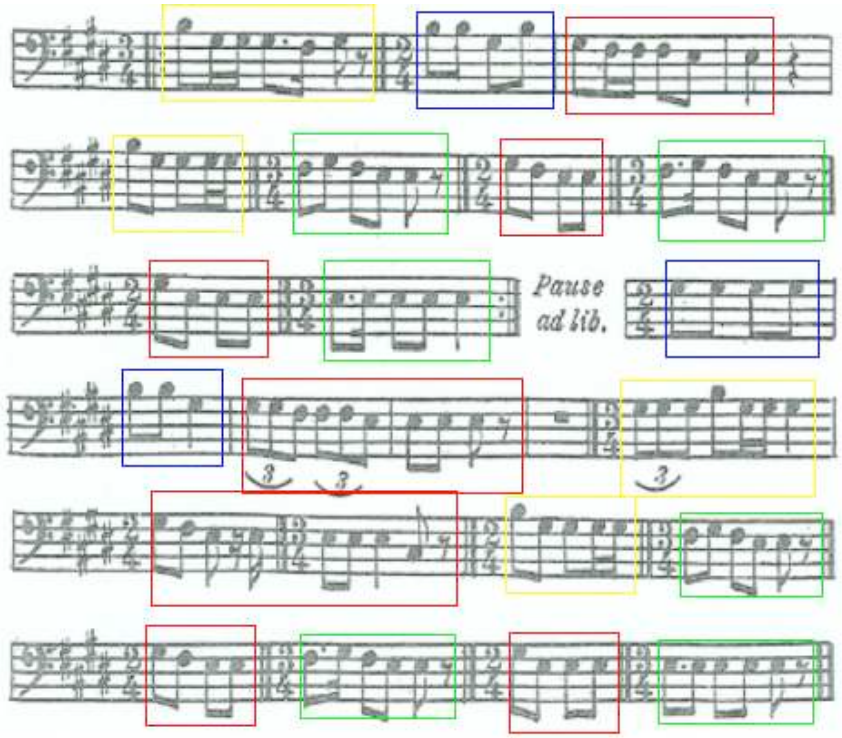


Figure 33: "Summer Rains"[295]

Like Chávez's clarinet melody, four motives may be identified in "Summer Rains." These, along with repeated or similar material are highlighted above in Figure 33.

Characteristic features are as follows: (Clef, key, and time signatures are maintained.)



Motive A
Pitch: Begins on B_3, leaps to and ends on $G^{\#}_3$.
Pitch Range: Minor third
Rhythm: Eighth and sixteenth notes, variations include dotted eight and eighth note triplet
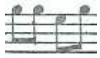
[295] Transcribed by Densmore, *Yuman*, 161.



Motive B
Pitch: Begins on $F^{\#}_{3}$, ascends to $G^{\#}_{3}$, and ends on E_3.
Pitch Range: Major third
Rhythm: Dotted eighth and/or eighth notes



Motive C
Pitch: Begins on $G^{\#}_{3}$, descends to and ends on E_5.
Pitch Range: Major third
Rhythm: Eighth notes, variations include eighth note triplets and sixteenths



Motive D
Pitch: Begins on B_3, leaps to $G^{\#}_{3,}$ and either ends on $G^{\#}_{3}$ or returns to B_3.
Pitch Range: Minor third
Rhythm: Primarily eighth notes, quarter note in second presentation

"Summer Rains" may also likewise be organized into a four-part form as follows:

Part 1 is composed of motives A, D, C, A, and B;

Part 1



(A)



(D)



(C)
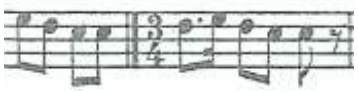


(A)
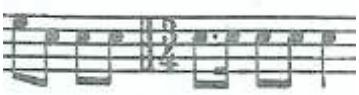


(B)

Part 2 is composed of C + B iterated twice;

Part 2



(C + B)



(C + B)

Part 3 is composed of D + C and A + C;

Part 3



(D + C)



(A + C)

Part 4 is composed of A + B and C + B iterated twice:

Part 4



(A + B)



(C + B)

Figure 34 will make clear the similarities in structure:

Section	*Xochipilli*	"Summer Rains"
1	A + A +B	A + D + C + A + B
2	(C + D) (C + D)	(C + B) (C + B)
3	(B + D) (B + C)	(D + C) (D + C)
4	A + A + B	(A + B) (C + B)

Figure 34: Comparative Structure

Part 1 of both *Xochipilli* and "Summer Rains" begins with the presentation of individual motives. Part 2 of both sees the pairing of two motives that are repeated. Part 3 sees a different pairing of motives. *Xochipilli* pairs motive B with separate motives D and C, while "Summer Rains" repeats the same pairing. Like Part 3 of *Xochipilli*, Part 4 of "Summer Rains" pairs motive B with separate motives A and C. Part 4 of *Xochipilli* differs in presenting individual motives A, A, and B. While not exact, similarities in the use of individual motives and the pairing of motives legitimize Chávez's clarinet melody as sharing indigenous qualities.

Part 1: Summary

Thus concludes the tonal analysis of Part 1 of *Xochipilli*, a portion defined by motivic and thematic identity, casual counterpoint, building momentum, and the introduction of a languid clarinet melody. Harmonically, the pentatonic scale A, C, D, E, G is arrived at through relationships at the major third (pentatonic scale $C^{\#}$, E, et. al.) and inversely, minor third (pentatonic scale $F^{\#}$, A, et. al.). Transposition of material also occurs at the octave, fourth, and fifths, all deriving from Chávez's theoretical notion of Aztec musical techniques. An A-major, septatonic modality is prominent through triadic relations (A-$C^{\#}$-E and E-$G^{\#}$-B-

D), and collective pitches of an A-major scale, all achieved while maintaining "Indianistic" integrity through the use of pentatonic scales. Furthermore, motives and themes of Chávez are akin to transcriptions of living traditions affirming *Xochipilli*'s indigenous character.

Part 2: mm. 84–134

Part 2, like Part 1, may be divided into three subsections: 1) mm. 84–98, a clarinet solo, 2) mm. 99–116, addition of piccolo and teponaztli duet,[296] and 3) mm. 117–134, addition of flute. Each subsection will be discussed in the following pages, but a brief harmonic scheme will presently be summarized.

Whereas Part 1 explored major and minor third relations to the pentatonic scale A, C, D, E, G, Part 2 explores fifth relations with A remaining as the principal pitch. The first sub-section, mm. 84–98, begins with the piccolo and flute sounding pitches a fifth above A, E_7 (as sounded by the piccolo in its true register), and fifth below, D_6. (The clarinet solo's harmonic scheme is ambiguous and will be discussed later.) Sounded by the piccolo in mm. 99–116, the second sub-section, these pitches return as principal pitches resulting in transpositions of Chávez's presented pentatonic scale (A, C, D, E, G) at the fifth above, E, G, A, B, D and below, D, F, G, A, C. A-modality is maintained in these measures as affirmed by a pentatonic scale including the leading tone of $G^{\#}$.

Further exploiting the fifth relation, Chávez transposes piccolo material from mm. 99–116 a fifth below, now sounded by the flute in mm. 117–134, the third sub-section of Part 2. In these measures, D becomes the principal pitch; pentatonic scales included those

[296] The teponaztli duet will be discussed in the Rhythmic Analysis portion of this paper.

with principal pitches a fifth above, A, C, D, E, G (Chávez's presented pentatonic scale now in the context of D) and a fifth below, G, B^{b}, C, D, F. As in mm. 99–116, a pentatonic scale affirming now D as a central pitch exists, including a leading tone $C^{\#}$. Chávez does use other pentatonic scales than those mentioned, but those will be discussed with the analysis of each sub-section.

As stated, Part 2 begins simply with a clarinet solo, and determining a principal pitch for the utilized scale in this solo is ambiguous. While the beginning of the melody suggests E as a principal pitch, phrasing suggests a continuance from mm. 61–83 with C as the principal pitch. The following will examine this ambiguity as well as compare the clarinet melody in mm. 84–98 to that of indigenous and Spanish influences.

Subsection 1: Clarinet Melody, mm. 84–98

Recall that Chávez described the middle section of *Xochipilli* as confirming "the melodies of inner concentration which parallel the deep lyrical poetry [of the Aztecs]."[297] Spanish chronicler Diego Duran observed such type of song amongst the Aztec:

> Their poets gave each song and dance a different tune, just as we employ a different tune when we are singing different types of poetry such as the sonnet or the *octava prima* or *terceto*. Typical of the pronounced differences encountered in their dance music was the contrast between the solemn and majestic songs and dances performed by the nobility, and the lighter love songs danced by the youths.[298]

Part 2 begins with such a lyrical melody as presented by the clarinet (Fig. 35).

[297] Chávez, *Xochipilli*, preface.
[298] Diego Durán, *Historia*, bk. 2, 230.
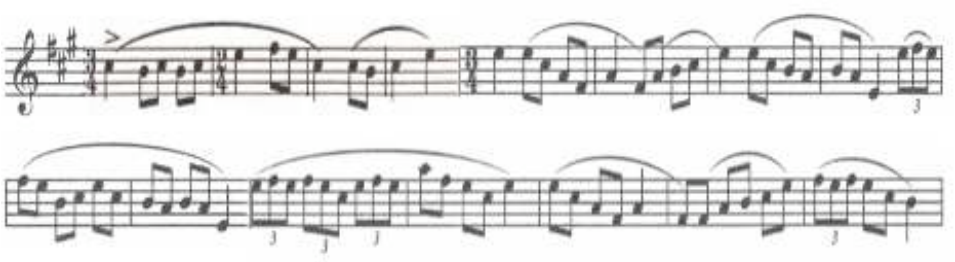


Figure 35: Clarinet Melody, mm. 84–98

The above excerpt begins on concert pitch E_5 and oscillates with concert pitch D_5. The fact that E is the first pitch of the oscillation would suggest, according to precedent (set by initial motive in m. 1), that it is the final, resulting in a re-ordering of the original pentatonic scale as E, G, A, C, D. The arrangement, however, disagrees with the prominence of a minor third and a fifth above the final, i.e. E to G is a minor third, however, E to B, a fifth relation, does not exist. The previous ordering from mm. 61–83, **C**, D, **E**, **G**, A, however, maintains the prominence of third and fifth relations, albeit a major third. Therefore, a case may be made that C continues to be the principal pitch, a continuing trend from the previous clarinet melody of Part 1.

The choice of C as the principal pitch also agrees with the overall scheme of Part 2 exploiting fifth relations. Of the seven asymmetrical phrases (see chart below in Fig. 36), six end on G (clarinet pitches will be considered in concert pitch). If C is accepted as the principal pitch, then each phrase ends on the dominant pitch, a cadence in need of resolution according to Western tonal concept, and reciprocally allying with Chávez's belief of Aztec melody to be continuous. Likewise, the entire passage ends on D, another cadence in need of resolution to the final pitch C.

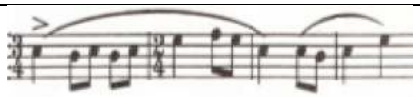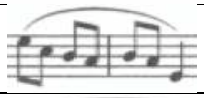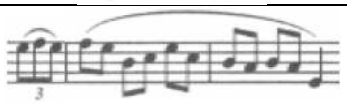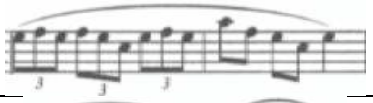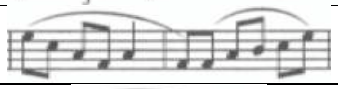
Phrase	Excerpt
1	
2	
3	
4	
5	
6	
7	

Figure 36: Asymmetrical Phrases, mm. 84–98

Also affirming C as the principal pitch are two instances of arpeggios in mm. 88–89 and m. 96. The four-note arpeggios outline a C-major triad, descending from G. Although descending beyond C to an A, the arpeggio returns to an agogically accented quarter-note C (see Fig. 37).



Figure 37: Arpeggios, mm. 88–89, 96

In isolation, the clarinet melody could also be considered as utilizing a pentatonic scale of whose principal pitch is G, especially in that, of the seven phrases, five begin and end on this pitch. However, like the ordering with E as tonic, G, A, C, D, E does not

maintain the third and fifth intervallic prominence of prior orderings, making C still the likely choice as the principal pitch.

Again, the choosing of a principal pitch is a Western concept and is done only in order to understand a compositional construct. Doing so, however, proved difficult. The choice of C as the principal pitch seems to be the most practical in that 1) the resultant order of pitches maintains a third and fifth relation above the final, 2) it adheres to the scheme of fifth relations in Part 2 (C to G as realized in Fig. 36), and 3) it is consistent with the ordering of pitches in mm. 61–83, thus making the entrance of the clarinet in those measures a prefiguring melody. The fact that choosing a principal pitch in mm. 84–98 is challenging gives credit to Chávez in creating a melody that defies a tonal system, a characteristic of indigenous music.

An Indigenous Comparison

According to Chávez, the clarinet melody is specifically attributable to Aztec music in that it is lyrical and continuous. Lyrical in that it is set at a considerably slower tempo than previous (quarter = 58 compared to quarter = 100), is composed of only quarters, eighths, and eighth-note triplets (versus the perpetual sixteenth note drive of Part 1), and if C is accepted as the principal, it evokes, to a Western ear, a pleasant major modality. The melody is continuous due to the lack of rests and forward-looking cadences that end mostly on dominant pitches.

The above characteristics evolve from Chávez's compositional techniques, but they also can be compared to indigenous techniques of melody formation. These

techniques, however, cannot be compared to examples of the Aztec, and thus must once again be compared to surviving examples of living traditions. “El Grillo,” a transcription taken from the Otomí will serve as a point of comparison, chosen in that it shares the characteristics of 1) a continuous melody, 2) arpeggiations, and 3) the alternation of triplet and duple figures.
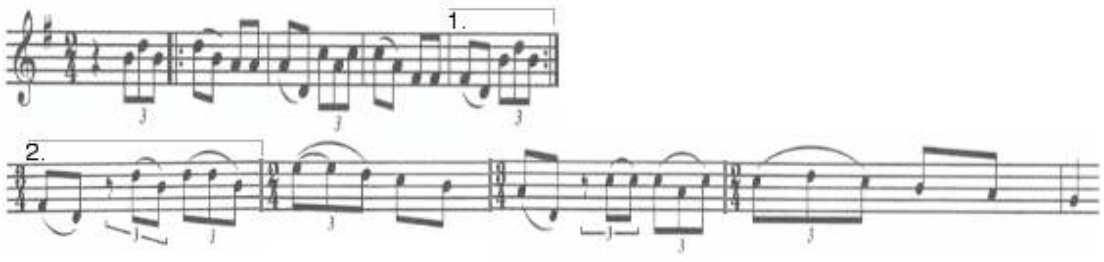


Figure 38: “El Grillo”[299]

This Otomí version of “The Cricket” is similar to the previous Huichol song of the same translated title (see Fig. 5, “Son de la Chicharra”) in that it is composed of a repeating mordent figure, both upwards and downwards in triplet third figures, and some repeated material such as the eighth-note figure composed of an A_4 leaping downwards to a D_4. The mordent and eighth-note figure define the phrases of “El Grillo” (see Fig. 39 below):

[299] Transcribed from original as it appears in Vicente T Mendoza, *Música indígena otomí: investigación musical en el Valle del Mezquital, Hidalgo, en 1936*, 2a ed. (Mexico: Universidad Nacional Autónoma de México, 1997), 152.
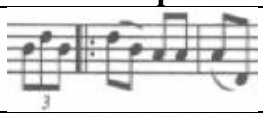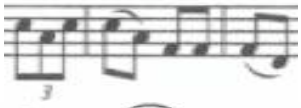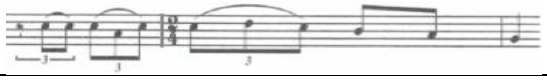
Phrase	Excerpt
1	
2	
3	
4	

Figure 39: Phrases of "El Grillo"

The Otomí version differs from the Huichol, however, in that the half-step $F^{\#}$ to G suggests G as the principal pitch. In fact, Mendoza provides a G-major septatonic scale with the transcription of "El Grillo," suggesting the melody is indeed based on this modality. Accepting Mendoza's assessment allows one to compare the continuity of this melody to that of Chávez's clarinet melody. If G is considered the principal pitch, then each phrase, save for the last, ends on the dominant pitch D, a forward-looking cadence. In fact, the second phrase outlines an arpeggiated dominant seventh chord, a half-cadence also affirming a continuous melody. Also of note is the lack of substantial rests, likewise resulting in a continuous line.

That Chávez's clarinet melody is comparable to one of the Otomí suggests an indigenous influence. The Otomí's connection to the Aztec has been earlier addressed and defined as *maceualli*. The inclusion, however, of a Western septatonic scale with the transcription of "El Grillo" also reveals a strong Spanish influence. Spanish influence on the Otomi has also been discussed in choosing the "two small Indian drums" indicated in the score of *Xochipilli* (see Two Small Indian Drums). Likewise in choosing the Otomi

drum, a comparison of Chávez's clarinet melody to that of the Otomi suggests a reciprocal influence of indigenous and European-derived traditions.

Subsection 2: mm. 99–116

Whereas the pentatonic scale utilized in mm. 84–98 was ambiguous, those used in mm. 99–116 are apparent, relying on the predilection of the minor third and perfect fifth and the continuance of A as a principal, governing pitch. Pentatonic scales in these measures are transpositions of Chávez's presented scale A, C, D, E, G at 1) the fifth above; E, G, A, B, D, and 2) the fifth below: D, F, G, A, C. Introduced in these measures is also the pentatonic scale $C^{\#}$, E, $G^{\#}$, A, B, including a half-step leading tone to A, thereby strengthening the prominence of A, and $C^{\#}$, E, $F^{\#}$, $G^{\#}$, B, further strengthening an A-major modality. Figure 40 provides a table identifying locations of these scales:

Pentatonic Scale	**Measures Appearing in Piccolo**	**Measures Appearing in Clarinet**
E, G, A, B, D	99–downbeat 102, 106–108, 2nd beat 113–downbeat 114	102–116
D, F, G, A, C	103–downbeat 104	N/A
$C^{\#}$, E, $G^{\#}$, A, B	104–105, 2nd beat 112–downbeat 113	N/A
$C^{\#}$, E, $F^{\#}$, $G^{\#}$, B	2nd beat 108–109	N/A

Figure 40: Pentatonic Scales, mm. 99–116

Clarinet Melody

As if announcing the principal, governing pitches for both mm. 99–116 and mm. 117–134 of Part 2, the clarinet in m. 99 respectively sounds a quarter-note A followed by

two eighth-note Ds, one an octave below and the other an octave above.[300] From Figure 40, one can see that the only pentatonic scale used by the clarinet is E, G, A, B, D. The clarinet does, however, sound the pitches $C^{\#}$ and $G^{\#}$ lying outside of this pentatonic set. These pitches serve two purposes, 1) to prefigure and affirm the importance of D and A (like in m. 99) by sounding respective leading tones, and 2) to re-establish the prominence of the minor third (in this case $C^{\#}$-E).

In m. 101, the piccolo with the clarinet and flute collectively sound the triad $C^{\#}$-E-$G^{\#}$ emphasizing the minor third quality that Chávez believed to be a preference of the Aztec. This contrasts to the major quality of the previous clarinet melodies and therefore marks a return to the original predilection of pentatonic scale orderings. Thus, the clarinet, other than the $C^{\#}$ and $G^{\#}$ of m. 101 that signify the return to a minor third predilection, utilizes pitches from the scale E, G, A, B, D, a transposition at the fifth of the initially presented A, C, D, E, G.

The clarinet melody itself is quite reminiscent of that in mm. 84–98 in that it is composed of quarters, eighths, and eighth-note triplets, and most importantly, arpeggios in mm. 106 and 110. These tertian arpeggios descend from D and end on E, denoting an E-minor seventh chord (D-B-G-E), further affirming the ordering of the pentatonic scale with E as the principal pitch. Also affirming E as principal are E-minor triads on the second beats of mm. 108, 112, and 114.

[300] Measures 99–116 are composed of pentatonic scales with principal pitches in fifth relations to A, and include a new pentatonic scale composed of a leading tone $G^{\#}$. In mm. 117–134, pentatonic scales with principal pitches in fifth relations to D are introduced. Additionally, a new pentatonic scale including a leading tone $C^{\#}$ is introduced, likewise suggesting D as the principal pitch for these measures. These characteristics will be discussed later in the body of this paper.

Piccolo Melody

The first two beats of the piccolo melody, in mm. 99–102, are similar to that of the clarinet in mm. 84–87 (see Fig. 41 below):

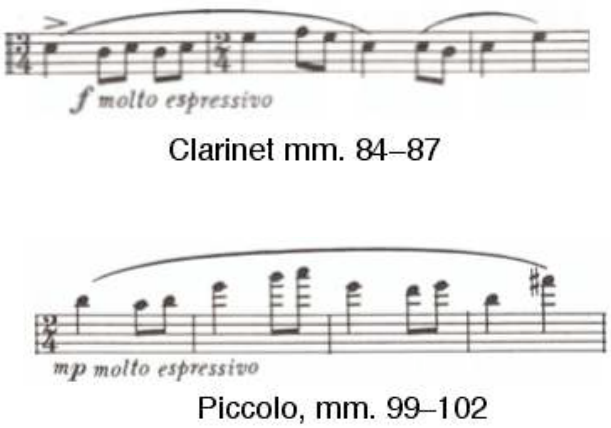


Figure 41: Piccolo / Clarinet Melodies

With the exception of an additional pair of eighth notes in m. 84 of the clarinet, the rhythms are identical. Both melodies begin with an oscillation between pitches a major second apart, and both melodies ascend, descend, oscillate again, and leap upwards to end.

A striking difference is that the clarinet melody ends a minor third above its beginning pitch (E/C$^{\#}$) and the piccolo melody ends a fifth above its beginning pitch (B/F$^{\#}$). Moreover, whereas mm. 84–98 were ambiguous concerning the ordering of the pentatonic scale (C, E, D, G, A whose principal pitch is a minor third relation from the pentatonic scale A, C, D, E, G, versus a fifth relation, E, G, A, C, D), mm. 99–116 are clearly composed according to fifth relations as signified by the B/F$^{\#}$ fifth relation.

As explained previously (see Clarinet Melody above), the utilized pentatonic scale for the clarinet in these measures is E, G, A, B, D. The same holds true for the

piccolo in these opening measures (mm. 99–102) save for the $F^{\#}$ in m. 102, whose purpose, in relation to the preceding pitch B, is to affirm the exploration of fifth relations. Following the $F^{\#}$ in m. 103, the piccolo sounds the pitches G, F, D, C. If one includes the A on the downbeat of m. 104, the pentatonic scale D, F, G, A, C arises, a transposition of A, C, et. al. at the fifth below. Thus preceding the $F^{\#}$ is a transposition of A, C, et. al a fifth above, and following the $F^{\#}$, the pentatonic scale is transposed a fifth below.

In mm. 104–105 are pitches that construct a new pentatonic scale, $C^{\#}$, E, $G^{\#}$, A, B, the first scale to include a semi-tone.[301] The $G^{\#}$ leading-tone to A further affirms that A is the principal, governing pitch in this subsection (mm. 99–116). Following in mm. 106–108 are pitches from the pentatonic scale E, G, A, B, D, similarly ending on an $F^{\#}$, anomalous in terms of pentatonic content.

These pentatonic scales are not readily apparent due to Chávez's compositional style. For example, mm. 105–108 are composed of both pentatonic scales $C^{\#}$, E, $G^{\#}$, A, B and E, G, A, B, D, and the anomalous $F^{\#}$. Chávez's slur markings, however, obscure these divisions. Likewise, mm. 109–110 are slurred, but also composed of two scales $C^{\#}$, E, $G^{\#}$, (A), B and D, F, G, (A), C. The result is a wandering, lyrical line that Chávez believed to be reflective of Aztec musical compositions.

Measure 111 to the downbeat of m. 112 is the same material as m. 99 to the downbeat of 110 but beginning on A than B. The repetition, however, is interrupted by a leap by tritone (versus a fifth) to a $G^{\#}$.[302] The $G^{\#}$ descends tertially to an A forming an A-

[301] The ordering of pitches has been maintained to exhibit the prominence of the minor third and perfect fifth, **$C^{\#}$, E, $G^{\#}$**, A, B.
[302] Chávez exploits the tritone relationship in Part 3.

major seventh chord ($G^{\#}$-E-$C^{\#}$-A). Following on the second beat of m.113 through m. 114 is a repetition of that which was just presented in mm. 111–112. The D again leaps by tritone to a $G^{\#}$, but rather than descending tertially to an A, the material ends on a D marking a new focus with D as the principal pitch in the measures to follow.

Coinciding with the quarter note D's in m.115 is the entrance of the flute on the second beat, also on a D, and the pitches A, G, and D in the clarinet. Present in this transitional measure is 1) D, the new principal pitch, 2) A, former principal pitch, but now contextually as the fifth above D, and 3) G, a fifth below D.

Measure 116 reiterates the compositional devices previously used. Both piccolo and flute sound an E and D in unison, former fifth relations to A. The clarinet likewise sounds an A, E, and D, as well as a B, which combined with m. 115 includes all pitches in the pentatonic scale E, G, A, B, D, a pentatonic scale derived from fifth relationships.

Subsection 3: mm. 117–134

Chávez continues to compose according to fifth relations in mm 117–134. The clarinet repeats exactly material from mm. 99–116 but utilizing the scale A, C, D, E, G, a transposition at the fifth below the previous E, G, A, B, D. Resulting from the transposition of m. 101, the clarinet in m. 119 presents $C^{\#}$ and $F^{\#}$, two pitches lying outside of the current pentatonic scale. Similarly to the accidentals in m. 101, these pitches serve as leading tones, in this instance to 1) D, the new principal pitch, and 2) G,

a fifth below D, the tonic pitch of a utilized pentatonic scale in this sub-section (see below).[303]

Material presented by the flute further suggests D as a principal pitch. The flute repeats exactly the material presented by the piccolo in mm. 99–116 but transposed a compound fifth below. Whereas pentatonic scales were compared in fifth relations to A, C, D, E, G in mm. 99–116, likewise, pentatonic scales are comparable in fifth relations to D, F, G, A, C in mm. 117–1134. Resultant scales are thus: 1) A, C, D, E, G, a fifth above D, F, et. al. (presented in mm. 103–104 and 110–112), 2) G, B^{b}, C, D, F, a fifth below D, F, et. al., and 3) $F^{\#}$, A, $C^{\#}$, D, E, a new scale including the semi-tone $C^{\#}$/D. Most clever in this sub-section, though, is that Chávez never utilizes the scale D, F, G, A, C, but, nonetheless, its presence may be insinuated according to the principles previously exploited in mm. 99–116.

Piccolo

The majority of the piccolo material in mm. 117–134 is composed of either 1) a three-pitched figure such as that in m. 119 or 2) a two-pitched figure such as that in m. 130 (see Fig. 42 below):

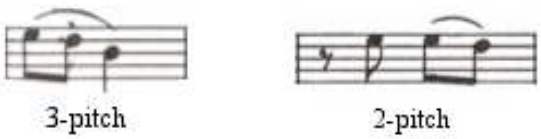


Figure 42: Piccolo Figures

[303] The pitches are also, respectively, a major third above and minor third below the previous principal pitch A; recalling the major/minor third juxtaposition that separates subsection 1 and subsection 2 of Part 2.

The three-pitched figures always begin on the downbeat, are composed of two eighth-notes followed by a quarter-note, and are always followed by a downbeat rest (m. 117 marks the only incident where the quarter-note is tied to the following downbeat). These figures occur in mm. 117, 119, 121, 123, 125, 129, 132, and 134. The two-pitched figures always begin on the off-beat following the downbeat and are composed of three eighth-notes. These figures occur in mm. 118, 122, 124, 130 and 133. The contour of both types descends.

Three permutations of these figures occur in mm. 120, 126, and 131. The figure in m. 120 combines the characteristics of being composed of three pitches, beginning on the off-beat, and being composed of three eighth-notes. The figure in m. 126 maintains only characteristics of the two-pitched type, but alters the order resulting in a change of contour (ascend/descend). The figure in m. 131 begins on the downbeat but then moves to a combination similar to m. 126, thus resulting in an additional eighth-note, but is still composed of only three pitches. The contours of all three permutations vary from the original.

The majority of these figures use pitches that coincide with those pentatonic scales utilized by the flute and clarinet. A chart of these relations:

Measure	Coinciding Instrument	Utilized Pentatonic Scale
118 and 120	Flute and Clarinet	A, C, D, E, G
121–122	Flute	G, B^b, C, D, F
123–126	Flute and Clarinet	A, C, D, E, G
129	Flute	G, B^b, C, D, F
130–131	Clarinet	A, C, D, E, G
133	Flute and Clarinet	A, C, D, E, G

Figure 43: Coinciding Pitches

Lying outside of the above tendencies is the pitch B that is sounded in mm. 117, 119, 123, 127, 132, and 134. This creates a tonal conflict. In mm. 119, 123, and 127, B, combined with the pitches of the flute and clarinet, form E-G-B, the dominant minor triad in support of A. On the second beat of m. 117, B combines to form the triad G-B-D, the dominant major triad in support of D. The D, however, quickly moves to an E on the following eighth-note now forming the minor triad E-G-B. Herein lies the purpose of the piccolo part: to sustain the prominence of A and thereby continue the conflict between A and D.

Sustaining the Prominence of A

While pentatonic scales utilized in mm. 117–134 by the flute and clarinet suggest D as the principal pitch, material presented by the piccolo sustains the prominence of A. Chávez reveals this device in the first three measures, 117–119, of this sub-section.

In m. 117, Chávez creates the three-pitched figure with pitches E, G, and B. Whereas E was formerly viewed as a fifth above A, it may now readily be viewed as the second above D. Likewise, G may be viewed as the fifth below. The B, combined with pitches from the clarinet and flute, form G-B-D, a sub-dominant triad of D. The three-pitched figure is repeated in m. 119. The B in this measure, however, now combines with the clarinet and flute to form E-G-B, a dominant chord of A, contrarily supporting A.

In m. 118, lying between the presentations of the repeated three-pitched figure, is a two-pitched figure composed of the pitches E and D. These pitches viewed in light of the preceding measure places E as the second above D, but viewed in light of the following measure recalls the previous fifth relations to A. Likewise, the triads G-B-D and E-G-B may be viewed in the context of both A and D, revealing a balance between the two conflicting tonal areas. G-B-D is the dominant triad below D as well as a second below A. E-G-B is the dominant fifth above A and a second above D.

Such fifth and second relations also occur in the final measure of this sub-section. On the second beat of m. 134, the wind instruments collectively sound the pitches G, D, A, E, and B. Arranged in this manner, the fifth relations between pitches is apparent, parallel to the relationships of pentatonic scales throughout this section. In the context of A, present is the fifth above and below, E and D as well as the second above and below, G and B. In the context of D, present are the fifth above and below, A and G, and the second above, E.

Missing from m. 134 is the pitch C, the second below D. In mm. 117–134, C appeared as a pitch belonging to the dominant scales above and below D: A, C, D, E, G and G, B^{b}, C, D, F. Also in these measures, $C^{\#}$ appeared as the leading tone to D in the

scale $F^{\#}$, A, $C^{\#}$, D, E. Similarly, in mm. 99–115, G and $G^{\#}$ were present in the context of A, G as part of the pentatonic scales E, G, A, B, D and D, F, G, A, C and $G^{\#}$ as the leading tone to A in the scale $C^{\#}$, E, $G^{\#}$, A, and B. The lack of appearance of C in m. 134 weakens D as a principal pitch, thereby strengthening A.

Measures 127–128, Fifth Relations and Major versus Minor Qualities

Measures 127–128 of the piccolo part present the only material differing from the two and three-pitched figures described above. At this point, Chávez exhibits several compositional devices thus far exploited: the prominence of A and D as principal pitches, minor and major third relations, and movement by fifths. These two measures thus serve as a microcosm of this subsection (mm. 117–134), as seen in a detailed analysis.

In m. 127, presented on the first eighth-note in the clarinet, flute, and piccolo are the pitches D, $C^{\#}$, $G^{\#}$. These pitches could suggest D as principal pitch with a $C^{\#}$ leading tone, however, the presence of a $G^{\#}$, viewed as a leading tone, insinuates the prominence of A. A as a tonal center is realized on the second eighth-note beat when the flute moves to an A rather than resolving to a D, and the clarinet moves to a C-natural, weakening the prominence of D. The piccolo remains on $G^{\#}$, further strengthening A.

The third eighth-note in m. 127 explores fifth relations. The G in the clarinet may be viewed as the fifth below D, the E in the piccolo as the fifth above A, and the $F^{\#}$ as 1) a leading tone to G, 2) a reminder of the fifth relation to B in m. 102, or 3) as a pitch lying between A and D, a minor third below and major third above respectively. The final eighth-note of the measure presents the triad E-G-B suggesting the dominant triad of A.

Following the lead from the last eighth-note of the previous measure, m. 128 explores the depths of fifth relations. The first eighth-note of this measure presents the pitches G, C, and G–C being the fifth below G. While the pentatonic scale G, B^{b}, C, D, F is arrived at in mm. 121–122, the transposed scale C, E^{b}, F, G, A is never realized in Part 2. Had Chávez created a fourth sub-section following the trend of transposing by fifths with G as a principal pitch, this scale would most likely have been used. Chávez, however, extends the technique only to fifth relations to A (mm. 99–115), and D (mm. 117–134).

The second eighth-note of m. 128 sounds a diminished E-G-B^{b} triad that moves, rather than resolves, to pitches C, G, and C on the third eighth-note of m. 128. Present again is the possibility of continuing fifth relations. Extending this concept, Chávez presents in the flute an F, the fifth below C. This pitch, however, is accompanied by an A and a D. As on the third eighth-note of m. 127, F is rather viewed as a pitch lying a minor third above D and a major third below A. Summarizing the pentatonic and tonal implications of pitches in these dense two measures:

1) $C^{\#}$ – leading tone to D and major third above A;
2) C – pitch in a pentatonic scale but also as a pitch a fifth below G, minor third above A;
3) $G^{\#}$ – leading tone to A;
4) G – pitch in a pentatonic scale and as the fifth below D;
5) $F^{\#}$ – major third above D, minor third below A;
6) F – minor third above D, major third below A;
7) C-G-D-A-E – fifth relations.

Part 2: Summary

In conclusion, mm. 84–134 denote Part 2 of Chávez's three-part *Xochipilli*. While presenting the most lyrical of music, it happens to be the densest harmonically. The first sub-section, mm. 84–98, contrarily resists Western notions of tonal and harmonic systems by presenting a solo melody composed of a pentatonic scale whose principal pitch is ambiguous. Relying on precedent and stated predilections, the following sub-section, mm. 99–116, clearly explores fifth relations to Chávez's presented scale in his program notes: A, C, D, E, G. This exploration is affirmed by the transposition by fifth of this sub-section's material in the final sub-section, mm. 117–134.

While continuing to use only pentatonic scales, thereby maintaining Indianistic integrity, Chávez manages to impose Western concepts of major and minor modalities, harmonic interrelationships particularly as they apply to the balance of A and D as central pitches, and in general, a clear systemized plan. Meanwhile, repetition, Chávez's most identifying characteristic of "magic song," dominates. Part 2 is truly a masterful balance of indigenous and Western musical techniques.

Part 3: mm. 135–269

As Chávez stated, the final part of *Xochipilli* returns to music resembling what he believed to be used by the Aztec "for great sacred festivities . . . implacable in its rhythm, strong and obstinate."[304] It is dominated by percussion, including a percussion ensemble solo in mm. 181–232, thereby placing it among other noted works for percussion

[304] Chávez, *Xochipilli*, program notes

ensemble. Part 3, like Parts 1 and 2, is divisible into three sub-sections, mm. 135–181, mm. 181–232, and mm. 233–269.

Chávez's use of percussion will be examined thoroughly in the following chapter. The current discussion will conclude the examination of tonal instruments in *Xochipilli*.

mm. 135–181

In m. 135, as in mm. 84–88, the pitches E and D are sounded, now by the flute and clarinet respectively, reinitiating A as the principal pitch. Affirming this notion is the use of the pentatonic scale A, C, D, E, G sounded by the clarinet in mm. 154–179. In m. 136, it is no coincidence that only the E continues, for what follows is a striking contrast.

In mm. 143–153, the flute presents a melody utilizing the pitches E^b, G^b, A^b, B^b, and D^b. The beginning of this melody borrows the rhythm and the pitches E^b, G^b, and B^b presented by the teponaztli just preceding (see Rhythm below). While these pitches maintain the prominence of a minor third and perfect fifth, the principal pitch of the now utilized pentatonic scale is not a third or fifth relation to the principal pitch A, but a tritone. Furthermore, the addition of these pitches has completed the use of all available pitches in the Western 12-tone system. Thus, Chávez composes the final part of *Xochipilli* according to the, at that time, popular 20th century techniques of tritone relationships and chromaticism while once again maintaining indigenous integrity through the use of pentatonic scales.[305]

[305] As to the source of influence in the use of chromaticism and tritones, one should turn to the works of Debussy of whom we know Chávez was familiar. A most simple but well-known example is the opening to

In addition to the use of pentatonic scales, Chávez writes in a characteristically indigenous style through repetition of material, a characteristic of "magic song." The melody presented by the flute in mm. 143–153 is repeated in mm. 154–164, mm. 165–175, and partially in mm. 176–179. The clarinet imitates the material in mm. 156–166, mm. 167–177, and partially in mm. 178–179. As stated, the clarinet transposes this material a tritone below utilizing the pentatonic scale A, C, D, E, G.

The piccolo also imitates the flute melody in mm. 168–178, and partially in m. 179. The piccolo does so using a pentatonic scale whose tonic is a minor third above that of the flutes, $F^{\#}$, A, B, $C^{\#}$, E. Just as the tritone is an equal division of the octave ($A/E^{B}/A$), Chávez cleverly exploits an equal division by minor third between A and E^{b}. Furthermore, this scale is also the transposition of Chávez's presented scale A, C, D, E, G, a third below, comparable to the third above as used in Part 1 ($C^{\#}$, E, et. al.).

A diagram of mm. 143–179:

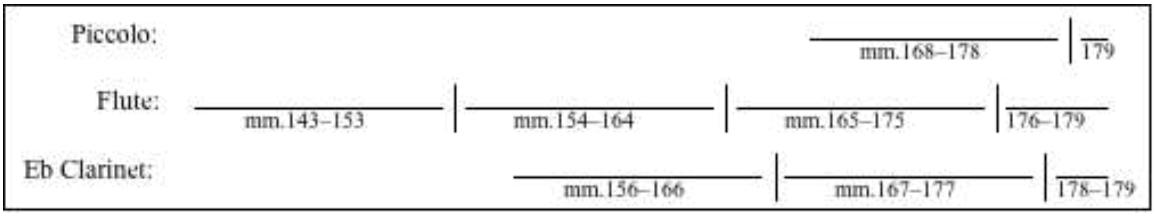


Diagram 1: Imitations

L'après-midi d'un faune that presents a $C^{\#}$ that descends chromatically to a G, a traditionally, harmonically unstable beginning. One cannot help but also mention Béla Bartók who shared with Chávez an interest in folk-melodies, but likewise, would use them in creative, rather than just imitative, ways. While many of Bartók's works exemplify the use of chromaticism and the use of the tritone, an equal division of the octave, his *Fourteen Bagatelles, op. 6* (1906), according to Malcolm Gillies, is pioneering in the use of these techniques (among others). (See Malcolm Gillies. "Bartók, Béla." In *Grove Music Online*. *Oxford Music Online*, http://0-www.oxfordmusiconline.com.wncln.wncln.org/subscriber/article/grove/music/40686pg3 (accessed August 23, 2009). Lastly, in generally mentioning 20th century techniques, one must mention Schoenberg's serialism that perhaps surpassed chromaticism as a technique in making use of all twelve pitches a formal system.

These measures (in Diag. 1) culminate to a rhythmic unison of parts in m. 180, followed by a gradual dissolution of texture in mm. 180–182 (see Fig. 44).
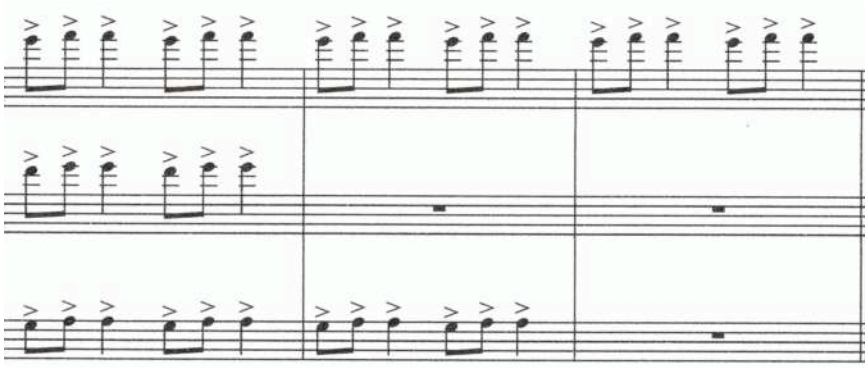


Figure 44: mm. 180–182

While the unison annunciation in m. 180 is reflective of Aztec high art, the dissolution is an invention of Chávez, pointing to his "universal" style.

mm. 236–269

Presented in mm. 236–269, the third sub-section, is a similar structure. This time beginning with the piccolo, the structure is composed of more partial repetitions and includes a four-measure moment of silence in the piccolo, mm. 260–263, all apparent in the following diagram:

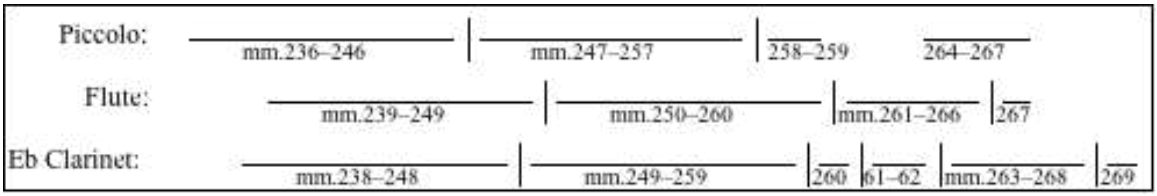


Diagram 2: Freer Imitation

Introduced in these measures is the trombone. The comparison of the trombone to the Aztec *atecocoli* has previously been made (see Atecocoli), but pertinent to the current discussion is its harmonic role. Recalling, the four pitches sounded by the trombone are 1) D and 2) its leading tone $C^{\#}$, 3) $F^{\#}$, a minor third below A, a major third above D, and the equal minor third division of E^{b} and A, and of course 4) A, the dominating principal pitch. As if to further affirm the superiority of A over D, the trombone sounds a majestic double forte A to conclude the piece.

Tonal Conclusion

Thus concludes the examination of tonal wind instruments in *Xochipilli*. Unlike the percussion instruments, Chávez does not indicate indigenous equivalents, although comparisons can and have been made. To clearly realize his harmonic scheme, Chávez most likely preferred the specified tempered Western instruments than the inconsistencies in tuning of surviving archaeological specimens.

Chávez did, however, enforce parameters upon those modern instruments in choosing only pentatonic scales for them to play, a characteristic he believed existed in Aztec music. Furthermore, the melodies that these instruments played are comparable to those of living Mexican indigenous groups indicating an attributable, indigenous character.

Rhythmic Content

Previously introduced as accompaniment to the solo piccolo in Part 1 of *Xochipilli*, the percussion battery and the rhythms it presents serve a greater role and are equal to melodies in reflecting an indigenous style. As with his melodies, however, Chávez was unable to "quote anything directly" in creating his rhythms.[306] Instead, as determined by Robert Parker, "Chávez sought to project the aesthetics of their music."[307]

Chávez proclaimed, "The . . . rhythms in this piece are more than anything the result of my thoughts on topics of Mexican antiquity, and of my unlimited admiration for pre-Cortesian sculpture and painting."[308] Accordingly then, in order to "project" an Indian aesthetic through rhythmic presentation, Chávez must have relied on 1) the maintenance of Aztec musical traditions by living indigenous groups, and 2) surviving Aztec plastic arts. The following will explore to what extent the rhythms in *Xochipilli* are reflective of an indigenous, particularly Aztec, style in light of these two strains.

Strain 1: Mexican Antiquity

Herbert Weinstock proclaims Chávez, "has never forgotten the ancient rhythms . . . played by venerable Indians with the dignity and solemnity of their most remote ancestors."[309] This implies that 1) current living indigenous groups play rhythms reflective of ancient, specifically pre-Columbian groups, and 2) Chávez was aware and

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[306] Chávez, *Xochipilli*, preface.
[307] Parker, *Carlos Chávez*, 49.
[308] Chávez, *Xochipilli*, preface.
[309] Herbert Weinstock, "IX. Los Cuatro Soles–Two Dances," *Mexican Music: Notes by Herbert Weinstock for Concerts Arranged by Carlos Chávez* (New York: William E. Rudge's Sons, 1940), 27.

influenced by these rhythms. Frances Toor comments on the survival and maintenance of such customary, ancient practices:

> The Mexican folk are Indian. Over half of Mexico's population still lives in a folkloric state. Many of their customs–such as attending birth, marriage, and death–contain pre-Conquest elements which centuries of Christianity have been unable to exterminate. The conquerors found it easy to destroy idols and pyramids, but not customs, which could be practised [*sic*] secretly.
>
> The heritage of Indian art also continues to live. For a long time the Indians were forbidden the field of fine arts, but it was an economic necessity to permit them such practices as pottery, weaving, and the like. . . . Thus their great plastic facility was kept alive.[310]

Plastic arts such as "pottery, weaving, and the like" were kept alive for economic gain. It may be conjectured that performing arts also survived, but as a necessary element in maintaining traditional customary practices. Music used for such customs served a function or "utilitarian purpose" as described Chávez:

> It is quite understandable that at first all forms of communication had a utilitarian purpose. Language, of course; but music and painting and dance–in their incipient phases–were also utilitarian, as in these early stages art was an agent of magic, and magic is nothing but a utilitarian expedient.[311]

Chávez continues, "The principles of magic–imitation and repetition–were the basis for the technique of this early art."[312] Carl Lumholtz has indeed observed such practices of several living indigenous groups in Mexico: "Native Indians apparently regarded continuous repetition of short . . . fragments as the most efficient method of
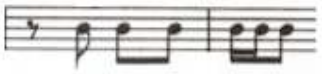
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[310] Frances Toor, "Mexican Folk Dances," *Renascent Mexico.* ed. Hubert Herring and Hubert Weinstock (New York: Covici-Friede, 1935), 179.
[311] Chávez, *Musical Thought*, 21.
[312] Ibid., 45.

achieving success in ritual music."[313] According with these observations, Chávez rhythmically constructs *Xochipilli* with "small . . . patterns constantly reiterated."[314]
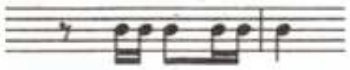
The following identification of these small rhythmic patterns relies on the general acceptance that the ritualistic music of indigenous Mexico currently and historically is rhythmically composed of "short fragments," and therefore, Chávez's use of such a technique is reflective of an indigenous style. We begin with two such "fragments" in Part 1 and six such "fragments" in Part 3.

Rhythmic Units

Chávez's short rhythmic "fragments" under investigation will be termed "Rhythmic Units." As stated, two of these units in Parts 1 and six of these units in Part 3 will be examined as part of a larger compositional structure. We begin with Part 1.



Rhythmic Unit #1
Percussion 1, mm. 5–6



Rhythmic Unit #2
Percussion 1, mm. 7–8

The introductory rhythmic figures from Part 1 (above) form the basis from which several rhythms will derive. The simplest explanation for the origins of these units is their relation to the melody. As described earlier (see Material in Counterpoint), both of these figures are in counterpoint with the piccolo.

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[313] As paraphrased by Dorothy Rice Conklin, "Percussion Instruments in two Compositions by Carlos Chavez: *Xochipilli: An Imagined Aztec Music* (1940) and *Chapultepec: Three Famous Mexican Pieces* (1935)" (DMA diss., University of North Carolina, Greensboro, 1995), 70. See Carl Lumholtz, *Unknown Mexico* (New York: Charles Scribner's Sons, 1902), 131.
[314] Chávez, *Musical Thought*, 45.

In mm. 5–6, Percussion 1 enters with Rhythmic Unit (RU) #1, beginning with the iteration of three eighth notes that is immediately echoed rhythmically by the piccolo (see Fig. 1 below). While RU #1 ends with two sixteenths and an eighth, the piccolo answers with an eighth and two sixteenths, a vertically radial symmetrical design (see Symmetry below).
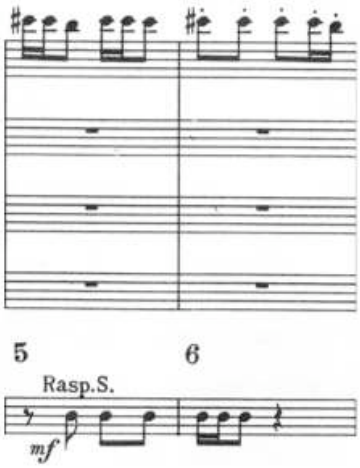


Figure 1: RU #1 in Counterpoint, mm.5–6

Radial symmetry is also apparent in the second rhythmic unit's (RU #2) relation to the piccolo as apparent in Figure 2. The symmetry is achieved through imitation at a distance of one eighth.
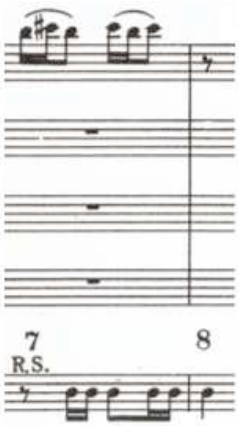


Figure 2: RU #2 in Counterpoint, mm.7–8

RU #1 is repeated 5 times, and RU #2 is repeated once in Part 1. In addition to the exact repetition of these rhythmic units, Chávez presents variant rhythmic units derived from these originals. Such a method adheres to his belief that, "Magic song does not follow any proper system or musical idea: it obeys the basic principles of imitation and repetition, imitation as being understood as a way of likeness acting upon likeness."[315]

Roberto García Morillo observed such rhythmic variation in Chávez's *Concerto for Piano and Orchestra*. From his observations, Morillo concluded that variants modified from the original units through, "rhythmic displacements, the elimination or addition of some sound, and repetition in an irregular form."[316] Applying these conclusions to observations in *Xochipilli*, three methods of variance may be identified:

1) Rhythmic Displacement (sometimes including the elimination of some sound)
2) Fragmental Extension of Rhythmic Units (the addition of sound)
3) Fragmental Combination of Both Rhythmic Units

Following are examples of each type:
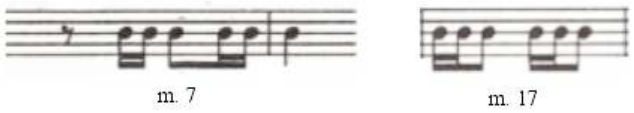


Figure 3: 1) Rhythmic Displacement of RU #2, m. 7
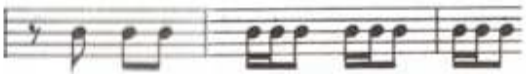


Figure 4: 2) Fragmental Extension of RU #1, mm. 14–16

[315] Chávez, *Musical Thought*, 42.
[316] Morillo, *Carlos Chávez*, 195–196, trans. by Gonzalez, "Carlos Chávez," 35.
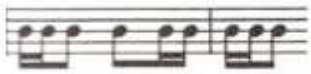


Figure 5: 3) Fragmental Combination of RU #1 and RU #2, mm. 18–19

Due to the rhythmic similarities in the original units, however, the identification of such variant material is ambiguous. Both units include two sixteenths followed by a longer note, thus, how can one be sure what original fragments are being manipulated? While each variant could be identified and defined according to all possible combinations, such an exhaustive study would not be beneficial to the current discussion. Pertinent, rather, is that the rhythmic units and its variants are 1) reflective of "magic song" by characteristically being composed of short fragments, and 2) contrapuntally related to surrounding material. Following will be an examination of these two characteristics as they relate to rhythmic units.

Contrapuntal Relationships and Indigenous Practices

An early instance of counterpoint between rhythmic units and other material occurs in mm. 15–19 (see Fig. 6). (For the purposes of illustrating such a relationship, variants will be identified according to only one possible combination of rhythmic units.)
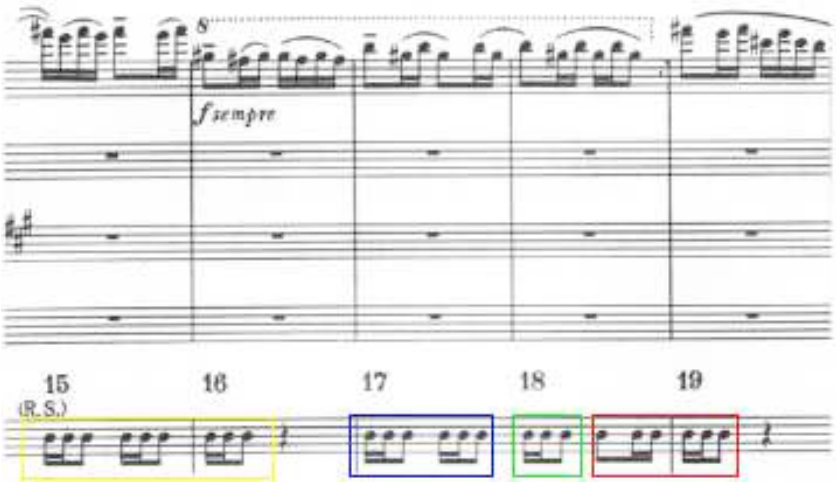


Figure 6: Composite Sixteenths, mm.15–19

In mm. 15 and 16, as identified in Fig. 4, is a fragmental extension of RU #2 (highlighted in yellow). Following in mm. 17–19 is 1) the rhythmic displacement of RU #2 in m.17 (blue), 2) the extension of RU #2 on beat 1 of m.18 (green), and 3) the fragmental combination of RU #1 and #2 in the remainder of the excerpt (red). When combined with the melody, a composite rhythm of uninterrupted sixteenths is generated.

As stated, Chávez's use of short rhythmic fragments/units is reflective of "magic song" upheld by living traditions. For instance, and a most likely source of influence for Chávez's above described composite rhythm, a perpetual sixteenth note pulse is kept by the rasp in the deer dance of the Yaqui, that Chávez believed to be a "magic" song played "for the purpose of incantation, in order to seize and dominate the deer."[317]

Furthermore, observable in the same "magic" deer song of the Yaqui can be heard a perpetual eighth-note pulse on a water-gourd played simultaneous with the sixteenth-

[317] Chávez, *Musical Thought*, 42.

note pulse of the rasp.[318] J. Arturo Chamorro observed a similar 2:1 pulse ration between the teponaztli and tambor de redoblante in music from Tlaxcala of which Chávez was also familiar.[319] An instance of this occurs in mm. 23–27 of *Xochipilli* with the entrance of the soft rattle of percussion 4.

Figures in Hocket and Interlocking Rhythms

Chamorro observed of the same Tlaxcalan musician playing a division of an eighth-note pulse between two instruments. The *sonaja* [rattle] played on the beat, while the teponaztli played on the off-beat, as notated in his Transcription No. 3.[320] Chávez does likewise, although differing in instrumentation and number of pulses per instrument, with the soft and clay rattles of players 4 and 5 respectively in mm. 55–59 (Fig. 7).
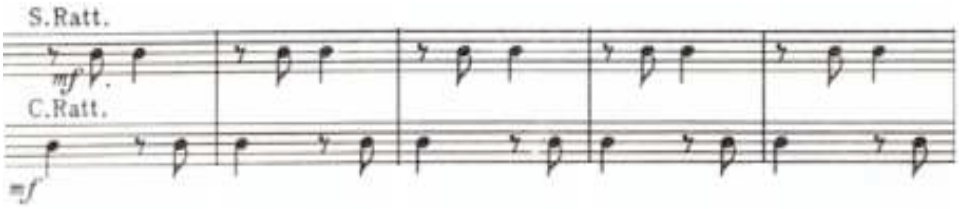


Figure 7: Composite Eighth Note Rhythm, mm. 55–59

Hocket, in this case the division of a composite rhythm between two or more instruments, is a technique employed often in *Xochipilli* (and prevalent in his later

[318] Densmore, in fact, notates this rhythm as eighth notes in her observations of "rhythms in the accompaniment of more than one song." See Densmore, *Yuman*, 208. For a recording of this song, Cf. Track 8, "Deer Dance" of Laura Boulton's *Indian Music of Mexico*, Folkway Records FW8851, 1941, compact disc.
[319] Chamorro, "El Tambor," 21.
[320] Ibid., 24.

percussion works *Tambuco* and *Toccata)*. Another example of this technique occurs in mm. 169–171 between percussion players 2 and 5 (Fig. 8):
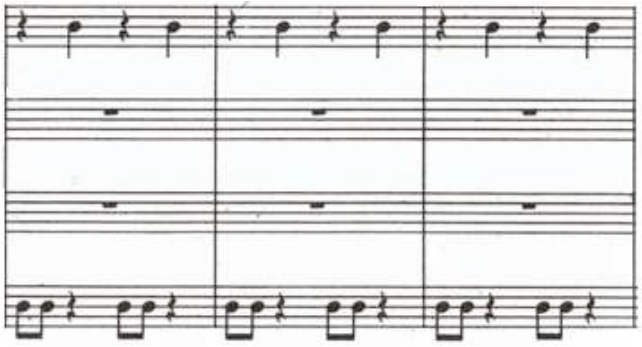


Figure 8: Rhythm in Hocket, mm. 169–171, percussion 2 and 5

A technique similar to hocket occurs in mm. 158–165 of Part 3 (Fig. 9):
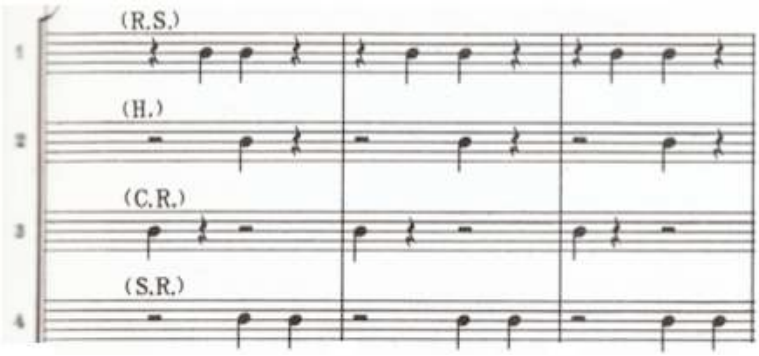


Figure 9: Interlocking Composite Rhythm, mm. 160–62, percussion 1–4

The repeated rhythms of the rasp, hawksbell, clay rattle, and soft rattle of percussion 1–4 respectively, form a composite rhythm. Distinguishing it from "hocket," though, are that certain attack points share more than one instrument. The rhythms, rather, interlock to achieve the same effect. Another example of this technique occurs in mm. 176–186, also of Part 3, between the clay rattle, small rattle, hawksbell, and rasp of percussion 3–6 respectively (Fig. 10):
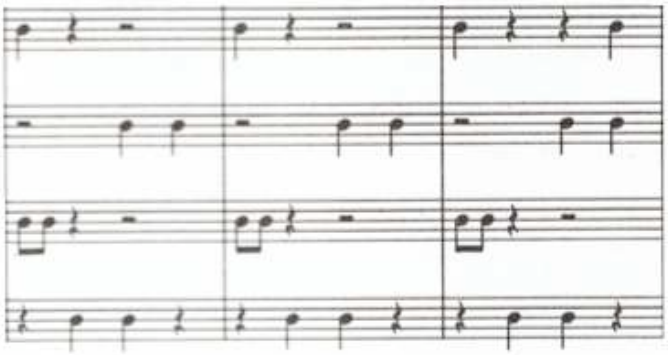


Figure 10: Interlocking Composite Rhythm, mm. 176–79, percussion 3–6

Rhythmic Units in Part 3

The composite rhythm in Figure 8 above, two eighth notes followed by a quarter-note, represents the fundamental rhythmic unit of Part 3. The rhythm derives from the introductory melody in m. 135, presented by the teponaztli of percussion 1 (see Melody of the Teponaztli in Part 3 below). From this rhythm, Chávez creates eight rhythmic units (see Fig. 11).
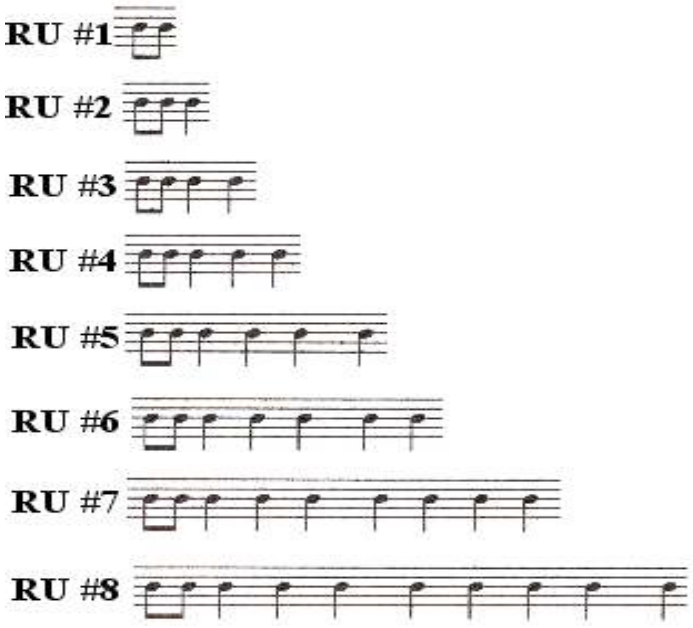


Figure 11: Rhythmic Units, Part 3

RU #1 is created by the truncation of the quarter-note, RU #2 is the fundamental unit, RU #3–6 expand the fundamental unit by 1, 2, 3, and 4 quarter-notes respectively, and RU #7–8 expand the fundamental unit by 6 and 7 quarter-notes respectively.

In addition to appearing in hocket and as interlocking units, as illustrated above (Fig. 8 and 9 respectively), these units occur in mm. 191–239 and mm. 256–269. The following excerpt from mm. 191–198 will illustrate the use of these units (Fig. 12).



Figure 12: Rhythmic Units, mm. 191–198, percussion 4 and 5

In the above excerpt, percussion 4 (top line) uses rhythmic units # 7, 5, 3, 4, 2, 3, 2, 3, and 2. Percussion 5 (bottom line) uses the fundamental rhythmic unit (RU #2) a total of five times. Other uses of rhythmic units, organized by percussion number, appear sequentially in the tables below (Tab. 1–13). Areas highlighted in yellow denote patterned repetition.

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
191–192							x	
193–194					x			
194			x					
195				x				
196		x						
196–197			x					
197		x						
197–198			x					
198		x						
199–200							x	
201–202					x			
202			x					
203				x				
204		x						
204–205			x					
205		x						
205–206			x					

Table 1: Percussion 4, mm. 191–206[321]

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
192		x						
193		x						
195		x						
196		x						
198		x						
201		x						
202			x					
202–203			x					
203–204			x					
204		x						
204	x							
205		x						
205		x						
206		x						

Table 2: Percussion 5, mm. 192–206

[321] Note the repetition of mm. 191–198, as highlighted in yellow.

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
206–207				x				
207–208					x			
208	x							
209–210							x	
211–212					x			
212			x					
213				x				
214		x						
214–215			x					
215		x						
215–216			x					
216–217			x					
217		x						
217–218			x					
218–219				x				
219–220					x			
220	x							
221				x				
222–223					x			

Table 3: Percussion 4 and 5 Unison, mm. 206–223

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
210–211			x					
211	x							
211	x							
211	x							
212			x					
212–213				x				
213–214		x						
214		x						
214	x							
215		x						
215		x						
216	x							
216		x						
216	x							
217		x						
217		x						
218			x					
219			x					
219	x							
220		x						
220–221			x					
221–222					x			
222–223			x					

Table 4: Percussion 6, mm. 210–223

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
223		x						
223–224			x					
224–225					x			
225	x							
226–227						x		
227		x						

Table 5: Percussion 4, 5 and 6 Unison, mm. 223–227

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
228–229					x			
229		x						
229–230			x					
230–231					x			
231	x							
232–233					x			
233	x							
233–234			x					
234	x							
234–235			x					
235	x							
235–236			x					
236	x							
236–237			x					
237	x							
237–238			x					
238	x							
238–239			x					
239	x							
239		x						

Table 6: Percussion 6, mm. 228–239

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
241			x					
241	x							
242			x					
242	x							
243			x					
243	x							

Table 7: Percussion 5, mm. 234–236

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
256–257							x	
258–259					x			
259			x					
260				x				
261		x						
261		x						

Table 8: Percussion 6, mm. 256–261

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
259			x					
259–260			x					
260–261			x					
261		x						
261–262		x						
262		x						
262–263			x					
263–264				x				
264–265					x			

Table 9: Percussion 5, mm. 259–265

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
260–261			x					
261		x						
261	x							
262		x						
262		x						
263		x						
263		x						
264			x					
264–265				x				

Table 10: Percussion 4, mm. 260–265

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
265	x							
266–268								x
268	x							
268–269					x			

Table 11: Percussion 4 and 5 Unison, mm. 265–269

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
265	x							
265	x							
265–266				x				
266	x							
266	x							
267		x						
267		x						
268		x						
268		x						
269	x							
269		x						
269	x							

Table 12: Percussion 6, mm. 265–269

Measure	RU #1	RU #2	RU #3	RU #4	RU #5	RU #6	RU #7	RU #8
266				x				
267				x				
268				x				
269				x				

Table 13: Percussion 1, mm. 266–269

Indigenous Comparisons

Despite Chávez's declaration that his rhythms were not derived from Aztec sources, his remarkable sensitivity to indigenous musical cultures have created an Indian aesthetic and may have lead him to subconsciously create rhythms reflective of Aztec music. The following will explore possible indigenous influences and then compare those influences to current research of Aztec rhythms, revealing the extent of Chávez's ability to reflect an Aztec musical style.

Such a comparison will only serve to demonstrate the possibility, but by no means the certainty, that Chávez captured Aztec musical features, because 1) the current state of

Aztec rhythmic research is too inconclusive to draw connections between Chávez's rhythms and those speculated to be used by the Aztec, and 2) such research was conducted after the publication of *Xochipilli*. Nonetheless, such a comparison sheds light on the early attempts by Chávez in creating an indigenous style.

We begin by returning to a look at Tlaxcalan indigenous musical traditions by which Chávez was known to have been inspired. Arturo Chamorro observed of indigenous groups in Tlaxcala: "Musicians . . . use oral formulas for the development of rhythm, by means of the use of words in the language of Náhuatl or Spanish . . . whose syllabic division applies to the learning of rhythmical patterns."[322]

Such oral formulas are observable worldwide in drumming traditions such as the Arabic doumbec, Indian tabla, and the atsimewu of the Ewe. While the doumbec and tabla use vocables to imitate the sounds of the drums, the atsimewu vocables not only translate rhythmically but also mirror the tones of the Ewe language.[323] An example of the sound possibilities of the atsimewu are as follows (Fig. 13):

[322] My abridged translation from the following excerpt, "El instrumento es generalmente ejecutado por varones, ya sean niños o adultos; los músicos ejecutantes son en su mayoría líricos y emplean fórmulas orales para el desarrollo de la rítmica. (Transcrips Nos. 2 y 3), mediante el uso de palabras ya sea en lengua náhuatl o en español. A continuacíon damos un ejemplo del empleo de palabras en lengua náhuatl, cuya división silábica se aplial aprendizaje de patrones rítmicos:" See Chamorro, "El Tambor," 23.

[323] See John Miller Chernoff's *African Rhythm and African Sensibility* (Chicago: University of Chicago Press, 1979), 76–88.

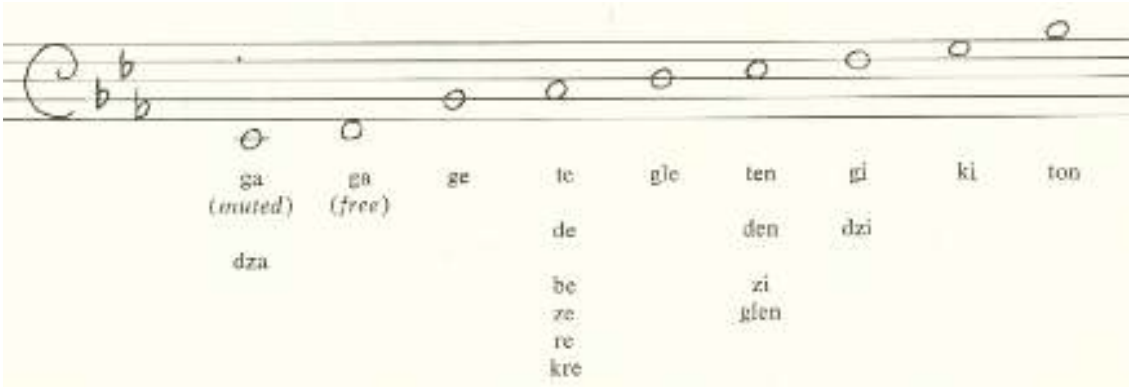


Figure 13: Atsimewu Vocables[324]

Of note in Figure 13 is the designation of pitch, or at least the comparison of low and high sounds according to relative enunciation. Curt Sachs observed, also in Africa, such an inclination of pitch, or speech tones:

> The Lokele, near Stanleyville in the Belgian Congo, when shouting messages across a larger body of water in substitution of a slitdrum, replace the various syllables of the texts by a *ke* or *le* for the lower pitch and a *ki* or *li* for the higher pitch: the words *tokolokolo twatoala*, or "little sticks of firewood," are shouted as *Kekelekeke kikelike*.[325]

The use of two consonant and two vowel sounds, as used by the Lokele, are also observable in the transcription of a Mexican indigenous song. Elsa Ziehm transcribed the following *Mitote* [corn] song of the Cora in the Nayarit area of Mexico. Observable in Figure 19 is a consistent designation of a high tone for vocables ending with the vowel *i*, and a low tone for those ending with the vowel *o*.

[324] Chernoff, *African Rhythm*, 78.
[325] Sachs, *Wellsprings*, 208.
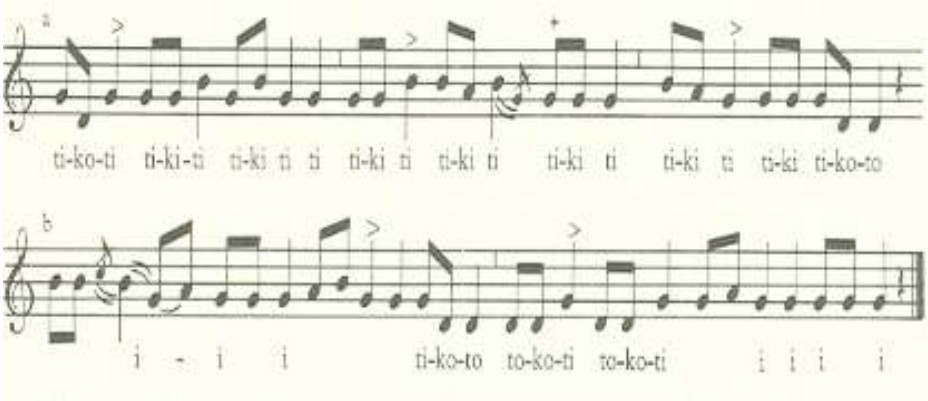


Figure 14: Cora *Mitote* Song[326]

Helping to affirm Weinstock's proclamation that Chávez used in his compositions "the ancient rhythms . . . of remote [indigenous] ancestors," Ziem's transcription (Fig. 14) connects a living tradition with that of the ancient Aztec. Observable in the *Cantares mexicanos* are the same syllables as those found in Zeim's transcription, and it has been suggested that these syllables may represent drumming notation. Stevenson explains the theory:

> Aztec drum notation constantly involves paired variables: (1) the two vowels *i* (as in machine) and *o*, and (2) the two consonants *t* and *c* (= *qu* or *k*). How shall the two vowels be interpreted? As pitch indicators? We recall the pitches available to the huehuetl player by merely moving from the rim toward the middle of his drumskin; we remember also the two pitches that can be sounded on the two-keyed teponaztli. . . . Is it too daring to suppose that both huehuetl and teponaztli players allowed the *i* vowel to signal the higher note and the *o* the lower?[327]

Since both the Cora song and proposed Aztec drumming notation share 1) the same vocables *ti, ki, to,* and *ko*, and 2) the same inclination for the vowel *i* to correspond with a high pitch and *o* with a low pitch, it is plausible that current living traditions do

[326] Original transcript by Elsa Ziehm, no. 28, Benítez Cora Collection, 1968 as reproduced in John Bierhorst, *Cantares Mexicanos*, 77.
[327] Stevenson, *Music in the Aztec,* 49.

maintain the oral traditions of the ancient Aztec or at least give us some clues in interpreting rhythmic indications found in chronicled observations. The following will investigate this notion, as it applies to the application of pitch tendencies upon the teponaztli and huehuetl and in interpreting the rhythmic organization of the vocables *ti, ki, to,* and *ko* as they appear in the *Cantares mexicanos*.

Aztec Drumming Notation in the *Cantares mexicanos*

Let us remember that the *Cantares* is a collection of indigenous songs "taken from the lips of native informants during the 1550's, 1560's, and 1570's."[328] John Bierhorst, who provides an English translation of the lyrical poetry of this document, informs us, "Alone among sixteenth-century documents, the *Cantares* gives extensive notation for two-tone drumming."[329]

Indeed, preceding several songs are syllables or vocables that Gary Tomlinson proclaims "may well reflect pre-Hispanic [pre-Columbian] oral mnemonic practices for teaching, disseminating, and preserving percussion cadences."[330] These syllables are none other than the aforementioned *ti, ki, to,* and *ko* still observable in the contemporary practices of the Cora. The "two-tone" drumming applies to the sound capabilities of the *teponaztli* and *huehuetl*. Recall the two available pitches on the *huehuetl*, the bass tone and rim tone, and the t*eponaztli*'s two-tongued construction that result in two available pitches. Thus, it may be surmised that the tones of the cadences are suitably performed on these instruments.

[328] Bierhorst, *Cantares*, 9.
[329] Ibid., 72.
[330] Gary Tomlinson, "Ideologies of the Aztec Song," *Journal of the American Musicological Society* 48, no. 3 (fall 1995) : 373.

Furthermore, evidence exists that these instruments were often played in pairs or together. Bierhorst offers several pictograms from Sahagún's *Codice florentino* exemplifying this pairing,[331] and brings to light specific mention of the instruments in the *Canatares* examples:

> Copious references to the huehuetl in the *Cantares* suggest that this instrument may have been used by itself to accompany the typical . . . song. The fact that a few pieces are specifically designated *teponazcuicatl* (teponaztli songs) implies that the log drum was either used exclusively in these cases or added to the huehuetl. In any event, as we learn from the sixteenth-century reports, the two drums were played together at most Aztec musical events.[332]

Stevenson also attests to paired playing:

> The use of these instruments as a twosome is everywhere attested in Sahagún, Durán, Motolinía, and in the other authentic source material that survives. Moreover, the teponaztli stresses 2 by being an instrument of two keys only. Among the numerous precontact songs in *Cantares en idioma mexicano* . . . are many that emphasize the dual principle still further. . . . Many cantares are headed by a kind of primitive music notation that consists of two vowels only, and of two consonants only. What is to be made of this predilection for twosomes?[333]

From these arguments, we may conclude 1) that the *teponaztli* and *huehuetl* were played in twosomes in any of the following combinations:

1) huehuetl and huehuetl
2) teponaztli and huehuetl
3) teponaztli and teponaztli;

---

[331] See Bierhorst, *Cantares Mexicanos,* 73 or Bernardino de Sahagún, *Códice florentino*. 3 vols. (México: Secretaría de Gobernación, 1979), a) bk. 4, fol. 70, vol. 1; b) bk. 8, fol. 28, vol. 2; c) bk. 8, fol. 41, vol. 2 d) bk. 8, fol. 30, vol. 2; e) bk. 9, fol. 30, vol. 2.

[332] Bierhorst, *Cantares*, 72.

[333] Stevenson, *Music in the Aztec*, 29.

2) given that each instrument is capable of two pitches, a total of four distinct pitches exist for every twosome; and 3) working from Stevenson's information, that the *Cantares* "notations" are comprised of four distinct pitches – a combination of two vowels and two consonants.

Rhythmic Translations

Bierhorst further affirms the theory that the vocables *ti, ki, to,* and *ko* are rhythmic indicators in identifying extra-grammatical material in the texts of the *Cantares mexicanos*. He identifies such extra-grammatical material as "song-syllables. . . . Frequent vocable affixes and infixes, not to mention the numerous free-standing vocables, [that] produce obvious and presumably pleasing rhythmic distortions."[334] In other words, the extra-grammatical vocables are added to the text in order to create and even ally with the rhythmic cadences that precede them.[335] For instance, in Song XLIV, Canto A, line 12, the word *niyaychocaya* is a modification of *nichoca* meaning "I weep." The vocables *yay* and *ya*, have been infixed and suffixed respectively. Also in the same song, the city of Tollan has added the suffix *aya*.[336]

Bierhorst continues: "In performance the chant [*Cantares* texts] has a recitative-like quality, to which the metrical drumbeat [preceding cadences] gives an accompanying texture. . . . If we absolutely must set up a working hypothesis on what music sounded like, then this, I believe, is where we might start."[337] Stevenson concurs saying, "Without

[334] Bierhorst, *Cantares*, 44.
[335] See also Bierhorst, *A Nahuatl-English Dictionary*, 17.
[336] Tomlinson, "Ideologies," 369.
[337] Bierhorst, *Cantares Mexicanos*, 44–45.

doubt, the earliest dateable songs in the collection always match the simplest drumbeat patterns."[338]

For the translation of the preceding percussion vocables into workable rhythms, we turn to the works of Vincenete T. Mendoza and Karl A. Nowotny.[339] Evident from both models is the assignment of equal notes to syllables *ti, ki, to,* and *ko,* i.e., eighth-notes for all syllables, and a metric emphasis given to syllables which head each grouping, forming "complex rhythmic patterns [that] betray Spanish influence."[340]

For instance, in Song XLIV, the text is preceded by the vocables *tiko tiko toko toto* that rhythmically translates into 4 pairs of eighth-notes equaling a measure of 4/4 in Western notation. The song ends, however, with the vocables *tikiti titito titi* that translates to two sets of three eight-notes and a single pair of eighth-notes equaling a syncopated rhythm in 4/4 of Western notation. Stanza B of the same song is preceded by the vocables *tiko toko toko tikitikiti kiti kito* that translates to three pairs of eighth-notes, a set of five eighth-notes and two pairs of eighth-notes that may be organized into the Western meters of 3/4, 5/8 and 2/4.

Comparison to *Xochipilli*

Accepting the current theories of Bierhorst and Stevenson, and using the models provided by Nowotny and Mendoza, we may make comparisons of percussion cadences

[338] Stevenson, *Music in the Aztec*, 49.
[339] Vicente Mendoza, who originated the theory in his *Panorama de la Música Tradicional de México* (México: Imp. Universitaria, 1956) and Karl A. Nowotny, "Die Notation des *Tono* in den Aztekischen Cantares," *Baessler-Archiv,* Neue Folge 4, no. 2 (Dec. 1956).
[340] Stevenson, *Music in the Aztec*, 49.

in the *Cantares* with percussion rhythms of *Xochipilli*. So that the most accurate comparison can be made, any combination of teponaztli with another teponaztli or huehuetl will serve as a source of comparison. Curiously, however, the huehuetl in *Xochipilli* is never in duet with the teponaztli despite its known propensity to do so.

The only incidence of the huehuetl in duet with another huehuetl is in mm. 195–208, percussion 4 and 5 and as a threesome in mm. 209–227, percussion 4, 5, and 6. The construct of these measures are composed of rhythmic units derived from the teponaztli melody, and thus, will not be compared to Mendoza's model.

Incidents where the huehuetl appears soli are limited to a single, undefined pitch. This phenomenon is curious due to the several chronicle accounts depicting the instrument's dual pitch capabilities. Chávez was surely aware of these descriptions but, nonetheless, avoided pitch designation. The most likely reason for the avoidance was to facilitate the rhythms performance on the various alternative Western instruments whose designs do not lend themselves to distinct pitches resulting from regional striking.

The rhythmic units sounded by other non-pitched instruments, such as the huehuetl, rasp, rattles, etc., do correspond with those of the teponaztli, but likewise, lacking in pitch designations, cannot be compared to those in the *Cantares*. Granted, the "Indian drums" of player 3 are capable of pitch, but in that this instrument never occurs in duet or as a twosome, the theory will likewise not be applied. Thus, the only instruments in *Xochipilli* to which Mendoza's model can accurately be applied are the teponaztli.

The first step in doing so is to assign *Cantares* vocables to Chávez's designated pitches. Both teponaztli of percussion 1 and 2 appear in unison in mm. 62–63 (Fig. 15 below).
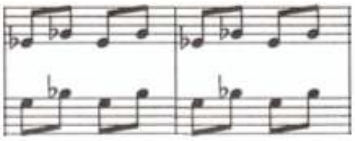


Figure 15: Unison Teponaztli, mm. 62–63, percussion 1 and 2

Designated pitches are G_3, B^b_3 and E^b_4, G^b_4. Applying *Cantares* vocables according to vowel associations, these pitches translate as *ko, to* and *ki, ti*, respectively. Thus, mm. 62–63 above would be "notated" as *koto* (G_3 / B^b_3) and *kiti* (E^b_4 / G^b_4).

Mendoza applied his model in taking a survey of 636 rhythmic combinations found in the *Cantares*. Of the combination *koto*, he found 38 incidences, and of *kiti*, 29 incidences.[341]

Even more popular is the combination *toko* appearing 81 times, the most numerous of all combinations (the next most numerous being *tiko* [60] and *tiki* and *tikiti* [39]). *Toko* occurs in the solo teponaztli of player #2 first appearing in mm. 48–50 (Fig. 16).



Figure 16: *Toko*

Other rhythms that comprise the teponaztli duet (mm. 48–83) and their corresponding number of appearances in the *Cantares* according to Mendoza are as follows:[342]

[341] Mendoza, *Panorama*, 26.

[342] Karl Nowotony offers a survey of various combinations, differing from that of Mendoza's.
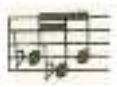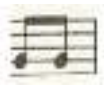
***Xochipilli* Notation**	**Vocable Set**	**# of Appearances in *Cantares***
	tokoto	21
	kotoko	1
	kitiki	1
	tikiti	39
	titi	12

Figure 17: *Xochipilli*/*Cantares* Comparison

To bring the argument to its fullest stage, Spanish chronicler Andrés Pérez de Ribas, a Jesuit working in Mexico City in the early seventeenth century, observed of the Aztec, "What is sung always corresponds with what the teponaztli plays."[343] This allies with Bierhorst's statement that "the drumming fits in with the singing."[344] The correlation between the teponaztli being chronically accounted as fitting with the words of Aztec singing, the current theory and model that the vocables preceding a collection of song text compiled by Spanish trained nobility correspond rhythmically with the text, and that

[343] Andrés Pérez de Ribas, *Historia de los triunfos de nuestra santa fee entre gentes las mas barbaras* (Madrid: Alonso de Paredes, 1645", bk. 12, chpt. 11. Trans. by Robert Stevenson, *Music in the Aztec and Inca Territory*. (Berkeley and Los Angeles: University of California Press, 1968), 165–166.
[344] Bierhorst, *Cantares Mexicanos*, 72.

Chávez's rhythms, presented on the said teponaztli are comparable to those working models, certainly makes Chávez's teponaztli rhythms attributable to Aztec high art.

As stated, the work of Mendoza and Nowotony is both inconclusive and dated after the publication of *Xochipilli*. Thus, a claim that Chávez may have based his rhythms on the scholarly research of specifically Aztec rhythms is unsupported. The comparison, however, has revealed Chávez's ability to create rhythms that are at the least a subject of current research. Chávez's rhythms, then, are more likely a result of his sensitivity to contemporary indigenous groups.

These indigenous groups are most likely maintaining the practices of their ancestors, including the Aztec, as observed in Ziehm's transcription of the Cora song, and as Chamorro observed in the oral practices in Tlaxcala. Therefore, we may conclude that Chávez's rhythms are most accurately defined as *maceualli,* influenced by living indigenous traditions that current research connects with Aztec high art practices. The following will explore those specific indigenous influences in light of relationships to Aztec musical trends.

Melody of the Teponaztli in Part 3

Returning to the chronicle account of Andrés Pérez, we discover the teponaztli and its rhythms have even greater significance in extending to courtly dances of the Aztec:

> This instrument [the teponaztli] guides both dance and song. . . . [For example] the three syllables of the word Tocontín [also tokoti] imitate the sound that the teponaztli makes and from these sounds the dance takes its name. . . . What is sung always corresponds with what the teponaztli plays.[345]

The dance "Tocontin" was popular in the courts of the Aztec and thus considered "High Art." Pérez described the dance: "There are fourteen dancers, not counting the Emperor Moctezuma who enters toward the close. . . . At the moment when the dancers emerge from the palace, their song has these words: 'Go forth, Mexicans! Dance the Tocontín, for the King of Glory has entered our ranks'."[346]

The use of the teponaztli in the courts of the Aztec is evident from Pérez's account. Also apparent is the instrument's commanding role in determining the dance and song. In this sense, teponaztli rhythms are perhaps perceivable as melodies.

Part 3 of *Xochipilli* begins with such a melody first heard in the teponaztli of percussion 1 and 2. This instrumentation serves two purposes, 1) giving importance to the instrument, and 2) signifying that this instrument can be used melodically. Affirming the status of the teponaztli is the Aztec belief that teponaztli and huehuetl are materialized gods, sent to earth to solace human's grief with music (see Archaeological Findings). In fact, Stevenson points out that "even today certain Indians in out-of-the-way places have the reputation of hoarding their teponaztlis, and of venerating them as if they were sacred objects."[347] That Chávez chooses the teponaztli to introduce the music from which the entire movement is structured gives this instrument a most prominent position. Additionally, stone teponaztlis such as the Macuilxóchitl specimen (see The

[345] Andrés Pérez de Ribas, *Historia*, bk. 12, chpt. 11. Trans. by Stevenson, *Music in the Aztec*, 165–166.
[346] Ibid.
[347] Stevenson, *Music in the Aztec*, 111–112.

Macuilxóchitl Specimen) "served as a votive offering" for Xochipilli;[348] thus the teponaztli is an appropriate choice for the lead role for the conclusion of the piece.



Figure 18: Two-Pitch Melody, mm. 135–137, percussion 1

The identifiable teponaztli melody occurs first in mm. 135–137 (Fig. 18 above). It is composed of two pitches and derives from a short melodic fragment presented in the first two beats (highlighted in yellow). Dorothy Rice Conklin correlates Chávez's compositional method with that of "native Indians [who] apparently regarded continuous repetition of short melodic fragments as the most efficient method of achieving success in ritual music."[349] Abiding by this method, Chávez instantly repeats the fragment. In fact, it is presented 26 times collectively by percussion 1 and 2, and is presented, and in various transpositions, by the piccolo, flute, and clarinet 21 times each or 63 times collectively.[350]

The "short melodic fragment" could also be termed a motive. Just as Part 1 presented a motive by which subsequent themes were identified, this two-beat, two-pitched motive identifies subsequent imitations of 1) the melody presented by the flute in mm. 143–153, and 2) the shorter melody presented by percussion 1 in mm. 135–37.

The first partial repetition of the melody presented by percussion 1, and consequently transposed a minor sixth, occurs in mm. 138–39 by percussion 2. Both percussion 1 and 2 then present the entire three-measure melody, in unison, in mm. 140–

[348] Ibid.
[349] Conklin, "Percussion Instruments," 70.
[350] The melodic fragment, translatable to either kititi or kototo, does not appear, however, in the *Cantares mexicanos*.

142. Such persistent repetition, especially presented at the beginning of a major section, identifies these measures as melody.

Such two-pitched melodies, according to Sachs, "have a universal distribution all over the globe. The majority occurs . . . among extremely archaic peoples."[351] He terms and describes such material as, "One-step melodies [composed] out of shortwinded and endlessly repeated motifs."[352] We have previously encountered a one-step or two-pitched melody in Part 1, composed of a secundal relation. In this instance, the melody is tertial, i.e. composed of a minor third intervallic relation.[353]

Indigenous Comparison

While the melody in the teponaztli of percussion 1 and 2 are limited to two pitches, it is not so in the flute, piccolo, and clarinet. Rather, the melodies in these parts begin similarly with only two pitches but then expand to include three other pitches thereby forming three distinct pentatonic scales. Since the flute presents the material first, it may be considered that the following melodies presented by the piccolo and clarinet are transpositions of the original E^b, G^b, A^b, B^b, D^b. Slight variations also occur in the clarinet (see mm. 168 and 239).

This compositional style is apparent in Roberto Téllez Girón's transcription of a peyote song collected by Vicente Mendoza (Fig. 19). Mendoza fails to specify from which indigenous group the song belongs, but Girón was known to have studied in Jalisco and Nayarit, home to the Huicholes and Coras, both who are known to ingest

[351] Sachs, *Wellsprings*, 76.
[352] Ibid., 132.
[353] Ibid., 61.

ritual peyote, and both of whom are familiar to Chávez. This area, and particularly the Huicholes, was also a research focus of Carl Lumholtz.
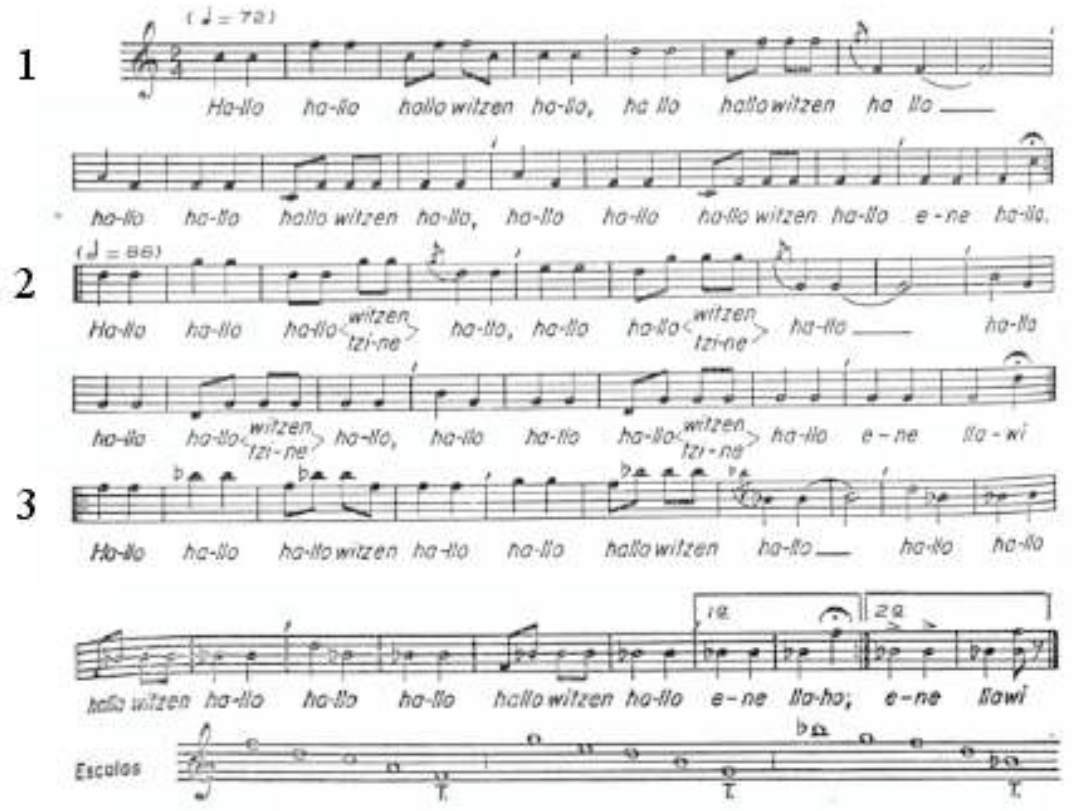


Figure 19: Peyote Song[354]

The above peyote song is composed of a single melody presented three times, labeled 1, 2, and 3. The melody is composed of 4 four-measure phrases and ends with a two-measure tail. The first presentation of the melody (1) uses the pitches F, A, C, D. The second presentation (2) transposes up a major second, and the third presentation (3) transposes up a fourth from the original. Mendoza provides these scales [escalas] at the bottom of the transcription.

[354] Transcription as printed in Mendoza, *Panorama*, 115.

The transpositions of the melody are not unlike Chávez's treatment of imitations in the wind instruments of *Xochipilli*. The ascending transposition exhibited by the peyote song, however, is particularly attributable to the Aztec. As observed by Mendieta, "Then the new leaders began anew at a somewhat higher pitch . . . thus ascending the musical scale as if a bass were to change by degrees into a soprano."[355] Sharing also with the melodies of the *Xochipilli*'s winds are slight variations. As stated, the clarinet alters the original flute melody (mm. 143–153) in mm. 168 and 239. The peyote song's only variance occurs in m. 21, or the third measure of the second presentation (see Fig. 20). The set of eighth notes, rather than creating a symmetrical figure as in the original, now resembles its quarter note predecessor.
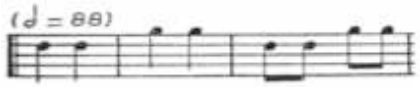


Figure 20: Eighth Note Variance

[355] Gerónimo de Mendieta, *Historia Eclesiástica Indiana* (Mexico: Antigua Librería, 1870), Bk. II, chaps. 2–3, 79–80.

Chapter 4

Form and the Plastic Arts

As stated, the Huichol Indians inhabit the region from which the above peyote song was most likely transcribed. Carl Lumholtz provides an illustration of Huichol artwork taken during his observations at the turn of the 20th century (Fig. 1).



Figure 1: Huichol Band[356]

The pattern consists of a repeated symmetrical figure flowing seamlessly from one to another. Such design is apparent in *Xochipilli* and abundantly so in Part 3. Observable within the sequence of rhythmic units are symmetrical figures reflective of the methods used to create the above Huichol band.
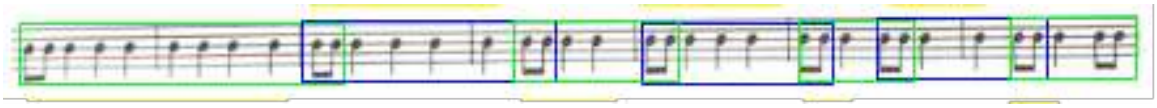


Figure 2: Banded Rhythmic Units. Percussion 4 and 5, mm. 209–215

The above excerpt (Fig. 2) is composed of rhythmic units 7, 5, 3, 4, 2, 3, and 2 respectively (highlighted above and below in yellow). If these units are elided, seven symmetrical figures become apparent (boxed in green and blue). Such elision creates a

[356] Illustrated by Lumholtz, *Unknown*, vol. 2, 232.

seamless progression from one unit to the next, reflective of the Huichol band and its seamless design.

Also from mm. 210–215, radial symmetry is observable in the bass drum of player 6. Figure 3 illustrates one such isolated example of this symmetry.



Figure 3: Symmetry of Banded Rhythmic Units, Percussion 6, mm. 210–212

For constructs such as these to exist, the metric "barline" must be momentarily suspended. This technique was quite prevalent at this time of composing as early as Stravinsky, but as Dan Malmstrom explains: "Already in his [Chávez's] juvenilia there are changes of metre within the same piece, and even such uncommon metres as 7/4 appear. It may be tempting to think that Chávez had been influenced by Stravinsky, but the thought must be rejected on the grounds that Stravinsky was still unknown in Mexico. Chávez must have received his inspiration as regards his rhythmical intricacies from the Indian and mestizo music that he had heard."[357]

The notion of a construct entails form. In the instance of the Huichol band, the band emerges from the symmetrical design woven by its maker. Likewise, Chávez created form in the above examples by 1) creating a pattern, i.e., the rhythmic units, and 2) combining them to form symmetrical bands. Chávez wrote: "Rhythm and symmetry are the essentials of musical construction. Rhythmical and symmetrical repetition

[357] Malmstrom, "Introduction," 43.

operates as the basic and universal principle for rudimentary as well as larger structures."[358]

Of course, repetition can be infinite, absent of a finite form. Chávez addresses this notion:

> It is one thing to play and sing beautiful music no matter how beautiful for hours and hours, as in magic chants; and it is quite another matter to create a form using musical materials.
>
> Creation of form results from another urge, a different type of psychological need. It is not so much the need for communication as it is the impulse to project our ego. It is also a manner of giving way to our natural mimetic condition: we live in a universe of creation, and we ourselves want to be able to create in our turn, too; we ourselves have a given form, and we want to give birth to creatures of a given shape, also.
>
> The difference between singing and playing endlessly and creating a form is simply a matter of establishing physical limits: as soon as there are given frontiers, the work of art appears. The first condition of a work of art is that it be limited in space or time. We can call 'art' the endless playing of a Balinese gamelan, but we cannot properly call it a work of art. So, as soon as music is limited in time there is form, and we have the basic element of a work of art. Then form has to correspond to our tastes and feelings, and we endow it with a given morphology of its own. We want to make a creature with certain parts of its own that would make a coherent whole, because we ourselves rejoice in the contemplation of a unity. Man loves unities. That is how form has become the *sine qua non* of art as we conceive it nowadays.[359]

In creating form for *Xochipilli*, Chávez stated that he was influenced by surviving plastic arts. Recalling his statement: "The melodies and rhythms in this piece are more than anything the result of my thoughts on topics of Mexican antiquity, and of my unlimited admiration for pre-Cortesian sculpture and painting. Although referring to different arts, there is a common denominator in the various expressions of a given culture so that it is not impossible to derive from the plastic arts a sensitivity that can be

[358] Chávez, *Musical Thought*, 47–50.
[359] Ibid., 27–28.

transcribed into music."[360] David McAllester observed this principle in the nearby culture of the Navajo: "The translatable portion of the text . . . is like a nugget in the middle of the song, framed by a vocal chorus before and after it. This is a favorite principle of design in other Navajo arts as well as music. It is the dynamic symmetry discussed by Witherspoon and illustrated in weaving and silver jewelry designs."[361] If McAllester's comparison is true, then Chávez's use of the plastic arts for a non-temporal model may very well reflect an Aztec musical form.

Accepting the theory that musical and visual arts express the same essence, and that forms reflective in plastic arts are reflective of forms in music, as observed McAllester of the Navajo, and as observed by Carl Lumholtz of the Huichol, a comparison of forms in *Xochipilli* to those found in surviving specimens of Aztec plastic art make *Xochipilli* more attributable to an Aztec musical style.[362] The following will explore Chávez's use of symmetry in creating form. These symmetries will then be compared to surviving specimens of Aztec plastic arts.

Symmetry

In his compositional treatise, Chávez identifies and exemplifies four types of symmetry: 1) bilateral, 2) inverted, 3) radial/mirror, and 4) doubly inverted.[363] The following discussion will be divided according to these types.

---

[360] Chávez, *Xochipilli*, preface.
[361] McAllester, "North American," 170–174. Witherspoon echoes Chávez's concepts of repetition and symmetry when he writes on p.170, "Movement under control in Navajo sandpainting provides the basis for the balance, harmony, and order that are expressed in the dynamic symmetry of Navajo sandpaintings."
[362] For more examples and a discussion of Huichol plastic art see Lumholtz, *Unknown*, vol. 2, 213–235.
[363] Chávez, *Musical Thought*, 47–50.

Bilateral Symmetry

Repetition has been abundantly mentioned as a characteristic of "magic song." Chávez has used repetition in creating both small and large-scale structures. In fact, repetition is such a common structural determinant in *Xochipilli* and countless other musical works that a discussion of the technique may seem trivial. Chávez, however, identifies repetition as a type of symmetry that is also observable in Aztec plastic arts. Therefore, an investigation will prove fruitful.

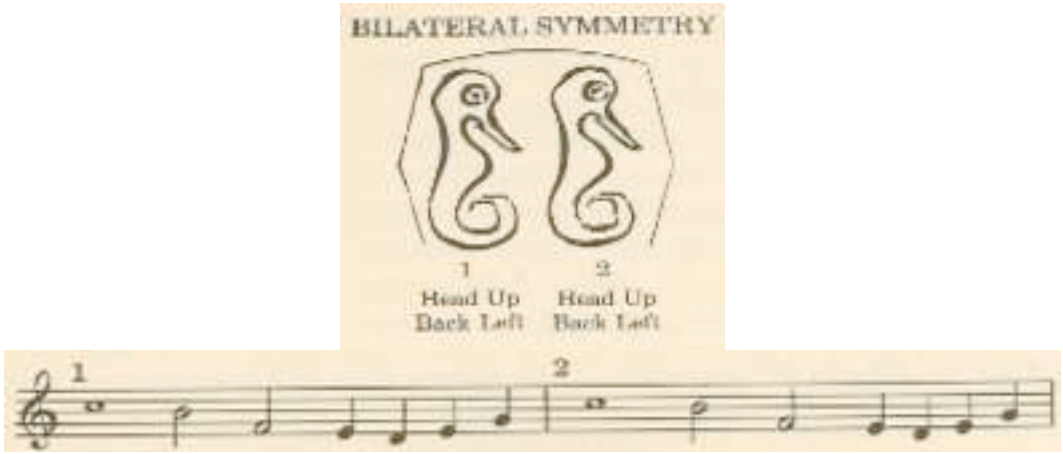


Figure 4: Bilateral Symmetry[364]

Chávez defines repetition as bilateral symmetry. From his above diagrams (Fig. 4), one can see the simplicity of its form. An example of bilateral symmetry in *Xochipilli* appears in Figure 5 below.

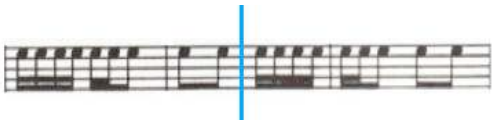


Figure 5: Bilateral Symmetry, percussion 3, mm. 32–34

[364] Ibid., 49

As stated, bilateral symmetry is also abundantly observable in Aztec plastic arts. Recalling the Huichol band (Fig. 6), the image in the center of the Aztec plate in Figure 26 is surrounded by concentric figurations of repeated images.



Figure 6: Aztec Plate
ca.1500, Aztec
Museo Nacional de Antropología, Mexico City
Conaculta-Inah, 10–116416
Reprinted by permission, *Aztecs,* #89
Photograph by Michel Zabé

The image below (Fig. 7) is an Aztec stamp comprised of three sections. The last section is a repetition of the first.



Figure 7: Aztec Stamp
ca.1500, Aztec
Museo Nacional de Antropología, Mexico City
Conaculta-Inah, 10–116493
Reprinted by permission, *Aztecs,* #64
Photograph by Michel Zabé

Inverted Symmetry

Also observable in the Aztec stamp of Figure 7 is an example of inverted symmetry. Figure 8 focuses on the middle section of the stamp, and highlighted is a repeated image in inverted configurations.



Figure 8: Inverted Symmetry

Chávez illustrates inverted symmetry as well as offers an example in musical notation (Fig. 9).

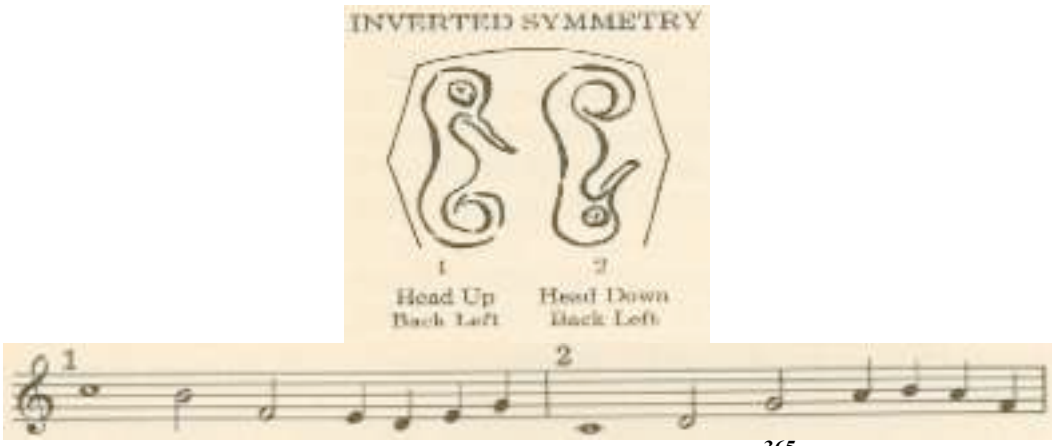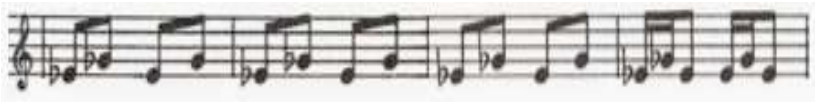


Figure 9: Chávez Inverted Symmetry[365]

One example (Fig. 10) of inverted symmetry in *Xochipilli* occurs between mm. 48–51 and mm. 61–64 of percussion 2 and 1 respectively.



percussion 2, mm. 48–51



percussion 1, mm. 61–64

Figure 10: Inverted Symmetry in *Xochipilli*

Far more prevalent, and responsible for a multitude of perpetual composite rhythms, are examples of rhythmic inversion, viewed vertically between two parts. An example of this occurs in mm. 183–184 of percussion 1 and 2 (Fig. 11).
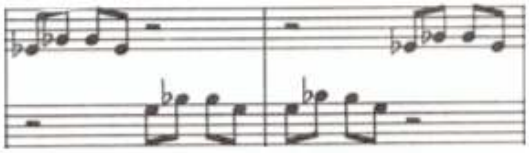


Figure 11: Rhythmic Inversion, percussion 1 and 2, mm. 183–184

[365] Chávez, *Musical Thought*, 49.

Another example is in mm. 234–235, occurring every two beats between percussion 5 and 6 (Fig. 12).
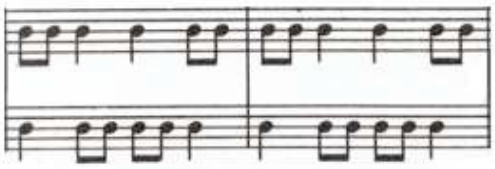


Figure 12: Rhythmic Inversion, percussion 5 and 6, mm. 234–235

Radial/Mirror Symmetry

If one were to isolate the parts in Figure 13 and view them horizontally, a third type of symmetry becomes observable. Chávez again provides a pictorial and musical example.

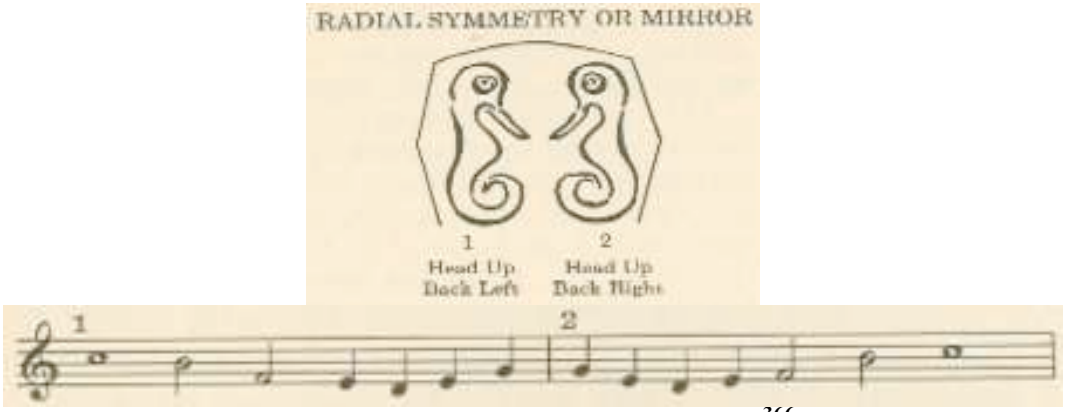


Figure 13: Radial/Mirror Symmetry[366]

Following are three examples of radial symmetry from *Xochipilli*. The first (Fig. 14) is a horizontal perspective of the previous example in Figure 12. Figures 15 and 16 are taken from percussion 4, the earliest examples of radial symmetry in *Xochipilli*.

[366] Chávez, *Musical Thought*, 49.



percussion 1 **percussion 2**

Figure 14: Radial Symmetry of Figure 35, mm. 183–184



Figure 15: Radial Symmetry, percussion 4, mm. 28–30



Figure 16: Radial Symmetry, percussion 4, mm. 31–33

Preceding mm. 28–33 in the soft rattle of percussion 4 (Fig. 17) is another example of radial symmetry, but one that is less apparent. From the second beat of m. 23 to the first of m. 27, the rattle is shaken in steady eighth notes, akin to the music of the Yaqui and musicians of Tlaxcala discussed previously. The quarter-note on the second beat of m. 27 interrupts the flow of steady eighths. This interruption places a "red flag" on the audible surface of propulsive rhythm and suggests form.
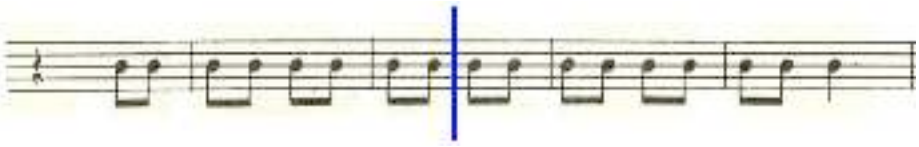


Figure 17: Radial Symmetry, percussion 4 mm. 23–27

Audibly, the quarter note in m. 27 brings to a halt the momentum built over the span of the previous eight beats, establishing a temporal "edge." A visual perspective

with the aid of written notation (Fig. 17) makes apparent the quarter-note rest and a quarter note that border a series of eighth notes. Insert an axis in m. 25, and radial symmetry becomes visually apparent

Perhaps because it is a universal feature reflective of the human form, examples of radial symmetry in Aztec plastic art specimens are widely available. Figures 18 and 19 are sculptures of the Aztec deities Chicomeocoatl, goddess of food and produce, and Chalchiuhtlicue, goddess of lakes and streams, respectively.



Figure 18: Votive with Image of Chicomecoatl
ca.1500, Aztec
Museo Nacional de Antropología, Mexico City
Conaculta-Inah, 10–571544
Reprinted by permission, *Aztecs*, #234
Photograph by Michel Zabé

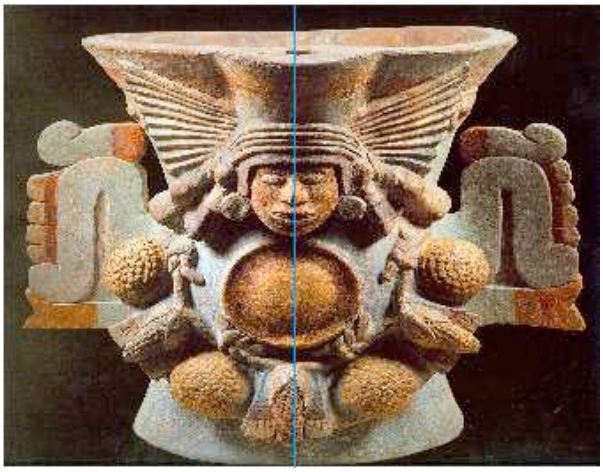


Figure 19: Brazier in the Form of Chalchiuhtlicue
ca.1500, Aztec
Museo Nacional de Antropología, Mexico City
Conaculta-Inah, 10–1125
Reprinted by permission, *Aztecs,* #110
Photograph by Michel Zabé

The following example in Figure 20 is another stamp. Apparent in this example and the previous two (Fig. 18 and 19) are slight differences in the two images affirming Chávez's belief of "magic song" being a process of "likeness acting upon likeness."



Figure 20: Stamp
ca.1500, Aztec
Museo Nacional de Antropología, Mexico City
Conaculta-Inah, 10–532896
Reprinted by permission, Aztecs, #65
Photograph by Michel Zabé

Doubly Inverted Symmetry

Another pre-Cortesian, Aztec stamp exemplifies Chávez's final type of symmetry, doubly inverted. Highlighted in Figure 21 is an example of this type.



Figure 21: Aztec Stamp
ca.1500, Aztec
Museo Nacional de Antropología, Mexico City
Conaculta-Inah, 10–79963
Reprinted by permission, *Aztecs,* #63
Photograph by Michel Zabé

Chávez once again provides a pictorial and musical example (Fig. 22):

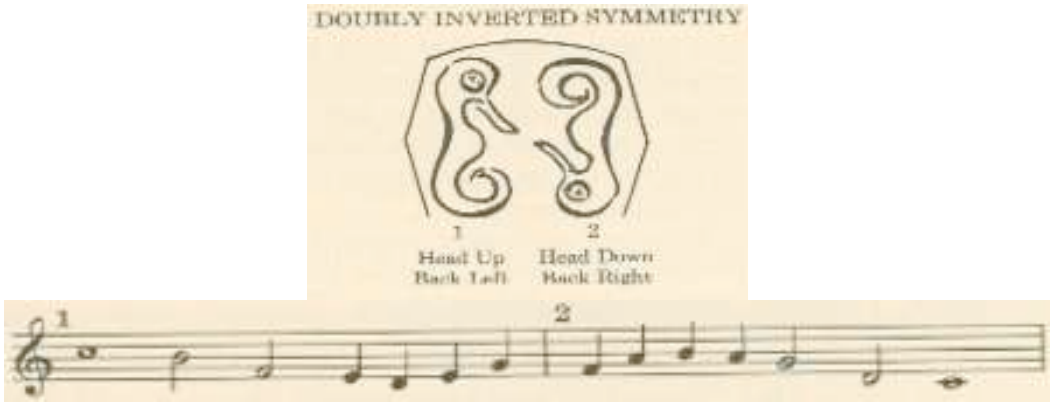


Figure 22: Doubly Inverted Symmetry[367]

Examples of doubly inverted symmetry are rare in Aztec plastic arts (at least observed by this author). Likewise, few examples occur in *Xochipilli* perhaps attributable

[367] Chávez, *Musical Thought*, 49.

to an Aztec style. Figure 23 presents one of those few examples; in m. 43 the piccolo (top line) and the flute (bottom line) simultaneously sound double inversions of each other.
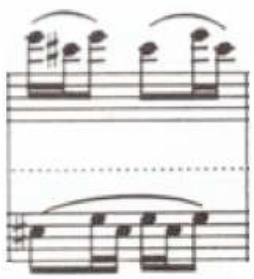


Figure 23: Doubly Inverted, piccolo and flute, m. 43

Conclusion

Thus concludes the analysis of *Xochipilli*. Once again, Chávez's melodies and rhythms are not authentically Aztec, but result from his thoughts on Mexican antiquity and surviving plastic arts. The extent that his material is reflective of an Aztec musical style are affirmed in 1) living traditions from whom Chávez was influenced, 2) the acceptance of those traditions maintaining pre-Columbian practices, and 3) the notion that music shares essence with and is constructed similarly to the plastic arts.

That Chávez was living in Mexico and composed *Xochipilli* at the height of the Mexican Renaissance gave him advantage in finding material to create a musical work reflective of at least a Mexican indigenous style; one that current research is proving to be akin to ancient, specifically Aztec, practices. Perhaps most importantly, Chávez also had access to a plethora of Aztec archaeological specimens that prove to have influenced his compositional choices.

Following is an analysis of Lou Harrison's work *The Song of Quetzalcóatl*, a piece written by a composer with far less resource materials and geographically

disadvantaged compared to Chávez. Nonetheless, the investigation will reveal similar techniques between the composers, both attributable to an Aztec musical style.

Section 3: Lou Harrison's *The Song of Quetzalcóatl*

Introduction

The Historical Development of the Divine Figure: Quetzalcóatl

In the introduction of this paper, we learned of the prophetic story of Quetzalcóatl (see The Return of Quetzalcóatl). His importance as a Mexican deity is unquestionable, and numerous legends exist that include his name. But who is Quetzalcóatl? The following will recount the historical development of this Mexican icon from the mythic memories of pre-historic man to his anthropomorphism combining the human and the divine.

Neil Baldwin suggests, however, that before embarking upon any study of Mesoamerica, one should consider the metaphor of a giant tree. From this tree grows "autonomous 'branches'–Teotihuacán, Toltec, Zapotec, Mixtec, Maya, and Aztec–radiating outward from a 'common bole.'"[368] To Baldwin, "There is no other way to rationalize the coherent, recurring pattern of shared traits among the Meso-American cultures."[369] Among these traits are achievements in architecture, government, urban planning, agriculture, and religion. The religious figure named Quetzalcóatl is one whom these cultures share; indeed he "permeates every formative culture of Mexico."[370]

Agrarian Beginnings

Baldwin informs us that, "Between seven and two millennia B.C., hunter-gatherers became sedentary and settled into regions . . . and what we now call agriculture

[368] Neil Baldwin, *Legends of the Plumed Serpent*. (New York: Public Affairs, 1998), 15.
[369] Ibid.
[370] Ibid., 10.

began."[371] From the fertile riverlands, from which humankind would now receive sustenance, a "reverence prevailed,"[372] reverence of the natural world, specifically the relationship between sky and earth.

From the sky came rain that penetrated the earth causing crops to grow. Maize became the primary staple of Mesoamerican life:

> The fresh green blades of young maize plants broke through the surface of the soil, and the new sprout divided into two leaves, like the quivering tongue of the rattlesnake. As the maize plant matured, its familiarly blunt, yellow-brown nutrient core of kernels arose, haloed by green, featherlike leaves. This flourishing image drew upon deep roots from the epochs before mankind, when great reptiles ruled. From that common source both birds *and* serpents had evolved, two related and contrary forms of life, one aloft, the other earthbound.[373]

According to Baldwin, the association of sky/earth and bird/snake manifesting into maize, the staple of life, led to one of Mexico's most revered and humanistic religious figures, Quetzalcóatl. *Quetzal*, translates from Náhuatl as plume or bird, and *cóatl* translates as serpent.

The Olmec

The oldest image of the "Plumed Serpent" (Fig. 1), dated between the tenth and sixth centuries B.C., is attributed to the Olmec, a civilization beginning between the years 2500 and 1500 B.C.[374]

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[371] Ibid., 12.
[372] Ibid.
[373] Ibid.
[374] See Gordon Brotherston, *Book of the Fourth World: Reading the Native Americas Through Their Literature* (New York: Cambridge University Press, 1992), 125.

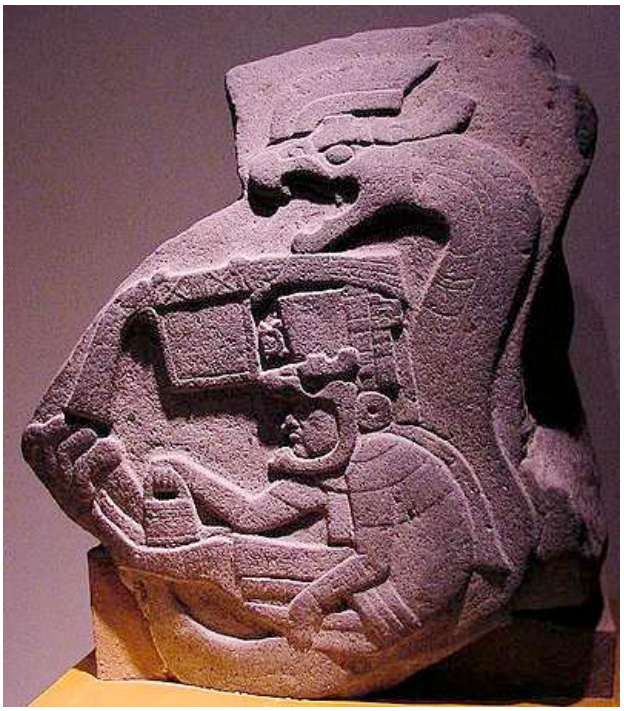


Figure 1: Plumed Serpent, Olmec[375]

Unearthed in 1955 during construction of an airstrip in La Venta, Mexico, the above three-foot-high sculpture contains the image of a larger than life serpent cradling a human figure.



Figure 2: Cross-Band Motif

Baldwin ponts out (see Fig. 2) "the 'crossed-bands motif' above the panel on the left . . . a geometric pattern that appears often in Olmec art, recurring in classic Maya with the meaning 'sky' and 'serpent'. . . homonyms in the Mayan language," of which

[375] Photo taken by Audrey and George Delange, freely available online at: http://en.wikipedia.org/wiki/File:La_Venta_Stele_19_(Delange).jpg [Accessed 10/15/09]

the Olmecs may have spoken an early form.[376] Furthermore, John Bierhorst notes that the unnatural plumes emanating from the snake's head signify the relationship of "bird" and "serpent," confirming an "'ancestral form' of Plumed Serpent."[377]

James Sweeney identifies the human figure in the monument as "a leader of men [possessing] authority and majestic elegance." In his hands, he holds a bag, "a common accessory of priests in Mesoamerican theocratic cultures [that] usually held *copal*, a ritualistic incense."[378] Through such priests, the Olmec connected with the supernatural.

Teotihuacán

"The dwelling of the gods," and "the place where man becomes gods" are both translations for the ancient city of Teotihuacán. The Aztec considered it to be the birthplace of *El Quinto Sol*, the fifth sun, and its duality, the moon. Pyramids in honor of these two forces were erected between 200 and 150 B.C. Just east of the center of the city is the Temple of Quetzalcóatl. This pyramid, said to be "one of the greatest tours de force of monumental stone sculpture in world history," displayed exactly 365 heads of Quetzalcoatl and his duality Tlaloc.[379]

The Temple of Quetzalcóatl dates from between 150 and 250 A.D., much later than the Pyramids of the Sun and Moon. In fact, the excavation crew of Manuel Gamio discovered it to be built atop a smaller pyramid previously built by the Olmecs.

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[376] Baldwin, *Legends*, 17.
[377] John Bierhorst, *The Mythology of Mexico and Central America* (New York: William Morrow, 1990), 94.
[378] James Johnson Sweeney and Alfonso Medellín Zanil, *The Olmec Tradition* (Houston: Museum of Fine Arts, 1963), preface notes.
[379] H. B. Nicholson, "Topiltzin Quetzalcóatl of Tollan: A Problem in Mesoamerican Ethnohistory" (Unpublished dissertation, Harvard University, 1957); cited by Roberta H. Markman and Peter T.Markman, *The Flayed God: The Mesoamerican Mythological Tradition, Sacred texts and Images from Pre-Columbian Mexico and Central America* (San Francisco: Harper San Francisco, 1992), 171.

Confirming this are depictions scattered ubiquitously of bleach-white conch shells, "the spiraling sea image and swirling wind image, transported from the Olmec lands of the Gulf."[380] Also seemingly transported from the Olmecs was the association of humans with divine beings. Just as the additional construction of the pyramid of Quetzalcóatl surpassed those of the natural entities of the Sun and Moon, so had humanity's concept of itself.

The Toltec

Baldwin describes Teotihuacán as being "built upon the remnants of a once-small folk society that had grown out of its self-sufficiency. . . . An authentic manifestation of city life, a place with a formal layout where technical accomplishment was ubiquitous. . . . Its architecture monumental, and its deities vivid."[381] Spiraling from this cultural center was the civilization of the Toltecs.

The decline of Teotihuacán, marked by its abandonment in the eighth century, sees the rise of the city Tula, occupied by the Toltecs. Toltec translates from Náhuatl as "artist," for they were hailed for their "sophisticated abilities to make beautiful objects, carved figurines, masks of jade, and knives of obsidian."[382] The beauty in their art was counterbalanced, however, by the presence of "deliberately harsh forms . . . aggressive asperities, gritty surfaces, and bellicose symbols."[383] While the arts had identified Tula as

[380] Baldwin, *Legends*, 25.
[381] Ibid., 27.
[382] Miguel Covarrubias, *The Eagle, the Jaguar, and the Serpent: Indian Art of the Americas* (New York: Alfred A. Knopf, 1954), 78ff.; as translated and paraphrased by Baldwin, 31.
[383] George Kubler, *The Art and Architecture of Ancient America: The Mexican, Maya, and Andean Peoples* (New Haven: Yale University Press, 1990), 83.

a great cultural center, the same art was reflective of new political desires. The advent of city life had brought with it the pursuit of cultural dominance.

Claims to cultural dominance were commonly justified by divine right. The rulers of these dominating empires were regarded as divine nobility. For the Toltec, the authoritative human was no longer cradled by the serpent, as in Figure 1, as the Olmec had believed, but was the plumed serpent himself. This Toltec ideology is reflected in the fifteen-foot-tall statues atop the Temple of Tlahuizcalpantecuhtli at Tula (see Fig. 3). Still holding a copal bag, the priest is now rendered with "a geometrically decorated feathered headband, a quiver of darts, a butterfly-shaped breastplate, an ornately knotted apron held in place with a sun-shaped disc, and sandals."[384] These 8.5-ton guardians "are the first free-standing incarnations of Plumed Serpent anthropomorphized into an earthly prince."[385]



Figure 3: Atlantes of Tula[386]

[384] Baldwin, *Legends*, 32.
[385] Ibid.
[386] Manuel Aguilar-Moreno, *Handbook to Life in the Aztec World* (New York: Oxford University, 2006)

Quetzalcóatl, originally a mythical union of sky and earth, had been personified. Humankind now saw itself as also divine, lying within a hierarchy of authority. Such evolutionary notions did indeed lead to the downfall of the Aztec Empire. Moctezuma, believing that Cortés was Quetzalcóatl returned, allowed the Spanish to enter the gates of the great Aztec Empire, an invitation that would result in the Spanish conquering of Mexico.

Chapter 1

The Song of Quetzalcóatl

The fate of Quetzalcóatl in the Aztec story has already been told in the introduction of this paper (see Return of Quetzalcóatl). The story was also almost told in California; Lou Harrison revealed in an interview that his composition *The Song of Quetzalcóatl,* "Was actually done when there might be a movie made of it."[387] Harrison's endeavor to create Mexican music specifically for a movie, however, was preceded by other such projects.

On April 24th, 1938, composer Lou Harrison (1917–2003) attended San Francisco's debut of *Salome*, a "choreo-drama" from dancer and choreographer Lester Horton. "Harrison was impressed with Horton's strong and imaginative approach and realized that he and Horton had similar interests, such as Spanish and Mexican themes."[388] The two would collaborate on *Conquest*, "a statement about Mexico's liberation from the Spanish."[389]

While Horton's choreography was steeped in Mexican tradition to the extent that a critic would comment: "The movement of the Spanish figures, typified by an elegant carriage of the body and heavy leg lifts, were contrasted with the Mexican's movements, which were close to the floor, employing complex, rhythmical footwork."[390] Lou Harrison had but only a week to compose music resulting in "an organized

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[387] Don Russell Baker, "The Percussion Ensemble Music of Lou Harrison: 1939–1942" (D.M.A. Diss., University of Illinois at Urbana-Champaign, 1985), 160.
[388] Heidi Von Gunden, *The Music of Lou Harrison* (London: Scarecrow Press Inc., 1995), 20.
[389] Ibid., 21.
[390] As interviewed by Larry Warren, *Lester Horton: Modern Dance Pioneer* (New York: Marcel Dekker, 1977), 86–87.

improvisation,"[391] not necessarily inspired or reflective of Mexican musical styles. From his experience though, Harrison would comment, "It was Lester who 'full-scale' alerted me to the glories of Mexico as 'folk-culture' and 'classical-ancient culture'."[392]

Harrison would continue his interest in Mexico: "We [Californians] all studied something about Mexico. . . . My studies included archaeology and the various deities involved."[393] Ultimately, Harrison would compose *The Song of Quetzalcóatl*, "under the direct visual impact by a book of codices of Mexico,"[394] primarily 16th century manuscripts, re-discovered, published, and translated as early as the mid-19th century. Harrison commented of these volumes, "Most of them had to do with Quetzalcóatl."[395]

Harrison conceived *The Song of Quetzalcóatl* at a time when he was also collaborating with John Cage in staging several concerts of solely percussion music, "annual extravaganzas that delighted the San Francisco new music community."[396] Works for percussion were not, however, new to the San Francisco Community. They had seen its likes in Henry Cowell's New Music Concerts and publication, *New Music Quarterly*, from composers such as Gerald Strang, William Davidson, Ray Green, and Johanna M. Beyer.[397] Harrison and Cage, students of Cowell's and, inevitably, members of this New Music Society, were, like the aforementioned, continuing a trend begun in

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[391] Von Gunden, *Music*, 21.
[392] Warren, *Lester Horton*, 232–235.
[393] Lou Harrison, Telephone interview by Don Baker from Champaign, Illinois to Aptos, California, August 14, 1984; quoted by Baker, 160.
[394] Ibid.
[395] Ibid.
[396] Leta E. Miller and Frederic Lieberman, *Lou Harrison: Composing a World* (New York: Oxford University Press, 1998), 18.
[397] For a full listing and description of these composers works for percussion ensemble see Baker, 206–212.

1930 and 1931 with Amadeo Roldan's *Ritmicas* and Edgard Vareses's *Ionisation*, respectively.

The Song of Quetzalcóatl premiered on Harrison's 24th birthday on May 14, 1941 alongside six other pieces for percussion ensemble written alternatively by himself and John Cage.[398] The composition is scored for four percussionists playing fifteen types and thirty-nine individual instruments. The instruments are divided into "a homogenous mix of soprano instruments, alto, tenor, and bass,"[399] as listed in Figure 1.

Player 1 (soprano): 5 glasses, 5 woodblocks, 5 Dragon's Mouths, Sistrums (or maracas)

Player 2 (alto): 5 cowbells, 5 suspended, or 5 muted brakedrums (as indicated), wooden rattle

Player 3 (tenor): Snare Drum, guiro, windglass, triangle, gong, and tam-tam

Player 4 (bass): 5 tom-toms, Contra-bass drum

Figure 1: Instrumentation of *The Song of Quetzalcóatl*

The instrumentation is reflective of trends of using found instruments (versus those common to the Western Orchestra), which Henry Cowell advocated; Harrison commented, "Henry encouraged us to forage through junkyards."[400]

The Song of Quetzalcóatl is a fine example of an American work amongst an abundance of others written for percussion ensemble over the greater span of a decade; works that challenged traditional Western uses of percussion instruments and effectively

[398] Cage and Harrison jointly composed the last piece of the program, *Double Music*, in which "they agreed on compositional procedures and section lengths, then worked independently" (Miller, *Lou Harrison,* 19).
[399] Von Gunden, *Music*, 39.
[400] Lou Harrison, "Learning from Henry," *The Whole World of Music: A Henry Cowell Symposium*, ed. David Nicholls (Amsterdam: Harwood Academic Press, 1997), 163.

required new methods of listening and analyzing music from a non-tonal perspective. What separates Harrison's work from the multitude of others (over fifty works for percussion ensemble were written between the years 1930 and 1942) is his clear compositional voice, a result of his method developed in the early years of his prodigious life.

Chapter 2

Lou Harrison's Compositional Methods

The Shaping of a Prodigy

Long before *The Song of Quetzalcóatl*, Lou Harrison, at the age of nine, had composed his first composition. *Waltz* (1926) was a short piece for piano, no doubt inspired by his ballroom dance lessons that began at the age of six. In addition to the piano, Harrison studied the violin and sang as a soprano (yes! soprano) soloist his freshmen year in high school. Following graduation, Harrison attended San Francisco State College (now University) for three semesters where he additionally learned French horn and clarinet, harpsichord and recorder, and continued to sing in various ensembles.[401] As he had done as a boy, Harrison simultaneously wrote pieces for the instruments he learned to play, resulting in twenty-one compositions by the age of eighteen.[402]

Having read his *New Musical Resources* (1930) and *American Composers on American Music* (1933), Harrison enrolled in composer Henry Cowell's class, "Music of the Peoples of the World," offered through the University of California Extension in San Francisco. Harrison frequently approached Cowell for composition lessons and attended Cowell's New Music Society concerts where he would be exposed to the likes of Edgard Varèse and Arnold Schoenberg. Cowell had enormous affect on Harrison's technique: as

[401] Miller, *Composing a World*, 8.
[402] As catalogued in Miller, *Composing a World*, 279–280.

Leta Miller claims, "Nearly every aspect of Harrison's work shows Cowell's influence."[403]

Miller continues that Cowell is responsible for 1) "Lou's fascination with manipulating small melodic cells," 2) "The rhythmic complexities of Harrison's early percussion works," 3) "Keyboard clusters in several [of Harrison's] works from the 1930s," 4) "Novel uses of traditional instruments" and 5) Harrison's use and invention of "new sound-producing media."[404] In general, Cowell inspired within Lou Harrison an unconventional freedom to explore. This freedom would be affirmed in Harrison's contact with Charles Ives.

For ten years Harrison corresponded with Ives, studying and editing his entire works. Harrison reflects, "Mr. Ives . . . left us the most wonderful of playgrounds, a kind of people's park in which we are all arrangers of lovely things."[405] Harrison described Ives's writing as "a vastly disparate kind of musical production . . . many different styles . . . forms, many bright ideas worked out casually or not at all–just present, and so on through a whole work."[406] Harrison delighted in Ives's freedom to choose as he pleased, resulting in vastly eclectic compositions.

Freedom was balanced with structure in the teachings of Arnold Schoenberg. On March 7, 1935, Harrison attended a concert sponsored by Cowell's New Music Society, in which Schoenberg conducted several of his own works. Harrison "fell in love with the

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[403] Ibid., 10.
[404] Ibid., 10–11.
[405] As quoted in H. Wiley Hitchcock and Vivian Perlis, *An Ives Celebration* (Urbana and Chicago: University of Illinois Press, 1977), 82.
[406] As quoted in Virginia Madison Rathbun, "Lou Harrison and His Music" (unpublished Master's Thesis: San Jose State University, 1976), 37.

works," and "avidly devoured the San Francisco Public Library's collection of [Schoenberg's] musical scores."[407] Harrison would subsequently study with the influential composer in Los Angeles.

Although Harrison wrote several 12-tone pieces, he would not become a disciple of Schoenberg's, but rather learned more importantly from him the value of creating structure through simple means. Schoenberg suggested Harrison use "less and only the essentials,"[408] and introduced to him "Mozart's techniques of manipulating germinal material to build elaborate structures of utmost clarity."[409]

Of equal weight in the development of Harrison's style was his study of early music, which extended to performing Renaissance and Baroque dance music on the recorder throughout his stay in San Francisco. Harrison wrote that he was "equally addicted to the contemporary Austrian school of 12-tone composition, and to a vast amount of old music mostly dating from before Bach." He continues that his "standards in the history of music are determined largely, by the stylistic orientations of Machaut, Victoria, Gibbons, Frescobaldi, Gesualdo, Purcell, Locke, Handel, and Couperin, with a glance at Monteverdi."[410] Miller also mentions the influences of Rameau and Scarlatti.[411]

After these early years of study, Harrison would continue to perfect his style, all the while continuing to discover the likes of Alan Hovhaness, Carl Ruggles, Harry

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[407] Miller, *Composing a World*, 15.
[408] Lou Harrison, "Ten Harrison Tapes," transcription of ten interviews by Virginia Madison Rathbun and Pascal Pierini (San Jose State University, spring semester, 1973) : 16. Quoted also in Gunden, *Music*, 59.
[409] Miller, *Composing a World*, 23.
[410] Lou Harrison, "Music–Ruggles, Ives, Varèse," *View* 5, no. 4 (November 1945) : 11.
[411] Miller, *Composing a World*, 14.

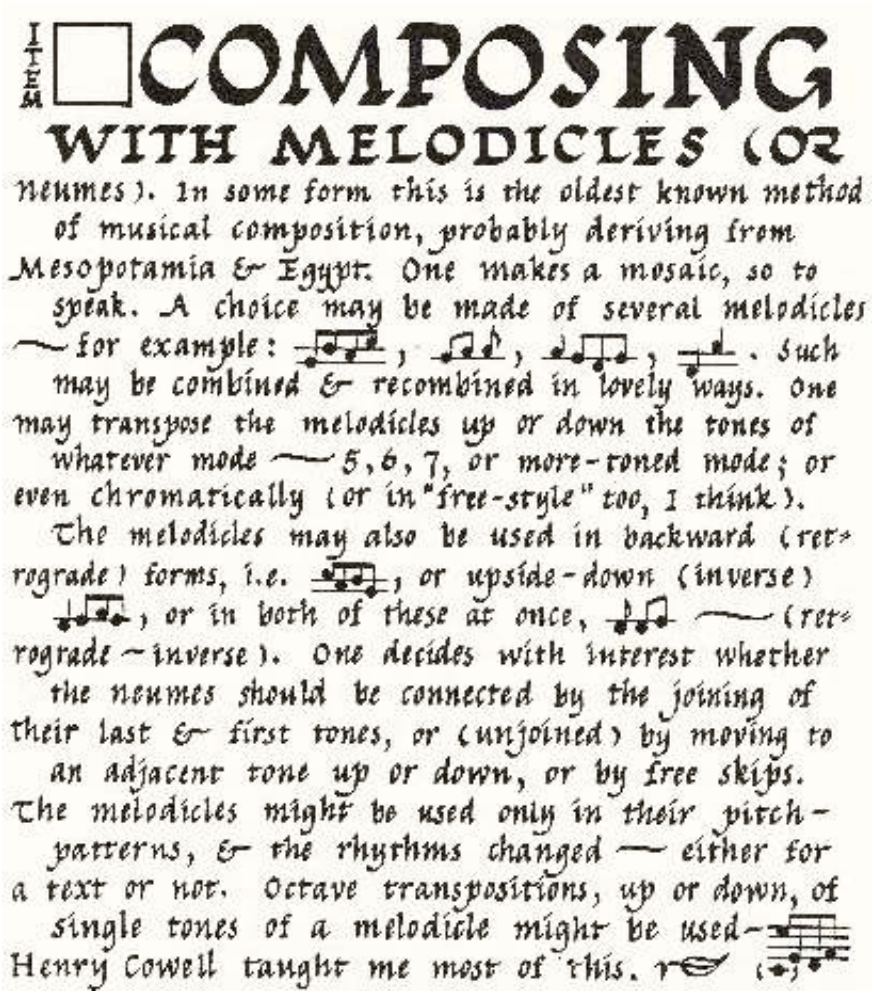
Partch, and music from non-Western cultures.[412] While these new discoveries would certainly add to his musical palette, his technique, developed in these early years, would remain constant. As Harrison stated: "By the time I was twenty or twenty-two I had encountered almost all the ideas which have proven to be important to me since. . . . It is normal for artists to have most of their major creative ideas when they are quite young and then work out what they would do from then on."[413] Harrison wrote of these techniques in his manual, *Lou Harrison's Music Primer*.

The *Music Primer* was written while Lou Harrison was in Mexico in 1966 under the aegis of a Phoebe Ketchem Thorne Fellowship funded by the National Endowment for the Arts. Here he describes his compositional methods developed largely during his youth. He also provides several philosophical opinions about the present state of music, its function, and strongly advocates the exploration of music from non-Western cultures.

[412] Harrison would perfect his style particularly through correspondence with John Cage (specifically concerning percussion works between the years of 1938–41) and lifetime friend Virgil Thomson.
[413] As quoted in Rathbun, "Lou Harrison," 37.

Melodicles and Rhythm

Harrison begins his *Primer* with a discussion of "melodicles" for which he gives Henry Cowell credit. (See Fig. 1):


ITEM

COMPOSING WITH MELODICLES (OR neumes). In some form this is the oldest known method of musical composition, probably deriving from Mesopotamia & Egypt. One makes a mosaic, so to speak. A choice may be made of several melodicles — for example: , , , . Such may be combined & recombined in lovely ways. One may transpose the melodicles up or down the tones of whatever mode — 5, 6, 7, or more-toned mode; or even chromatically (or in "free-style" too, I think). The melodicles may also be used in backward (retrograde) forms, i.e. , or upside-down (inverse) , or in both of these at once, — (retrograde-inverse). One decides with interest whether the neumes should be connected by the joining of their last & first tones, or (unjoined) by moving to an adjacent tone up or down, or by free skips. The melodicles might be used only in their pitch-patterns, & the rhythms changed — either for a text or not. Octave transpositions, up or down, of single tones of a melodicle might be used— Henry Cowell taught me most of this.

Figure 1: Composing with Melodicles[414]

Though Harrison credits Cowell with his awareness of melodicles, it is possible that they have older roots in Harrison's growth. While in high school, Harrison took an interest in Gregorian chant. He studied this genre once a week, which Miller claims

[414] Lou Harrison, *Music Primer: Various Items About Music to 1970* (New York: C. F. Peters, 1971), 1.

"stimulated his later fascination with manipulating brief rhythmic cells (which he [Harrison] terms 'melodicles')."[415] This "compositional device," continues Miller, is responsible for Harrison's "sensuous wandering melodic lines."[416] Richard L. Crocker gives a similar description in describing Gregorian chant as, "a band of decoration . . . bounded by straight lines and filled with complex figuration. . . . The [melodic] line can fill the space with intricate back-and-forth movement, circling, overlapping and interlacing, expressing endless exuberant energy."[417]

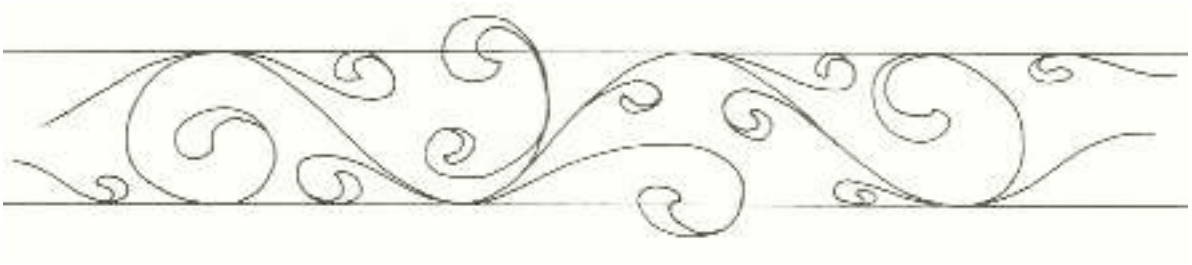


Figure 2: Visual Description of Gregorian Chant[418]

Crocker could just have easily been describing the acoustic phenomenon resulting from Lou Harrison's techniques, as the following analysis will help to illustrate.

The Song of Quetzalcóatl is composed of four melodicles that, in the following analysis, are labeled, respective to their chronological appearances A, B, C, and D. In the following diagrams, letters in capitals denote the primary appearance of the melodicles; lower case letters denote any variation. The melodicles in primary form are as follows:

[415] Miller, *Composing a World*, 7.
[416] Ibid.
[417] Richard L. Crocker, *An Introduction to Gregorian Chant* (London: Yale University Press, 2000), 36-37.
[418] Ibid., 3.

A 

B 

C 

D 

Melodicles A, B, C, and D occur in the space of 5, 7, 3, and 7 beats respectively. Melodicle D may be divided into four parts as follows:

a 

a’ 

b 

b’ 

Harrison cleverly disguises these equal parts through slurring, and furthermore, generally presents them collectively as the entire melodicle D.

An additional element is drones, named according to the influence of Gregorian chant.[419] Two types exist. The first type requires the percussionist to perform a roll on a specified instrument, and for this reason is thus separated from the second type. Rolling allows the percussion player to continuously manipulate the sound for the specified duration of the drone. Rolled drones occur in durations of 6, 12, 18, and 24 beats. Drones (see Fig. 3) of this type are denoted in following diagrams as dr———— .

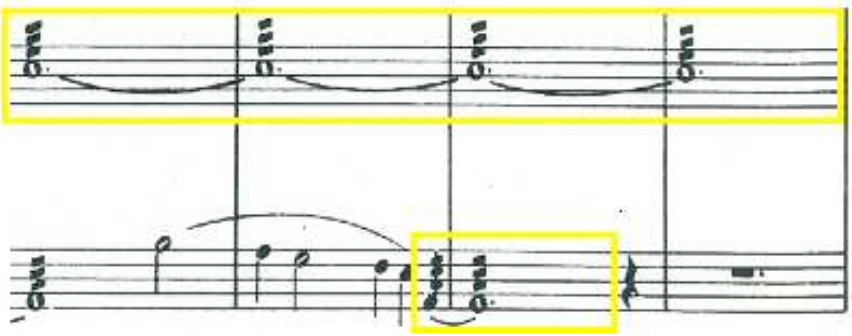


Figure 3: Rolled Drones

The second type of drone requires the performer to strike an instrument with a single stroke. The performer has control over the produced sound only for the initial attack and not for the drone's duration, as all instances are notated to let vibrate. Drones of this type (see Fig. 4) occur in durations of 6 beats only and are denoted in following diagrams as s———.

[419] Harrison became fond of drones after listening to Alan Hovhaness's music, of which he wrote in the review entitled "Alan Hovhaness Offers Original Compositions," *New York Herald Tribune,* (New York) 18 June 1945: "There is almost nothing occurring most of the time but unison melodies and very lengthy drone basses . . . very modern indeed in its elegant simplicity and adamant modal integrity."

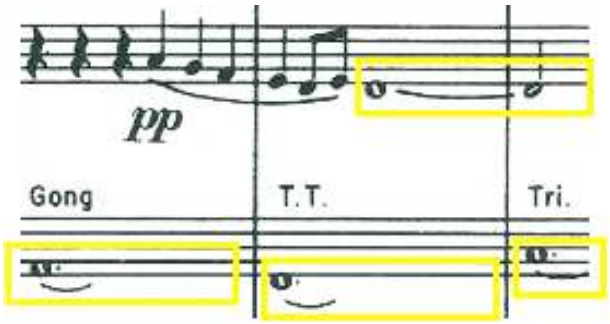


Figure 4: Singularly Struck Drones

These melodicles and drones are the "essentials," the "Mozartesque" germinal seeds Harrison planted from which *The Song of Quetzalcóatl* grew; or as Miller describes, "On the motivic level, Lou often chooses to limit his melodic material by preselecting figures, which he then transforms or rearranges by a kaleidoscopic process that continuously varies the composite picture."[420]

Cowell believed that the majority of music in the world is "melody accompanied by some form of rhythmic behavior."[421] Harrison's investigation into rhythmic possibilities involved a discussion with a mathematician at Mills College resulting in the formula 2^n where n represents the number of icti or beats. This discussion also included formulating possibilities for pitch position in his melodicles resulting in the factorial equation n! where n represents the number of pitches in a given melodicle. Harrison describes these results in his *Music Primer*:

[420] Miller, *Composing a World*, 207.

[421] Harrison interview conducted 3/31/94 by Leta E. Miller and Frederic Lieberman, quoted in Miller, *Composing a World*, 10.

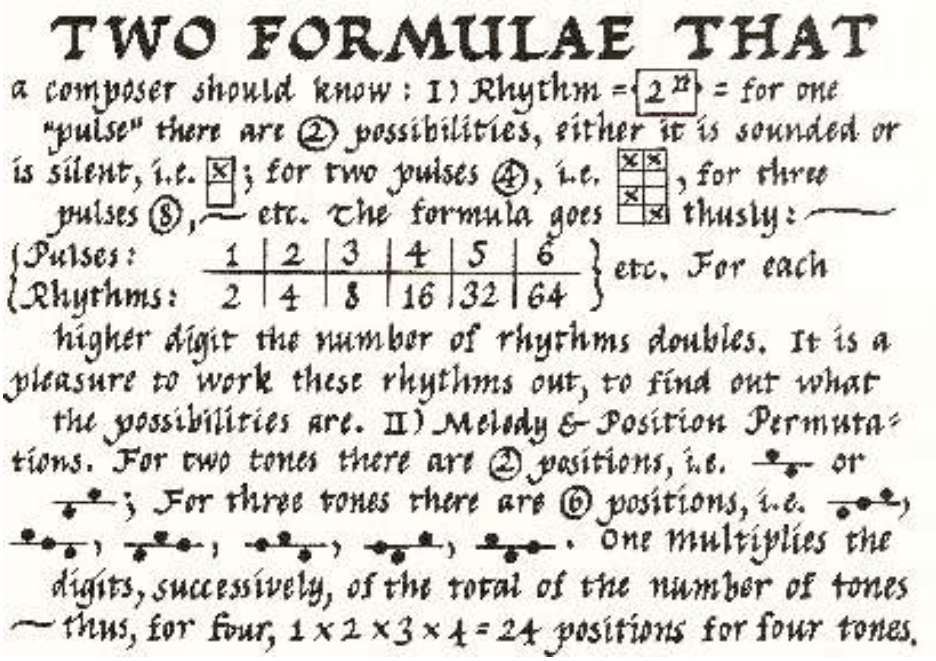


Figure 5: Rhythmic and Melodic Formulas[422]

While Harrison may have applied his rhythmic process in creating his melodicles for *The Song of Quetzalcóatl*, there exist no variations in rhythm.[423] Rather, the primary melodicle rhythms remain fixed throughout. The ordering of pitches, however, is subject to permutations. As stated, these permutations from the primary presentation of melodicles will be designated with lower case letters. Instances do occur where the melodicles appear void of specified pitch, but regardless, maintain original rhythmic order. Therefore, these instances will also be labeled with lower case melodicle letters.

[422] Harrison, *Music Primer*, 2.

[423] Heidi Von Gunden identifies the afore mentioned melodicles as "rhythmicles" meaning a figure that is subject to rhythmic permutations. This designation, however, is incorrect due to the lack of such rhythmic permutations. See Von Gunden, *Music*, 39–40.

Form

Form is a product of sonic development through time, an intangible architecture that tumbles in the absence of memory. Written notation, however, makes the intangible tangible. With the aid of a score, four motives may be identified, which have in turn been "renotated" alphabetically as A, B, C, and D. These motives, or "melodicles" as termed by Harrison, present themselves in a variety of ways. Similarities and differences of these ways define the architecture of this piece.

Leta Miller indicates that *The Song of Quetzalcóatl* "traverses three broad sections."[424] The next several pages will present an alphabetically notated representation of the piece, organized according to Miller's suggested three-part form. Characteristics of each section will be illuminated.

[424] Leta Miller, liner notes, *Drums Along the Pacific*, New Albion Records NA055, 2003, CD.

Chapter 3

The Song of Quetzalcóatl: An Analysis

As stated previously, *The Song of Quetzalcóatl* may be divided into three broad sections. To maintain consistency with the analysis of Chávez's *Xochipilli*, these sections will be identified as "Parts 1, 2, and 3." Each of these "Parts" will be divided into binary sections A and B that will be further divided into subsections a^1, b^1, a^2, and b^2. These divisions are diagramed below (Diag. 1):

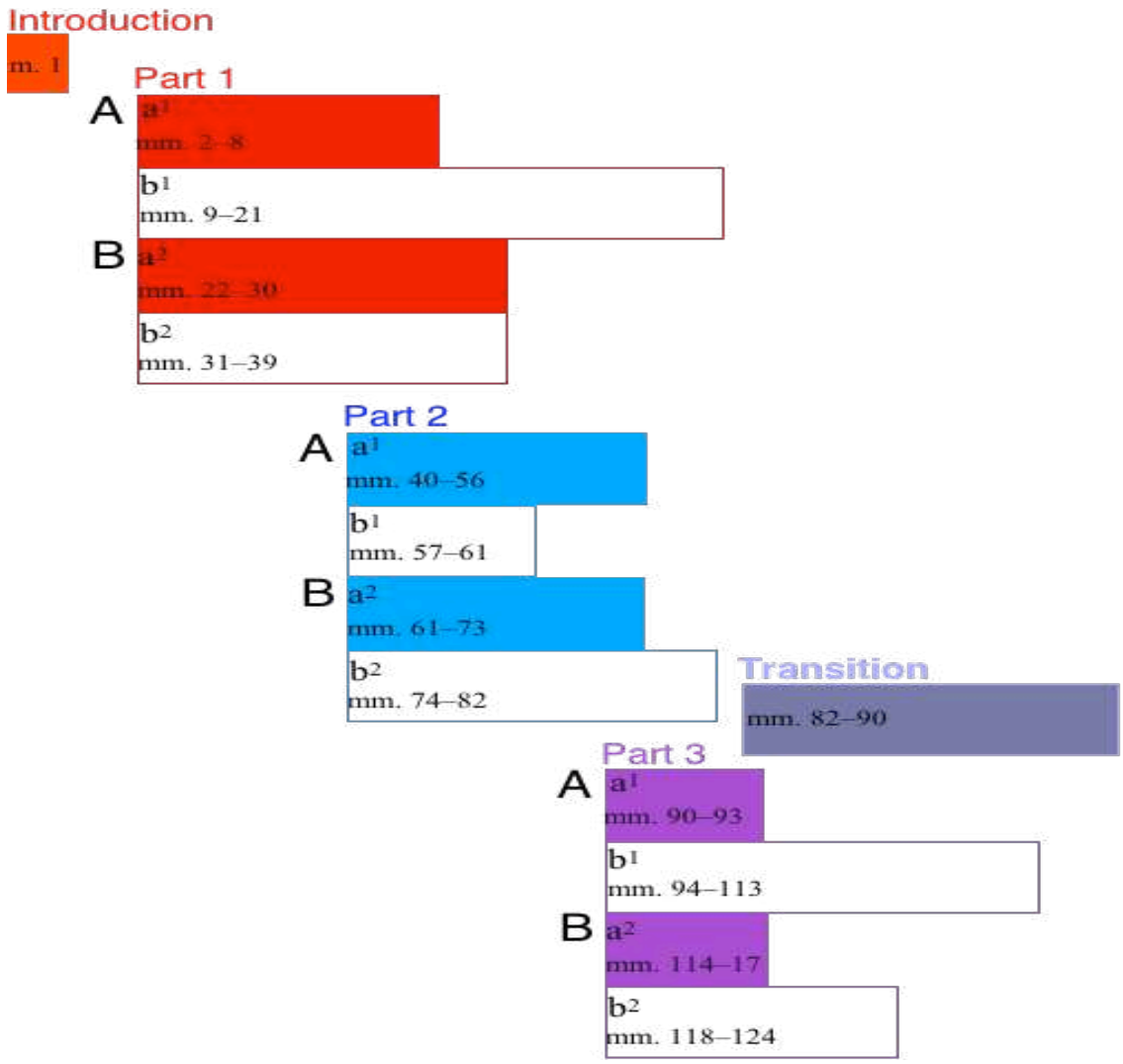


Diagram 1: 3 Part Form of *The Song of Quetzalcóatl*

Part 1: mm. 2–39

Following a brief and startling accented forte introduction by all players in m. 1, Harrison, in mm. 2–39, exposes the listener to all the elements that will compose his work. Part 1 may be divided into two larger subsections according to the introduction of **A**) melodicles A and B and **B**) melodicles C and D, thereby creating a binary form.

The two binary divisions may be further divided into two subdivisions. Such distinction may be attributed to textural changes, such as in m. 8. This measure includes 1) the first rest in voice 1, 2) the first single-stroked drone in voice 2, 3) the last single-stroked drone in voice 3, and 4) the first rolled drone appearing in voice 4 (versus the single-stroked drones of previous). While textural changes such as this will be referenced in the individual analyses of these sections (see below), compositional techniques that aid in identifying divisions will be currently identified.

The subdivisions (a^1, b^1, a^2, and b^2) of the binary divisions for Part 1 are made according to the following compositional techniques:

1. Introduction of Melodicles/Rolled Drones/Single-stroked Instruments
2. Combination of melodicles to create larger cells
3. Imitation: Formal and Informal
4. Ostinato
5. Symmetry

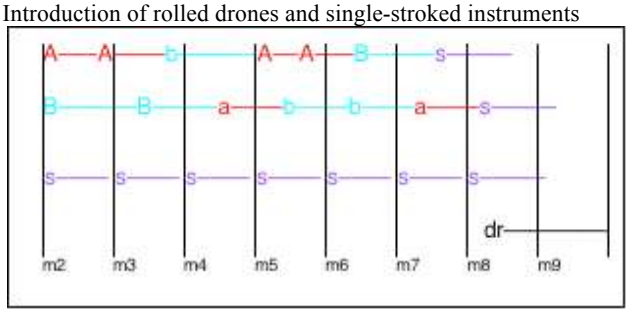
Following are diagrams of the binary divisions and their inclusive subdivisions:

Binary Division A

Subdivision a^1: Introduction of Melodicles A and B

Creation of larger cells with smaller

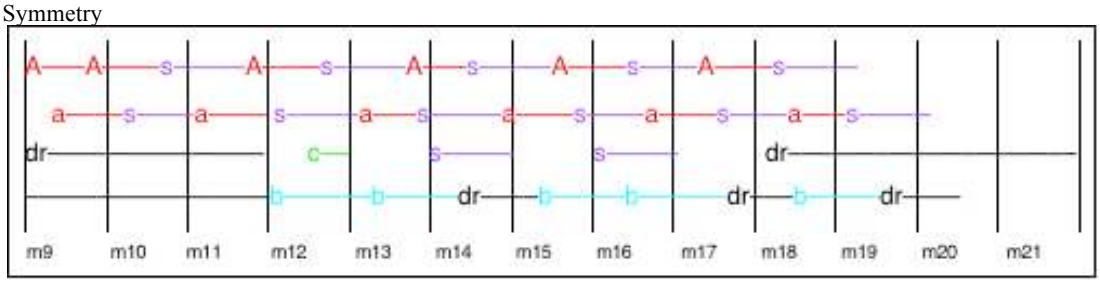
Introduction of rolled drones and single-stroked instruments



Subdivision b^1: Formal Imitation

Formal imitation of larger cell As

Symmetry

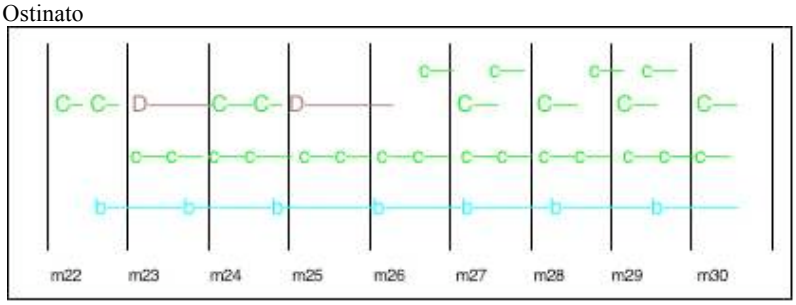


Binary Division B

Subdivision a^2: Introduction of Melodicles C and D

Informal imitation

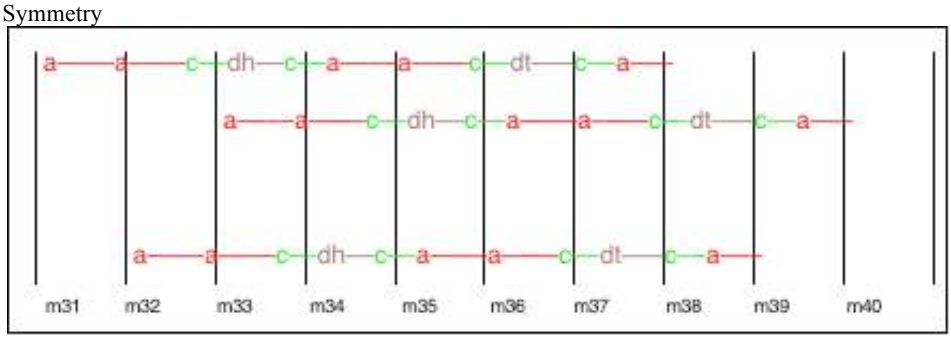
Ostinato



Subdivision b^2: Formal Imitation

Formal imitation of larger cells aacdhcaa and acdtca (overlapped)

Symmetry



The following will examine each of these subdivisions in greater detail.

Binary Division **A**: Inclusive Subdivisions $\mathbf{a^1}$ and $\mathbf{b^1}$

The presentation of melodicles A and B marks the beginning of Part 1.

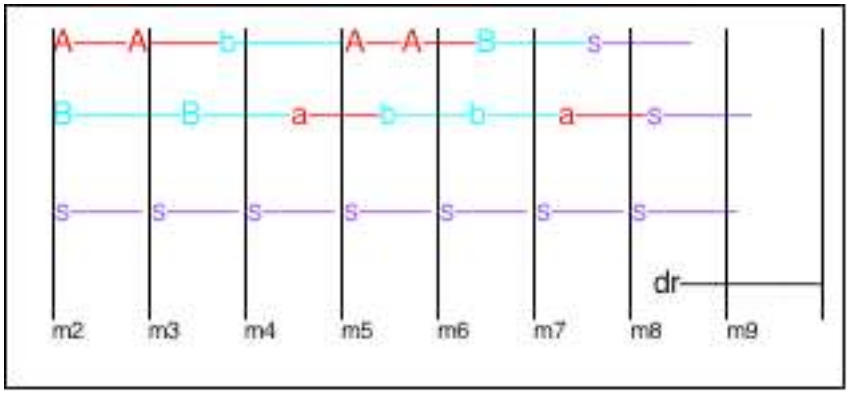


Diagram 2: Presentation of Melodicles A and B

In measures 2 and 3, Harrison identifies melodicles A and B through repetition in voices one and two respectively. Voice 1 is in the uppermost grid with voices two, three, and four respectively underneath. Von Gunden appropriately describes the voices as 1) soprano, 2) alto, 3) tenor, and 4) bass, as suggested by the instrumentation (see previous Chapter 1: *The Song of Quetzalcóatl*).

Germination is immediate. By combining melodicles, Harrison creates a larger identifiable cell. The varied repetition of AAb and BBa is apparent; recall that lower case

letters indicate permutation. Voice 3 introduces various single-stroked instruments that, in this instance, indicate downbeat. In measure 8, Voice 4 introduces the other secondary element, the drone, defined by continual attacks or rolls.

Returning to Voices 1 and 2, both presentations of large cells AAB and bba are supplemented by a single-stroked instrument (m. 7 and m. 8 respectively). These drones, in addition to the rest in m. 8 of voice 1, are cadential, bringing an end to subdivision a^1.

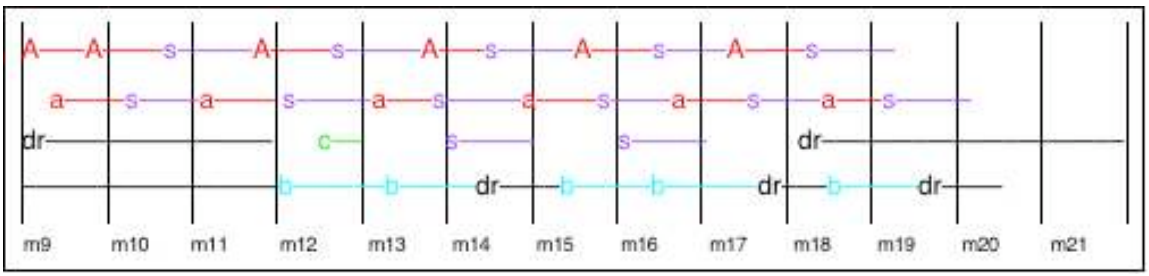


Diagram 3: Subdivision b^1 of Binary Division A

In Diagram 3 above, we can see that voice 2 (the alto voice) is composed entirely of melodicle a combined with single-stroked s. The combined cell as was prefigured in mm. 7–8, thus forming a transition between subdivisions a^1 and b^1.

Voice 1 (the soprano voice) is a bit more complicated. Looking at just mm. 9–11, the soprano voice begins as previous with the repetition of melodicle A (AA), but what follows is not b but s. Further straying from the previous model of the large cell AAb, the soprano voice drops the repetition of A, adhering strictly to the newly established combination of As.

Similarly, voice 4 (the bass voice), in mm. 18–20, drops one of the b melodicles creating bdr. Prior, in mm. 12–18, the bass voice presents a figure similar to that presented by the alto voice in mm. 5–7, but instead of bba, it presents the modified bbdr.

As concerns the bridge from a^1 to b^1, looking at mm. 8–11 of the soprano voice reveals the symmetrical figure sAAs. Symmetry is a compositional technique that Harrison exploits throughout the work, and in this instance, its use achieves a smooth transition–almost an elision–to subdivision b^1.

It is at this point that Harrison's compositional techniques assist in defining the various subsections of his work. For mm. 9–21, those techniques are 1) symmetry and 2) imitation. Following is an explanation and Harrison's application of each in this second subdivision.

Symmetry and Imitation

Symmetry has been discussed at length in the analysis of Chávez's work and will likewise be discussed later in this paper as it pertains to Harrison's composition (see Plastic Arts and Symmetry). For now, we shall proceed with the knowledge ascertained in previous chapters. The figure sAAs is an example of radial or mirror symmetry. Harrison exploits this technique in voice 3 (the tenor voice), an exploitation that is brilliant in its combination of implicit symmetry with an irregularity; this irregularity ultimately forms a connection with later features, creating a larger symmetry out of this more local asymmetry.

For a moment and in order to illustrate the mentioned smaller symmetry, we will extend the drone beginning in m. 9 into m. 12, thereby replacing Harrison's introduction of the permutated melodicle c (see Diag. 4).

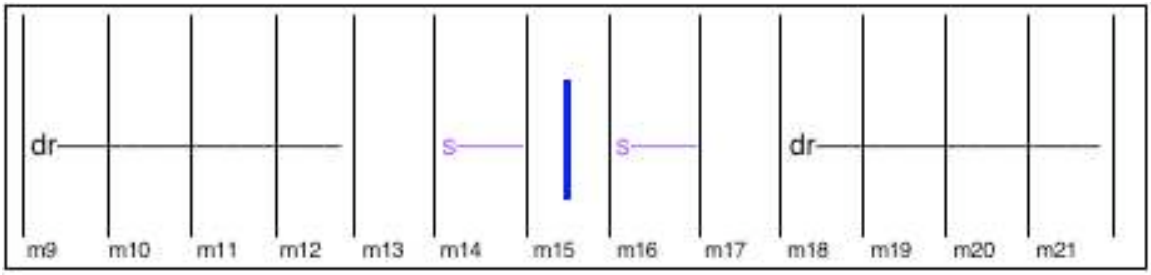


Diagram 4: Suggested Symmetry

By doing so, we have created a radial symmetry whose axis occurs between beats 3 and 4 of m. 15 (indicated in Diag. 4 with a blue line). Harrison's crucial placement of melodicle c, however, formally interrupts this symmetry, a disruption that prevents this melodicle from going unnoticed even in the now full texture. As as in mm. 7–8 of the alto voice prefigured the following area, c at this point likewise prefigures what is to follow in mm. 22–30. This parallelism between mm. 9–21 and 22–30 forms the larger symmetry of formal function referenced above.

Another compositional technique occurring throughout Harrison's work is imitation. In his *Music Primer*, Harrison discusses imitation under the broader category of counterpoint that may be "formal" or "informal." The discussion defines various types, *octaval, quintal, tertial,* and *secundal*, according to tonal, intervallic relationships.[425] Since *The Song of Quetzalcóatl*, however, is post-tonal, the terms "formal" and "informal" are necessarily redefined.

In the case of *The Song of Quetzalcóatl*, the imitation of rhythmic cells between voices may occur in equal numbers of beats, "formal," or an unequal number of beats, "informal." Thus, for the purposes of this paper, we shall identify the two categories as

[425] See Lou Harrison, *Music Primer: Various Items About Music to 1970* (New York: C. F. Peters, 1971), 12.

"Formal Imitation" and "Informal Imitation." This conceptual ordering of the two categories is also the compositional ordering in which Harrison introduces them.

Measures 9–20 see the first examples of imitation between the soprano and alto voices (Diag. 5). The figure as occurs first in the alto voice in m. 9. Subsequent repetitions occur immediately with no rests in between. The soprano voice also presents the figure As occurring exactly three beats after the alto voice's presentation. Subsequent repetitions also occur immediately, thereby maintaining the distance of three beats between repetitions. Accordingly, this is an example of "Formal Imitation."

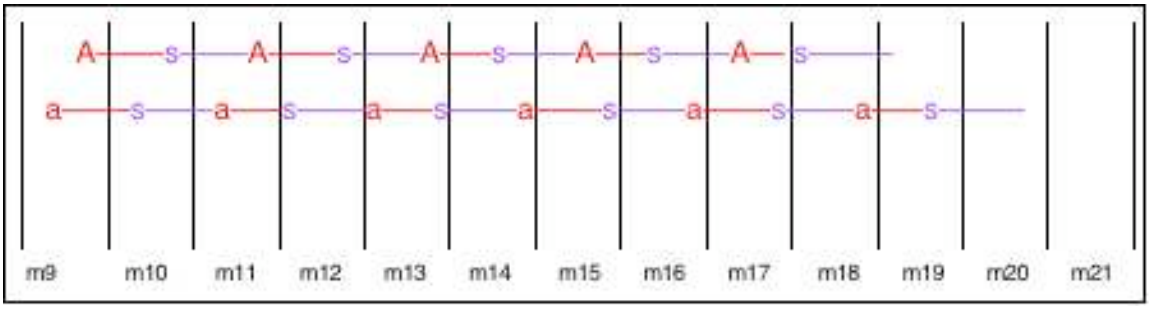


Diagram 5: Formal Imitation

Binary Division **B:** Inclusive Subdivisions $\mathbf{a^2}$ and $\mathbf{b^2}$

Binary division **B** shares with binary division **A** the broad compositional techniques of introducing melodicles (C and D in this instance) and formal imitation. Thus, its subdivisions are similarly labeled as a^2 and b^2 according to these techniques. Division **B** does differ, however, from division **A** in the use of these techniques and in the addition of the compositional techniques of informal imitation and ostinato. Symmetry is also much more prevalent and apparent in division **B** than in division **A**.

Subdivision a^2 is marked by the presentation of melodicles C and D. Like mm. 2–7, Harrison presents a new melodicle in repetition followed by a single statement of a

different melodicle, CCD. In contrast to subdivision a^1, with its transformation of AAb to become BBa, in subdivision a^2, the cell CCD is never transformed to become DDC (see Diag. 6).

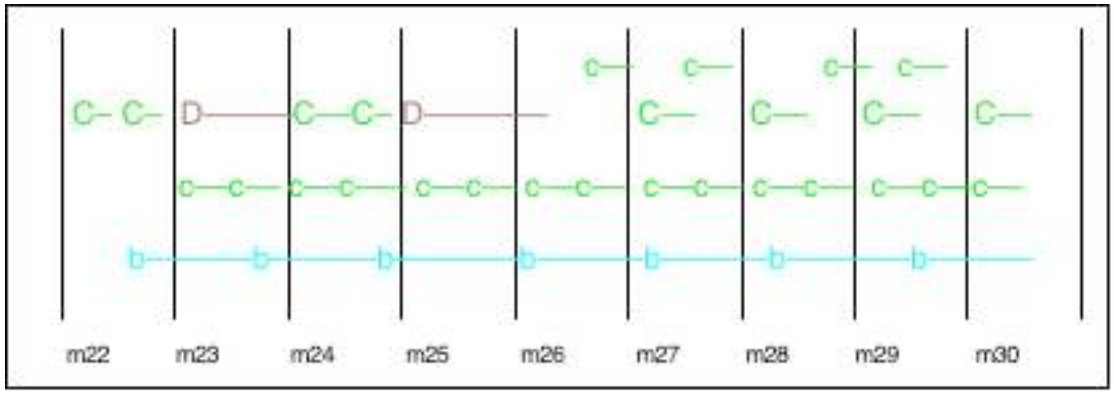


Diagram 6: Presentation of Melodicles C and D

Also different from subdivision a^1 (and b^1 for that matter) is the abundant repetition of a single melodicle in the tenor and bass voices. Such repetition will be termed an ostinato.

Imitation occurs in mm. 26–30 in the soprano and alto voices: while the previous imitation was formal (subdivision b^1), the current imitation in subdivision a^2 is informal, providing both technical contrast and conceptual completion. Specifically, in these measures and between these two voices, melodicle C is repeated and imitated, however, void of consistent temporal spacing.

Subdivision b^2 shares features with subdivison b^1 in that it presents a combined cell (comprised of melodicles) in formal imitation. The combined cells in b^2 are larger in length, however, and constructed according to symmetric design.

The combined cells presented in subdivision b^2 are aacdhcaa and acdtca. The last a of the first cell overlaps the first a of the second, as in m. 35 of the soprano voice. These cells are realized by the notions of radial and bilateral symmetries. Taking cue from the previous cell sAAs of mm. 8–11 presented by voice 1, a similar radial symmetry is

apparent. Differing slightly, however, the symmetries of these larger cells 1) are divided by an axis (dh and dt). Furthermore, the cells overlap. This elision is realized through the parallel construction of the cells, a bilateral comparison: a product of melodicles a + c + a portion of d.

"dh" and "dt" respectively represent the first half or "head" and the second half or "tail" of melodicle D (see below):

dh 

dt 

Identifying with subdivision b[1], the overlapping cells are presented in formal imitation beginning with a presentation in the soprano and imitated first by the bass voice and secondly by the alto voice, occurring sequentially every six beats.

Thus concludes the analysis of Part 1 of *The Song of Quetzalcóatl*. This first part has exposed the listener to 1) melodicles A, B, C, and D, 2) permutated melodicles a, b, c, and d, 3) secondary elements s and dr, and 4) various compositional elements including: a) creation of larger cells with smaller, b) formal imitation, c) symmetry, d) informal imitation, and e) ostinato. Part 2 will develop those elements and techniques previously presented and introduce the new compositional technique of writing unisons.

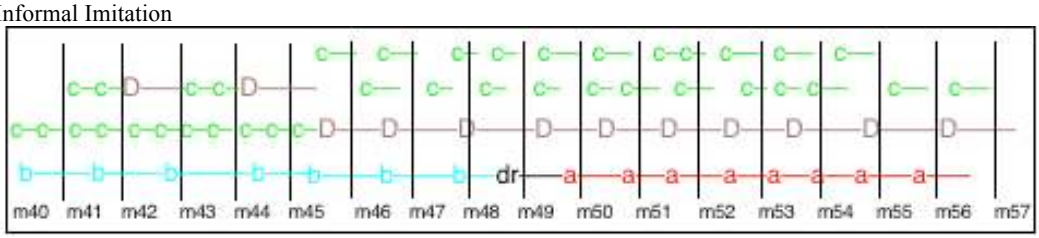
Part 2: mm. 40–82

Part 2 will be subdivided into four divisions according to these distinctions: 1) Sole use of previously presented techniques and 2) Unison. Diagrams of these areas follow:

Binary Division A

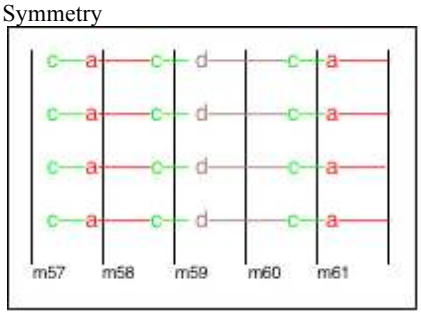
Subdivision a^1: Previous Techniques

Symmetrical Ostinato
Informal Imitation



Subdivision b^1: Unison

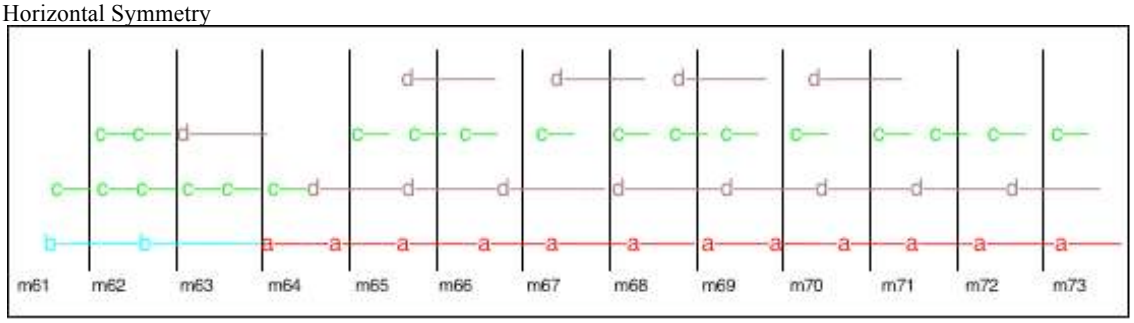
Creation of larger cells with smaller
Symmetry



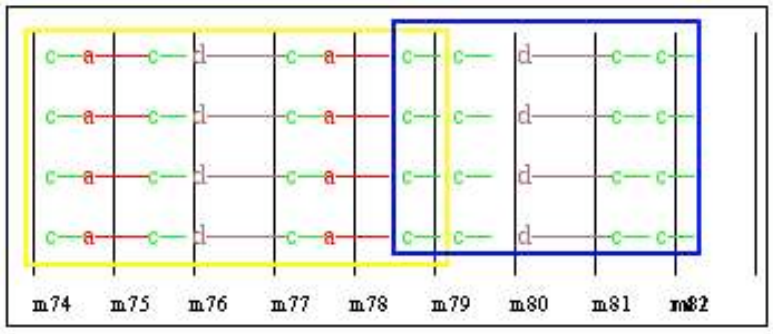
Binary Division B

Subdivision a^2: Previous Techniques

Vertically Symmetrical Ostinato
Horizontal Symmetry



Subdivision b^2: Unison
Creation of larger cells with smaller
Overlapping Symmetrical Combined Cells



The following will examine each of these subdivisions in greater detail.

Binary Division **A**: Inclusive Subdivision $\mathbf{a^1}$

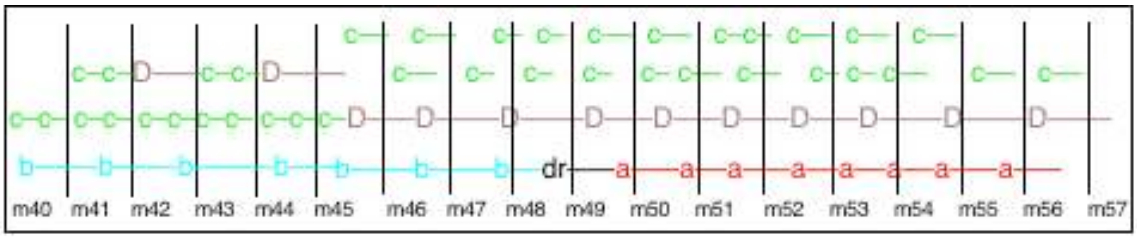


Diagram 1: Previous Techniques

Measures 40–56 form the first subdivision of Part 2: the compositional techniques employed have been previously encountered, those being informal imitation, combination of melodicles to produce larger cells, symmetry, and ostinato.

Ostinatos that include all four melodicles are presented by the tenor and bass voices (texturally distinguishing it from the previous subdivision b^2 of Part 1). Apparent is the abundant repetition of single melodicles, c and D in the tenor voice, and b and a in the bass voice. Separating melodicles b and a is a drone (dr——) that serves as a horizontal axis within the bass voice.

Given Harrison's apparent interest in symmetry, it seems likely that he intended the drone to be grouped formally with one of the melodicles, thereby yielding distinctive

symmetries: grouping the drone with melodicle b yields symmetry of number (seven statements of melodicle b plus one drone balancing eight statements of melodicle a), while grouping the drone with melodicle a yields symmetry of duration (50-52[426] quarter notes of melodicle b, including its initial rest, balanced by 51 quarter notes of drone plus melodicle a, including its terminal rest). However, it is also clearly the case that the melodicle initially presented has one fewer iteration than the melodicle presented second (seven statements of melodicle b followed by eight of melodicle a), an asymmetry that is balanced by the tenor, in which the melodicle first presented has one more iteration than the melodicle presented second (eleven statements of melodicle c followed by ten of melodicle D).

In mm. 41–45, the alto voice identifies with the techniques of Part 1 in combining melodicles to form the larger cell ccD, that is likewise repeated. Melodicle c being followed by melodicle D in this instance is a miniature model of the entirety of the tenor voice, particularly in that the presentations of melodicle D begin in the tenor voice upon its completion in the alto voice in m. 45. Also identifying with Part 1 is what occurs in mm. 46–56, in which the soprano and alto voices use the compositional technique of imitation.

According to our definition, mm. 45–56 of the soprano and alto voices presents an example of informal imitation. Firstly, the number of beats between repetitions of permutated melodicle c within voices is inconsistent. In the soprano voice, the number of rests, in eighth note values, between the eleven repetitions of c are 5-10-2-4-7-3-2-3-3-8.

[426] The variability of duration is due to the ambiguity of the beginning point of the section, which can be considered to begin either on the downbeat of m. 40, where the new statement of melodicle c begins (tenor voice), or on the third quarter note, where the end of melodicle a occurs (alto voice).

The number of rests, in eighth note values, between the twelve repetitions of c in the alto voice are 8-4-5-7-3-3-4-3-1-10-6. Consistency in the number of rests between repetitions of c within and between voices does not exist.

In that *The Song of Quetzalcóatl* has thus far been intentionally structured, a haphazard presentation of c seems suspect. Therefore, an investigation into the methods of creating these measures is warranted. The results of that investigation are as follows.

Soprano			Alto	
Total # of rests	# of times applied	# rests between repetitions	# of times applied	Total # of rests
0	0	1	1	1
4	2	2	0	0
9	**3**	**3**	**3**	**9**
4	1	4	2	8
5	**1**	**5**	**1**	**5**
0	**0**	**6**	**1**	**6**
7	**1**	**7**	**1**	**7**
8	**1**	**8**	**1**	**8**
10	**1**	**10**	**1**	**10**

Figure 1: Informal Imitation Observations

The above chart in Figure 1 organizes the number of rests between repetitions according to number of rests in eighth notes (in grey), number of times applied within each voice, and the total number of rests within each voice resulting from the number of times a rest is applied. Similarities are cast in red, showing more similarities than

differences. This observation suggests that Harrison may have applied a formal system to create an informal pattern.[427]

Another observation of formal patterning in these measures occurs between initial attacks of the soprano and subsequent attacks in the alto voice. Measured in eighth-notes, this approach yields durations of 7, 10, 4, 7, 10, 6, 6, 8, 8, 6, 8: that is, two pairs of 7 and 10 with an articulative space between followed by a pair of sixes, a pair of eights, and a pair combining 6 and 8. Also, the composite rhythm of combined voices yields a pattern of rests in eight-notes: 1, 4, 1, 4, 2, 2, 2, and 2: in this instance, four values paired 1+4 and 1+4 followed by four more values of equal duration, 2+2+2+2. Finally within the soprano voice are pairings of dragon's mouths with woodblocks. Within these pairings are durations of rests (also measured in eighth notes) of 5, 2, 7, 2, and 3–a pattern of an odd number of odd numbered rests or differing durations that alternate with an even number of even numbered rests of equal duration.

Binary Division **A**: Inclusive Subdivision **b**[1]

In contrast to the complexities of subdivision a^1 (mm. 40–56), subdivision b^1 (mm. 57–61) simply presents a combined cell presented by all voices in unison (Diag 2).

[427] The method of using an ordered system to create informal scenarios came to fruition in the chance operations of Harrison's longtime friend John Cage. Miller writes, "Surprisingly, given his distaste for randomness in art, it was Harrison who first introduced Cage to the *I Ching*, one of the main sources of chance operations that Cage and Cunningham would later use to dictate the arrangement of sound and movement events. An enigmatic ancient Chinese treatise on divination, the *I Ching* uses a method of tossing coins to select from among sixty-four predictions. Cage extracted the methodology of selecting elements by chance operations, while Lou was more interested in the philosophical underpinning. Although Cage recalled Lou showing him the *I Ching* in San Francisco during the 1930s, Harrison places the event several years later" (Miller, 49). Harrison commented in an interview conducted by Miller on 12/29/93: "I read the *I Ching* at UCLA when I was working with Schoenberg and the dance department [1942–43]. My idea was to create a ballet in which there was a white backdrop. The dancers would toss for the image, and the character would be painted in broad red brush strokes on the back part of the stage. Then the dance would be done to that image. A second toss would determine the next phase. The *I Ching* would determine a set of positions and where and how to move between them. Though I had thought of the possibility, I never seriously considered tossing for the actual notes and rhythms. Later in New York, I introduced John Cage to the *I Ching*." (Miller, *Composing a World*, 49–50).

The method of combining melodicles to create larger cells identifies with Part 1 while its presentation in unison is in extreme contrast.

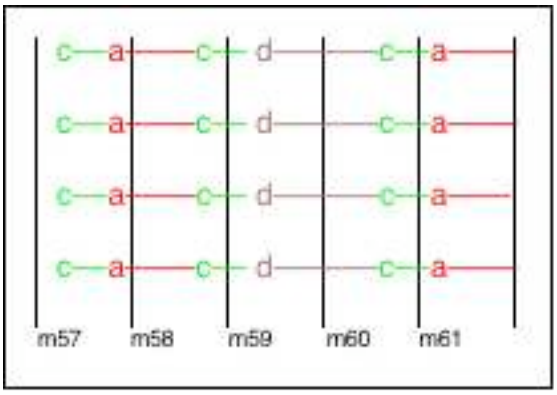


Diagram 2: Combined Cell Unison

The combined cell may be viewed as a bilateral symmetry with cd serving as the axis, ca +cd + ca. Such symmetry, however, is constructed differently than previous. For example, if we were to hypothetically add melodicle c to the end of the cell, the result would be cacdcac, a radial symmetry with melodicle d serving as the axis, a construction previously encountered (mm. 31–40) and that will be observed again (mm. 74–82). Harrison, however, intentionally constructs the cell with the absence of the final, and hypothetical at this point, c melodicle to introduce bilateral symmetry and consequently differentiate it from previous examples.

Binary Division **B**: Inclusive Subdivision **a**^{2}

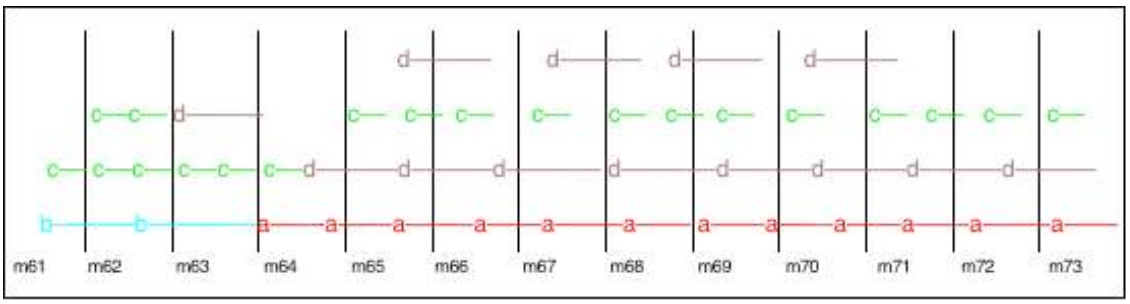


Diagram 3: Horizontal and Vertical Symmetries

Subdivision a^2, mm. 61–73, like subdivision a^1, sees a return of compositional techniques used previously in Part 1. The simplest example occurs in mm. 62–63 of the alto voice that presents combined cell ccd reminiscent of AAb, BBa, and ccD. The cell, however, is not repeated. The presentation of ccd in these measures, however, does share with the presentation of ccD in a^1 in its projection of what is to follow in the tenor voice.

Parallel to the use of ccD in a^1, the presentation of melodicle d in the tenor voice of a^2 begins just as the presentation of melodicle d ends in the alto. The projection of melodicles c and d are furthermore expanded in subdivision a^2 as realized in the soprano and alto voices. Whereas an informal imitation of strictly c was presented in subdivision a^1, c and d are layered in mm. 65–73.

The layering of c and d may also include the tenor voice, thereby creating symmetry between the tenor , alto, and soprano voices in mm. 64–71: that is, d, c, d respectively. The symmetry additionally occurs along the axis of time with the presentation of d in the tenor (m. 64), followed by c in the alto (m. 65), and finally d in the soprano (m. 65).

Numeric symmetry is also present in these voices. The soprano enunciates d four times, the tenor annunciates d eight times, and the alto voice enunciates c twelve times (4 + 8 = 12). The bass also annunciates its melodicle, a, twelve times.

Including the bass in these measures (mm. 64–73) yields another temporal symmetry. Beginning in m. 64, the bass enters, followed by the tenor, the alto, and finally the soprano. This passage ends in retrograde, beginning with soprano, then alto, tenor, and finally bass.

A vertical symmetry such as that between the tenor, alto, and soprano voices just described is also observable in the tenor and bass voices in mm. 61–73. These measures are comparable to that of mm. 40–57 also in the tenor and bass voices. All melodicles are presented as ostinatos and two halves are discernable. As stated, however, the symmetry occurs vertically in mm. 61–73, rather than horizontally.

Melodicle c occurs six times in the tenor voice for a total of 18 beats (by quarter notes), and melodicle b occurs twice in the bass equaling 14 beats. The tenor voice at this point is "heavier" by 4 beats. Melodicle d occurs in the tenor voice eight times equaling 56 beats, and melodicle a occurs twelve times equaling 60 beats. Now the bass is "heavier" by 4 beats. Both lines equal a total of 62 beats, a perfectly balanced vertical symmetry.

Returning to horizontal symmetry, two other examples occur in mm. 65–71 of the soprano voice and mm. 65–73 of the alto voice. In the case of the soprano, melodicle d is presented in radial symmetry resulting from a consistent number of rests, in eighth notes, between each repetition, 6–4–6. Melodicle c is presented in bilateral symmetry in the alto voice. From mm. 65–67 occur four presentations of c. Between each presentation is 4, 2,

and 1 eighth-note rests. Following 5 more eighth-note rests are four more presentations of c with the same eighth-note rest spacing, and subsequently, after another 5 eighth-note rests, another four presentations with consistent spacing; c 4 c 2 c 1 c 5 **:** c 4 c 2 c 1 c 5 **:** c 4 c 2 c 1 c.

Binary Division **B**: Inclusive Subdivision $\mathbf{b^2}$

The technique of writing unisons occurs in mm. 74–82, designating it as the final subdivision of Part 2. It begins very much like subdivision b^1 with the presentation of the combined cell cacdca but now with the addition of the final melodicle c. As if to make up for its previous absence in b^1, the final melodicle c of cacdcac elides with the following combined cell ccdcc. The combined cells are outlined in yellow and blue respectively in Diagram 4:

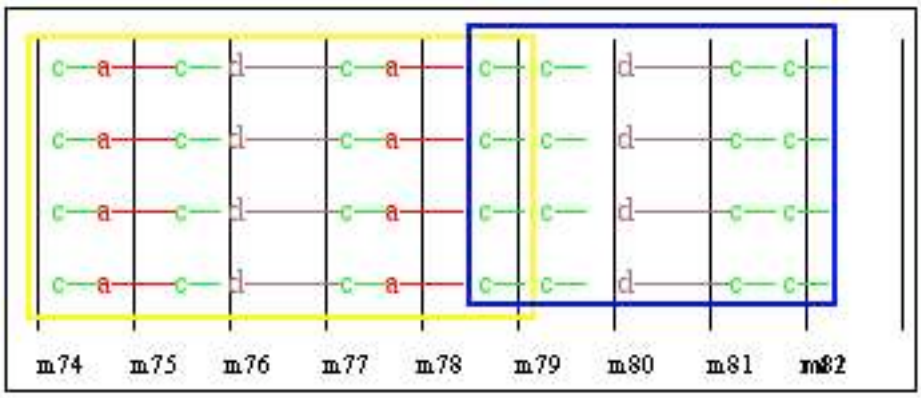


Diagram 4: Overlapping Symmetrical Unison

Transition: mm. 82–90

Following the completion of combined cell ccdcc is a brief transition to Part 3. The transition, mm. 82–90 (Diag. 5), utilizes two permutated melodicles, a and d, and is composed using previous techniques of unison and formal imitation.

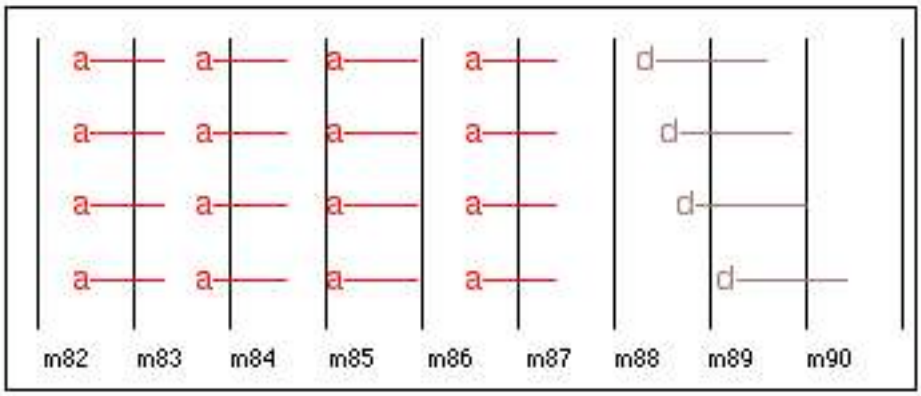


Diagram 5: Transition from Section 1 to Section 2

In mm. 82–87, Harrison writes all voices in unison utilizing permutated melodicle a. He does so in a clearly ordered manner. Following the completion of Part 2 (the sounding of ccdcc) is one quarter-note rest, then the first presentation of a. Following that first presentation are two quarter-note rests and then the second presentation of a in m. 83. Following that a is three quarter-note rests, presentation of a in m. 85, then four quarter-note rests and the final presentation of a in m. 86. After five quarter-note rests, permutated melodicle d is presented by the soprano voice. Such temporal spacing creates the linear series, in quarter-note durations, 1, 2, 3, 4, and 5.

In juxtaposition to the unison presentation of a, d is presented in imitation. Since d is presented consistently every two quarter-notes in each voice successively (soprano, alto, tenor, and bass), the imitation is formal.

Despite the limited elements and used methods, the implications of this short transition are substantial. Juxtaposed are the two most characteristic melodicles, a for its primary appearance, and d for its length and complexity. Melodicle a is presented in unison, contrary to its treatment in Part 1, while melodicle d is presented in imitation–two distinct compositional methods that previously marked the four subdivisions of Part 2.

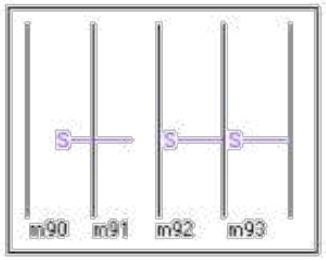
The transition is responsible for preparing the listener for Part 3 while marking the end of the previous section. The powerful presentation of d in stretto marks an ending of the previous Part 2, while the repetition of a presented in a specifically ordered spacing reminds the listener of the most prominent melodicle of Part 1.

Part 3: mm. 90–124

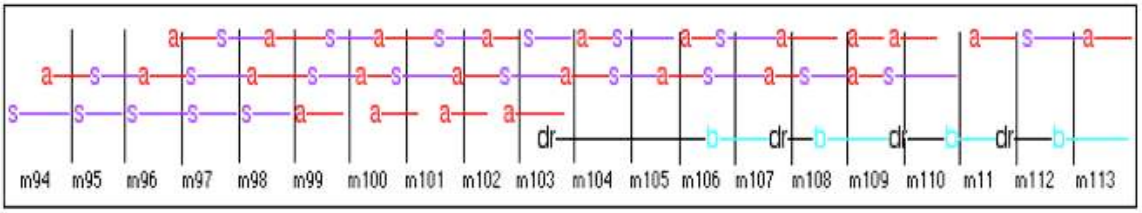
Part 3 of *The Song of Quetzalcóatl* maintains the principle of binary division. Also, like previous Parts 1 and 2, each division may be subdivided according to identifiable compositional techniques: each binary division begins with the strict appearance of secondary elements (that is, the presence of no melodicles) and ending with the presence of a melodicle(s). Following is a diagram of these areas:

Binary Division A

Subdivision a^1: Secondary Elements

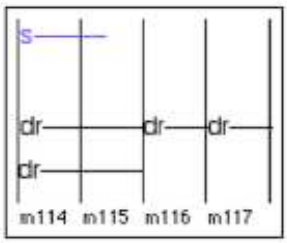


Subdivision b^1: Presence of Melodicles

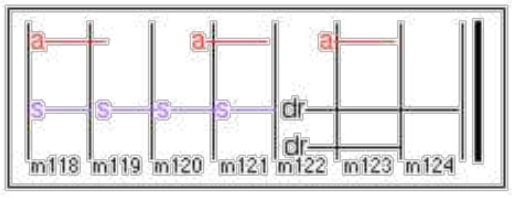


Binary Division B

Subdivision a^2: Secondary Elements



Subdivision b^2: Presence of Melodicles



The following will examine each of these subdivisions in greater detail, but unlike the previous analyses of Parts 1 and 2, the examination will begin with subdivision b^1 of binary division A.

Binary Division **A**: Inclusive Subdivision **b^1**

We begin with an examination of subdivision b^1 due to its shared materials and compositional techniques with subdivision b^1 of Part 1. A fusion of the two areas at mm. 21 and 94, as is done in Diagram 1, reveals their similarities:

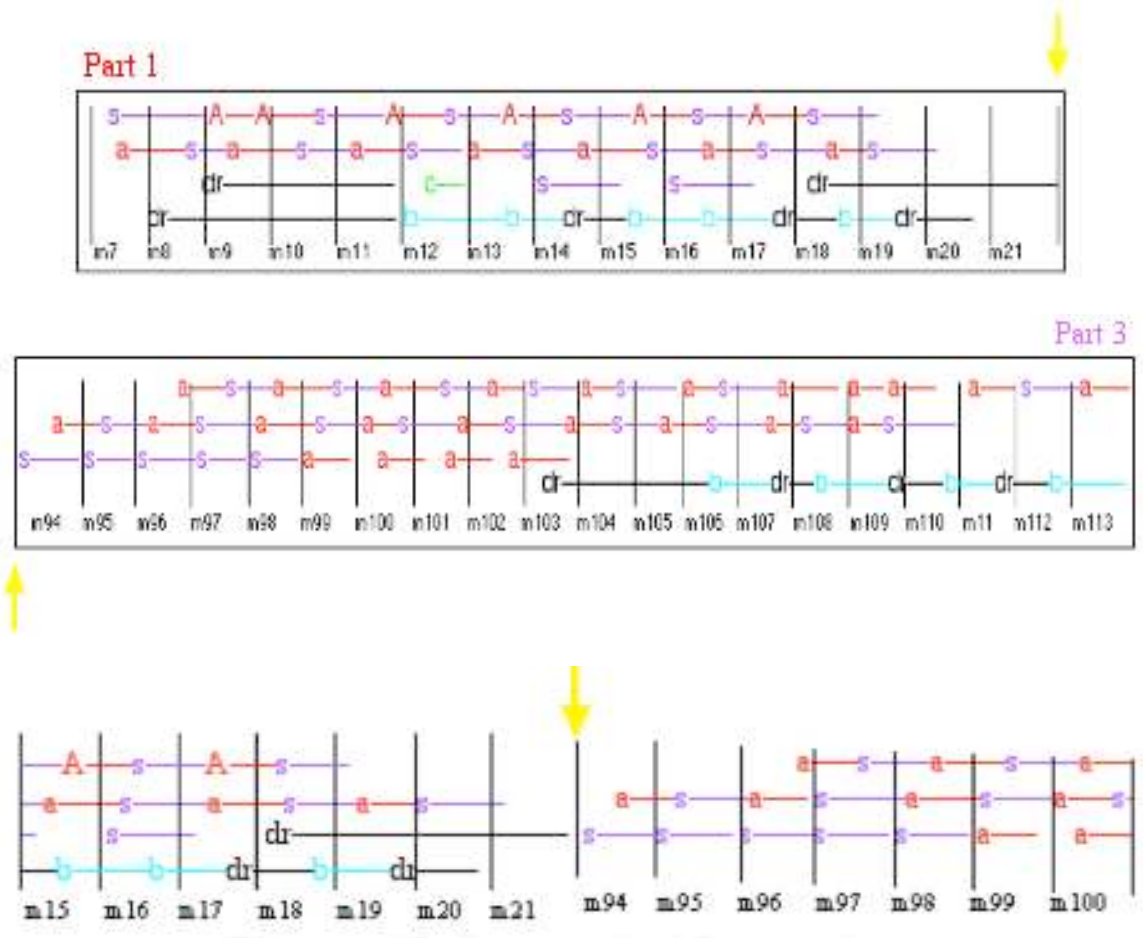


Diagram 1: Suggested Fusion of Subdivision b^1 of Parts 1 and 3

Fusing the above creates a large area containing several symmetrical figures, apparent in Diagram 2:

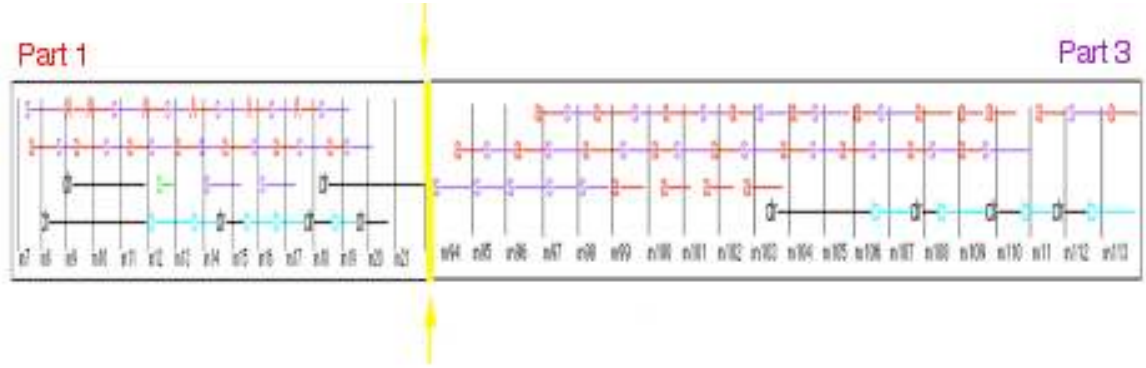


Diagram 2: Fusion of Subdivision b^1 of Parts 1 and 3

A more detailed diagram would span the length of two pages, thus focused areas of symmetry are diagramed below.[428]

The soprano and alto voice of b^1 of Part 3 (mm. 94–113) are presented in Formal Imitation, a compositional technique that identifies with the coinciding area of Part 1. Unlike Part 1 that presents material in the soprano voice that is imitated by the alto voice, Part 3 presents material by the alto that is imitated by the soprano. Such a presentation forms a radial symmetry, as illustrated in Diagram 3 below.

[428] If reading this document in a paper format, it is recommended to cut and paste Diagram 1 to facilitate the observation of detail, more so than that of Diagram 2.

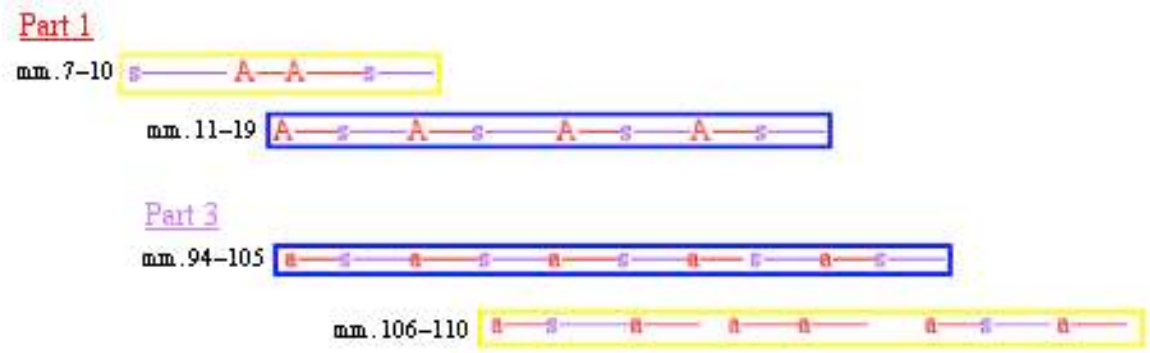


Diagram 3: Similar Symmetrical Structures

Outlined in yellow are the beginning and end of Part 1 and Part 3, respectively. Both are clearly composed of symmetric structures. Outlined in blue are nearly equal repetitions of the combined cell a——s—— (four presentations in Part 1, five in Part 3) making each approximately symmetric to the other. The same device can also be seen in the alto voice, although, Part 3 presents a——s—— nine times versus only seven in Part 1 making the symmetry less similar.

A radial symmetrical structure is also present in the tenor voice, however, through the use of differing material (Diag 4).

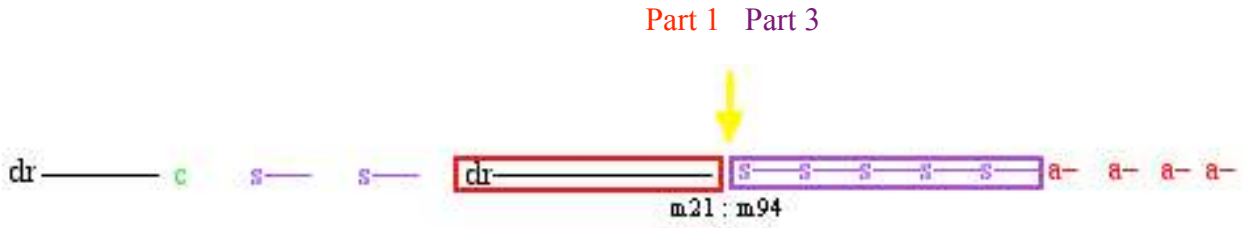


Diagram 4: Symmetrical Structure with Varied Material

Outlined in red and purple (Part 1 and Part 3, respectively) are secondary elements, drone and single-stroked instruments. One comprises 4 measures and the other 5. Following

each phrase (working out from the line of symmetry) are 4 individual statements; those of Part 1 are varied while those of Part 3 are singular.

Somewhat symmetrical, but much less similar than the other voices, is material occurring in the bass voice. Also different is that the symmetry is bilateral than radial.

Part 1





Part 3

Diagram 5: Similar Bilateral Symmetry

Apparent in Diagram 5 is that both bass lines (Part 1 in red and Part 3 in purple) begin with a drone. Following in Part 1 are two presentations of b———b——dr—— and a single presentation of b——dr——. Following in Part 3 are three presentations of of b——dr—— , an approximately symmetrical design lacking a melodicle b in the first two presentations of Part 3. As if to balance the disproportion, Harrison presents an additional melodicle b in Part 3.

In that at least one of the subdivisions in Part 3 is comparable to a corresponding subdivision in Part 1, a parallel comparison of the other subdivisions of Part 3 with those of Part 1 is warranted. Such comparison is suggestive of a ternary form, that is Part 3 representing a return of material and techniques from Part 1, and thus resulting in an overall ABA' form. The following will compare and contrast these subdivisions.

Subdivisions a^1 and a^2

Part 1 Part 3

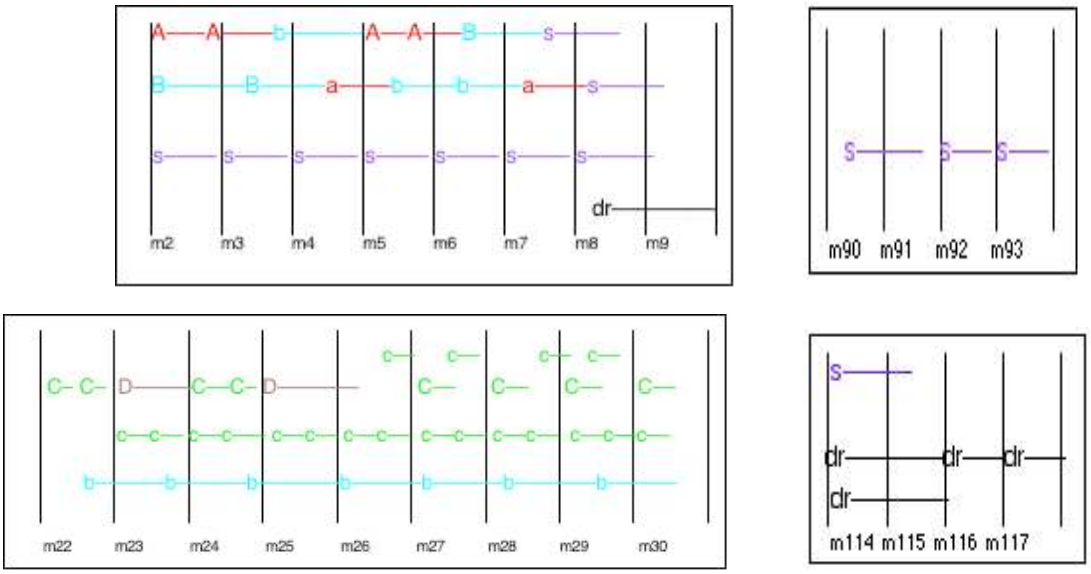
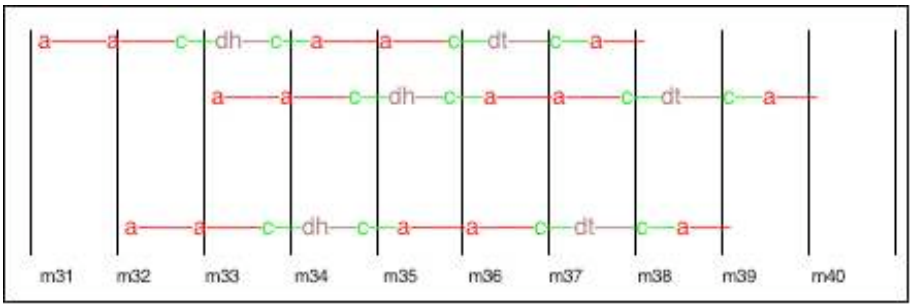


Diagram 6: Coinciding Subdivisions a^1 and a^2 of Parts 1 and 3

The most obvious contrast of subdivisions a^1 and a^2 between Parts 1 and 3 is the lack of material in Part 3 (see Diag. 6). Whereas these subdivisions of Part 1 are about activity and the introduction of melodicles, Part 3 is about the absence of material. Those elements that had been secondary (drones and single-stroked instruments) now, by contrast, receive full attention. The return of large section A implies a return of melodicle a, especially having just heard it in abundance in the transition. Harrison, however, deceives the listener's conventional expectations with silence.

Subdivision b^2

Similarly, subdivision b^2, the last area of Part 3, differs radically from the corresponding area of Part 1 in its minimal use of material and its contrast of applied compositional techniques (see Diag. 7).



Part 1
polyphonic
imitative
three melodicles
combinatory cells

Part 3
homophonic
non-imitative
single melodicle

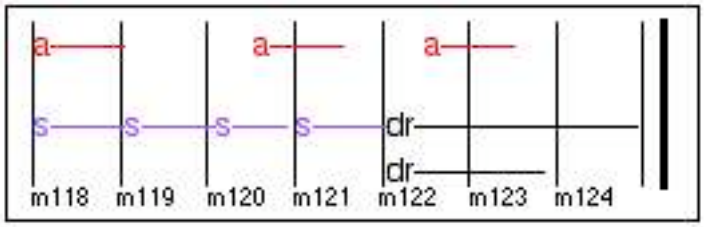


Diagram 7: Subdivision b^2 of Parts 1 and 3

Interesting to note is the texture. Subdivision b^2 of Part 1 is absent of the tenor voice, whereas it is the most active voice in the entire of Part 3.

One could argue that Part 3 of *The Song of Quetzalcóatl* is through-composed. However, in the context of the rest of the composition (Part 1 and 2), the section must be divided into four distinct areas. Herein lies Harrison's genius. He has worked within a principle structure with so much skill and creativity as to audibly deny its conventionalism. Indeed, the final section is seamless, especially compared to Part 1with its many facets of contrast, but the ternary form of the whole is undeniable. Miller eloquently states that Harrison has applied a "compositional process aimed at deriving maximum effect from a limited range of components; a material's limiting device [and

parametrical structure] with which he can build on his attraction to the melodic and rhythmic surface to create both momentum and variety."[429]

[429] Miller, *Composing a World*, 208.

Chapter 4

Aztec Musical Attributes in Lou Harrison's *The Song of Quetzalcóatl*

The World Palette

Miller and Lieberman state, "Perhaps Cowell's most important influence on Lou was his advocacy of non-Western musics–both as classical traditions and as sources for new music: specifically Asian music, Amerindian music, and Latin American music."[430] Brief mention has been made of Harrison's collaborations with Lester Horton on the dance piece *Conquest* (see Chapter I: *The Song of Quetzalcóatl*), but the music was more improvisatory rather than founded on indigenous Mexican musical elements. Three years after the collaboration with Horton, had Harrison substantiated any of these qualities in composing *The Song of Quetzalcóatl*?

Virgil Thomson stated that: "It was Mozart's boast that he could master any musical style within a week and by the end of that time compose in it adeptly enough to deceive experts. Lou Harrison has something of that virtuosity."[431] Mr. Thomson is inaccurate on at least two accounts in relating Harrison to Mozart: 1) Harrison would never boast, and 2) Harrison would never deceive. No matter what style of composition he creates, polyphonic, 12-tone, Asian, or Indonesian, Harrison's voice is clear, and his guiding principles apparent. Harrison could, however, "master any musical style within a week and by the end of that time compose adeptly." Whether Harrison engaged with a Mexican, specifically Aztec, musical style, though, is questionable. The following chapter will attempt to answer this question.

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[430] Miller, *Composing a World*, 11.

[431] Virgil Thomson, "The World of Lou Harrison," *KPFA Folio* 39, no. 5 (May 1987): 7. Reprinted in Peter Garland, *A Lou Harrison Reader* (Santa Fe: Sounding Press, 1987), 86.

The fact that *Quetzalcóatl* is misspelled both in the title of Harrison's piece (*Queztecoatl*), and on the announcement for its premier (*Quezecoatl*),[432] could make one believe that in no way had Harrison made a serious attempt in creating Aztec music–certainly not to the same extent as Chávez, who stated specifically of his *Xochipilli*: "This piece is an attempt to reconstruct–as far as it is possible–the music of ancient Mexicans."[433] Chávez adds that the elements at his disposal to do so were "extremely limited." If Chávez, who was at the musical forefront of the Mexican Renaissance, had limited knowledge of Aztec music, what few resources would be available to Harrison in California?

While being limited in resources may not justify the misspelling of *Quetzalcóatl*, it does explain the limited amount of Aztec musical elements present in Harrison's piece. In fact, Harrison admits, *The Song of Quetzalcóatl* "was actually done when there might be a movie made of it. . . . It was done under the direct visual impact by a book on codices of Mexico."[434] Harrison mentions no other sources. Thus, it may be surmised that Harrison had only his imagination and a single book from which to draw.

Plastic Arts and Symmetry

Anyone who has turned the pages of such "codices" as those to which Harrison must refer (unfortunately, he cited no specific volume) knows these volumes are full of illustrations–salvaged pictograms, re-painted pictograms, and mendicant sketches. Since Harrison was conceiving a sound score for a motion picture, a visual art, it is appropriate

[432] For a copy of the original announcement, see Gunden, 41.
[433] Chávez, *Xochipilli*, preface.
[434] Baker, "The Percussion Ensemble," 160.

that he was influenced by these illustrations' "direct visual impact," and thus, it is likely one can find parallels between Harrison's composition and Aztec visual art.

Moreover, we should recall that Chávez believed that, "Although referring to different arts, there is a common denominator in the various expressions of a given culture so that it is not impossible to derive from the plastic arts a sensitivity that can be transcribed into music."[435] If we can accept this statement as valid, as has been previously argued (see Influence of the Plastic Arts earlier in this paper), then any comparison of musical elements and techniques in *The Song of Quetzalcóatl* to Aztec visual art, whose features are distinctive and characteristically parallel to those musical elements, could suggest Harrison's composition as reflective of an Aztec aesthetic.

Symmetry Types

One important means of comparison between visual art and music is its use of symmetry. As this topic was addressed by both Harrison and Chávez, it is also directly relevant to this discussion. On page one of his *Primer* (see Fig. 1 of Melodicles and Rhythm), Harrison described various methods in presenting material, specifically melodicles.[436] These methods of presentations are the same as those that Chávez identified in his *Musical Thought*, although each composer provided different terms. The chart below compares equivalent terminologies:

[435] Chávez, *Xochipilli*, preface.

[436] The signifigance of melodicles with respect to Aztec musical culture is specifically explored in the following Aztec Musical Attributes.

Chávez Term	Harrison Term
Bilateral	Transposition
Radial	Backward (retrograde)
Inverted	Upside down (inverse)
Doubly Inverted	Retrograde Inverse

Figure 1: Equivalent Terminology

Since it is unknown which book of codices Harrison viewed, and since he said he had been influenced also by "archaeology," the same Aztec visual specimens used in the discussion of symmetry in Chávez's work (see "Symmetry," Rhythm in *Xochipilli*), will serve as comparison for Harrison's work.

Bilateral Symmetry

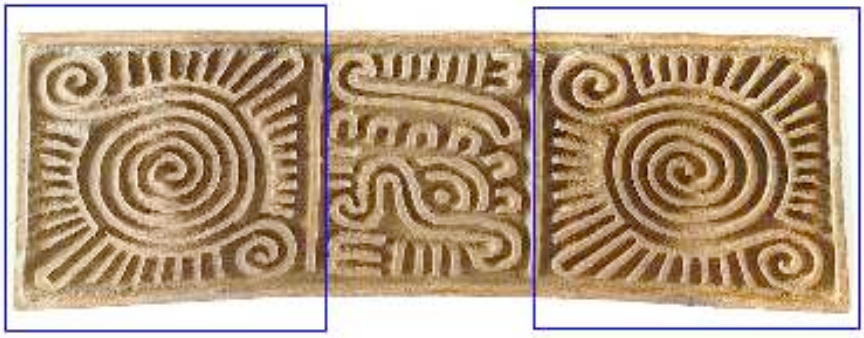


Figure 2: Bilateral Symmetry
ca.1500, Aztec
Museo Nacional de Antropología, Mexico City
Conaculta-Inah, 10–116493
Reprinted by permission, *Aztecs,* #64
Photograph by Michel Zabé

In Figure 2 above, we see an example of what Chávez termed "bilateral symmetry." Bilateral symmetry is simply repetition of material, a feature of "magic" song found among Mexican indigenous groups. Harrison refers to this method as "transposition." Exact repetition of material would be a transposition at the unison. *The*

Song of Quetzalcóatl, being absent of specified pitch, however, may not be approached with this pitch-specific definition. Thus, simple repetition of material, whether exact or varied, may qualify.

In the beginning of the piece, players one and two present and immediately repeat melodicles A and B, respectively. Harrison interchanges these melodicles in modified forms, thus creating a larger cell that is then bilaterally repeated (Diag. 1).

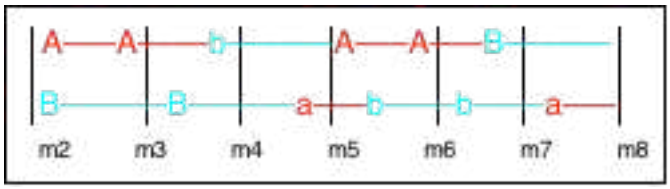


Diagram 1: Bilateral Repetition

This also occurs in the alto voice in mm. 22–26 and mm. 41–45 with the repetition CCD and ccD respectively.

Combined cell, bilateral repetition continues for players 1 and 2 and additionally for player 4 in mm. 9–20 (Diag. 2):

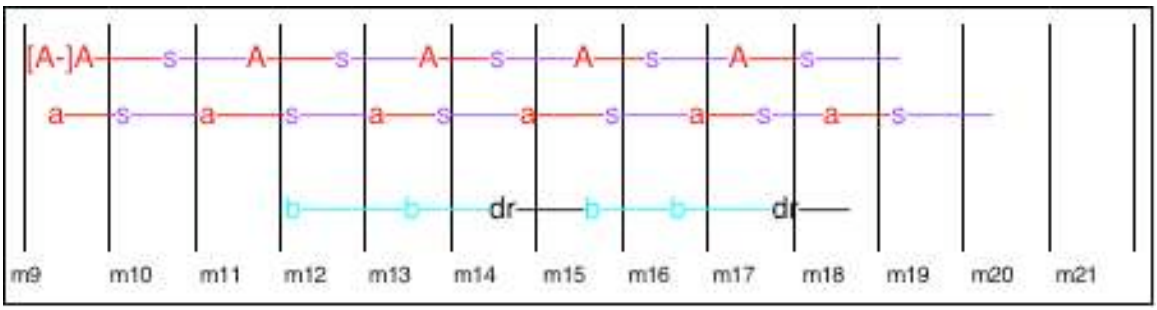


Diagram 2: Combined Cell, Bilateral Repetition

In mm. 9–11, the soprano voice, at first, continues the bilateral repetition that occurs in mm. 2–8, but rather than two A melodicles followed by a B melodicle, the A

melodicles are now followed by a single-stroked drone s, a secondary element. The previous chain broken, a new bilateral repetition emerges composed of a single melodicle A followed by a single-stroked drone, resulting in As. The alto voice presents a similar bilateral repetition, but with permutated melodicle a. The bass voice, in mm. 12–15, presents two permutated melodicles, bb, followed by the other secondary element, the drone (dr), an instrument that is rolled for increments of six beats. Due to the parallel construction of subdivision b^1 of Parts 1 and 3 (see Diagrams 1 and 2 of Binary Division **A**: Inclusive Subdivision $\mathbf{b^1}$), mm. 94–113 are likewise composed of a bilateral symmetrical design.

Two elaborated types of combined cell bilateral repetition occurs in mm. 31–39 (Diag. 3) and mm.74–82 (Diag. 4). The combined cell in Diagram 3 is presented in imitation, while the combined cell in Diagram 4 is presented in unison, a vertical bilateralism.

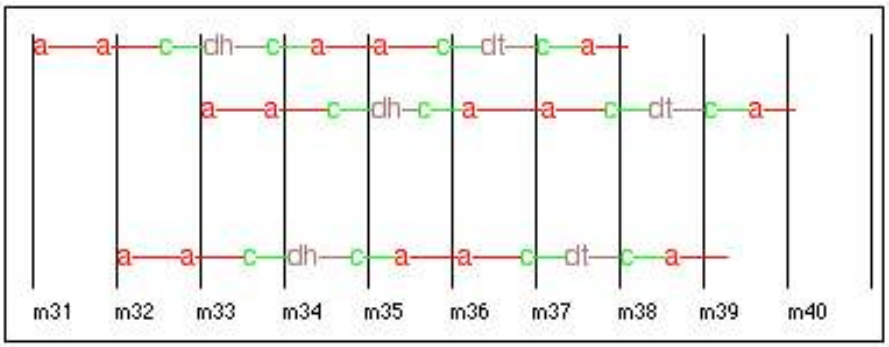


Diagram 3: Combined Cell, Bilateral Imitation

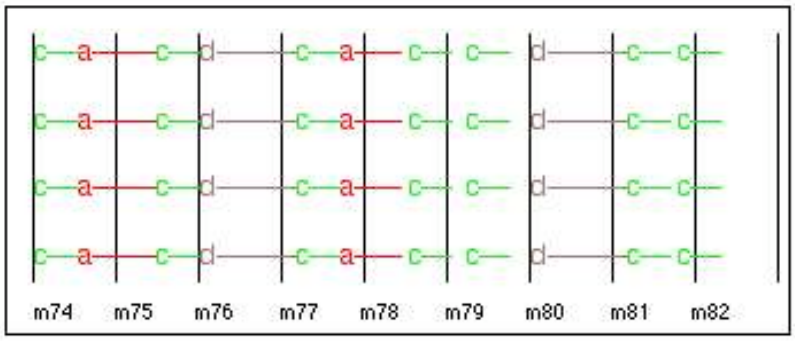
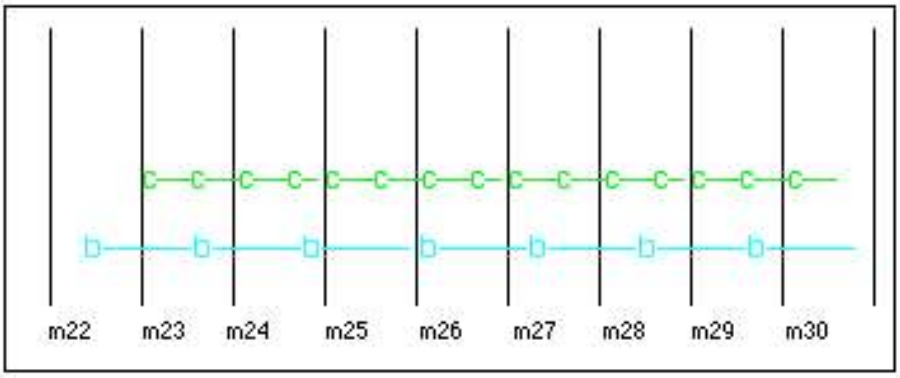


Diagram 4: Combined Cell, Vertical Bilateralism

Much simpler than the above are the single repetitions of melodicles, as in the following:



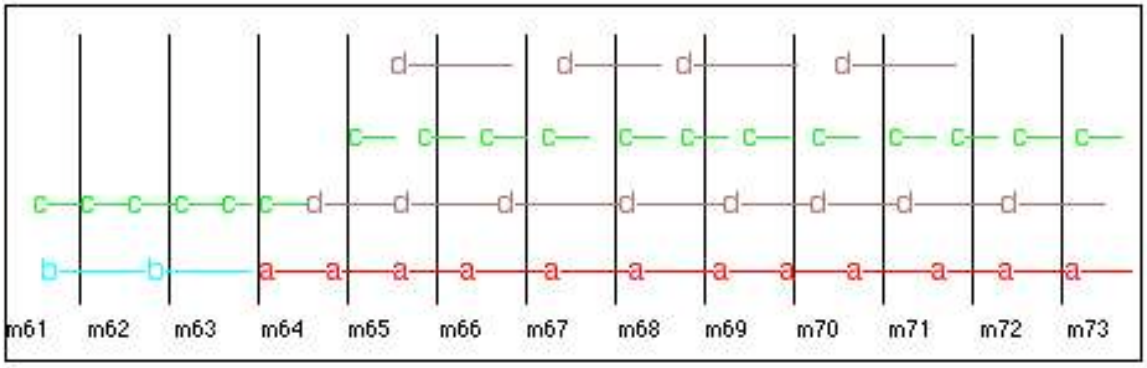


Diagram 5: Single Melodicle Bilateralism

Elaborated bilteralism also occurs in specifically unison and stretto presentations in mm. 82–90 (Diag. 6):

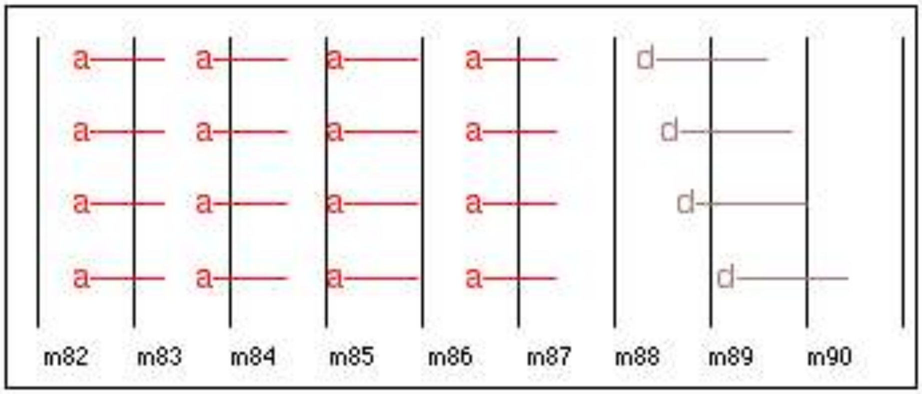


Diagram 6: Single Cell Bilateralism in Unison and Stretto

Single melodicle imitation, such as the above in stretto, also occurs with melodicle C in mm.26–30 and mm.45–56, although in “informal” imitation than “formal” (see Exposition: Symmetry and Imitation above for a discussion of Harrison’s use of Informal and Formal Imitation).

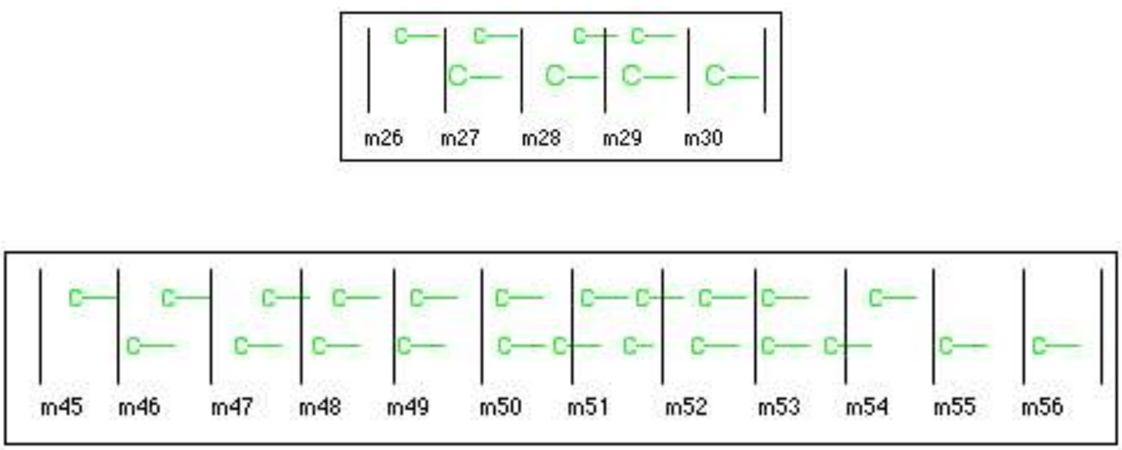


Diagram 7: Single Cell Bilateralism in Informal Imitation

Bilateral Symmetry with Divider

Looking again at our archaeological example of bilateral symmetry, a section of differing composition divides the two identical pieces (outlined in blue in Fig. 3):

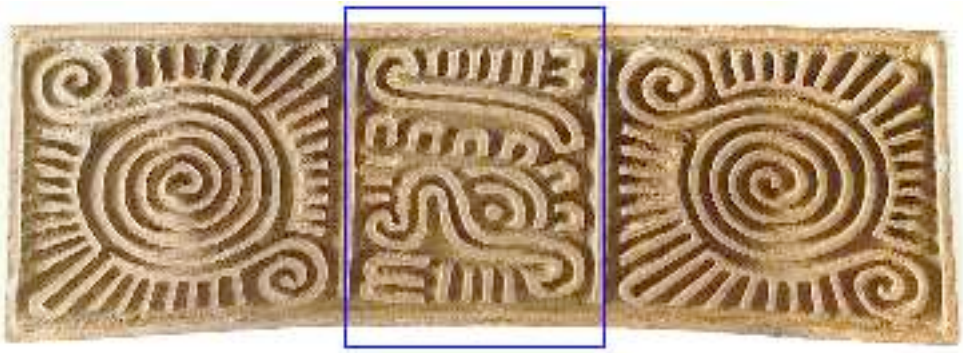


Figure 3: Bilateral Symmetry Divider

Besides the large-scale comparison to the overall ABA' form of *The Song of Quetzalcóatl*, this construct is also prevalent on a smaller scale within the piece. As noted earlier, Harrison symmetrically juxtaposes long strings of melodicles (see Part 2: mm. 40–82). One particular string, in mm.44–53, is divided by a drone (Diag. 8):

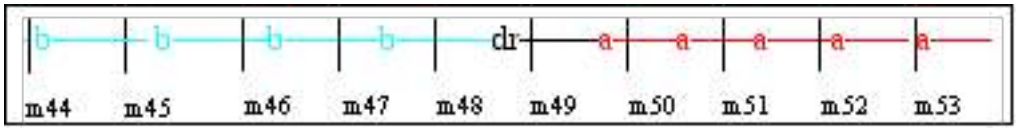


Diagram 8: Symmetrical Ostinato with Drone Divider

Another instance of divided bilateral symmetry occurs in mm.106–110 (Diag. 9):

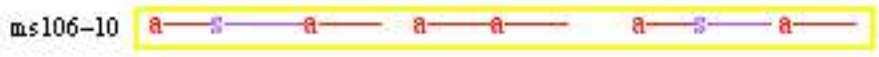


Diagram 9: Combined Cell Symmetry with Single, Bilaterally Repeated Melodicle Divider

Apparent is the large division of asa aa asa and the smaller division of asa.

Radial Symmetry

Returning to our archaeological example of radial symmetry (Fig. 4), one can see the figures are mirror images of each other (with slight variations), or as Harrison described it, backwards or in retrograde:



Figure 4: Stamp
ca.1500, Aztec
Museo Nacional de Antropología, Mexico City
Conaculta-Inah, 10–532896
Reprinted by permission, *Aztecs,* #65
Photograph by Michel Zabé

Such symmetry occurs in the small-scale, rhythmic construction of melodicle C (Fig. 5):



Figure 5: Retrograde Symmetry of Melodicle C

Another small-scale example occurs in mm. 7–10 in the construction of combined cell sAAs.

While isolated, small-scale instances of radial symmetry are rare in *The Song of Quetzalcóatl*, it is apparent in the larger form; recall that subdivision b^1 of both Parts 1 and 3 form a large-scale radial symmetry. (See Part 3: mm. 90–124 of Harrison section.)

Aztec Musical Attributes

Restating one of the purposes of this paper, Chávez and Harrison both composed works for percussion whose titles included Mexican, specifically Aztec, deities. While Chávez was at the forefront of the Mexican Renaissance and thereby engaged in the research of Aztec musical styles, Harrison, residing in California, had much more limited resources. While symmetry is prevalent in *The Song of Quetzalcóatl*, to what extent is it reflective of an Aztec musical style, are there any other elements that can be attributed to an Aztec musical style, and to what extent did Harrison intentionally attempt to reflect such a style?

We can begin to answer these questions by referring to Chávez. He believed that pre-colonial music was an art form of utility in achieving a specific, "magical" purpose. He states: "Imitation and repetition . . . were the basis for the technique of this early art."[437]

Albeit, these techniques are not limited to Mexican indigenous music, and for Harrison, were influenced primarily by Henry Cowell's use of these techniques as observed in several non-Western traditions. Nonetheless, that these techniques are maintained in Mexican music, Harrison's repetitive methods can be construed as representative of an Aztec musical style, or at least of folk or *maceualli* music.[438]

Differing vastly, however, from a Mexican indigenous style and suggesting that Harrison drew from sources other than Mexico, is his treatment of the melodicles.

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[437] Chávez, *Musical Thought*, 26.

[438] A worthwhile endeavor would be to perform a comparative analysis of other percussion works by Harrison created at approximately the same time as *The Song of Quetzalcóatl*. Such a comparison could reveal whether Harrison's compositional techniques were parallel, and thus generally reflective of indigenous groups, or if his techniques in *The Song of Quetzalcóatl* are distinguishable; and thus, perhaps intuitively reflective of an Aztec musical style.

Whereas Chávez treated short melodic passages as "motives" that undergo various modifications and are interspersed with differing material, an observable, Mexican folkloric method, Harrison's melodicles are sparsely modified with no variant material occurring between repetitions. In effect, Chávez's motives sonically identify, indicate, and are unique to individual sections, whereas Harrison's melodicles are concretive elements that do not individually identify sections. That is, Harrison's sections, rather, are partly identified by the methods in which the melodicles are presented rather than the melodicles themselves.[439]

Harrison presents his melodicles through two methods previously discussed in light of the Aztec, unisons and polyphony. Mendicant accounts of unison playing in Aztec musical traditions have been attested (see Unison Playing). In the case of *The Song of Quetzalcóatl*, however, unisons occur in only two instances, mm.57–61 and mm.74–82, and these moments are in contrast to polyphonic material, not an attempt to characterize Aztec music. As concerns polyphony, Chávez stated, "Everything leads one to believe that they [Aztecs] were never conscious of . . . polyphony and that they never formulated principles on these subjects, not even in an elementary manner."[440] Accordingly, Harrison's polyphonic style is therefore contrary to an Aztec musical style.

While Harrison does alter the order of pitches in presenting his melodicles, he never varies their rhythms. Such a strong alliance to rhythm is akin to the songs of the

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[439] Harrison's method of using melodicles as structural than melodic devices most likely stems from his interest in Asian musical traditions. One tradition in particular is the *gagaku* court music of Japan (see Miller, *Composing a World*, 50). Kishibe describes a characteristic of *gagaku* as having "melodies [imported from Tang China that] are transformed into structural rather than melodic elements." Shigeo Kishibe, et al. "Japan." In *Grove Music Online*. *Oxford Music Online*, http://0www.oxfordmusiconline.com.wncln.wncln.org/subscriber/article/grove/music/43335pg5 (accessed August 17, 2009).

[440] Chávez, *Xochipilli*, preface.

Aztecs as observed by 16th century chroniclers, and thus warrants a comparison to research done in transcribing rhythms from the *Cantares mexicanos.* Some rhythms in the *Cantares* exhibit symmetry such as the bilateral symmetry with a divider as in Song XLVI, Canto A, the "Song of Nezahualcoyotl," that begins with the vocables:

Totoco totoco tico totoco totoco

or radial symmetry as in Song LVII that ends with the vocables:

Toco toco tocoto tico tico ticoti **:** tico tico ticoti toco toco tocoti

Such comparisons in formal constructs, however, are the limit of the extent to which rhythms can be compared.

To compare specific rhythms, one must transcribe the melodicles into the syllables ti, ki, to, and ko. Such a transcription is not possible, however, due to Harrison's rhythms being composed of unequal lengths. (Recall that the current system utilizes notes of equal lengths: see Rhythmic Translation.) While such heterorhythmic figures do exist in the *Cantares* resulting from a lengthening of the syllables (tih or ton), instances are few and occur only in post-colonial, Spanish influenced songs.[441] Moreover, awareness of this rhythmic lengthening would only be discovered from a thorough reading of the *Cantares* and an investigation of their transcriptions, the undertaking of which Harrison would not have had the opportunity to make.

Lastly, Harrison's melodicles are composed of five pitches true to the pentatonic tendencies of the Aztec (see Pentatonicism). Harrison's use of a non-varied rhythmic cell

[441] Stevenson, *Music in the Aztec*, 50–51.

of limited melodic range as a fundamental compositional device can be compared with tendencies observed in Aztec music, but only generally. On the record notes to a recording of *The Song of Quetzalcóatl*, conductor Paul Price writes that these cells were, "based on Aztec melodies."[442] When asked in an interview concerning this statement, Harrison replied, "No! . . [they are] all mine."[443] Thus, we may conclude that Harrison, in composing his melodicles pentatonically, was not attempting to specifically reflect an Aztec musical style, but, in realizing the globally widespread use of pentatonic scales, chose to do so as a general reflection of indigenous musical style.

Furthermore, whereas Chávez identifies specific archaeological instruments associated with the Aztec in justifying his use of pentatonic scales, Harrison does not do so despite having contact with and having used such instruments before. Performed at the same concert as *The Song of Quetzalcóatl* was John Cage's *Third Construction* that calls for the use of the teponaztli. Harrison was known to write for instruments he owned or to which he had access, including Cage's collection, with whom he was working closely during the composing of *The Song of Quetzalcóatl*.[444] Having had access to the teponaztli, why would Harrison not include it? Curiously, in the same year, Harrison does write for teponaztli in his *Labyrinth #3*, a piece having nothing to do with Hispanic heritage.

Furthermore, in the year 1939, during a time Harrison was working with Lester Horton, he composed *Fifth Simfony* whose instrumentation included tortoise shells, or the *ayotl* to the Aztec. Had Harrison any concern for writing an authentically Aztec piece,

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[442] Paul Price, *Song of Quetzalcóatl*, Orion ORS 7276,1972, LP.
[443] Baker, "The Percussion Ensemble," 160.
[444] Gunden, *Music*, 31.

The Song of Quetzalcóatl would surely have included the teponaztli and *ayotl*, two instruments reflective of the Aztec and to which he had access.

Imagination More Than Knowledge

At the time of *The Song of Quetzalcóatl'*s creation, Harrison did not have access to the same resources as Chávez. What little was known about Aztec music at the time was either in Náhuatl, waiting to be translated, or in Spanish, presumably neither of which Harrison currently spoke.[445] Regardless, Harrison states his resources were limited and has only been cited as referencing a single source that remains anonymous. *The Song of Quetzalcóatl*, therefore, is a product of pictures and mythological stories rather than of extensive research and intent, a work of programmatic imagination than of substantial Aztec musical elements.

[445] While there has been much discussion of his interest in the universal language of *Esperanto*, no indication of his knowledge of other languages has been discovered by this author.

Section 4: A Comparison of Works

The previous study has proven that Aztec influence in Harrison's *The Song of Quetzalcáotl* is less extensive than that found in Chávez's *Xochipilli*. Thus, the completion of the study of Harrison's work will proceed on the basis of available literature pertaining to Chávez.

Chapter 1

Extent of Aztec Musical Substance

Certain characteristics in the works of Chávez have been articulated as being attributable to Aztec influence, or at least Mexican indigenous (Indian) groups. Robert Parker observed, "The synthesized Aztec style Chávez began to use in 1921 with *El Fuego Nuevo* results from an amalgamation of several ingredients: ostinato repetition of short melorhythms; modal and pentatonic scales; spare contrapuntal textures; brutish dissonance; and the use of native percussion instruments."[446] Dan Malmstrom notes, "1) the use of melodic or rhythmic material, inspired or borrowed from Indian, mestizo, or popular music (sometimes–in connection with borrowed melodies–there has been use of 'Indian' scales), [and] 2) the use of instruments or combinations of instruments that are otherwise found in Indian, mestizo, or popular music."[447] Finally, Gerard Behague, comparing Chávez's music to the *Yaqui Music* of Luis Sandi performed at the same concert as *Xochipilli*'s premiere, described *Yaqui Music* as "an 'arrangement' of Indian music from Sonora. The same general characteristics described in Chávez's Indianist works can be seen here, especially in relation to melodic pentatonicism and instrumental coloring."[448]

We can derive the following characteristics as observed in Chávez's "Indianist" music:

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[446] Robert L. Parker, *Carlos Chávez: Mexico's Modern-Day Orpheus* (Boston: Twayne, 1983), 121.
[447] Dan Malmstrom, "Introduction to Twentieth-Century Mexican Music" (Ph.D. dissertation, Uppsala University, 1974), 96.
[448] Gerard Behague, *Music in Latin America* (Englewood Cliffs, N.J.: Prentice Hall, 1979), 146.

1) The use of melodic or rhythmic material, inspired or borrowed from Indian, mestizo, or popular music;
2) Ostinato repetition of short melorhythms;
3) Spare contrapuntal textures;
4) Brutish dissonance;
5) The use of native percussion instruments;
6) Modal and pentatonic scales.

Each of these characteristics will be investigated in turn as they pertain to Chávez's *Xochipilli* and consequently, Harrison's *The Song of Quetzalcóatl*.

Melodic/Rhythmic Material

A clear indication of Aztec musical substance would be to prove that melodic and rhythmic material was borrowed directly from primary sources, however, both composers have stated that this is not the case in their compositions. Thus, one must investigate to what extent the melodic and rhythmic material is reflective of Aztec high art, based on mendicant observations, and of *maceualli* or Mexican folk music surviving in living traditions. While Chávez's melodic material has undergone such comparisons in the body of this paper, Harrison's melodies, because of their concretive forms as opposed to the continual variations seen in characteristically Mexican music, (see Aztec Musical Attributes in Lou Harrison's *The Song of Quetzalcóatl* and below) did not lend themselves to such comparisons.

Harrison's melodies, rather, in *The Song of Quetzalcóatl* were all his.[449] There may have been, however, a level of subconscious indigenous influence. Peter Garland explains:

> Harrison describes his late 1930's period, up until his move to Los Angeles in 1942 . . . as his "Mission" period–in reference to the 17th and 18th century Spanish Catholic missions scattered through California–a state which was the northwest frontier of Hispanic America, before the USA stole it from Mexico. These missions embody a kind of cultural hybridization that took place throughout America where the Spanish colonizers encountered strong indigenous traditions.
>
> Everywhere in New Spain where the padres spread Spanish religion and culture, they proselytized with music, bringing with them into the unknown lands of California musical instruments, Gregorian chants, the Mass. In many regions native schools of musical style developed, as Indians adopted these European instruments and musical practices. These missions rang with music once, with choirs and consorts, and it is the ghosts of this tradition that linger in the mission chapels, in their illuminated music manuscripts, and that are heard in these pieces of Harrison's.[450]

Regardless, even if there was a sub-conscious "Mexican" influence in his composition, such indigenous influence cannot be considered Aztec since they are far too removed from Aztec urban centers both geographically and chronologically to be investigated within the scope of this paper. Harrison's melodicles, however, are indicative of the listed "short melorhythms."

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[449] Don Russell Baker, "The Percussion Ensemble Music of Lou Harrison: 1939–1942" (D.M.A. Diss., University of Illinois at Urbana-Champaign, 1985), 160.

[450] Peter Garland, "The Music of Lou Harrison: Some Biographical Perspectives (A Preface)," in *A Lou Harrison Reader*, ed. Peter Garland (Santa Fe: Sounding Press, 1987), 7.

Melorhythms

Occurring second on our list of "Indian" characteristics is the repetition of short melorhythms. Parker's term melorhythm conveniently includes melody and rhythm, and likewise, both Chávez and Harrison's material will thus be generalized.

Both compositions are composed of brief melorhythms, reflective of indigenous styles, although treated in different ways. Chávez's melorhythms may be construed as motives within *themes* that individually identify sections, and that are often varied and modified, a found characteristic in examples of Mexican indigenous transcriptions. Harrison's melorhythms adhere to his formulated ideas of composition. The identified *melodicles* are concrete, and it is the various presentations and combinations of these melodicles that identify sections. Thus, Chávez's methods adhere closer to the haphazard, freely generated spirit of the Mexican Indian, whereas Harrison's treatment of melodic and rhythmic material is a product of his formulated methods.

Concerning the ostinato repetition of these melorhythms, however, Harrison's composition abundantly presents his melodicles in ostinato, whereas Chávez rarely does so. Thus, according to the derived list of characteristics, Harrison's use of ostinato is reflective of an indigenous style, whereas Chávez's work is comparatively lacking in portraying this characteristic.

Texture and Form

A composer's manipulation of melodic/rhythmic material results in form and texture. Concerning the latter, Parker requires the spare use of counterpoint in reflecting an indigenous style. That the Aztec wrote in a polyphonic style, however, has been

strongly denied. Horizontal concepts of harmony have never been mentioned chronically, nor has it been observed amongst living traditions. Rather, unisons were favored in Aztec courts. While both pieces have moments of unison, reflective specifically of Aztec high art, the texture for the majority of both pieces is contrapuntal.

Particularly, *The Song of Quetzalcóatl* is polyphonic, a feature most apparent through Harrison's use of formal and informal imitation. Harrison gave testimony of his fondness for this texture:

> The golden age of western music, the real 'classic' period (not in the sense of classic as opposed to romantic but in the sense of the 'great flowering') extends from Leonin (1250) to Bach (1750). This is a long period and a remarkable one, including a great number of names and works and a great number of variations by school and individual of the basic and technical and cultural tradition, but all adhering together in a solid literature by virtue of 'total polyphony' and the nature of the use to which the music was put. These five centuries are the central musical decoration of the western culture and its true classical period in that the tradition of governing personal art composition remained in important things unchanged throughout its duration.[451]

In the same article, Harrison describes Carl Ruggles' compositional style, an obvious influence in that his account could very well describe his own style in *The Song of Quetzalcóatl*:

> It is characterized by an absolute lack of negative spacing in the voices, which is to say that no other voice is ever given over to repetitious arpeggiation or figuration of any kind at all. Each voice is a real melody, bound into a community of singing lines, living a life of its own with regard to phrasing and breathing, careful not to get ahead or behind in its rhythmic cooperation with the others, and sustaining a responsible independence in the whole polyphonic life.[452]

[451] Lou Harrison, "About Carl Ruggles," in *A Lou Harrison Reader*, ed. Peter Garland (Santa Fe: Sounding Press, 1987), 40.
[452] Ibid.

In that both Chávez and Parker agree that counterpoint/polyphony is not a device reflective of Aztec practices, the use of counterpoint in both pieces is, instead, reflective of the composers' drawing from non-Aztec traditions.

Both composers also had scarce resources to refer in creating an Aztec musical form. Recalling Chávez's conception of form:

> The difference between singing and playing endlessly and creating a form is simply a matter of establishing physical limits: as soon as there are given frontiers, the work of art appears. The first condition of a work of art is that it be limited in space or time. We can call 'art' the endless playing of a Balinese gamelan, but we cannot properly call it a work of art. So, as soon as music is limited in time there is form, and we have the basic element of a work of art.[453]

Since the Aztec musical tradition was an oral tradition, that is, no written compositions existed in which to model, and since no mendicant observation existed specifically addressing Aztec musical forms, it was impossible for either composer to duplicate or even reference any genuine Aztec musical form. Both composers had, rather, archaeological specimens from which to be inspired. Examples of symmetry that are comparable to these Aztec specimens abound in both pieces and are thus reflective at least of Aztec plastic arts.

Indigenous Sonority

Robert Parker's description of "brutish dissonance" in the "Aztec" works of Chavez is judgmental and harks back to the negative opinions of Bernal Díaz and Herrera y Ogazón (see Earliest Encounters: Spanish Accounts). One should not generally

[453] Ibid., 27–28.

characterize an indigenous style in this manner, but rather approach such dissonance from a cultural perspective. Since it has been determined that previously discussed indigenous groups had no formal tonal system (see Utilized Pentatonic Scales and Chávez's Harmonic Design), dissonance in this sense then must simply refer to a harshness to the listener's ear of vertically arrived intervals rather than in the context of a conceived harmonic system. A better description, rather, might be: a disregard for vertical harmonies, or Chávez's term, dissonance resulting from a "casual counterpoint." Regardless, the use of adjectives such as "brutish" should be avoided, as these opinions are reflective of a Euro-centric concept, based on tempered pitches and a history of aural conditioning.

Continuing the notion of "aural conditioning," to write in a style reflective of an indigenous culture other than one's own, one must overcome his own culturally ingrained concepts and then grasp those of another people. Achievement of this goal intrinsically requires direct, continual contact with the culture to be reflected. Only after a composer has had such extended contact may he begin to understand the expressive abilities of a people on a sociological level, and then how those expressions are realized through various musical techniques. Once this understanding is achieved, a composer may then genuinely write in a truly reflective indigenous style. To achieve this understanding can prove both difficult and time-consuming. An expedient in this endeavor, however, has been the use of native instruments.

Use of Native Instruments

While a writing style is developed over time, the use of indigenous specific instruments has proven to be a quicker and perhaps the simplest means in reflecting a culture's musical style. Chávez states of *Xochipilli*: "The percussion section was originally written for a group of primitive Indian instruments [for] the existence of [Aztec reflective] sonorous material–quite a solid basis that certainly cannot give us a precise knowledge of the *music*, but it can give us a rather approximate idea of the total *sonority* of the ensembles formed with these instruments by ancient Mexicans."[454]

"Primitive instruments" are generally made from materials found in the natural environment and ideologically reflective of indigenous beliefs (as explored in great detail in *Xochipilli:* Archaeological Foundations of this paper). Chávez's original intent to use such instruments speaks of his efforts to create music reflective of ancient Mexico.

Unlike Chavez, though, Harrison does not suggest the use of indigenous instruments. The instruments in *The Song of Quetzalcóatl* are rather more reflective of those used by composers in Henry Cowell's circle: glasses, brake drums, dragon's mouths, sistrum, gongs, and tam-tams, for instance. The guiro and wooden rattle are instruments found in Mexico, but that Harrison does not refer to these instruments by their Náhuatl names indicates his lack of specific intent to be reflective of ancient Mexico.

Nonetheless, Harrison's chosen instruments may be compared to Mexican indigenous instruments, in light of Chávez statement: "Primitive Indian instruments . . .

[454] Chávez, *Xochipilli*, preface.

can very well be replaced by their equivalents in common use."[455] The following will compare Harrison's selection of instruments with indigenous, specifically Aztec, instruments as described in chronicles, based on equivalent sonorities.

Equivalent Instruments

The following is an attempt to compare the sonorities of Harrison's specified instruments with Aztec instruments as described by 16th century chroniclers and as replicated from archaeological specimens. No evidence suggests that Harrison intended such equivalencies, and it is only because Chávez provides in his score Western equivalencies that such an attempt is made. We begin with instruments appearing in both compositions: guiro, rattles, and the bass drum.

Harrison's choice of guiro is most likely influenced by Cowell, who wrote for this instrument in pieces such as *Ostinato Pianissimo* (1934), and by associated works such as José Ardevol's *Estudio* (1933) and Roldan's *Ritmicas* (1930). Chávez provides by name the Náhuatl equivalent, *omichicahuatzli*.

The rattle is a universal instrument. The only specification that Harrison provides is that it be wooden. Chávez's pasteboard rattles are most akin, and therefore Harrison's rattle may be likewise compared with the *ayacachtli*.

The bass drum is the final instrument shared by both compositions. In *Xochipilli* the bass drum was made equivalent to the *huehuetl* and more specifically, the

[455] Chávez, *Xochipilli*, preface.

tlalpanhuehuetl. In that Harrison requests a contra-bass drum, the *tlalpanhuehuetl* would again be most comparable.

The *huehuetl* may also be compared with Harrison's five tom-toms. Recalling the work of Mendoza and Castañeda,[456] we know that *huehuetl* came in a variety of sizes. With such a range in size and the careful attention given to tuning,[457] the comparison of five pitched tom-toms with five-pitched *huehuetl* is justifiable.

As to the size and tuning of these tom-toms, Harrison gives no indication. A particularly excellent recorded performance of *The Song of Quetzalcóatl* produced by percussionist William Winant, however, uses five standard tom-toms and tunes them to the pitches A_3, B_3, D_4, G_4, B_4.[458] (The repetition of B, however, is curious. A truer representation of pentatonicism would include five different pitch classes.) Also in the Winant recording can be heard the conscious tuning (although with five distinctly different pitch classes) of other instrument groups occurring in sets of five: brake drums, dragon's mouths, woodblocks, etc., thereby realizing Harrison's intended melodicle identities. The use of *huehuetls* in a performance should likewise aurally identify Harrison's melodicles, and ideally, correspond with tunings of other instruments grouped in sets of five.

While on the subject of "drums," the use of a snare drum is also indicated in *The Song of Quetzalcóatl*. Comparison may be made to the folkloric, Spanish influenced *tambor de redoblante*, but a comparison may also be made to specific Aztec musical

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[456] Daniel Castañeda and Vicente T. Mendoza, "Los Huehuetls," *Anales del Museo Nacional de Arqueología, Historia y Etnografía,* 4a época, VIII (1933).
[457] "When the singers shifted from one tune to another, the huehuetl was retuned to match" (Motolinia, *Memoriales*, 339–343).
[458] Lou Harrison, *Drums Along the Pacific*, produced by William Winant, New Albion Records, NA122, 2003, compact disc.

practices. Mendicant accounts have been given of the simultaneous playing of the *huehuetl* and *ayacachtli*. Such a combination results in a sound slightly comparable to the buzz of a snare drum, but still quite foreign to the sound and history of the actual snare drum.

One cannot speak of the *huehuetl* without mention of the *teponaztli*, and it is with the five woodblocks and five dragon's mouths that comparison to the *teponaztli* may be made. The acoustic quality of the *teponaztli* accords to that of woodblocks and the lower pitched dragon's mouths, also of wood. Five *teponaztli* will give ten pitches that can be divided amongst the two instruments, the five highest pitches to the woodblock, and the five lowest to the Dragon's Mouth.

Admittedly though, when the larger musical context of *The Song of Quetzalcóatl* is taken into consideration, the comparison of the *teponaztli* with the woodblocks and dragon's mouths is far-fetched. While the performance of ten collective pitches on the *teponaztli* adheres closely, but not exactly, to the instrument's tendency to appear in twosomes, 2+2 / 2+2 / 2 (see Aztec Drumming Notation in the *Cantares mexicanos*), Harrison's division of ten pitches between two sets of five strays even further from such pairings, 2 + 2 + 1 and 2 + 2 + 1. Furthermore, such grouping is impractical when translated to the *teponaztli*, 2 + 2 + only 1 of 2 available pitches per percussionist. Additionally, current Aztec rhythmic models only include four pitches: ti, ki, to, and ko. Of course, it is not conclusive to say that the Aztec limited themselves to this even-numbered system, but evidence of the *teponaztli* adhering to a pentatonic rhythmic system does not currently exist.

Furthermore, recall that at the same concert as the premier of *The Song* of *Quetzalcóatl,* Cage used the *teponaztli* in his *Third Construction*. Why did Harrison not use the *teponaztli*? Harrison, rather, chose instruments used previously by composers with whom he was familiar. The woodblock exists in more pieces for percussion prior to 1941 than should be listed here, and the dragon's mouth makes appearances in pieces such as Johanna Beyer's *Percussion Suite* (1933) and *March for 30 Percussion Instruments* (1939) and Harold Davidson's *Auto Accident* (1935) under the name of Chinese woodblocks.

Other instruments in *The Song of Quetzalcóatl* that can also be attributed to influences by other works for percussion are: glasses, windglass, gongs, tam-tams, brake drums, and triangle. These instruments are all common fare in works written for percussion ensemble from 1930 to 1941. Thus, Harrison's use of these instruments is most likely a result of trend than an attempt to reflect an indigenous style. Nonetheless, additional comparisons can be made.

The instrumentation of player 1 includes five glasses (or bells) and *sistrum* (or maracas). We concern ourselves first with the *sistrum*. While Harrison's parenthetical suggestion of maracas allies with an instrument widespread in Meso, Central, and South America, and specifically the *ayacachtli* of the Aztec (see Rattles), the *sistrum* is of Egyptian origin. Furthermore, the sound of the *sistrum* and its symbolic associations are more comparable to quite a different Aztec instrument, the *coyolli*.

Both the *coyolli* and *sistrum* may be described as having metal jingles, and are thus sonically comparable. Also, both instruments are symbolic of the feminine: the

Aztec associated the *coyolli* with Coyoloxauhqui who gave birth to the moon and the stars (see Coyolli), while the *sistrum* is also associated with birth, as realized by the instrument being in the shape of an ankh, an Egyptian symbol of life.

Recall, though, that the *coyolli* has also been described in mendicant accounts as comparable to a bell of the crotal type. In this instance, the five glasses are comparable to the Aztec instrument, and even more comparable with the parenthetically suggested use of bells.

A Sonic Comparison to the Aztec *Chililitli*

An Aztec instrument not yet mentioned that is also sonically comparable to Harrison's indicated bells, as well as the brake drums and triangle, is the *chililitli*. *Chililitli* are copper disks played in honor of the deity Tonacatecuhtli, "The Lord of Creation." Nezahualcoyotl (1402–1472), famous poet-king of Texcoco,[459] had erected a nine-story temple in honor of this deity which he monotheistically believed to be the "cause of causes," an "unseen god" that was "all powerful," as accounts Aztec nobleman Alva Ixtlilxochitl.[460] According to Ixtlilxochitl, occurring "four times daily [was] the music of *chililitli*, of coronets, flutes, conch shells, and of a metal gong struck with metal hammer, sounded from the ninth story. . . . In time, this whole temple to the 'unseen god'

[459] While the majority of songs in the *Cantares* remain anonymous, some have been attributed to Aztec kings. Bierhorst vehemently disagrees, however, in the Introduction of his translation, *Cantares Mexicanos: Songs of the Aztecs* (Stanford: Stanford University Press, 1985), 101–109.

[460] Fernando de Alva Ixtlilxóchitl. *Obras históricas* (México: Editoria Nacional, 1952), I, 253. Trans. by Robert Stevenson, *Music in the Aztec and Inca Territory. (*Berkeley and Los Angeles: University of California Press, 1968), 39.

came to be called *chililitli* in honor of its tintinnabulation."[461] Tintinnabulation is the ringing of bells, and thus, the *chililitli* sonically accord to Harrison's wishes of bells.

The *chililitli* is also comparable to the brake drums. The sonic quality of copper would most duplicate that of the cast iron found in brake drums today, and also of spun steel brake drums available when *The Song of Quetzlacóatl* was first performed.

Remaining instruments of metal are the triangle, gongs, and tam-tams. The triangle, having a triple construction that is contrary to Aztec dualistic dogma, is perhaps the most foreign to Mexican indigenous instruments. The striking of metal, however, has already been alluded to, and thus the triangle may also be compared sonically to the *chililitli*.

The gong and tam-tam were included in Ixtlilxochitl's description of instruments played together with the *chililitli* in the Temple of Tonacatecuhtli; recall "a metal gong struck by hammer." The Aztec name for such a "concave sheet of metal struck with a metal hammer and sounding very much like a bell" is *tetzilacatl*,[462] as has been alluded in the discussion of Chávez's indicated hawksbells.

Lastly and symbolically, Sahagun gives account of its use in a feast honoring water gods. "At midnight the priests disrobed, bloodied themselves with maguey spines, then bathed themselves, blew *tecciztli* (conch trumpets) and struck *chililitli* with pine

[461] Ibid. See also Frances Gillmore's *Flute of the Smoking Mirror* (Albuquerque: University of New Mexico Press, 1949), 157 n. 23.
[462] Ibid., 258. Translated by Stevenson, *Music in the Aztec*, 39.

mallets."[463] The *tecciztli*, a form of *atecocoli* is associated with Quetzalcóatl: "Just as the player's breath gives life to a shell that otherwise would forever slumber in silence, so also the Wind God Quetzalcóatl breathes life into a void. The shell [*tecciztli*] is therefore the appropriate emblem for this man-become-god deity."[464] "Water gods" are no doubt extensions of Quetzalcóatl as "rain god," and therefore, Sahagun's observation of the *chililitli*'s use was most likely an extended homage to Quetzalcóatl.

Harrison specifies one final instrument made of metal not yet mentioned, the cowbell. Although made of metal, its construction, having a hollow chamber, is contrary to the flat copper disc of the *chililitli*. A better comparison, then, is to the Aztec *ayotl*, tortoise shells that when struck give a surprisingly metallic timbre similar to that of a muted cowbell. Recalling, however, that although Harrison had used the *ayotl* in previous pieces, he curiously specifies only the cowbell in *The Song of Quetzalcóatl*.

Again, Harrison, unlike Chávez, does not suggest using Aztec or Mexican indigenous instruments in performing *The Song of Quetzalcóatl*, an expedient in reflecting a culturally specific Aztec style. In fact, he avoids the use of such instruments, such as the *teponaztli* and *ayotl*, to which he had access. Nonetheless, that Harrison's instrument selections, whether conscious or intuitive, are sonically comparable to native instruments makes *The Song of Quetzalcóatl* somewhat reflective of an Aztec musical style.

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[463] Bernardino de Sahagún, *Florentine Codex: General History of the Things of New Spain,* Books 1–5, 7–12. Trans. by Arthur J. O. Anderson and Charles E. Dibble (Santa Fe: School of American Research, 1950–1963).
[464] Stevenson, *Music in the Aztec*, 32.

Pentatonicism

From the previous chapters, Chávez's consideration of pitch selection is evident. The avoidance of semitones, and even Chávez's opinion of "Indian preference" for minor thirds dictates his melodies. In the body of this paper, specific pitches have been speculated according to archaeological specimens to which Chávez would have had access, found in the museums of Mexico and on display in New York. Likewise, Chávez had contact with living traditions, and therefore intrinsically absorbed the character of local tendencies.

Lou Harrison did not have the exposure to living Mexican traditions or the archaeological specimens that Chávez did. His only living influences were Californian Missions far removed from Aztec urban centers, and heavily blended with Spanish musical styles. His indication of five pitches adheres to pentatonic tendencies as explored by Chávez, however, Harrison does not indicate specific pitches. It has been previously speculated that Harrison was 1) unaware of research concerning Aztec archaeological specimens and 2) chose pentatonicism, rather, as being generally reflective of indigenous musical styles. Furthermore, the lack of specified pitches would allow performers the use of an array of found instruments, appealing to Harrison.

Most likely, Harrison's decision was a result of both the above speculations. No doubt he was aware of pentatonic tendencies in Mexico, but had no information as to its specific design. Had Harrison known these details, he no doubt would have made appropriate indications. This suggestion is verified in his *Music Primer*.

In 1959, Lou Harrison made a trip across the Pacific on a freighter. It was then that Harrison "began a little list of pentatonic modes" by which he "suddenly realized that

European music theory lack[ed] any usable classification or naming system for penta-modes."[465] From this moment until the publication of his *Primer* (1971), Harrison managed to identify forty-five penta-modes.

Harrison's forty-five identifications would suggest that, had Harrison the resources to identify Mexican or specifically Aztec "pentatonic scales or, to use Harrison's term, "penta-modes," he would have done so and used them in *The Song of Quetzalcóatl*. Not having access, though, Harrison simply required five different pitches suggestive of pentatonicism. Furthermore and as stated previously, the lack of specific pitches would allow performers to use any instruments they could find; after all, in 1941, most orchestras or performing groups did not have ready access to five cowbells, five dragon's mouths, five woodblocks, or five brake drums. That a group could acquire enough of any of these instruments during this time period was sufficient.

In conclusion, characterizing "Mexican" or "Aztec" music with a handful of descriptions may be too early an endeavor, or too late of one: early in that more varied research needs to be done of Spanish chronicles from which agreed-upon elements may be distinguished,[466] and too late in that living traditions are less primal, succumbing to modern influences. Nonetheless, some descriptors have been drawn from what research has been conducted, and from existing works resulting from such research.

Chávez's *Xochipilli* is an informed work derived from existing research. Chávez went to great lengths in describing the context in which his piece was written. The

[465] Lou Harrison, *Music Primer: Various Items About Music to 1970* (New York: C. F. Peters, 1971), 26.
[466] Robert Stevenson's *Music in the Aztec and Inca Territory* remains the only authoritative text in English on the subject.

research from which he derived his materials was readily accessible, and leading scholars Vicente Mendoza and Daniel Castañeda were under his direction and tutelage. Furthermore, Chávez gained from his travels an intrinsic spirit that informs most of his "Mexican" pieces. Ruben Gonzalez writes of this spirit concerning one of Chávez's Mexican pieces, the *Concerto for Piano with Orchestra*:

> The spirit of the *Concerto* reflects the spirit of the ancient Aztecs. It is music that is aggressive and at times barbaric, with moments of reflection. It has the repetitive quality present in the indigenous music of Mexico. The basis of melodic writing is modal, sonorities which Chávez found in many of the songs he came across through his study of indigenous music. While Chávez did research Mexico's ancient music through various sources, the spirit of that music had been embedded in his person since childhood; and therefore, when the time came in his development as a composer to combine the intellectual with the spiritual, Chávez met the task, and created music highly original and worthy of the praise it has received.[467]

Such reviews have made Chávez's works the models from which many derive "Indian" characteristics, and it is to some extent in which Harrison's piece has been compared. Unlike Chávez, though, Harrison provides no accompanying context for the piece, program notes, etc., and had no access to research being developed in Mexico at the time of the composition's creation. Harrison had only a book containing non-musical descriptions and pictures of Aztec deities and archaeological specimens, and his vivid imagination from which to base his work. Nonetheless, *The Song of Quetzalcóatl* embodies some musical elements that may be associated with Aztec high art, particularly symmetry, and the *maceualli*, specifically the use of short, rhythmical cells, albeit manipulated uncharacteristically.

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[467] Ruben O. Gonzalez, "Carlos Chávez's *Concerto for Piano with Orchestra*: A Spiritual Fusion of the Ancient and the Modern" (DMA Diss, University of Cincinnati, 1993), 49.

Harrison did manage to capture an historically intrinsic Mexican spirit, however far removed from Aztec urban centers. Garland comments:

> Harrison had already learned early on from the indigenous culture of California a greater simplicity and openness of texture, and could approach earlier styles of music in a natural and non-self-conscious manner, taking his cue from the simple lines and forms of the California mission's adobe architecture, a gracious blend of European design and indigenous materials and attitudes. For if Harrison is referring to the past in pieces, it is not to the European, but the Californian, past.[468]

So while some attempt has been made to identify elements from which composers may create "Indian," or "Mexican," or "Aztec" pieces, Chávez stated: "Art is essentially, an individual expression. The individual is molded in some way by the sociological group or nation he comes from. Every individual is so molded, and in that way he expresses his tradition and collective characteristics; but the tradition and the collective characteristics express themselves through an individual, not through collectivity itself."[469] Thus, the question may not be restricted to, "To what extent did Chávez and Harrison create a work representative of an Aztec musical style?" but may be extended to, "To what extent do these composers' environments or 'nationalities' provide for an Aztec musical style?"

[468] Garland, "The Music of Lou Harrison," 7.
[469] Chávez, *Musical Thought*, 17.

Chapter 2

Nationalism: Mexico and America

Composing music reflective of a nation's people evokes the term "nationalism." "Nationalism" finds its origins in Europe following the Napoleonic Wars when people of shared cultural backgrounds sought a shared and recognized identity. Primarily a political movement in which city-states combined to form countries of distinct national boundary, nationalism is a term that has been applied to Western art music:

> In the modern historiography of Western art music, the commonly accepted definition of nationalism has been the one promoted by musicology's 'dominant culture,' that of the German scholarly diaspora. Willi Apel, the editor of the *Harvard Dictionary of Music*, gave it a concise and comprehensive articulation in the 1969 edition. The origins of musical nationalism are there assigned to the second half of the 19th century, and the movement is characterized as 'a reaction against the supremacy of German music.'[470]

In other words, a history of attempts by a single culture to dominate the world, both politically and culturally, were no longer acceptable. Richard Taruskin extends this notion in championing regional identities. His definition defies geopolitical borders and, rather, relies on locally shared characteristics:

> Definitions of nationalism depend, of course, on definitions of nation. It is not likely that consensus will ever be reached on their precise meaning, since different definitions serve differing interests. One thing, however, has been certain from the beginning: a nation, unlike a state, is not necessarily a political entity. It is primarily defined not by dynasties or by territorial boundaries but by some negotiation of the relationship between the political status of communities and the basis of their self-description, whether linguistic, ethnic (genetic/biological), religious, cultural or historical.[471]

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[470] Richard Taruskin, "Nationalism: From National to Universal," *Grove Music Online* ed. L. Macy (Accessed 23 December 2007), <http://www.grovemusic.com>

[471] Ibid.

As one important component of this impulse, musicians, poets, painters, littérateurs, and the like turned to "folk" materials for inspiration. Taruskin again: "In some ways this 'discovery of the folk' was a recycling of an ancient idea, that of primitivism, the belief that the qualities of technologically backward or chronologically early cultures were superior to those of contemporary civilization; or, more generally, that it is those things that are least socialized, least civilized–children, peasants, 'savages,' raw emotion, plain speech–that are closest to truth."[472] In this sense, regional characteristics in turn reflect national identity that may or may not fit within geopolitical boundaries.

Lou Harrison's and Carlos Chávez's works, *The Song of Quetzalcóatl* and *Xochipilli*, have been identified as distinctly American and Mexican respectively. Both composers generally drew from folk elements to the extent that they were available in their regional vicinity, and created works that shared cultural characteristics despite geographic, political boundaries. The following will discuss these composers and their respective works, *The Song of Quetzalcóatl* and *Xochipilli*, as nationalistic pieces that draw from regional influences. We begin with defining "regionalism," a qualification of the term nationalism.

Regionalism

The identification of a national identity relies on the collective of locally shared characteristics. Regionalism focuses on these local characteristics that, while aiding in defining a national identity, may or may not fall within geopolitical boundaries. Likewise

[472] Ibid.

and reciprocally, a national style may identify with an international style, for instance, Western Art Music.

Take for example, Henry Cowell, identified as an American composer due to his residency within a geopolitical boundary. Cowell's works are accordingly defined as "American." Some of his compositional techniques and resultant characteristics, though, are akin to and even directly imported from those used historically and presently in Western Europe identifying his works with Western Art Music. Creating a hierarchy of stylistic units, Western Art Music, then, defines a broad international style, while American nationalism identifies a more local division.

Regions, a further limitation, are identifiable within those American geopolitical borders. In the case of Henry Cowell, that region is California, specifically the San Francisco Bay area where he and his contemporaries worked. Within this network of composers, classifications may be further divided: percussion works, percussion works of specifically Henry Cowell, percussion works of Henry Cowell from 1935–38, etc. For the purpose of this paper, however, only the division of regionalism will be discussed. We turn now to the circumstances experienced by Chávez and Harrison.

Chávez and Harrison

Gerard Behague describes the nationalist movement in Mexico that influenced Chávez's "Indian" music:

> The post-revolutionary period 1920–1934, an era of reconstruction under Presidents Obregón and Calles, saw the emergence of the so-called Aztec Renaissance and a consequent Indianist movement in the arts of Mexico. In an

> attempted return to pre-Conquest Indian musical practices, the crucial factor was not so much authenticity in reviving those practices as it was a subjective evocation of the remote past, or of the character and physical setting of the ancient (and, for that matter, contemporary) Indian culture.[473]

Chávez attempted to revive those practices. He describes his endeavor specifically in creating an ensemble of instruments capable of reflecting a pre-Conquest Mexico:

> Our problem . . . consisted of making a re-concentration of instruments, of means of expression, which corresponded to our musical feeling. The piano, the classical symphony orchestra, even with their great instrumental richness, were not enough to give life to a musical expression born of other instruments and other acoustical elements. We had an obligation to bring together all the Mexican instruments of authentic musical value.[474]

Indeed, Chávez indicated instruments specific to Mexico in *Xochipilli,* and those that weren't–piccolo, flute, clarinet, and trombone–could be compared to indigenous instruments. Additionally, Chávez went a step further in specifying these instruments' relation to the Aztec, a Mexican culture from "the remote past."

Despite stating that his melodies and rhythms were not specifically Aztec, regional influences are apparent in his music. As Chávez himself stated: "Every land exerts on its men, whether they sense it or not, its own telluric influence."[475] The extent to which these influences are reflective of an Aztec musical style has been explored, and the fact remains that Chávez, having heard music all his life from an area historically dominated by the Aztec, gives his music a natural voice for the Mexican people.

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[473] Behague, *Music*, 129.
[474] Parker, *Carlos Chávez*, 216.
[475] Carlos Chávez, "Mexican Music." In Hubert Herring and Hubert Weinstock, *Renascent Mexico* (New York: Covici-Friede, 1935), 18.

Harrison, on the other hand, had no such Mexican cultural engraining. His native influence has been defined, rather, as "Californian." Reiterating Peter Garland: "If Harrison is referring to the past in pieces, it is not to the European, but the Californian, past."[476] Garland elaborates: "Slightly less prone to genocide and cultural *apartheid* back then than the Anglos who came to dominate the northern two countries of America, the Spanish and Indian fusion of cultural elements created a special and uniquely new American character . . . that meeting of cultures has continued to inform much of California's contribution to the USA's and America's culture up to the present."[477]

Garland shares Taruskin's notion that nationalism must be determined by regional characteristics; in other words, American music must not be solely defined by music of Anglo-Saxon heritage, but must now include the various other cultures within its geopolitical borders, namely of Spanish and Indian heritage. Such heritage is shared, at one level, by both the Western United States and Mexico, and at a more limited level, by Native American missionaries in California, a specified American region.

In summary, Carlos Chávez, a Mexican citizen, wrote *Xochipilli* drawing from folk elements that exist regionally within the borders of Mexico. This region, defined by shared cultural characteristics, extended, however, beyond Mexican geopolitical borders, apparently into California. Harrison was exposed to these characteristics and wrote a work according to those characteristics–however, as a citizen of the United States. At one level, Chávez and Harrison wrote works that share musical characteristics found regionally in both Mexico and the United States. At another level, each composer also

[476] Garland, "The Music of Lou Harrison," 7.
[477] Ibid.

contributed to their respective national styles, determined by geopolitical boundaries and their residencies within those boundaries. Thus, returning to Garland, the identification of musical characteristics at a local level illuminates a wealth of styles not previously included as "American," specifically Spanish and Native American, while simultaneously revealing shared traits that extend beyond geopolitical boundaries.

Universalism

Chávez declares that artists, like Harrison, help to characterize nationality: "The great art, the great music of, let us say, Brazil or Mexico–just as that of Germany, or France–will not be achieved merely by reaching a certain historical, sociological status, or by means of nationalistic techniques, or by any techniques whatever, but by the talent or genius of individual composers, born in such lands."[478] In this vein, Garland speaks of the "American" percussion orchestra as "an American consciousness, the character of the land, of the people, and the expression of it, and of modern realities. Many of the instruments were 'indigenous,' native-made, but many also were uniquely contemporary–the garbage can top, the aluminum sheet, wine bottles. . . . It was an 'off-beat' experiment, and generated no immediate tradition."[479] In this sense, Harrison's selection of instruments in *The Song of Quetzalcóatl* is representative of the "American" percussion orchestra, but also sonically comparable to Aztec indigenous instruments viewed within the programmatic context of the piece, a regional comparison.

[478] Chávez, *Musical Thought*, 18.

[479] Peter Garland, "Drums Along the Pacific," in *A Lou Harrison Reader*, ed. Peter Garland (Santa Fe: Sounding Press, 1987), 98.

Chávez's suggested use of indigenous instruments in *Xochipilli* is certainly reflective of groups living in the "remote Mexican past," a culture existing previous to Spanish domination. Chávez explains, though, of his "Mexican" orchestra:

> It does not attempt an archaeological reconstruction of pre-Cortesian instrumental groups; we have called it the Mexican Orchestra, but we neither intend nor desire to limit musical expressions, nor to be satisfied with obtaining an expression of 'local color.' Exactly the contrary; our desire is to amplify and enrich musical resources. . . . The Mexican Orchestra is a useful vehicle for the musical culture of Mexico, but we want to insist that the index of its usefulness and benefit must not be made to depend on the degree of interest it is able to attain among the modern expressions of universal culture.[480]

The attempts by a composer to express "universal culture" has been previously referenced (see Universalism). Recall that Mayer-Serra wrote, "By universalism in . . . music we mean the stage when the alien substances, whether folk or of European origin elaborated in countries with an ancient tradition, become transformed into original material elaborated by the composer's talent for manipulation by purely musical methods."[481] Behague's definition: "Universalism is defined as the acceptance, but not imitation, of folk musical materials in combination with contemporary international techniques."[482]

At this point, the discussion has come full circle. Nationalism was at first defined as a reaction to a dominating culture, identified by political boundaries, but reciprocally determined by regionally shared characteristics. At the regional level, artists draw from

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[480] Chávez, "Mexican Music," 217–218.
[481] Otto Mayer-Serra, "El estado presente de la musica en Mexico," trans. Frank Jellinek (Washington D.C., 1946), 41.
[482] Béhague, *Music*, n.48.

"folk" elements which 1) return to primitive expressions, 2) are realized through artistic means, and 3) thereby reflect national identities. While these characteristics generally fit within national political boundaries, thereby affirming those demarcations, regional identities often go beyond such boundaries. Artists such as Chávez and Harrison extend even further beyond those boundaries in writing in styles that derive from characteristics shared worldwide. While drawing from regional elements, their manipulation of those elements speak "universally." In this sense, Chávez and Harrison can be said to partake in Romantic sensibilities in that these artists attempt to achieve universal communication through an intense representation of the personal. It is through these means that they have achieved universal characteristics in their works.

The intent of this project was to see to what extent both pieces reflect an Aztec musical style. In that both compositions make reference to a specific culture, they should accurately and authentically portray that culture. Chávez has represented the Aztec musical culture to the extent of available research. While making no claims that he was trying to authentically reconstruct Aztec music, what Chávez accomplished was the creation of a personal work reflective of academic research and intrinsic, cultural upbringing.

Harrison has created a work of imaginative flare inspired by minimal academic or Mexican indigenous influences. Harrison's intrinsic reflections are rather of an American-Hispanic, specifically Californian, culture far removed from Aztec high art. Harrison did, however, remain faithful to his personal vision of what he believed to be reflective of not only an Aztec musical culture based on pictorial evidence, but also sharing universal qualities found in regional groups worldwide, non-specified

pentatonicism, symmetry, germinal methods, etc. Harrison also drew from "American" ideals, mainly in instrumentation (brake drums, glasses, etc.) and continuing the trend of writing music for percussion, a movement with American roots.

Both Chávez and Harrison have emerged as composers representative of their countries of origins. Their works are not only reflective of regional characteristics, but also identify and affirm national identities. While their works may be called "Mexican" or "American," both have surpassed such politically inspired parameters by sharing general regional characteristics. Their personal styles return to "primitive truths" that speak at the simplest level to all of humanity, resulting in works of universal acceptance. In this sense, both *Xochipilli* and *The Song of Quetzalcóatl* can only be attributed to the artists that composed them, and both artists have made a valuable contribution to the percussion ensemble.

Chapter 3

Contributions to the Modern Percussion Ensemble

Composers of percussion ensemble music are currently drawing influence from "world music," a term yielding at least two definitions. World music was "used initially by ethnomusicologists to refer to the diverse local musics of the world."[483] Note that ethnomusicologists' research generally includes an investigation into the sociological influences in making music. As a second meaning: "World Music has also become a marketing term for any commercially available music of non-Western origin and circulation."[484] Commercialism does not share the same goals as ethnomusicologists in revealing cultural characteristics, but rather generally focuses on borrowing "sound" in creating a marketable product.

As stated, in the writing of percussion ensemble music, several composers are borrowing musical styles from indigenous groups in the creation of their new works. The trend, however, is not new, dating as far back as Roldan's *Ritmicas* (1930) and, after twelve years of a multitude of works written for percussion, culminating with the two works just investigated. What is new is the commercialization of indigenous influences. As stated, the use of indigenous instruments is a rapid means of reflecting a local culture, but genuine expressive reflection through a written musical style requires continual and direct contact with a group, and then only through a gained sociological understanding.

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[483] Carole Pegg, "World Music," In *The Oxford Companion to Music*, edited by Alison Latham. *Oxford Music Online*, http://0-www.oxfordmusiconline.com.wncln.wncln.org/subscriber/article/opr/t114/e7391 (accessed August 23, 2009).

[484] Ibid. Also see Steven Feld, "Notes on World Beat" and "From Schizophonia to Schismogenesis: On the Discourses and Commodification practices of 'World Music' and 'World Beat,'" *Music Grooves* (Chicago: University of Chicago Press, 1994), 238–46, 257–89.

Carlos Chávez's *Xochipilli: An Imagined Aztec Music* was a work for percussion ensemble that attempted to the best of the composer's abilities to reflect the ancient people of Mexico. In no way did it try to re-construct such music, specifically that of the Aztec, for no such validated resources were available at the time. What Chávez did accomplish was to create an informed work, composed from research gathered at an exciting time in Mexican history, a time in which his nation was gaining regional and consequently national identity. Chávez took the utmost care in writing music that was not only reflective of Aztec high art, but also reflective of the collective Mexican people, music of the *maceualli*. Furthermore, Chávez's compositional style, identified as "universalism," amalgamated these influences through his individual compositional voice. Such ability is to be admired as the creation of one who is not simply imitating a people's music, but rather embracing cultural viewpoints, and in turn, evolving them through a unified musical voice.

For the future writing of percussion ensemble music of "world" influence, Chávez represents a model composer in his informed writing style, faithful to the indigenous cultures that he strove to reflect. His careful awareness of instrumentation and general ability to express cultural essence is admirable. Although Harrison, in composing *The Song of Quetalcóatl*, does not accomplish what Chávez did in reflecting specifically Mexican indigenous groups, his later works are quite informed and are likewise faithful to indigenous influences. What is accomplished in *The Song of Quetzalcóatl* is a reflection of a "Californian" musical style achieved particularly through the use of the American percussion orchestra, and the revelation of Harrison's individual compositional voice. His genuine interest and celebration of diverse cultures allows him to absorb the

unique musical expressions of humankind in which he studies, and in turn, creates works of a universal nature, one that is undeniably Harrison.

It is hoped that the continuing trend of writing works for percussion that are influenced by indigenous groups will be done so with the understanding of that music as a sociological expression of an individual culture. While at times these works will be imitative, e.g., the use of indigenous specific instruments, generalized compositional tendencies, etc., innovation and evolution must be attained through the informed and creative aspirations of the composer. The dawning of commercial "World Music" has brought resurgence to that which Chávez and Harrison, and others such as Henry Cowell, pioneered in the early half of the 20th century: writing works for percussion ensemble that are reflective of humanity in its various individual expressions.

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