

THE MUSIC OF MARC BATTIER, KEE YONG CHONG AND GENE COLEMAN:
COMPOSITIONS FOR TRADITIONAL ASIAN INSTRUMENTS AND ELECTRONICS IN
THE TWENTY-FIRST CENTURY

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A Dissertation

Submitted to the Graduate College of Bowling Green
State University in partial fulfillment of
the requirements for the degree of

DOCTOR OF MUSICAL ARTS

December 2017

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ABSTRACT

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Well-known repertoires exist of instrumental works synthesizing Eastern and Western elements and also of works that combine acoustic instruments with electronics. In this document, I study the integration of Eastern and Western elements in a subset of works for electronics with Traditional Asian Instruments (TAI) and, in some cases, also traditional Western instruments. The goals are to draw attention to this repertoire and its inherent challenges, and specifically to demonstrate strategies used to integrate the TAI and electronics—with the hope that the analytical tools provided in the document will help others approach works involving cultural syntheses and, in particular, that this will offer guidance to composers interested in writing for TAI and electronics.

This document examines three music compositions chosen because of the composers' different cultural backgrounds and relationships to TAIs: *Mist on a Hill* by Marc Battier (France), *Endless Whispering* by Kee Yong Chong (Malaysia) and *Spiral Network* by Gene Coleman (United States). Their individualistic orientations toward materials offer three solutions to the three problems in composing for TAI and electronics: how the three chosen composers with different cultural backgrounds, write for TAI and electronics and their perspectives on traditional instruments; the difficulty in dealing with the nuances in timbre and different notational systems; and how they define the role of electronics in the chosen works for this document. Studies of individual pieces examine the influences of TAI on pitch structure, and explore the connections between TAI and electronics/Western instruments in terms of pitch, timbre, and musical technique/gestures.

This study is supported by my original contribution of cultural maps which are guides to the recurrence of any traditional playing techniques associated with the TAI, whether they occur in the TAI, Western instruments, or electronics. The issues of notation will be discussed in the document because the three selected compositions are engraved in Western notation while TAI music is engraved in traditional notation that reflects the aesthetic, musical style and practical purposes of the culture of the TAI origins. Battier, Chong and Coleman present three different solutions to notational problems, but all integrate TAI elements into electronics and other instrumental parts if present. I hope the findings and approach through cultural maps lead to greater interest in this repertoire among composers and musicians at large.

This document is dedicated to my parents, Chin Boon Lit and Chin Choon Sim,
whose unconditional love and support have made possible
the pursuit of this passion.

ACKNOWLEDGMENTS

I am the first and the only one in my family who will have earned a doctoral degree. This has a special meaning for me and my family. Coming from my background, the idea of pursuing a doctoral degree is a rare one, let alone obtaining it. Receiving a doctoral degree has been the goal I set out to achieve before I stepped foot on America soil ten years ago. I represent not only myself, but my family, mentors and the friends who have been supportive along this journey. Therefore, I would like to share my academic achievements with them.

First of all, I would like to thank all the composition teachers with whom I have studied: Drs. Mikel Kuehn and Marilyn Shrude (Bowling Green State University); Drs. Steve Rouse and Krzysztof Wolek (University of Louisville); Dr. Rob Smith (University of Houston); Dr. Neil Flory (Del Mar College). I am also deeply indebted to my teacher Mr. Yii Kah Hoe for his continuous encouragement since I was 11 years old.

I would also like to thank my brother Chin Hong Wei and my sister Chin Jia Ming for introducing me to the Yu Hua Secondary School Chinese Orchestra, where I discovered and developed a lifelong passion for music. A special thanks to Chen Kham Chien and Chew Hee Chiat, who were my mentors and gave me many opportunities to display my ability in music.

I would also like to express my deep gratitude to my parents who unconditionally supported my decision to become a musician. I am extremely fortunate to have them in my life.

Finally, I would like to thank my doctoral committee members—Drs. Nora Engebretsen, Adam Fullenkamp and Mikel Kuehn—for their guidance in the process of writing the document. Special gratitude goes to my mentor Dr. Marilyn Shrude for her unwavering support and unconditional generosity throughout my four-year journey at BGSU.

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INTRODUCTION

Music compositions written for traditional Asian instruments (TAI) and electronics are a recent addition to the musical genres. This document will focus on music written by Marc Battier, Kee Yong Chong and Gene Coleman because of both their contributions to this new musical medium and their countries of origin (France, Malaysia and the US). The difference in their cultural backgrounds provides a variety of solutions to the problems presented in my document.

Marc Battier is an important French composer in the electronic music world. He is Professor Emeritus at the University of Paris-Sorbonne and co-founder of the Electroacoustic Music Studies Network, which established a new field in musicology specifically for the study of electroacoustic music. He is also the founder of Electroacoustic Music Studies Asia Network (EMSAN) that continues the original mission of the EMS Network, but broadens the scope to Asian composers and researchers.

Kee Yong Chong is a native of Malaysia. He was awarded a commissioning grant from the Serge Koussevitzky Music Foundation in 2009, the International Isang Yun Music Prize in 2007 and the Lutoslawski Award in 2006. His music is influenced by the abundant cultures of Malaysia (Malay, Indian and Chinese).

Gene Coleman, an American composer, is the recipient of a 2014 Guggenheim Fellowship, the 2013 Berlin Prize for Music and a 2015 Fromm Music Foundation commission. He is known for his innovative use of sound, image, space and time. According to a brief biography on Coleman's website, his work has focused on "the global transformation of culture and music's relationship with other media, such as architecture, video and dance."¹

¹ "Gene Coleman," accessed June 11, 2017, <http://genecolemancomposer.com/>.

The document explores three works by the selected composers: Marc Battier's *Mist on a Hill* (2009) for *pipa* and electronic sounds; Kee Yong Chong's *Endless Whispering* (2006) for solo 37-reed soprano *Sheng* (also *Xun*) & 4 Western instruments with live electronics; and Gene Coleman's *Spiral Network* (2013) for 2 voices, video, ensemble and electronics.

Chapter 1 gives the definition of traditional instruments and introduces the five traditional Asian instruments (TAI) used in the three chosen music compositions. The blending of traditional values in the contemporary music scene and examples of early efforts in fusing traditional instruments into Western ensembles will also be discussed.

Chapter 2 explores the roles of electronics in this document. This chapter explores the synthesis of acoustics and electronics, the role of electronics in music written for TAI and electronics, definition of electronics in this document, cultural and philosophical correspondences, and the aesthetic of silence and musical space in music written for TAI and electronics.

Chapters 3, 4 and 5 provide brief biographical information on Marc Battier, Kee Yong Chong and Gene Coleman respectively. *Mist on a Hill*, *Endless Whispering* and *Spiral Network* will be discussed deeply in the respective chapters in terms of formal and pitch structures. These chapters conclude with cultural mappings that explore the influences of TAI in the Western acoustic instruments as well as in the electronics.

Chapter 6 introduces traditional music notation and its idiomacy. The problems with Western music notation for traditional instruments and the effort to assimilate traditional music notation into Western notation will also be discussed. The chapter further compares and contrasts traditional music notation and Western music notation and the assimilation of traditional techniques into Western music notation.

Chapter 7 concludes the document with an overview of findings from the three music compositions.

CHAPTER ONE: SYNTHESIS/CROSS-CULTURALISM

1.1 Definition of Traditional Asian Instruments

For the purposes of this document, Traditional Asian Instruments (TAI) refer to musical instruments that have been in existence for many centuries and find their origin deeply within the culture of a particular country and its people. Many of these instruments are presently used in folk music. According to Steven Feld, an anthropologist, filmmaker, sound artist/performer and Distinguished Professor of Anthropology Emeritus at the University of New Mexico, the term “world music” was “circulated first by academics in the early 1960s to celebrate and promote the study of musical diversity.”² World music also extends to “contemporary fusions or collaborations with local ‘traditional’ or ‘roots’ music and Western pop and rock musics.”³ All of these definitions reinforce the synthesis of music from multifarious cultures, be it from non-mainstream and mainstream music, or from acoustic and electronic music.⁴ The TAI that are found in the three selected music compositions by Marc Battier, Kee Yong Chong and Gene Coleman (*pipa*, *sheng*, *xun*, *sho* and *koto*) illustrate a strong connection to the past in the context of the present. The following section will explore the TAI used in Battier’s *Mist on a Hill* (*pipa*), Chong’s *Endless Whispering* (*sheng* and *xun*) and Coleman’s *Spiral Network* (*sho* and *koto*).

² Steven Feld, “A Sweet Lullaby for World Music,” *Public Culture* 12(1): 146. Reprinted in Arjun Appadurai, ed., *Globalization*, Duke University Press, 2001.

³ Carole Pegg, “world music.” *The Oxford Companion to Music. Oxford Music Online*. Oxford University Press, accessed August 26, 2016, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/opr/t114/e7391>.

⁴ Feld, “A Sweet Lullaby for World Music,” 146.

1.2 Traditional Asian Instruments Used in Battier's *Mist on a Hill*, Chong's *Endless Whispering* and Coleman's *Spiral Network*

In this document, the background and compositions of Marc Battier, Kee Yong Chong and Gene Coleman will be discussed. To set up a foundation to discuss the TAI used in their compositions, the historical and cultural context of the *pipa*, *sheng*, *xun*, *sho* and *koto* will be explored.

Pipa 琵琶

It is important to revisit the nomenclature, origin, types, development, cultural contexts and notational systems of the *pipa*, because its background informs Battier's aesthetic and compositional decisions in *Mist on a Hill*.

The ambiguous nomenclature of the word *pipa* has caused scholars to arrive at two theories. During the Han Dynasty (206 BCE–226 CE), it was believed that *pi* and *pa* represented two different string-plucking actions: *pi* symbolized the action of plucking the strings forward to the performer's left and *pa* symbolized the action of plucking the strings backward to the performer's right. These actions are similar to the modern *pipa* techniques known as *tan* (弹) and *tiao* (挑). In addition to the plucking action theory, some researchers believe that the *pipa* was brought into China from a foreign country because the term *pipa* is not found in any other context in ancient Chinese writing and literature.⁵ Jin Jie, the author of *Chinese Music*, states that the "*pipa* is an exotic musical instrument and was introduced to the Central Plains from India via

⁵ Tsun-Yuen Lui, et al. "Pipa." *Grove Music Online*. *Oxford Music Online*. Oxford University Press, accessed July 5, 2017, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/45149>.

Qiuzi (today's Kuqa in Xinjiang) during the Southern and Northern Dynasties.”⁶ *Pipa*, therefore, may be a transliteration of a foreign term.⁷

There are several arguments as to the origin of the *pipa*. Frederik Lau, the author of *Music in China: Experiencing Music, Expressing Culture*, remarks that based on pictorial evidence the *pipa* is believed to have been introduced to China through the Silk Road.⁸

According to Isabel K. F. Wong, however, the prototype of the *pipa* was from one of the thirty-six ancient Uyghur kingdoms during the Han dynasty.⁹ The authors of the article *Pipa in Grove Music Online*, Tsun-Yuen Lui, Wu Ben and Patrick C. Provine, say that the prototype of the present day *pipa* was introduced into China from India in 346 to 353 CE, although it was originally from ancient Persia.¹⁰

The term *pipa* is a general name used to describe various types of plucked lutes spanning from the Han and the Tang Dynasties (ca. 300 BCE–900 CE).¹¹ There are two types of *pipa*: straight-necked and crooked-necked. The examples of straight-necked *pipa* are the *xiantao* or the *Qin pipa* from the Qin Dynasty (221–207 BCE), the *Han pipa* or the *ruanxian* from the Han Dynasty (206 BCE–220 CE) and the *Qin-Han pipa* or *Qin-Hanzi* from the Sui Dynasty (581 CE–618 CE).¹² One example of the crooked-necked *pipa* is the *Quxiang pipa*. The various straight-necked *pipa* are similar in terms of the shape and origin. *Xiantao* or *qin pipa* is referenced in the poem *pi pa fu* (217–278 CE) by poet Fu Xuan but, according to Lui, Wu, and Provine, there is no

⁶ Jin Jie, *Chinese Music*, trans. Wang Li and Li Rong (New York: Cambridge University Press, 2011), 64.

⁷ Lui et al., "Pipa."

⁸ Frederik Lau, *Music in China: Experiencing Music, Expressing Culture* (New York: Oxford University Press, 2008), 6.

⁹ Isabel K. F. Wong, "The Music of China," in *Excursions in World Music*, ed. Bruno Nettl et al. (New Jersey: Pearson, 2008), 100.

¹⁰ Lui et al., "Pipa."

¹¹ *Ibid.*

¹² *Ibid.*

evidence that the instrument existed at that time.¹³ However, according to *Pipa—a Chinese lute or guitar: A brief history of the pipa, a traditional Chinese music instrument* from the Philmultic Management & Productions Incorporation website, the *qin pipa* looks like the image in Figure 1.1.¹⁴ The *Han Pipa* or the *ruanxian* has the shape of the modern *ruan* as shown in Figure 1.2. The *Qin-Han pipa* is a possible variation of the *Han pipa*.¹⁵ As previously stated, *Quxiang pipa* (Figure 1.3) was introduced to the Jin Dynasty (346–353 CE) from India by way of Persia. It has four strings, four frets, a crooked neck, was held transversely, plucked with a plectrum and is the archetype of the present-day *pipa*.¹⁶ After the Tang Dynasty (618–907 CE), the term *pipa* was almost exclusively used for the *quxiang pipa*.¹⁷

Figure 1.1. *Qin Pipa*¹⁸



Figure 1.2. Present Day *Ruan*¹⁹



Figure 1.3. *Quxiang Pipa*²⁰



¹³ Ibid.

¹⁴ “Pipa—a Chinese lute or guitar: A brief history of the pipa, a traditional Chinese music instrument,” accessed February 23, 2017, <http://www.philmultic.com/pipa.html#note1>.

¹⁵ Lui et al., “Pipa.”

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ “Pipa—a Chinese lute or guitar: A brief history.”

¹⁹ “Dunhuang 662 semu zhongruan dunhuang rumen zhuangye hualimu xiaoxianzhen wutong zhongruan” 敦煌 662 色木中阮 敦煌入门专业花梨木小弦轸梧桐木中阮, accessed February 23, 2017, http://www.examusic.com/product_detail-2046.aspx.

²⁰ “Quxiang pipa” 曲项琵琶, accessed February 23, 2017.

<https://wapbaike.baidu.com/item/%E6%9B%B2%E9%A1%B9%E7%90%B5%E7%90%B6>.

During the Sui and Tang Dynasties, *quxiang pipa* was used in courtly ensembles to accompany singing and dancing, and for solo music.²¹ Since the Song Dynasty (960–1279 CE), the *quxiang pipa* was used by folk musicians and common people to accompany narrative singing and regional opera.²² Figure 1.4 shows the *pipa* as one of the instruments of an ensemble.

Figure 1.4. Performance During Jin Dynasty (266–420 CE)²³



The construction and manner of playing *quxiang pipa* has been modified since the Tang Dynasty. Originally played horizontally and with a plectrum, it is now played vertically and with fingernails, real or fake. The number of frets has increased from four to fourteen, and as much as thirty in the present day (Figure 1.5).

²¹ Lui et al., "Pipa."

²² Ibid.

²³ "Naxienian cong sichouzhilu yuandaoerlai de bosiyueqi" 那些年从丝绸之路远道而来的波斯乐器, accessed February 23, 2017, <http://hongse.haiwainet.cn/n/2016/0519/c456478-29940157-3.html>.

Figure 1.5. Modern *Pipa*²⁴



The *pipa*'s earliest manuscripts, dated 933 CE, were found in Dunhuang, a city in northwestern Gansu Province of Western China.²⁵ The manuscripts contain twenty five melodies in *pipa* tablature.²⁶ *Gongche* notation was the notational system for the *pipa* and most of the surviving traditional *pipa* repertoire is preserved in this fashion.²⁷ Cipher or numerical notation has been used to notate *pipa* music since the 1920s.²⁸

The *pipa* has been an indispensable instrument of traditional Chinese musical culture and continues to play an important role in solo, chamber, orchestral, opera and folk repertoire.²⁹

²⁴ "Pipa—a Chinese lute or guitar: A brief history."

²⁵ Lui et al., "Pipa."

²⁶ Ibid.

²⁷ Ibid.

²⁸ Ibid.

²⁹ Jin, *Chinese Music*, 65.

Sheng 笙

The *sheng*, or Chinese mouth organ, was first referred to as *he* and *yu* (竽) in the ancient oracle bone inscriptions from the 14th to 12th century BCE, as well as in later classical literature. The name *sheng* first appeared in the *Shijing* around the 7th century BCE.³⁰ Different sizes were found in numerous archeological sites, including the tomb of Marquis Yi of Zeng in Hubei province (433 BCE) and the Han tombs 1 and 3 of Mawangdui in Hunan province (2nd century BCE).³¹ According to Jin Jie, the “*sheng* is the earliest reed pipe wind instrument in China, and thought to be the world’s first musical instrument to employ a free reed.”³² Figure 1.6 shows the *sheng*.

Figure 1.6. *Sheng*³³



³⁰ “*Shijing* 詩經 or *Maoshi* 毛詩” in *ChinaKnowledge.de - An Encyclopaedia on Chinese History, Literature and Art*. Edited by Ulrich Theobald. Last modified July 24, 2010. <http://www.chinaknowledge.de/Literature/Classics/shijing.html>.

³¹ Alan R. Thrasher. "Sheng." *Grove Music Online*. Oxford Music Online. Oxford University Press, accessed February 22, 2017, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/25623>.

³² Jin, *Chinese Music*, 54.

³³ R. Chao Pian, *Sheng (mouth organ)*. Horniman Museum, London. Accessed February 22, 2017, <http://www.oxfordmusiconline.com.ezproxy.bgsu.edu:8080/subscriber/article/img/grove/music/F001187>.

The *sheng* is the only Chinese wind instrument that can produce more than one tone at the same time.³⁴ The structure of the *sheng* is described by Isabel K. F. Wong:

. . . *Sheng* (a free-reed mouth organ made of a series of bamboo pipes arranged in a circle, each with a reed in its lower end, and all inserted into a base made of copper, wood, or gourd, to which a mouthpiece is attached; two or more tones may be produced simultaneously on the instrument).³⁵

China gave three *sheng* and three *yu* to the Japanese court during the Tang Dynasty in the 8th century CE and these are still preserved today.³⁶ The present-day *sho* retains the appearance of the Tang-Dynasty *sheng*. The continuity between these ancient instruments and the traditional *sheng* now in use is evident in terms of the tuning and shape.³⁷ Fully chromatic mouth organs were documented in *Yueshu* (early 12th century) and *Lülü jingyi* (late 16th century).³⁸ Different varieties of mouth organs such as semi-chromatic 17-pipe and 17-reed *sheng* are preserved in Beijing.³⁹ Despite the versatility of chromatic mouth organs, it was extremely likely that their use in ritual ceremonies was prohibited.⁴⁰ However, the ability of *sheng* to play both monophony and polyphony with great effect, and to invoke peacefulness and tranquility makes it one of the most prominent Chinese instruments in folk wind and percussion bands.⁴¹

In modern days, the traditional *sheng* is diatonic, but may also have flat seventh and/or raised fourth scale degrees. It is largely used in village ceremonies, *Kunqu* opera and *sizhu* (“Silk-and-bamboo”) chamber music.⁴² The *sheng* went through many transformations during

³⁴ Lau, *Music in China*, 12.

³⁵ Wong, “Excursions in World Music,” 104.

³⁶ Thrasher. “Sheng.”

³⁷ Ibid.

³⁸ Ibid; “*Yuelü quanshu* 樂律全書 “The Whole Book on Musical Tuning”” in *ChinaKnowledge.de - An Encyclopaedia on Chinese History, Literature and Art*.

<http://www.chinaknowledge.de/Literature/Science/yuelvquanshu.html>.

³⁹ Thrasher. “Sheng.”

⁴⁰ Ibid.

⁴¹ Lau, *Music in China*, 12.

⁴² Thrasher. “Sheng.”

the rise of *guoyue* (国乐), the new concert-hall music, for the purpose of bigger volume, wider range and greater chromatic capability.⁴³ The two commonly accepted transformed *sheng* are the *guoyue sheng* (“national music mouth organ”), a 17-pipe, 17-reed semi-chromatic *sheng* originating in the 1950s, and the *jiajian sheng* (key-added mouth organ) seen in Figure 1.7, which “is a larger, fully chromatic instrument capable of being played in eight or nine keys.”⁴⁴ The *jiajian sheng* normally has 36 or 37 pipes.⁴⁵

Figure 1.7. *Jiajian Sheng*⁴⁶



Xun 埙

Xun is an egg-shaped globular flute made of clay.⁴⁷ There is a blow-hole on the tip of the instrument and in modern days, seven holes in the front and two holes in the back. Used in Han

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ Ibid.

⁴⁶ “Jiangyin jiajiansheng kuoyinsheng 36 huangsheng fangdousheng” 江音 加键笙 扩音笙 36 簧笙 方斗笙, accessed February 26, 2017, <http://www.yonghongyueqi.com/Product.asp?id=525>.

⁴⁷ William P. Malm, *Music Cultures of the Pacific, the Near East, and Asia* (New Jersey: Prentice Hall, 1996), 180.

Confucian rituals, the *xun* is one of the oldest musical instruments that originated from China. Many *xun* of different shapes were found in Neolithic sites in and around Shanxi province. According to Alan R. Thrasher, the author of *Xun* in *Grove Music Online*, the *xun* have been in existence for more than 6000 years.⁴⁸ However, Sin-Yan Shen, the author of *China: A Journey into its Musical Art*, argues that the *xun* first appeared in China 8,000 years ago.⁴⁹ The *xun* have been documented in various sources in Chinese literature, including *Erya* (尔雅, 3rd century BCE), *Fengsu Tongyi* (风俗通义, written around 195 CE), *Yueshu* (乐书, originating from the northern Song dynasty 960–1127 CE) and *Shijing* (*Classic of Poetry*—诗经, published 600 BCE).⁵⁰ The modern *xun* is pictured in Figure 1.8.

Figure 1.8. *Xun*⁵¹



According to *Erya*, a dictionary-like glossary from the Han Dynasty, “a large xun is like a goose egg, with a flattened bottom and six holes; a small one is like a chicken egg.”⁵² *Fengsu*

⁴⁸ Alan R. Thrasher. "Xun." *Grove Music Online. Oxford Music Online*. Oxford University Press, accessed February 22, 2017, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/49115>.

⁴⁹ Sin-Yan Shen, “My Concise History of Chinese Musical Instruments,” in *China: A Journey into its Musical Art*, ed. Yuan-Yuan Lee et al. (Chicago, Chinese Music Society of North America, 2000), 107-8.

⁵⁰ Thrasher. "Xun."

⁵¹ “Chinese xun,” accessed February 23, 2017, <https://www.amazon.com/Lark-in-the-Morning-Chinese/dp/B001M2DS8G>.

⁵²“*Erya* 爾雅” in *ChinaKnowledge.de - An Encyclopaedia on Chinese History, Literature and Art*.

Edited by Ulrich Theobald. Last modified July 24, 2010.

<http://www.chinaknowledge.de/Literature/Classics/erya.html>; “爾雅注疏” in “Chinese Text Project.” Accessed July 6, 2017. <http://ctext.org/library.pl?if=en&res=77723>.

Tongyi, an encyclopedia compiled by Yin Shao, gives specific measurements of the *xun* from the Han dynasty.⁵³ *Yueshu*, or *Book of Music* from the Han Dynasty, mentions that the *xun* existed in different sizes.⁵⁴ By the 12th century, most of them were bigger and had six to eight finger-holes.⁵⁵ Within the context of Confucian philosophy, the *xun* plays the role of maintaining harmony among brothers. *Classic of Poetry* or “Book of Songs” a Confucian classic, remarked that “the elder brother plays *xun*, the younger brother plays *chi* (transverse flute).”⁵⁶ Since the 1980s, the *xun* have been revived within the context of Chinese flute recitals.⁵⁷

Sho 笙

Sho (Figure 1.9) is a Japanese mouth organ. In the chapter “The Music of Japan” in *Excursions in World Music*, Isabel K. F. Wong remarks:

The *sho*, [is] a mouth organ with seventeen reed pipes (two of which are silent) in a cup-shaped wind chest with a single mouthpiece. Its predecessor was the Chinese *sheng*. Chords are produced by blowing into the mouthpiece and closing holes in the pipes. Its primary function is harmonic. Typically, each chord is begun softly and gradually gets louder, whereupon the next chord is produced with the same dynamic swelling; this process is repeated continuously by inhaling and exhaling air.⁵⁸

⁵³ “风俗通义—Fengsu Tongyi” in “Chinese Text Project.” Compiled by Ying Shao. Accessed July 6, 2017. <http://ctext.org/fengsutongyi/ens>.

⁵⁴ “*Yueshu* 樂書” in *ChinaKnowledge.de - An Encyclopaedia on Chinese History, Literature and Art*. Edited by Ulrich Theobald. Last modified December 15, 2010. <http://www.chinaknowledge.de/Literature/Science/yueshu.html>.

⁵⁵ “*Yueshu* 樂書.”; “乐书” in “Chinese Text Project.” Accessed July 6, 2017. <http://ctext.org/shiji/yue-shu/ens>.

⁵⁶ “*Shijing* 詩經 or *Maoshi* 毛詩” in *ChinaKnowledge.de—An Encyclopaedia on Chinese History, Literature and Art*. Edited by Ulrich Theobald. Last modified July 24, 2010. <http://www.chinaknowledge.de/Literature/Classics/shijing.html>.

⁵⁷ Alan R. Thrasher. “Xun.” *Grove Music Online. Oxford Music Online*. Oxford University Press, accessed October 3, 2017, <http://www.oxfordmusiconline.com/subscriber/article/grove/music/49115>.

⁵⁸ Wong, *Excursions in World Music*, 155-6.

Figure 1.9. Sho⁵⁹



The word *Gagaku* means elegant or refined music and is “the instrumental and choral music and dance that has been under the continual patronage of the imperial court for more than a thousand years.”⁶⁰ According to Terry E. Miller and Andrew Shahriari in *World Music: A Global Journey*, *Gagaku* “is performed with extreme formality by expressionless musicians who hold and play their instruments in ritualistic ways.”⁶¹ As previously mentioned in the *sheng* section of this document, three *sheng* and three *yu* were given away as gifts to Japan in the 8th century during the Tang dynasty. The word *shō* is the pronunciation in Japanese.⁶² Those instruments are still preserved at the Shosoin imperial repository in Nara.⁶³

⁵⁹ “Sho” 笙 (しょう), accessed February 26, 2017, <http://store.shopping.yahoo.co.jp/taiko-center/shou-dokushuu-set.html>.

⁶⁰ *Ibid.*, 152.

⁶¹ Terry E. Miller and Andrew Shahriari. *World Music: A Global Journey*. (New York: Routledge, 2009), 215.

⁶² David W. Hughes. "Shō." *Grove Music Online. Oxford Music Online*. Oxford University Press, accessed July 6, 2017, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/25657>.

⁶³ *Ibid.*

In general, the *sho* plays an important role in Japanese music. David W. Hughes, the author of *Shō*, states that the *sho* has unique musical applications:

In the vocal genres *saibara* and *rōei* it (*shō*) plays a single-note melody in support of the voice (occasionally adding a second note); in *tōgaku*, however, except during the introductory sections (*chōshi* and *netori*), its part consists entirely of tone clusters known as *aitake*. Each of the ten basic *aitake* chords is linked with a particular degree of the *tōgaku* scale, which is usually also the lowest note of the chord. The chords are chosen to correspond with the main melody note. Each chord contains five or six notes . . . [that] are within seven consecutive 5ths of the fundamental note. It is these ethereal tone clusters, slowly swelling and fading, then reforming in anticipation of the next main melodic shift, which give modern *gagaku* much of its distinctive flavour.⁶⁴

Koto 箏

According to W. Adriaansz, the author of “Koto” in *Grove Music Online*, the instrument “probably originated in China and was introduced to Japan around the start of the Nara period (710–84 CE) or somewhat earlier.”⁶⁵ Similar to the term *pipa*, the term *koto* originally referred to a variety of plucked stringed instruments (Figure 1.10).⁶⁶ In the chapter “The Music of Japan” in *Excursions in World Music*, Isabel K. F. Wong explains:

The koto is a long zither whose thirteen strings are stretched over movable bridges. The player places the instrument on a mat or low table and plucks the strings using plectra on the thumb and the first two fingers of the right hand. With the left hand, the player presses on the strings to the left of the bridges to create ornaments and new pitches by altering the tension of the strings.⁶⁷

⁶⁴ Ibid.

⁶⁵ W. Adriaansz. "Koto." *Grove Music Online. Oxford Music Online*. Oxford University Press, accessed February 23, 2017, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/15420>.

⁶⁶ Ibid.

⁶⁷ Wong, *Excursions in World Music*, 151.

Figure 1.10. Koto⁶⁸



The tuning of the *koto* is always pentatonic.⁶⁹ *Koto* music, *sokyoku* in Japanese, includes song-cycles (*kumiuta*), instrumental pieces (*shirabemono*) and instrumental interludes in songs (*tegotomono*).⁷⁰ The *koto* is believed to have a positive effect on upbringing and education and is a household instrument in Japan.⁷¹

1.3 The Synthesis of Traditional Asian Values in the Context of Contemporary Music

Through globalization and cultural exchange, composers from different continents, countries and cities were exposed to cultures from other parts of the world. This inevitable phenomenon had a rather huge impact in Europe in the beginning of the twentieth century. Many Western artworks were inspired by ancient and folk arts from Africa, Asia, South America and Oceania. Besides artworks, literature from other continents was translated by westerners. One of the most famous examples is the translation of Tang Dynasty poems (618–907 CE) found in a

⁶⁸ “NHẠC CỤ TRUYỀN THỐNG CỦA NHẬT BẢN,” accessed February 26, 2017. http://tatham.vn/nhac-cu-truyen-thong-cua-nhat-ban-a35.html?fb_comment_id=579950265447239_996349167140678#f252325fe4da404.

⁶⁹ Adriaansz. "Koto."

⁷⁰ Ibid.

⁷¹ Ibid.

poetry collection called *Die chinesesche Flöte* by Hans Bethge which Gustav Mahler (1860–1911) used in 1907.⁷²

Mahler’s exposure to the Chinese poems weaved a personal connection to unfortunate life events: the death of his eldest daughter, the diagnosis of his heart condition and his resignation from the Vienna Court Opera—all in the same year he encountered the translated poems.⁷³ The intimacy Mahler developed with the poetry gave birth to one of his masterpieces, *Das Lied von der Erde* (1908/09),⁷⁴ six songs for two voices and orchestra. The movement titles are as follows:

- I. *The Drinking Song of Earth’s Misery*
- II. *The Lonely One in Autumn*
- III. *Of Youth*
- IV. *Of Beauty*
- V. *The Drunkard in Spring*
- VI. *The Farewell*

Seven translated Tang Dynasty poems by Bethge were employed. The texts of the first, third, fourth and fifth songs originate from the poetry of Li Bai (701–762 CE), also known as Li Tai Po. The authorship of the text for the second song is Chang T’si or Qian Qi (710–782 CE).⁷⁵ The last song combines the work of two poets—Meng Haoran (689–740 CE) and Wang Wei (699–759 CE). Because of the inspiration from Chinese poems, the music is reminiscent of pentatonicism, especially in the third and fourth songs. According to the legendary Grammy-

⁷² Stephen E. Hefling. *Mahler: Das Lied Von Der Erde* (Cambridge: Cambridge University Press, 2000), 36.

⁷³ Gustave Mahler. *Das Lied von der Erde*. San Francisco Symphony. Michael Tilson Thomas (conductor). With Stuart Skelton and Thomas Hampson. San Francisco Symphony 821936-0019-2, compact disc. Recorded in 2007. Liner Notes by Michael Steinberg, 5.

⁷⁴ “The Song of the Earth” is the English translation of the German title.

⁷⁵ Mahler. *Das Lied von der Erde*. San Francisco Symphony, 7.

winning conductor, Tang Muhai, the mandolin in *Das Lied* is supposed to evoke Chinese plucked string instruments.⁷⁶ *Das Lied* is widely considered to be one of the masterpieces of late-Romanticism that contains exotic influences.

In 1889 Claude Debussy (1862–1918) attended the International Exposition in Paris and was immensely fascinated by the Javanese gamelan. *Pagodas*, the first movement of Debussy's piano work *Estampes* (1903), shows the direct influence of Javanese gamelan, Japanese and Chinese music. Other music of Debussy that suggests the influence of Javanese gamelan includes *Fantaisie* (1889/1890) for piano and orchestra and the Toccata of the suite *Pour le piano* (1901).⁷⁷ The bell-like sonorities, textures, rhythms, scales and melodies deeply influenced Debussy's musical language. In the scholarly article *Asian Concepts and Twentieth-Century Western Composers*, Chou Wen-chung talks about the elements in Gamelan music that had an important impact on Debussy's music:

A gamelan composition is based on the principle that a nuclear theme is to be played simultaneously with several layers of elaboration on the theme in different registers and at different paces. Instruments with characteristic timbres are assigned to specific registers for particular types of elaboration. Similarly, the sonority that is largely the admixture of a number of melodic, rhythmic, registral and timbral variants of a single linear movement is a prominent characteristic of the Debussian orchestra . . . a conscious adaptation of the gamelan technique.⁷⁸

⁷⁶ I had the honor to be invited to play the Chinese flutes with the Beijing Symphony Orchestra at the John F. Kennedy Center for the Performing Arts in 2017. As the last student of Hebert von Karajan, Maestro Tang repeatedly said that the mandolin parts were supposed to sound like Chinese plucked string instruments. He realized this theory by having two *pipa* and two *guzheng* players as part of the concert. Besides the plucked strings, two Chinese flutists, one being myself, and two erhu players were also invited as guest artists.

⁷⁷ Robert Orledge. "Debussy, (Achille-)Claude." *The Oxford Companion to Music*. Oxford Music Online. Oxford University Press, accessed June 17, 2017, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/opr/t114/e1846>.

⁷⁸ Chou Wen-chung, "Asian Concepts and Twentieth-Century Western Composers." *The Musical Quarterly* 57, no. 2 (1971): 212. <http://www.jstor.org.ezproxy.bgsu.edu:8080/stable/741215>.

While Asian influence found its way into the masterpieces of late-Romanticism and Impressionism, its immense effect can also be seen in the works of a composer on the other side of the Atlantic Ocean.

John Cage (1912–1992) was a monolith in challenging the traditional conception and perception of music.⁷⁹ In the chapter “Dramatis Personae (Predecessors and Influence)” in *No Such Thing as Silence*, Kyle Gann describes John Cage as:

. . . more of a philosopher than a composer . . . among people who don't like his music and are in need of a way to justify his celebrity. Cage was not a philosopher in any sense that the philosophy profession would recognize, but he was very much a composer who drew inspiration for his music from philosophical ideas.⁸⁰

He did so through his pioneering work in indeterminacy, electroacoustic music, and non-standard use of musical instruments. His compositions that are heavily influenced by Asian culture, particularly Zen Buddhism, are *4'33"* (1952) and *Imaginary Landscape No. 5* (1952). The turning point in his process happened in 1951 when he was inspired by the Chinese *I-Ching*. Cage used chance operations to make compositional decisions in *Music for Changes* (1951), his first work composed completely with chance operations. In *Cage and high modernism*, David W. Bernstein explains the compositional materials as follows:

[*Music of Changes*] employs the most elaborate system of precompositional charts thus far: eight charts containing sounds and silences, eight charts with durations, eight charts with amplitude (dynamics) and single charts for determining tempi and the number of contrapuntal layers . . . The format of the charts corresponds to the sixty-four hexagrams in the *I Ching*; each chart has, in principle, eight rows and eight columns of cells.⁸¹

Bernstein further explains the compositional processes:

Cage composed the piece according to the phrase and section lengths of its rhythmic structure. At the outset, a single hexagram determined the number of contrapuntal layers

⁷⁹ Kyle Gann, “Dramatis Personae (Predecessors and Influence),” in *No Such Thing as Silence: John Cage's 4'33"* (New Haven: Yale University Press, 2010), 71.

⁸⁰ Ibid.

⁸¹ David W. Bernstein, “Cage and High Modernism.” In *The Cambridge Companion to John Cage*, ed. David Nicholls (Cambridge: Cambridge University Press, 2002), 203.

(from one to eight) and the tempo for the initial phrase . . . After determining the tempo and the number of layers, he composed a layer at a time, tossing the coins, referring to the *I Ching*, and selecting the appropriate elements from his sound, duration, and amplitude charts.⁸²

Music for Changes does not necessarily sound like an Asian-influenced work; however, the compositional materials and processes are reminiscent of Asian culture.

Isang Yun (1917–1995) was a Korean-German composer whose “fundamental aim as a composer was to develop Korean music through Western means, combining East Asian performing practice with European instruments, and expressing an Asian imagination in contemporary Western musical terms.”⁸³ In works such as *Loyang* (1962) and *Gasa* (1963), “glissandos, pizzicatos and vibratos provide a certain exoticism, while traditional Chinese court music ornamentation emphasizes the highly differentiated character of multiple melodic lines.”⁸⁴ The employment of “numerous melodic strands; these ‘Haupttöne’, as he called them, constitute centres of gravity through which the musical form is generated.”⁸⁵ Yun’s music is highly influenced by contrasting elements—instrumentation, dynamics, harmony, intensity and other parameters—derived from Taoist concepts. For example, the pairing of *Der Traum des Liu-Tung* (1965), a serious drama, and *Die Witwe des Schmetterlings* (1968), a burlesque comedy, reflect the contrasting styles as suggested by Taoist philosophy.⁸⁶

Toru Takemitsu (1930–1990) was one of the first Asian composers to gain wide popularity in the West. Takemitsu began using Japanese traditional instruments when he met the

⁸² Bernstein, “Cage and High Modernism,” 208.

⁸³ H. Kunz. “Yun, Isang.” *Grove Music Online. Oxford Music Online*. Oxford University Press, accessed November 8, 2017, <http://www.oxfordmusiconline.com/subscriber/article/grove/music/30747>.

⁸⁴ *Ibid.*

⁸⁵ *Ibid.*

⁸⁶ *Ibid.*

avant-garde American composer John Cage,⁸⁷ who encouraged him to include the *biwa* in his film score *Seppuku* (1962).⁸⁸ In 1967, Takemitsu was commissioned to write an orchestral piece for the 125th anniversary of the New York Philharmonic Orchestra.⁸⁹ The commission gave birth to *November Steps* (1967) for *biwa*, *shakuhachi* and Western orchestra.⁹⁰ In *November Steps* Takemitsu's goal was to emphasize the unique sonorities of Japanese as well as Western instruments. The result was as follows:

... the sound of the *biwa*'s plectrum plucking the string is reflected in the percussive effects among the orchestra's strings, such as the striking of the body of the instrument, while the use of dense, chromatic clusters, often combined with glissandos, provides an orchestral counterpart to the force and litheness of breath passing through the pipe of the *shakuhachi*.⁹¹

The harmony of the Western orchestra that supports the Japanese instruments does not impair the timbres of the *biwa* and *shakuhachi*.⁹² In other words, the TAI and the Western orchestra simultaneously coexisted independently and symbiotically.

Fourteen years before the birth of *November Steps*, a work that bore comparable cultural significance was premiered by Maestro Leopold Stokowski and the San Francisco Symphony. *Landscapes* for full orchestra was written in 1949 by Chou Wen-chung, the monumental Chinese composer who is responsible for building a cultural bridge between the United States and China in the mid-twentieth century. Born in Yantai, China in 1923, Chou Wen-chung always had a passion for music. He initially came to the United States to study architecture at Yale University,

⁸⁷ Yoko Narazaki and Masakata Kanazawa. "Takemitsu, Tōru." *Grove Music Online*. Oxford Music Online. Oxford University Press, accessed June 17, 2017, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/27403>.

⁸⁸ *Ibid.*

⁸⁹ *Ibid.*

⁹⁰ *Ibid.*

⁹¹ *Ibid.*

⁹² *Ibid.*

but soon realized that music was his true calling. He continued his education at the New England Conservatory and Columbia University.

In *Chou Wen-Chung: the Life and Work of a Contemporary Chinese-born American*

Composer, author Peter Chang shares an anecdote between Bohuslav Martinu and Chou:

. . . Chou showed his Chinese-flavored fugues to Martinu, who started to read them on the piano and suddenly stopped after a few measures. He looked at Chou and simply uttered one word: “why?” Chou could not answer. Such an embarrassment disturbed him profoundly and made him realize that substituting pentatonic for heptatonic modes in fugue, which had been developed in the heptatonic and triadic tradition, was like putting Chinese words into Bach’s mouth. Fugue was Bach’s natural language, but not his. This incongruity was the direct result of his pragmatic way of finding simplistic and effective solutions for combining materials from two different cultures very much like many Chinese composers did in the 1920s and 1930s.⁹³

Besides embarrassment, Chou experienced an epiphany in his lifelong journey to search for a musical language that would define his monolithic status in the music world. His creation of *Landscapes* was often praised as “the first composition that is independent of either Western or Eastern musical grammar.”⁹⁴ The source of inspiration for *Landscapes* included poetry and “the direct employment of Chinese melodies with decorative harmony.”⁹⁵ In *Landscapes*, Chang explains:

. . . Chou was able to project his realization of Chinese aesthetic values expressed in classic Chinese poetry, water-ink paintings, and calligraphy impressionistically and to avoid subjugating Chinese melody under the Western harmonic framework.⁹⁶

With the use of consonant intervals, *Landscapes* portrays a vast canvas impregnated with the tranquility found in Chinese water-ink painting and calligraphy. Although similar inspiration had the same intimate relationship with all of Chou’s works, the sonic perspective changed over time.

⁹³ Peter M. Chang. *Chou Wen-Chung: The Life and Work of a Contemporary Chinese-Born American Composer* (Oxford: Scarecrow Press, 2006), 25.

⁹⁴ Chou Wen-chung. “Biography of Chou Wen-chung.” Last modified 2010. <http://www.chouwenchung.org/biography/biography.php>.

⁹⁵ Chang, *Chou Wen-Chung*, 49.

⁹⁶ *Ibid.*

Cursive (1963) for flute and piano provides a great example of one of Chou's works inspired by similar concepts. Written for flutist Harvey Sollberger and pianist and composer Charles Wuorinen, *Cursive* "extends the principle of dualistic union of two polar forces, combining it with the aesthetic tenets of Chinese calligraphy."⁹⁷ Chang further explains the concept of the piece:

The title of the piece suggests that the fluidity of the formal, rhythmic, and textural designs are modeled after a type of Chinese ink brush calligraphic style, *caoshu*, which requires supreme discipline and spontaneous creative power. The basic idea of this work is the interaction between movement and energy and between density and texture.⁹⁸

In contrast to the idyllic *Landscapes*, the powerful brushstrokes in *caoshu* can be heard clearly in *Cursive* in the form of dissonant intervals, complex rhythmic patterns and extended techniques on both the flute and the piano. Despite the stylistic differences, these works are tied tightly together with Chinese aesthetic values. Although Chou does not use Chinese instruments in all of his works, Chou has successfully combined his Chinese roots with Western idioms. Besides his contribution to cultural synthesis, Chou has played a vital role in bringing students from China to study in the United States. Among them are Chen Yi and Zhou Long, who continue Chou's effort in integrating the Eastern and Western cultures.

Chen Yi (b. 1953) was born in Guangzhou, China and received her music education from the Beijing Central Conservatory and Columbia University.⁹⁹ Since 1998 she has served as a Lorena Searcy Cravens/Millsap/Missouri Distinguished Professor of Composition at the University of Missouri-Kansas City.¹⁰⁰ Among her accomplishments include fellowships, commissioning awards and honors from the Guggenheim Foundation, the National Endowment

⁹⁷ Chang, *Chou Wen-Chung*, 94.

⁹⁸ *Ibid.*

⁹⁹ University of Missouri-Kansas City. "Dr. Chen Yi." Accessed July 6, 2017. Accessed July 6, 2017. <http://conservatory.umkc.edu/faculty.cfm?r=%22%2624%20%0A>.

¹⁰⁰ *Ibid.*

for the Arts, the American Academy of Arts and Letters, the Fromm Foundation at Harvard University, the Koussevitzky Music Foundation at the Library of Congress, the Chinese National Composition Competition, the Lili Boulanger Award, the NYU Sorel Medal Award, the CalArts/Alpert Award, the UT Eddie Medora King Composition Prize, the ASCAP Concert Music Award, the Elise Stoeger Award from Chamber Music Society of Lincoln Center and the Friendship Ambassador Award from Edgar Snow Fund.¹⁰¹ Chen's orchestra work *Si Ji* (2005) was nominated for a Pulitzer Prize in Music. The work is dedicated to Professor Chou Wen-chung, Chen's mentor at Columbia University.¹⁰² In the program note of *Si Ji*, Chen mentions how Chinese roots have informed her works, in particular this orchestral work:

From my East-West cultural background, my music is always a natural hybrid of Chinese traditional music elements and Western instrumentation and form, combined in my own musical language and style. In Chinese cultural tradition, in which I am deeply rooted, music is a part of an organic art form, along with poetry, calligraphy and painting. I love the traditional Chinese art, and think that it would be inspiring not only for artistic creation in an abstract form (as in my case, music composition) . . .¹⁰³

Similar to Mahler's *Das Lied*, *Si Ji* was inspired by four poems by two Song Dynasty poets—Su Shi (1036–1101 CE) and Zeng Gong (1019–1083 CE).¹⁰⁴ According to Chen, the “four Chinese ancient poems were written on beautiful yet dramatic scenes in the four seasons of nature” and the “musical textures permit me to present concretely the rich images and expressions that are given abstractly in the poems.”¹⁰⁵ Besides Western instruments, Chen also writes for Chinese traditional instruments. *Chinese Fables* (2002) is a work for *erhu*, *pipa*, cello and percussion. It was commissioned by Music From China, the New York-based Chinese ensemble that focuses

¹⁰¹ Ibid.

¹⁰² Chen Yi. *Si Ji* (Four Seasons) for Orchestra. PA: Theodore Presser, 2005. Program Note.

¹⁰³ Ibid.

¹⁰⁴ Ibid.

¹⁰⁵ Ibid.

on both Chinese traditional and contemporary repertoire.¹⁰⁶ *Chinese Fables* consists of three movements that are inspired by Chinese animal stories: *I. The Fox Profited by the Tiger's Might*, *II. Master Dong-guo and the Wolf* and *III. The Snipe and the Clam*.¹⁰⁷ The use of musical materials, imitation of animal calls and the instrumentation in *Chinese Fables* are the embodiment of Chinese traditional music. The pentatonic scale is the foundation of the work. The use of woodblocks, gong and bass drum is highly reminiscent of similar combinations of percussion instruments in Chinese music.

Besides poetry and fables, legends are also a source of inspiration for music compositions. The Chinese legend of *Madame White Snake* has inspired a number of artistic works, including an opera that won a Pulitzer Prize in Music in 2011. *Madame White Snake* (2010) was written by Zhou Long, who is currently a Distinguished Professor of Music Composition at the University of Missouri-Kansas City, where his wife Chen Yi also teaches. *Madame White Snake* is a story of a white snake demon who longs to become human to experience love.¹⁰⁸ The opera was praised by the Pulitzer committee as a “deeply expressive opera that draws on a Chinese folk tale to blend the musical traditions of the East and the West.”¹⁰⁹ Kalen Ratzlaff of *Opera News* describes the work as follows:

Giving voice to sweeping melodies worthy of Puccini without sounding imitative, and employing such vocal effects as bent pitches, slides and Sprechstimme to suggest the unique idiom of Peking Opera, [Zhou] wove both aesthetics into a unique whole, creating a vivid and freestanding musical world of his own.¹¹⁰

¹⁰⁶ Chen Yi. “CHEN YI—Chinese Fables (part 2/2).” YouTube. Last modified July 21, 2012. Program Note. <https://www.youtube.com/watch?v=h4sKph1nWWA>.

¹⁰⁷ Ibid.

¹⁰⁸ Ouroboros Trilogy. “Madame White Snake.” <http://ouroborostrilogy.org/projects/view/Madame-White-Snake>.

¹⁰⁹ The Pulitzer Prizes. “*Madame White Snake*, by Zhou Long.” Last modified, 2017. <http://www.pulitzer.org/winners/zhou-long>.

¹¹⁰ Kalen Ratzlaff. *Opera News*. “Madame White Snake.” Last modified 26 February 2010.

<https://www.operanews.com/operanews/templates/content.aspx?id=15601&terms=madame+white+snake>.

Besides the traditional operatic idioms of voices, choruses and a Western orchestra, *Madame White Snake* also employs *erhu* and several Chinese wind instruments—*dizi* and *xun*. The Chinese instruments fit favorably into Zhou's opera and add, not just a superficial timbre, but cultural depth to the musical language.¹¹¹ The opera displays an ideal synthesis of the East and West into one artistic medium.

¹¹¹ I was honored to be invited to be the Chinese wind guest for the second performance of *Madame White Snake* at the Cutler Majestic Theatre in Boston in September 2016. From my experience being involved in the production, beside cultural depth, the Chinese instruments add nostalgia and poignancy that pays homage to the Chinese tradition.

CHAPTER TWO: THE ROLE OF ELECTRONICS IN WORKS FOR TAI AND ELECTRONICS

The introduction of electronics in the contemporary music scene carries several layers of sonic, philosophical and cultural implications. The sonic layer enables the ambiguity of the origins of a sound source, the flexibility of juxtaposition, superimposition with an assortment of sound samples, processes, volume amplification and the addition of effects (such as delay, reverberation, and distortion) to a sound source.¹¹² Beyond the sonic level, electronics allow the possibility to synthesize the cultural and philosophical aspects in music written for TAI and electronics. In order to investigate the role of electronics in this document, *Philomel* by Milton Babbitt, *Synchronisms* by Mario Davidovsky and *NoaNoa* by Kaija Saariaho will be discussed as important historically representative examples.

2.1 The Synthesis of Acoustics and Electronics

Philomel (1964), for soprano, recorded soprano and synthesized sound, is widely proclaimed as one of the first and most influential pieces written for live performers and electronics. The work, dedicated to soprano Bethany Beardslee, was composed by Milton Babbitt (1916–2011) with text by the distinguished American poet John Hollander (1929–2013). Babbitt spent his academic career at Princeton University and the Juilliard School, where he taught composition, but was one of the foremost leaders in the development of electroacoustic music. According to *Grove Music Online*, Babbitt “contributed extensively to the understanding and extension of 12-note compositional theory and practice and has been one of the most

¹¹² Simon Emmerson and Denis Smalley. "Electro-acoustic music." *Grove Music Online*. *Oxford Music Online*. Oxford University Press, accessed November 6, 2017, <http://www.oxfordmusiconline.com.ezproxy.bgsu.edu:8080/subscriber/article/grove/music/08695>.

influential composers and teachers in the USA since World War II.”¹¹³ David Hamilton, the writer of the CD liner notes of *Milton Babbitt: Philomel*, further elaborates that Babbitt was one of the pioneers when electronically synthesized sound became a practical possibility.¹¹⁴ Babbitt earned the 1982 Pulitzer Prize Special Citation for “his life’s work as a distinguished and seminal American composer.” The text of *Philomel* is based on the legend of Procne and Philomela. It speaks of the violent removal of her tongue by King Tereus of Thrace and how she was eventually transformed into a nightingale and regained her voice. Hamilton explains the electronic component of *Philomel*:

On the tape, Beardslee’s voice is now near, now far in the stereo spectrum, sometimes electronically enhanced, sometimes singing in chorus, sometimes echoing or harmonizing with the live soloist. The synthesized sounds, skillfully chosen to complement and reflect the singer’s tonal colorings—this is, after all, a solo scene, a virtuoso showpiece—are delicate, glistening, elegant.¹¹⁵

One year before the creation of *Philomel*, one of Babbitt’s contemporaries had started to compose a monolithic series of works for acoustic instruments and electronics. Mario Davidovsky (b. 1934), another pioneer in the field of electroacoustic music, was the associate director of the Columbia-Princeton Electronic Music Center and a professor at both Columbia and Harvard Universities. According to *Grove Music Online*, Davidovsky “was first acknowledged nationally and internationally for his electro-acoustic works.”¹¹⁶ He is famous for a series of pieces entitled *Synchronisms* that pair acoustic instruments and electronic sounds. For

¹¹³ Elaine Barkin and Martin Brody. "Babbitt, Milton." *Grove Music Online. Oxford Music Online*. Oxford University Press, accessed November 9, 2017, <http://www.oxfordmusiconline.com.ezproxy.bgsu.edu:8080/subscriber/article/grove/music/01645>.

¹¹⁴ Milton Babbitt, *Philomel*. Bethany Beardslee, Lynne Webber, Jerry Kuderna and Robert Miller. New World Records LPs NW 209 and NW 307, compact disc. Recorded in 1977, 1980, 1995. Liner Notes by David Hamilton, 2.

¹¹⁵ *Ibid*, 4.

¹¹⁶ Noel B. Zahler. "Davidovsky, Mario." *Grove Music Online. Oxford Music Online*. Oxford University Press, accessed June 17, 2017, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/07281>.

Davidovsky, the coupling of live performance with recorded sound was a major development in composition involving technology.

The ability to record sound was, in his opinion, the single most important technical breakthrough of the 20th century; it enabled sound to be frozen in time and used as an architectural element of musical form.¹¹⁷

According to Richard Taruskin's *Music in the Late Twentieth Century: The Oxford History of Western Music*, Davidovsky attempts "exact coordination only in short passages of intricate counterpoint; elsewhere, in more extended passages in which one component clearly accompanied the other, 'an element of chance ["leeway in the synchronization"] is introduced'."¹¹⁸ Davidovsky won the Pulitzer Prize for Music in 1971 for *Synchronisms No. 6* for piano and electronic sounds (1970). In the program note, Davidovsky explains:

. . . the electronic sounds in many instances modulate the acoustical characteristics of the piano, by affecting its decay and attack characteristics. The electronic segment should perhaps not be viewed as an independent polyphonic line, but rather as if it were inlaid into the piano part.¹¹⁹

Both *Philomel* and *Synchronisms* are defining masterpieces in combining voice/acoustic instruments and electronics in the twentieth century. Babbitt and Davidovsky have irrefutably established a solid foundation and paved ways for composers of new generations to continue to explore this genre.

NoaNoa (1992) for flute and live electronics is an excellent extension of Babbitt's and Davidovsky's efforts. Kaija Saariaho (b. 1952) is a Finnish composer who has worked extensively at IRCAM (*Institut de Recherche et Coordination Acoustique/Musique*). Among her works for acoustic instruments and electronics are *Jardin secret II* for harpsichord and tape

¹¹⁷ Ibid.

¹¹⁸ Richard Taruskin, *Music in the Late Twentieth Century: The Oxford History of Western Music* (Oxford: Oxford University Press, 2009), 212.

¹¹⁹ Mario Davidovsky, *Synchronism No. 6 for Piano and Electronic Sounds*. PA: Theodore Presser, 1970. Program Note.

(1984–6), *Nymphaea* for string quartet and electronics (1987) and *NoaNoa*. In the program notes printed in the score of *NoaNoa*, Saariaho explains the source of inspiration for the work:

NoaNoa (Fragrant) was born in 1992 from ideas I had for flute while writing my ballet music *Maa*. I wanted to write down, exaggerate, even abuse certain flute mannerisms that had been haunting me for some years, and thus force myself to move into something new. Formally, I was experimenting with the idea of developing several elements simultaneously, first one after the other, then superimposed . . . The title refers to a woodcut by Paul Gauguin called *NoaNoa*. It also refers to a travelling diary of the same name, written by Gauguin during his visit to Tahiti from 1891-93. The fragments of phrases selected for the voice part in the piece come from this book.¹²⁰

According to the CD liner notes by Gisela Gronemeyer, the birth of *NoaNoa* was partly motivated by the composer's dissatisfaction with the concert halls in which her music was performed. Thus, she began to create the acoustics she needed with the help of the electronics.¹²¹ The electronics in *NoaNoa* interact with the live flute, noticeably through reverberation and triggered events. Every performance will vary minutely depending on how the flutist performs. This technological breakthrough gives more flexibility to the performer, as well as to the flow of the work.

2.2 The Role of Electronics in Music Written for TAI and Electronics

Traditionally, the audience perceives music visually and aurally as a work is performed by live musicians. In most electronic music, however, the sound is recorded and played through speakers. In other words, the audience is sometimes unable to visually perceive the process of sound-making as is the tradition. The use of electronics renders liberty and invisibility to the sound materials. Simon Emmerson and Denis Smalley state that electronics are “ideal for exploring the ambiguous and allusive play of causalities, metamorphoses, acoustic imagery and

¹²⁰ Kaija Saariaho, *NoaNoa for Flute and Electronics*. Suffolk: Chester Music, 1992. Program Note.

¹²¹ Kaija Saariaho, *Chamber Music*. Wolpe Trio and Andreas Boettger. Kairos 0012412KAI Deutschlandfunk, compact disc. Recorded in 2004. Liner Notes by Gisela Gronemeyer.

the behavior of sounds in virtual spaces.”¹²² For example, in Kaija Saariaho’s *NoaNoa*, both the flutist and the electronics play the sounds of a flute and whispering. In many instances, the audience must guess what the source of the sounds are. Furthermore, the electroacoustic layer contains playback of various sound samples in addition to real time processing. The overall effect of *NoaNoa* is a performance space filled with the sounds of the acoustic instrument, its electroacoustic double (altered through delays and reverberation) and prerecorded samples that blend the two spaces and add depth.

The sounds of different characters from a variety of acoustic instruments and audio sources can be combined, which give great “flexibility for juxtaposing and superimposing sounds with attention to the finer details of sound quality.”¹²³ As an example, in 2012, I was fortunate to be invited to perform with the University of Louisville Electronic Improvisation Ensemble at the Audio Art Festival in Krakow, Poland. The ensemble consisted of electric guitar, electric bass, two computers and flute. Both the guitarist and the bassist had effects pedals that altered the sounds of their instruments. The two laptop performers were responsible for processing the flute sounds that were fed into the computer via a microphone. One of the laptop performers added reverberation and delays and the other granularized the sounds. They also could manipulate the panning of the sounds—the distribution of the sounds into different speakers—giving the sounds spatial flexibility in the concert hall. All the performers could control their own volume and all of the sounds went into a master system for the final sonic experience.

¹²² Simon Emmerson and Denis Smalley, "Electro-acoustic music." *Grove Music Online*. Oxford Music Online. Oxford University Press, accessed June 18, 2017, <http://0-www.oxfordmusiconline.com.maurice.bgsu.edu/subscriber/article/grove/music/08695>.

¹²³ Ibid.

The three selected works which will be analyzed in this document are an embodiment of the blending of sonic, cultural and philosophical aesthetics. Before the onset of sound technology, works written for acoustic instruments would be subject to the natural dynamic capability of the instrument. With electronics, the volume and timbral aspects of acoustic instruments can be adjusted. In Chong's *Endless Whispering*, amplification intensifies the volume of the acoustic instruments, while electronic effects embellish the sound of the instruments with reverberation, delay and distortion; pitches are also added to the array with the harmonizer. The imposition of amplification and effects alters the traditionally perceived sounds of the *sheng* and *xun*. Beyond the changes of sound, the cultural and philosophical identity of the *sheng* and *xun* has been transformed. The instruments are perceived differently when amplified because the volume has exceeded the designed capacity. The electronic effects have radically transformed their sonic identity.

In addition to amplification and electronic effects, fixed media is a pivotal element in all three selected works. Fixed media serves as a background canvas that infiltrates the foreground of the work with appropriate atmosphere. The fixed media part in *Mist on a Hill* is impregnated with recognizable and unrecognizable samples from the *pipa*. Although the sound of the live performer is not processed during the performance, the samples that play along with it alter the sound. In *Endless Whispering*, the fixed media injects the music with electronically processed samples that resemble human whispers, the buzzing sound of a sitar, the key clicks on the *xun*, among others. These are evocative of the cultural and philosophical elements of a particular moment in the work. The fixed media part in *Spiral Network* on the other hand, evokes Coleman's fascination with architecture and geometry through the use of sine waves and electronically processed samples of the acoustic instruments from the ensemble. The presence of

electronics in the works written for TAI and electronics establishes a synthesis of sound, culture and philosophy. “Electronics” in the title of the document refers to the interactive and fixed media components in the music of Marc Battier, Kee Yong Chong and Gene Coleman.

Interactive electronics refers to the particular circumstance in which a “performer and computer were, for example, free to choose among possible responses or even to develop event material (most commonly pitches and rhythms) produced at the time of performance according to rules defined in advance by the composer.”¹²⁴ Fixed media exists in recorded form and is designed for loudspeaker listening that can be played as an independent music composition.¹²⁵ Only fixed media is used in Battier and Coleman’s music, while both interactive electronics and fixed media are used in Chong’s work.

2.3 Cultural and Philosophical Correspondences

Correspondences between TAI, Western instruments and electronics are clearly exhibited in the scores of the three selected works particularly in terms of notation and techniques. Instead of employing traditional notation, the music for TAI is written in Western notation in all three works. EXAMPLE 2.1 displays the first page of *Ambush from All Sides*, a popular piece in the traditional *pipa* repertoire. The notation is engraved in numbers as compared to EXAMPLE 2.2, the first three measures of *Mist on a Hill*. An obvious correspondence can be seen between both excerpts. The red boxes display the rubato/introduction sign employed exclusively in Chinese traditional music. Battier contextualizes the sign into the “Western” notation of *Mist on a Hill* by placing it where the meter signatures are located. In addition to the rubato/introduction sign,

¹²⁴ Simon Emmerson and Denis Smalley, "Electro-acoustic music." *Grove Music Online*. Oxford Music Online. Oxford University Press, accessed October 7, 2017, <http://www.oxfordmusiconline.com.ezproxy.bgsu.edu:8080/subscriber/article/grove/music/08695>.

¹²⁵ Ibid.

traditional *pipa* techniques are also re-contextualized in *Mist on a Hill*. The tremolo sign ✨ in *Ambush from All Sides* (EXAMPLE 2.1) is used in *Mist on a Hill* as ✨.¹²⁶ Although Western notation is used, the employment of the same tremolo sign exemplifies the synthesis of Asian and Western cultures.

EXAMPLE 2.1 十面埋伏 (*Ambush from All Sides*)

十 面 埋 伏

汪 煜 庭 传 谱
李 廷 松 演 奏 谱

1 = D (5 1 2 5 弦)

【一】列营 ♩ = 60 渐快 ♩ = 60-80

ff

¹²⁶ ✨ and ✨ are interchangeable and they both mean tremolo in terms of *pipa* technique.

EXAMPLE 2.2 *Mist on a Hill*, mm. 1–3. Cross-cultural Influence

Mist on a Hill

For pipa and electronic sounds

Marc Battier, 2009
Music Acoustica Festival, Beijing

The score consists of three staves. The top staff is for Pipa, the middle for Electronics (El.), and the bottom for Pipa. The top Pipa staff has a red box around the first measure. The score includes dynamic markings (pp, f, sfz, ppp, mp, tacet) and performance instructions (ca 12'', lento, comodo ca 10'').

Marc Battier MIST ON A HILL
 Copyright © 2009 by Musicacoustica, Beijing
 All Rights Reserved
 Used by permission of Marc Battier

Similarly in Chong's *Endless Whispering*, sheng traditional techniques are shared by Western instruments. EXAMPLE 2.3 shows the infiltration of the *sheng*'s glissando technique into flute, oboe, bass clarinet and tuba. The example illustrates how a traditional technique is embraced by Western instruments establishing cross-cultural synthesis.

EXAMPLE 2.4 *Spiral Network*, mm. 10–16. Cross-cultural Influence

3

Gene Coleman SPIRAL NETWORK
Copyright © 2013 by Lontano Music (ASCAP)
All Rights Reserved
Used by permission of Gene Coleman

EXAMPLE 2.5 *Spiral Network*, mm. 5–9. Cross-cultural Influence

2

Based on examples from *Mist on a Hill*, *Endless Whispering* and *Spiral Network*, the cross-cultural and cross-era synthesis is an unavoidable conversation between the TAI, Western instruments and electronics. The synthesis is not a contingency but an inevitable sonic, cultural and philosophical outcome in works written for TAI, Western instruments and electronics.

2.4 The Aesthetic of Silence and Musical Space in Works for TAI and Electronics

Just as the use of electronics can add atmosphere to music, so can the use of Asian philosophical concepts such as *ma* and *wu-wei*. These concepts play a significant role in the three works examined in this document.

Ma is the Japanese aesthetic that is most commonly associated with silence and musical space. Takemitsu explains:

To bring *ma* to life means to make the most of the infinite sounds that exist between two performed sounds . . . Instead of communicating solely through the actual sounds that are performed, in Japanese music the space created between realized sounds plays a significant role.¹²⁷

Ma is a concept that is experienced by the performers, the listeners and by the work of the composer. Barry Shank further explains:

There is not a hierarchy of determination where the composer organizes the musical material in line with a particular concept of harmonic-melodic development that must be executed by the performer and appreciated by the audience.¹²⁸

Wu-wei is an equivalent of *ma*. Taoism believes in *wu-wei*. *Wu* means nothing or without, while *wei* means action. When the two words are put together, it simply means doing nothing.

Wu-wei is one of the most important concepts in Taoism and was commonly used in a political sense.

. . . the main precept behind the *Lao Tzu*'s conception of government as the minimum amount of external interference projected onto the individual from those in power

¹²⁷ Barry Shank, *The Political Force of Musical Beauty* (Durham, NC: Duke University Press, 2014), 93.

¹²⁸ Ibid.

combined with an environment most conducive to the individual's quest for personal fulfillment.¹²⁹

Although it is not a concept particularly pertinent to music, the connection of silence to Chinese music can easily be made with the concept of *wu-wei*. From the political use of *wu-wei*, it can be extended to the idea that, by embracing silence in music, the listeners and performers receive the message delivered by a music composition with their own interpretation. In other words, a piece of music does not necessarily have to be filled with sounds to have its message conveyed.

Silences are always delineated by space. The longer the silence, the bigger the space. Therefore, space, to a certain extent, is interchangeable with silence. A space does not always indicate silence, since space could be produced musically, such as the space between two polarized registers and the space between the first and the second notes. Nonetheless, silences and the sense of space are present in all three works discussed in the document.

As the title reveals, *Mist on a Hill* portrays a scene. The electronics often give the sense of space and silence. It is not hard to associate "mist" with the electronics and *pipa* with the hill. The relationship between the *pipa* and the electronics implies space because most of the electronics are vague and abstract samples, as opposed to the solid and concrete *pipa* sounds. Furthermore, the electronics and the *pipa* do not always play together. Most of the time, they play individually and separately. When that happens, silence precedes the entrance of the *pipa* or the electronics.

Endless Whispering plays with the idea of audibility and inaudibility. Although there are no literal silences in *Endless Whispering*, the music, at times, paints the sonic canvas with barely audible sounds. In other words, it injects the music with space. In many instances, the

¹²⁹ Roger T. Ames, "Wu-wei." In *The Art of Rulership* Chapter of *Huai Nan Tzu*. *Philosophy East and West* 31, no. 2 (April 1981): 196.

imperceptible instrumental entrances break the boundary between silence and sound. The placement of the instruments occupies the entire performance hall. Chong suggests three plans for the placement of the instruments in consideration of three different concert hall scenarios. FIGURES 2.1, 2.2 and 2.3 show the ensemble setup of the three plans. The employment of space and structure of each concert hall intensifies Chong's idea of space in *Endless Whispering*.

FIGURE 2.1. Ensemble Setup A

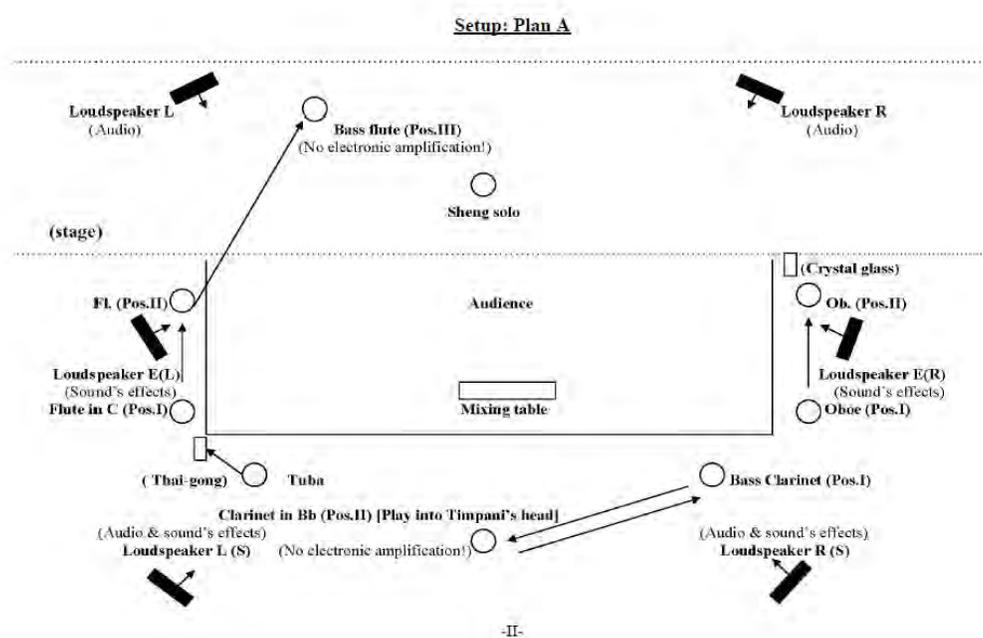


FIGURE 2.2. Ensemble Setup B

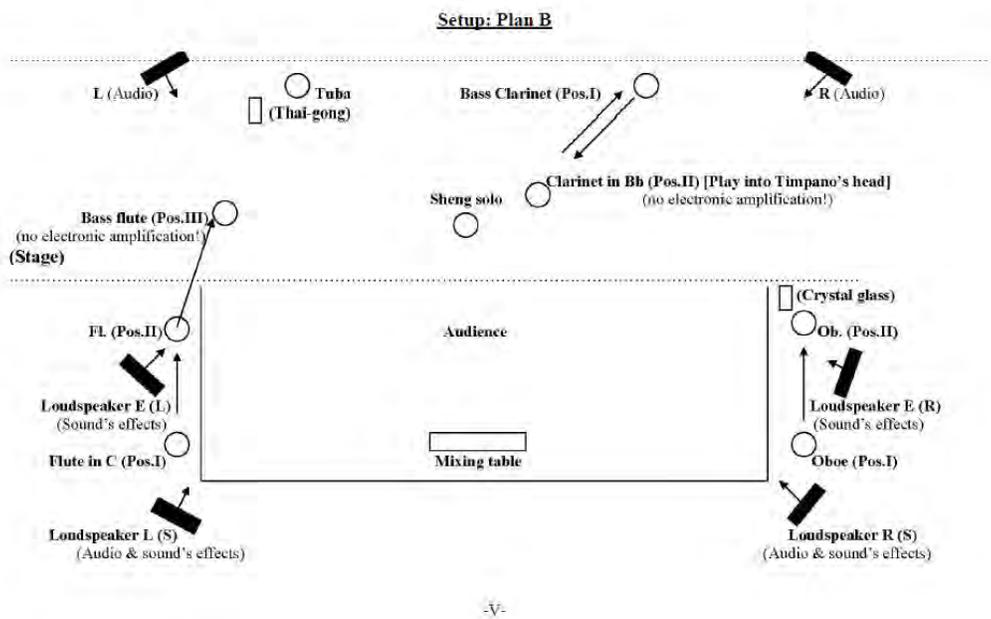
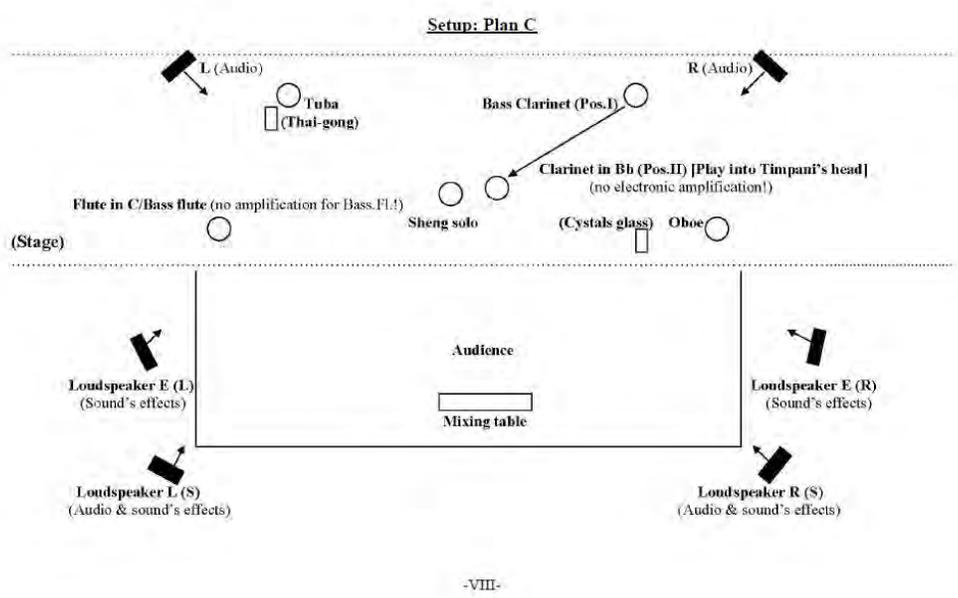


FIGURE 2.3. Ensemble Setup C



Similarly in Coleman's *Spiral Network*, the duality of silence and sounds is present. The orchestration of *Spiral Network* creates space within the music. Measures 71 to 73 of EXAMPLE

2.6 shows a passage of *Spiral Network* that is very active. Quite abruptly the activity stops and some of the instrumental lines drop out creating a sonic void with only a few instruments remaining.

Although many more instances could be discussed, these few examples serve to emphasize the important presence of silence and space discussed in these works, the incorporation of which is another example of cultural and philosophical synthesis.

EXAMPLE 2.6 *Spiral Network*, mm. 71–79

The image displays a musical score for Example 2.6, *Spiral Network*, measures 71 through 79. The score is written for a chamber ensemble consisting of Violin (VII), Soprano (S), Koto (K), Viola (V), Bassoon (BC), English Horn (EG), Violoncello (VC), and Flute (F). The score is divided into measures 71 through 79. A red box highlights the time signature change to 6:59 at measure 74. A red circle highlights the measure number 10 at the bottom left. The score includes various musical notations such as dynamics (ff, p, pp, f), articulation (acc, stacc), and performance instructions (arco, pno oms...). Time signatures are indicated at the bottom of the score: 6:25, 6:38, 6:46, 6:54, 6:59, 7:02, 7:04, 7:07, 7:12, and 7:20.

CHAPTER THREE: MARC BATTIER'S *MIST ON A HILL***3.1 Composer Biography**

Born in 1947 in Brive-la-Gaillarde, Marc Battier is a French composer and musicologist, who has been at the University of Paris-Sorbonne since 2002 and is now Professor Emeritus at the same. His visiting professorships are numerous and worldwide: the University of California at Irvine, the University of California at San Diego, Aichi Prefectural University of Fine Arts and Music in Japan and the University of Montreal in Quebec. Since 2015, he has served as Distinguished Professor at the Academy of Music of the Suzhou University of Science and Technology in China. He also supervises the doctoral program at the DeTao-Node of the Planetary Collegium in Shanghai, which is part of Plymouth University in the United Kingdom. Battier's specialties are computer and electroacoustic music, as well as the contemporary music of Eastern Asia.¹³⁰

In 2003 Marc Battier and Leigh Landy, the Director of the Music Technology and Innovation Research Centre (MTIRC) at De Montfort University in Leicester, England, agreed that a platform for the study of electroacoustic music was necessary for scholarly exchange. The result of this shared passion was the establishment of the Electroacoustic Music Studies Network (EMS Network). In the same year, EMS Network had its first meeting, *Electroacoustic Musics: A century of innovation involving sound and technology—resources, discourse, analytical tools*, which became part of IRCAM's Résonances events. After the meeting, Daniel Teruggi, the managing director of GRM (Groupe de recherches musicales), joined Battier and Landy as a co-founder of EMS Network. Since then, EMS Network has had conferences in Montreal, Beijing,

¹³⁰ IReMUS (institute de recherche en musicology), "Marc Battier." Accessed August 12, 2017. <http://www.iremuscns.fr/fr/membres-permanents/marc-battier>.

Buenos Aires, Shanghai, New York, Stockholm, Lisbon, Berlin and Sheffield.¹³¹ Battier later founded the Electroacoustic Music Studies Asia Network (EMSAN) that is affiliated with the French-based Institut de Recherche en Musicologie (IreMus). EMSAN continues the original mission of the EMS Network, but focuses its attention on Asian composers and researchers.¹³² In 2014, the Central Conservatory of Music in Beijing honored Marc Battier with the Award for Outstanding Contribution to Musicacoustica, an international electroacoustic music festival held in China.¹³³

3.2 Analysis of *Mist on a Hill* / 山中薄暮 (2009) for *pipa* and electronic sounds

During one of the EMS Network conferences, Marc Battier was invited by Zhang Xiaofu, a professor at the Central Conservatory of Music in Beijing and Executive President of Musicacoustica-Beijing, to write a composition for the conference.¹³⁴ Battier responded with *Mist on a Hill* for Gao Yunxiang, an excellent pianist and *pipa* player. Battier and Gao communicated often as the work progressed. Battier would send fragments of the work to Gao, who would subsequently record and return them. *Mist on a Hill* was premiered by Gao in Beijing, China on October 25, 2009.¹³⁵

3.2.1 Formal Structure

TABLE 3.1 shows the formal structure of *Mist on a Hill*. Divided into five sections, all but the Introduction begin with electronic sounds marked in the score as Sequence 1 (Seq. 1),

¹³¹ Electroacoustic Music Studies Network, “Presentation: What is the EMS Network?” Accessed August 12, 2017. <http://www.ems-network.org/spip.php?rubrique1>.

¹³² EMSAN (Electroacoustic Music Studies Asia Network) Project. Paris-Sorbonne University–iReMus UMR 8223. Accessed August 12, 2017. <http://www.ums3323.paris-sorbonne.fr/EMSAN/>.

¹³³ EMSAN; MUSICACOUSTICA–BEIJING 2016. Accessed August 21, 2017. <http://2016.musicacoustica.cn/en2016/>.

¹³⁴ ZHANG XIAOFU. Accessed August 31, 2017. http://musicacoustica.cn/en2015/?portfolio_page=zhang-xiaofu.

¹³⁵ Marc Battier, interview by Hong-Da Chin, September 18, 2016.

Sequence 2 (Seq. 2), Sequence 3 (Seq. 3) and Sequence 4 (Seq. 4). TABLE 3.1 shows the sections, duration and length, as well as events that start each section. For the purpose of this analysis, measure numbers have been assigned based on the presence of a barline.

TABLE 3.1. *Mist on a Hill*. Formal Structure

Section	Introduction	A	B	C	D
Duration (Section)	0:00–0:25	0:26–3:19	3:20–5:48	5:49–10:04	10:05–12:49
Length	0:25	2:53	2:28	4:15	2:44
Measures	1a	1b–15	16–34	35–61	62
Events	<i>Pipa</i> solo	Starts with electronic sounds			
Length (Electronic Sounds)		0:46 Seq. 1	0:49 Seq. 2	1:29 Seq. 3	2:37 Seq. 4

Mist on a Hill begins with a cadenza-like passage on the *pipa*. To the right of the conventional clefs Battier has used a symbol commonly found in traditional Chinese music (卩) that gives tempo freedom to the performer (EXAMPLE 3.1). There is no initial indication of speed, only an approximate duration (ca. 12") for the feathered beam. He gives an indication of "lento" after the opening gesture and continues in a similar manner until the electronic sounds enter in the second system of page 1. The first indication of any metronome marking will not be found until the third page of the score.

EXAMPLE 3.1 *Mist on a Hill*, m. 1

Section A begins with electronic sounds (marked as Seq. 1 at measure 1b), which provides the harmonic ambience for the *pipa* at measure 2. The electronic sounds continue until the *pipa* reinserts its dominance at measure 3. Measures 3 to 6 are rather melodic and rhythmically flexible, and are marked “Larghetto. Do not rush. Leisurely,” “ca. 2” (EXAMPLE 3.2). The pitch content of Section A is more chromatic than the Introduction, which consists of only the notes A, E and Eb. However, the note E is still emphasized harmonically, melodically and rhythmically in the beginning of Section A (EXAMPLE 3.2). The gravitation towards the note E decreases as Section A continues to proceed.

EXAMPLE 3.2 *Mist on a Hill*, mm. 3–6, Section A. Rhythm and Pitch

Wait until El. stops, then start *Larghetto. Do not rush. Leisurely*

ca 2" ca 2" ca 2"

Pipa

f *p* *f* *p* *f* *p*

I II III X I II III X

Section B begins in measure 16 with the return of the electronic sounds, Seq. 2. New musical materials such as melodic displacement (EXAMPLE 3.3) and harmonics (EXAMPLE 3.4) are introduced. The 32nd-note gestures become increasingly important towards the end of the section (EXAMPLE 3.5) and foreshadow the climactic moments of the entire work at Section C.

EXAMPLE 3.3 *Mist on a Hill*, m. 18, Section B. Melodic Displacement

Musical score for Example 3.3, showing melodic displacement in measures 18, 19, and 20. The score is in treble and bass clefs. Measure 18 has a forte (*f*) dynamic and a second ending bracket. Measure 19 has an accent (>) and a second ending bracket. Measure 20 has an accent (>) and a second ending bracket.

EXAMPLE 3.4 *Mist on a Hill*, m. 26, Section B. Harmonics

Musical score for Example 3.4, showing harmonics in measure 26. The score is in treble clef. The measure is marked *calmo* and *mp*. The melody features a series of notes with diamond-shaped harmonic marks above them. The measure ends with a *sfz* dynamic marking and a wavy line indicating a glissando.

EXAMPLE 3.5 *Mist on a Hill*, m. 23, Section B. 32nd-Note Gestures

Musical score for Example 3.5, showing 32nd-note gestures in measures 23, 24, and 25. The score is in treble and bass clefs, 3/4 time. The melody consists of a series of 32nd-note runs, each marked with a double slash (//) and an accent (>). The bass line consists of a series of 32nd-note chords, each marked with a double slash (//).

Section C (measures 35 to 51) begins with electronic sounds, Seq. 3. The *pipa* engages in a wide variety of techniques, more adventuresome than in previous sections of the piece: “scrape strings near bridge, up and down;” “Scrape strings back and forth, continuously, as a music box, arpeggio-like;” “Strike stopped string with nail to create a high pitched noise;” “Stop string IV and strike with nail to create a low pitched noise;” “Stop string IV and strike with nail to create a low pitched noise while sliding the right hand finger up to create a noisy *spectral* glissando” (EXAMPLE 3.6).

EXAMPLE 3.6 *Mist on a Hill*, mm. 34–42. *Pipa* Techniques

Section B

Section C

El. starts [seq. 3]

molto rall.

f *mp*

Strings scrape strings near bridge, up and down

4 strings stopped
Scrape strings back and forth, continuously, as a music box, arpeggio-like

portamento

Strike stopped string with nail to create a high pitched noise

Stop string IV and strike with nail to create a low pitched noise

Stop string IV and strike with nail to create a low pitched noise while sliding the right hand finger up to create a noisy "spectral" glissando

f *mf*

Towards the end of Section C (measures 55 to 59), the 32nd-note gestures dominate the music and build up tension with intense and rigid rhythms that define the climactic moments of the entire piece. The pitches A and D are the foundation for the harmonic progression at the end of the section.

Section D emphasizes the duality of *Mist on a Hill*, freedom versus rigidity, by returning to the more tranquil character of the Introduction. The electronic sounds once again start the section (Seq. 4), while the *pipa* is tacet. When the *pipa* enters, it does so in an improvisatory manner by “scraping string I up and down, varying dynamics and speed.” The piece ends abruptly with a short return of the 32nd-note gesture.

3.2.2 Controlled Freedom and Improvisatory Passages

I wrote for guqin 古琴 for CCOM (Central Conservatory of Music in Beijing, China) professor Ms. Zhao Xiaoxia 赵晓霞, a famous performer. Since I can't use qin notation, I could not specify the type of vibrato I wanted. There are many types of vibrato on the qin. At the first rehearsal in Beijing, she asked me which vibrato I wanted. I answered that I would let her select the one she felt best suited. That's how I became convinced of the importance of giving leeway to the performers, of respecting their long training and use [*sic*] their artistry for the benefit of the piece.¹³⁶

Marc Battier's words speak to notational problems he encountered while working with a *guqin* (a type of Chinese zither) musician. When asked about his vibrato preference, he gave liberty to the performer to choose a vibrato she thought was the most appropriate for the music. Battier believed in and respected the musical and aesthetic decisions the traditional musician made. The same holds true in his approach to writing *Mist on a Hill* for a *pipa* musician. As seen in EXAMPLE 3.6, the graphic notation gives the performer the flexibility to scrape the strings at any speed. Likewise, EXAMPLES 3.1 and 3.2 show the approximate time the performer has to finish playing the musical gestures.

¹³⁶ Marc Battier, interview by Hong-Da Chin, September 18, 2016.

3.2.3 Harmonic Structure

EXAMPLE 3.7 shows the overall harmonic structure, the pace of harmonic progression and the register of the *pipa* in *Mist on a Hill*.¹³⁷ It is no coincidence that the notes A, D, and E dominate the work since these are the open strings of the *pipa* (EXAMPLE 3.8). The more frequently these notes are used, the more idiomatic and resonant the work becomes.

The pitches in the Introduction and Section A are predominantly A, D and E with chromatic inflection from D#/Eb and A#/Bb. While the notes A, D and E still prevail, Section B becomes more chromatic with the addition of G#, F#/Gb and C#. Section C continues in like manner. At the end of the section, however, there is a strong gravitational pull towards the chromatic pitches in the form of a brief melodic statement that will recur at the conclusion of the piece. Section D starts with electronics, and seconds later the *pipa* joins the electronics by scraping up and down between A3 and B5. As previously mentioned, we hear the brief melody (Ab, Bb, Eb, F, G) before the final iteration of the 32nd-note sonority (A, D, E, G) that ends the work.

¹³⁷ The boxed numbers in EXAMPLE 3.7 refer to measure numbers. For example, 5 refers to measure 5 and 6.1 refers to the first beat of measure 6.

EXAMPLE 3.7 *Mist on a Hill*. Harmonic Structure, Progression and Register of the *Pipa*

Introduction

1a ca. 12"
1a ca. 10"
1b ca. 11"

The Introduction section consists of three measures. The first measure contains two notes in the treble clef, labeled '1a ca. 12"'. The second measure contains two notes in the treble clef, labeled '1a ca. 10"'. The third measure contains a whole rest in the treble clef and a whole note in the bass clef, labeled '1b ca. 11"'. The bass clef has a single note in the first measure and rests in the second and third measures.

Section A

2 3 4 5.1 5.3 6 7 Pick-up to 8 8

9 within range b3 - a2 10 11.1 - 11.3 11.4 13 13 & 1st 8th note of 14 Upbeat of 1st beat of 14 to 15

Section A is divided into two systems. The first system contains measures 2 through 8. Measure 2 has two notes in the treble clef. Measures 3 and 4 have two notes in the treble clef. Measure 5 has two notes in the treble clef, labeled '5.1' and '5.3'. Measure 6 has two notes in the treble clef. Measure 7 has two notes in the treble clef. Measure 8 has two notes in the treble clef. A 'Pick-up to 8' label is above measure 8. The second system contains measures 9 through 15. Measure 9 has two notes in the treble clef, labeled 'within range b3 - a2'. Measure 10 has two notes in the treble clef. Measure 11 has two notes in the treble clef, labeled '11.1 - 11.3'. Measure 12 has two notes in the treble clef, labeled '11.4'. Measure 13 has two notes in the treble clef. Measure 14 has two notes in the treble clef, labeled '13 & 1st 8th note of 14'. Measure 15 has two notes in the treble clef, labeled 'Upbeat of 1st beat of 14 to 15'. The bass clef has notes in measures 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, and 15.

Section B

16 17 upbeat of 1st beat 18 19 20 21 22 23, 24, 25 (1st half beat) 25 (2nd beat) 26

27.1 27.3 - 27.4 28.1 - 28.3 28.4 - 30 31.1 31.3 32.1 32.2 - 32.3 33 34

Section B is divided into two systems. The first system contains measures 16 through 26. Measure 16 has two notes in the treble clef. Measure 17 has two notes in the treble clef, labeled '17 upbeat of 1st beat'. Measure 18 has two notes in the treble clef. Measure 19 has two notes in the treble clef. Measure 20 has two notes in the treble clef. Measure 21 has two notes in the treble clef. Measure 22 has two notes in the treble clef. Measure 23 has two notes in the treble clef, labeled '23, 24, 25 (1st half beat)'. Measure 24 has two notes in the treble clef. Measure 25 has two notes in the treble clef, labeled '25 (2nd beat)'. Measure 26 has two notes in the treble clef. The second system contains measures 27 through 34. Measure 27 has two notes in the treble clef, labeled '27.1'. Measure 28 has two notes in the treble clef, labeled '27.3 - 27.4'. Measure 29 has two notes in the treble clef, labeled '28.1 - 28.3'. Measure 30 has two notes in the treble clef, labeled '28.4 - 30'. Measure 31 has two notes in the treble clef, labeled '31.1'. Measure 32 has two notes in the treble clef, labeled '31.3'. Measure 33 has two notes in the treble clef, labeled '32.1'. Measure 34 has two notes in the treble clef, labeled '32.2 - 32.3'. Measure 35 has two notes in the treble clef, labeled '33'. Measure 36 has two notes in the treble clef, labeled '34'. The bass clef has notes in measures 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, and 36.

EXAMPLE 3.7 (continued)

Section C

35, 36, 37 38 39.1 39.5 40 41 - 42 43 44 45 46.1 - 46.2 46.3 47 47.3 47.4 - 48.1

coloristic effects

48.2 - 48.4 49 50.1 - 50.2 50.3 - 51 52 53.1 - 53.3 53.4 - 54.1 Upbeat of 54.2 - 54.4 Upbeat of 54.4 - 54.5 55.1 55.2

coloristic effects

55.3 55.4 56.1 56.2 56.3 56.4 57.1 57.2 - 57.4 58 - 59 60 61

Section D

62 (1st system) 62 (2nd system) 62 (last beat of second system)

EXAMPLE 3.8 The Open Strings of the *Pipa*

3.2.4 Pitch Collection of the *Pipa* and Electronics as Written in the Score

The main pitch collection in *Mist on a Hill* is A, D, and E, the open strings of *pipa*. The aggregate is broadened to include the entire chromatic spectrum as the work unfolds. The notes A, E, Eb and D found in the Introduction (previously mentioned EXAMPLE 3.1) are the microcosm of the pentatonicism and chromaticism that permeates the entire piece. In Section A (measures 2 to 16) the notes A, D, and E are the harmonic foundation, which is modified to add variety to the overall harmonic color of the work. In measures 1b and 2, the electronic sounds that consist of the notes D, E, and A# in EXAMPLE 3.9 foreshadow the modified set of pitches in EXAMPLE 3.10. Adding to the growth in chromaticism is the embellishment of A, D and E (measures 3 to 6). For example, the notes F and D# are neighbor tones that embellish the pitch of E (EXAMPLE 3.10) where [a] represents neighbor tones and [b] represents double neighbor tones.

EXAMPLE 3.9 *Mist on a Hill*, mm. 1b–2. Pitch Expansion in the Electronics

The image shows a musical score for two instruments: Electronics (El.) and Pipa. The Electronics staff is marked "Start Electronics Seq. 1" and "mp". A red box highlights the first two measures of the Electronics staff, which contain notes D, E, and A#. The Pipa staff is marked "racet" and "pp". A green box highlights the first two measures of the Pipa staff, which contain notes D, E, and A. Arrows point from the notes in the Pipa staff to the notes in the Electronics staff, indicating pitch expansion. The dynamics for the Pipa staff are marked "pp", "f", and "mp".

EXAMPLE 3.10 *Mist on a Hill*, mm. 3–6. Pitch Expansion in the *Pipa*

Wait until
El. stops,
then start

Larghetto. Do not rush. Leisurely

ca 2" ca 2" ca 2"

Section B starts with the notes B2 and F5 in the *pipa* (EXAMPLE 3.11). In the electronics, the first appearance of the pitch G bends up to D5 and to G5 before going through more pitch bending. These notes indicate a range extension from Section A, which rests on the harmonic foundation D, E and A. While E and B are the predominant pitches in measure 18, other notes revolve around B and embellish the line.

EXAMPLE 3.11 *Mist on a Hill*, mm. 16–18. Pitch Expansion in the *Pipa* and Electronics

El. starts
[seq. 2]

G and D

B and E

Embellishing Tones to the pitch 'B'

EXAMPLES 3.12, 3.13 and 3.14 show that the note G is integral to the foundation of D, E, and A. These four notes establish a quartal/quintal chord that becomes increasingly important as the piece progresses. Another reason for asserting the G is its position of prominence. In most instances, it is “on the beat,” which will give it a natural emphasis. The most chromatic gesture in the work is found in the last two beats of measure 32 and further implies the growth of harmonic intensity (EXAMPLE 3.14).

EXAMPLE 3.12 *Mist on a Hill*, mm. 22–24. The Importance of G

El. stops

energico

The pitch G becomes more important

Harmonic foundation

f

EXAMPLE 3.13 *Mist on a Hill*, mm. 28–30. Recurrence of G

Scape strings

f

mf

EXAMPLE 3.14 *Mist on a Hill*, mm. 31–32. Recurrence of G and Chromatic Gesture

More Gs

Most chromatic gesture

ff

mp

In EXAMPLE 3.15 two modified chords based on D, E, and A are presented: D/Eb/A in measure 25 and D/E/A/B in measure 27. The chord D/E/A/B emphasizes the importance of the fourth and fifth and is also seen in the harmonics and glissando gestures in measures 26 and 27 respectively.

EXAMPLE 3.15 *Mist on a Hill*, mm. 25–27. Modified Chords and Melodic Motives

The musical score for Example 3.15 shows two staves. The upper staff is for the piano and the lower for the electronics. In measure 25, a chord of D, Eb, and A is highlighted with a red box. In measure 26, a melodic line is circled in red, with an arrow pointing to the text 'Melodic motive based on fifths'. In measure 27, another chord of D, E, A, and B is highlighted with a red box, and a melodic line is circled in red with an arrow pointing to 'Melodic motive based on fifths'. Dynamic markings include *mf*, *p*, *calmo*, *sfz*, and *p*.

Section B ends with the pitches D, C#, B descending in a diatonic pattern to the repeated A (EXAMPLE 3.16). Despite the increased chromaticism, the harmonic structure in Section B is generally faithful to that of Section A.

EXAMPLE 3.16 *Mist on a Hill*, mm. 33–34. Descending Diatonic Pattern

The musical score for Example 3.16 shows two staves. The upper staff is for the piano and the lower for the electronics. In measure 33, a glissando is shown in the piano part, starting on a sharp sign and moving down, marked *fp*. In measure 34, a descending diatonic pattern of notes is shown in the electronics part, marked *f* at the beginning and *mp* at the end.

Section C is the longest section of the piece at four minutes and fifteen seconds or 33.69% of the total duration (12:49); it also contains the climax of the entire work. The pitches E in the electronics and A in the glissandi of the *pipa* begin Section C (EXAMPLE 3.17). The notes E and A once again emphasize the original harmonic foundation, which will be increasingly modified throughout the section.

EXAMPLE 3.17 *Mist on a Hill*, mm. 34–36. Harmonic Foundation

The image shows a musical score for Example 3.17. The piano part is on the left, marked *molto rall.* and *f* to *mp*. The string part is on the right, with a red box highlighting the section labeled "E and A". Above the string part, there are two boxes: "Section B" with a left-pointing arrow and "Section C" with a right-pointing arrow. Text above the string part reads "El. starts [seq. 3]" and "Strings scrape strings near bridge, up and down". The string part shows a series of notes with a sawtooth-like contour, indicating a portamento effect.

EXAMPLE 3.18 shows two structures similar to the intervallic content of D/E/A: E/A/B in measures 38 and 39 and C/F/G in measure 39. The portamento melodic motive built on fourths in measure 40 is also connected to the fourths in the chords of D/E/A, E/A/B and C/F/G.

EXAMPLE 3.18 *Mist on a Hill*, mm. 38–40. Modified Chords and Melodic Motive

The image shows a musical score for Example 3.18. The piano part is on the left, and the string part is on the right. The piano part shows three chords: E, A, B; C, F, G; and E, A, B. The string part shows a melodic motive based on fourths, with a portamento effect. Annotations include "4 strings stopped" and "Scrape strings back and forth, continuously, as a music box, arpeggio-like". A purple oval highlights the melodic motive, and an arrow points to it with the text "Melodic motive based on fourth portamento".

The noise-based sound materials that follow are recognized as effects. Produced by striking the strings with the nail, they are introduced in measures 41 and 42 (EXAMPLE 3.19). The chord E/A/B gains more attention in measures 43, 44 and 45 before it is modified to D/F/A/B in measure 46.

EXAMPLE 3.19 *Mist on a Hill*, mm. 41–46. Noise-Based Sound Materials and Chord Modification

Strike stopped string with nail to create a high pitched noise

Stop string IV and strike with nail to create a low pitched noise

Stop string IV and strike with nail to create a low pitched noise while sliding the right hand finger up to create a noisy "spectral" glissando

E, A, B

arpeggio

Noise-based sound materials

f *mf* *fp* *ppp*

El. stops (at ca 1'10")

4 strings stopped
Scrape strings back and forth, continuously as a music box

E, A, B

D, F, A, B

D, F, A

slow *accelerando* *fast* *rall.* *slow*

ff *p*

Measures 47 to 54 utilize various harmonic and melodic aggregates (EXAMPLE 3.20). Measures 47 to 49 exhibit a variety of chords: E/F/A, D/E/G/A, D/Eb/A and D/E/B. Measures 50 to 52 show the recurrence of musical materials that reinforce coherence: D/E/G/A which is similar to measure 23; the melodic motive D/C#/B that resembles measure 33; and the noise-based material that is reminiscent of measures 41 and 42. Measures 53 to 54 display the recurrence of the noise-based materials of measure 52, as well as the previous harmonic content and motives such as the D, F, A and B, which is a repeated chord from the same pitch collection as seen in EXAMPLE 3.19.

EXAMPLE 3.20 *Mist on a Hill*, mm. 47–54. Harmonic, Melodic and Noise-Based Material

The musical score for Example 3.20 is presented in three systems. The first system (measures 47-50) shows a progression of chords: E, F, A; D, E, G, A; arpeggio D, Eb, A; and D, E, B. The second system (measures 41-42) features a 'Most chromatic gesture in the work' with a 'Noise-based material' section. The third system (measures 46-46) includes 'Noise-based materials' and specific performance instructions: 'Strike stopped string with nail to create a high pitched noise' and 'Stop string IV and strike with nail to create a low pitched noise'. Chord progressions are noted as D, F, A, B; D, Eb, A; and D, F, A, B. The score includes dynamic markings like *sf* and *f*, and performance directions like *gliss.*, *arpeggio*, *(open strings)*, and *étouffé*.

The fast-changing harmonic progression displayed in EXAMPLE 3.21 signifies the instability that contributes to the climax of *Mist on a Hill*. It is a battle between the two low open strings, A and D in the bass clef, and the constantly changing dyads in the treble clef (measures 55 to 57). After a fervid struggle, the pitches A and D win the battle in measures 58 and 59 before being taken over by the tranquil harmonics of Bb, Ab, F and Eb (measure 60). Section C ends with a Bb and G tremolo before the electronics re-enter at the beginning of Section D.

EXAMPLE 3.21 *Mist on a Hill*, mm. 55–61. Harmonic and Melodic Material

Section D begins with the longest solo electronic sequence at 1:40 (EXAMPLE 3.22). As Marc Battier comments, “all the sounds are processed *pipa*, to establish a relationship in timbre, texture, sound behavior between the tape and the *pipa*.”¹³⁸ As does the title, the electronic sounds suggest a misty hill with birds, running water and glissandi that resemble the sound of nature. Slightly before the entrance of the *pipa*, the electronics are joined by the pitches Bb, Db, Eb, F and Ab. After that, the *pipa* improvises by scraping string I between A3 and B5 (measure 62a—first system of measure 62). Before the harmonics Bb, Ab, F and Eb are played in *pipa*, they are foreshadowed by the electronics in the same fashion (measure 62b—second system of measure

¹³⁸ Marc Battier, interview by Hong-Da Chin, September 18, 2016.

62). After the soft harmonics, the pitch of G follows. *Mist on a Hill* ends with an abrupt interjection of the chord D, E, G and A, which reinforces the pervading harmony.

EXAMPLE 3.22 *Mist on a Hill*, m. 62. Harmonic and Melodic Material

The image displays a musical score for Example 3.22, *Mist on a Hill*, measure 62. It consists of two systems of staves. The top system shows the electronic part (El.) starting with a wavy line representing a solo, labeled "El. solo: 1'40". A red box highlights a section of this solo. Below it, the pipa part is shown with a "tacet" instruction and a melodic line starting with a *ppp* dynamic. A red box highlights a section of the pipa melody. Annotations include "Longest electronics passage" and "pipa: improvise on scraping string I up and down, varying dynamics and speed". The bottom system shows the electronic part continuing with a wavy line, labeled "El. stops". A red box highlights a section of this solo. Below it, the pipa part continues with a melodic line, labeled "Seq 4: 2'15\"". A red box highlights a section of this melody. Annotations include "Foreshadown of Bb, Ab, F, Eb in the electronics", "harm.", "mf Eb, F, Ab, Bb", "Pitch collection with a minor second apart", and "D, E, G, A".

3.2.5 Unifying Elements

Mist on a Hill has several important unifying elements: the vertical structure, the grace-note gesture, the melodic gesture and the coloristic effects. In EXAMPLES 3.23 to 3.28, the vertical structures are marked 1 in red boxes, the grace-note gestures are marked 2 in green boxes, the melodic gestures are marked 3 in blue boxes and the coloristic effects are marked 4 in purple boxes.

EXAMPLE 3.23 (measures 1 and 2) shows four vertical structures 1, one melodic gesture 3 and various coloristic effects 4. The first vertical structure consists of two notes (A and E) plucked by two fingers respectively. The second vertical structure consists of four notes

strummed in an upward and downward motion. The third consists of three chords (ADE, CFA and ADE) that are played with coloristic effects—tremolo and glissandi marked with 4 in purple boxes. The melodic gesture in box 3 (AEbD) is intertwined with the coloristic effects of tremolo and two types of glissandi.

EXAMPLE 3.23 *Mist on a Hill*, mm. 1–2. Unifying Elements

The image shows a musical score for two instruments: Pipa and Electronics (El.). The score is divided into two measures. The first measure is marked with a red box and contains a grace-note gesture (marked with a slash and a box containing the number 2) and a series of notes. The second measure is marked with a blue box and contains a melodic gesture (marked with a box containing the number 4) and coloristic effects (marked with boxes containing the number 4). The score includes dynamic markings (pp, mp, f), performance instructions (tacet, comodo), and various musical notations like grace notes and slurs. There are several boxes highlighting specific elements: a red box around the first measure of the Pipa part, a blue box around the second measure of the Pipa part, a red box around the first measure of the Electronics part, and a red box around the second measure of the Pipa part. There are also purple boxes around specific notes in the second measure of the Pipa part.

A grace-note gesture 2 indicates a series of notes that are plucked quickly. The beginning of the gesture is marked with a slash and usually embellishes the longer note that follows it. EXAMPLE 3.24 (measures 3–6) shows three grace-note gestures, two vertical structures which are played as a tremolo and several coloristic effects—harmonics and tremolo.

EXAMPLE 3.24 *Mist on a Hill*, mm. 3–6. Unifying Elements

Wait until El. stops, then start

Larghetto. Do not rush. Leisurely

ca 2" ca 2" ca 2"

Pipa

EXAMPLE 3.25 shows various melodic gestures, coloristic effects and a vertical structure. Measures 10 to 11 and measures 13 to 15 displays two extensive melodic gestures decorated with coloristic effects such as harmonics, tremolo, glissandi, and plucking the string on the bridge and the neck. Measure 12 contains a vertical structure that starts with the dyad C/E and is joined by the note D.

EXAMPLE 3.25 *Mist on a Hill*, mm. 10–15. Unifying Elements

$\text{♩} = 60$

mp

p

cantabile

on the bridge on the neck

EXAMPLE 3.26 is a more extensive display of coloristic effects: “strike stopped string with nail to create a high pitched noise”, “stop string IV and strike with nail to create a low pitched noise,” and “stop string IV and strike with nail to create a low pitched noise while sliding the right

hand finger up to create a noisy “spectral” glissando.” Measure 43 shows a vertical structure with tremolo.

EXAMPLE 3.26 *Mist on a Hill*, mm. 41–43. Unifying Elements

EXAMPLE 3.27, the last system of *Mist on a Hill*, shows various coloristic effects: “improvise on scraping string I up and down, varying dynamics and speed”, harmonics, tremolo, one melodic gesture (Bb, Ab, F, Eb, G) and one vertical structure (A, D, E, G).

EXAMPLE 3.27 *Mist on a Hill*, m. 62b (second system of m. 62). Unifying Elements

3.2.6 Idiomatic Writing

In *Mist on a Hill* Marc Battier honors the traditional idiomacy of the *pipa* both technically and harmonically. The Performance Notes (FIGURE 3.1) were prepared by Gao Yun Xiang, the soloist who premiered the work in Beijing on October 25, 2009. Traditional *pipa* techniques, such as  (“pull the string”),   (“play the four strings together”),  (“tremolo”) and  (“put the nail on the first string, then use another finger to pluck (click) the same string”) are utilized throughout the work. Battier wisely chose the open strings of the *pipa* (A2, D3, E3, and A3) as the harmonic basis for the entire work. Moreover and technically speaking, the open strings will not only allow for maximum resonance, but will also give the performer more flexibility and dexterity.

FIGURE 3.1. Performance Notes for *Mist on a Hill*

 and 	Play the two strings together, the combined technique can make the player play faster / 分 and 折
	Vibrato for left hand / 揉弦
	Pull the string / 拉线
 and 	Play the four strings together, the combined technique can make the player play faster / 扫 and 拂
	Tremolo / 轮指
 and 	Play the Adjacent strings together, the combined technique can make the player play faster / 双弦弹 and 双弦挑
	Artificial harmonic / 人工泛音
	Arpeggio repeatedly / 右手来回反复琶音

FIGURE 3.1. (continued)

𠄎	Put the nail on the first string, then use another finger to pluck (click) the same string / 摘
𠄏	Put the front of the thumb on the fourth string, and then use another finger to pluck (click) the same string. Sounds like woodblock / 木鱼声
𠄐	Rubato / 散板
L	Use the thumb to heavily pluck the fourth string / 提

3.2.7 Electronic Sounds

There are two important components to the electronic sounds in *Mist on a Hill*—the pitch and the effects. The former is comprised of recognizable pitches, while the latter is more ambiguous and consists of clusters and sounds such as bird calls and glissandi. The electronics make four appearances in the piece and are marked as Seq. 1 (0:45), Seq. 2 (0:46), Seq. 3 (1:10) and Seq. 4 (2:30), each progressively longer. EXAMPLES 3.28, 3.29 and 3.30 show the entrance of each sequence, while EXAMPLES 3.31 and 3.32 display a transcription of the electronic sounds paired with the score.

The first appearance of electronics, Seq. 1 happens immediately after the Introduction (EXAMPLE 3.28). The pitches E3, E5, D5 and A#3 are shown in the written score, and the open strings of the *pipa* reinforce this tonality.¹³⁹

¹³⁹ There is an anomaly between the written pitches in the electronics and those heard in the video performance provided by Battier. In the live performance, the electronics often sound a half-step lower. For the purpose of this analysis, the author will adhere to what is in the engraved score.

EXAMPLE 3.28 *Mist on a Hill*, mm. 1b–2. Sequence 1 Excerpt

Start Electronics
Seq. 1

El. *mp*

Pipa *tacet*

pp *f* *mp*

The appearance of the second electronic sounds, Seq. 2, covers a wider range of pitches connected with glissandi which will contain some level of ambiguity (EXAMPLE 3.29).¹⁴⁰

EXAMPLE 3.29 *Mist on a Hill*, mm. 16–21. Sequence 2 Excerpt

El. starts
[seq. 2]

p

f *mp*

f *ff* *p* *sfz*

(II) (II)

¹⁴⁰ Once again, the written electronic sounds in the score are inconsistent with the recording.

The third appearance of the electronic sounds, Seq. 3 (EXAMPLE 3.30), is built on glissandi, an abrupt injection of high-pitched clusters and an effect that resembles the sound of a bamboo wind chime.¹⁴¹

EXAMPLE 3.30 *Mist on a Hill*, mm. 35–40. Sequence 3 Excerpt

El. starts
[seq. 3]

Strings scrape strings near bridge, up and down

4 strings stopped
Scrape strings back and forth, continuously, as a music box, arpeggio-like

portamento

The last appearance of the electronic sounds, Seq. 4, is the longest and is marked as a solo. It contains all the components—pitch, clusters and natural sound effects—and is the only time that the *pipa* stays in the background. The pitch content in the electronics is largely pentatonic and is imitated in the melodic gesture of the *pipa* played as harmonics. Two examples are provided as guides to the pitch content. The first, EXAMPLE 3.31, is a transcription of the actual sounds heard in the electronics in the live performance. The second, EXAMPLE 3.32,

¹⁴¹ Once again, the written electronic sounds in the score are inconsistent with the recording.

shows the corresponding measures of the printed score. The piece concludes with three iterations of the now familiar A, D, E and G chord.

EXAMPLE 3.31 *Mist on a Hill*, m. 62. Transcription of the Electronics in the Recording (duration: 2:30)

Electronics (bird call, wind, etc)

Electronics ambience

high-pitch-cluster

EXAMPLE 3.32 *Mist on a Hill*, m. 62

El. starts [Seq 4]

El. solo: 1'40

pipa: improvise on scraping string I up and down, varying dynamics and speed

pipa: tacet

PPP

f

El. stops

Seq 4: 2'15"

harm.

mf

3.3 Cultural Mapping

In this document, a cultural map is a guide to the recurrence of any techniques associated with playing the instrument in the traditional manner. These are noted in TAI, Western instruments and electronics. The cultural map of *Mist on a Hill* displays any traditional techniques found in the *pipa*, as well as in the electronic sounds. The complete cultural map can be found in Appendix A.

Figure 3.1 showed the Performance Notes for *Mist on a Hill* and described the many traditional techniques which are used throughout the work, predominantly in the *pipa*. In the electronics (Seq. 2 and 3), only three traditional *pipa* techniques are heard: glissandi, artificial harmonics and tremolo (“lun zhi”).

Table 3.2 shows the cultural map from measures 1 to 4 of *Mist on a Hill*. All traditional *pipa* techniques are displayed in the legend and are assigned abbreviations for convenience purposes. For example, the abbreviation for an artificial harmonic is “a” and it appears on the fourth beat of measures 3 and 4. The yellow boxes indicate when the *pipa* is playing, and the green boxes indicate when the electronics are heard.

boxes that display traditional *pipa* techniques are divided by the total boxes of the electronics. There are a total of 90 green boxes and 49 of them have traditional *pipa* effects in the electronics. Therefore, the percentage of the influence of the traditional *pipa* techniques in the electronics is 54.44%. The data shows that Battier purposely synthesizes the cultural and traditional influences of the *pipa* in the electronic sounds in *Mist on a Hill*.

CHAPTER FOUR: KEE YONG CHONG'S *ENDLESS WHISPERING*

4.1 Composer Biography

A native of Malaysia, Kee Yong Chong¹⁴² (b. 1971) is one of the leading composers who represents Malaysia in the world of international contemporary music. According to Chong's website, his music is described by conductor-composer Peter Eötvös as "imaginative and poetic" and "very inventive and artistically pure" by composer Jonathan Harvey.¹⁴³

Chong was born and grew up in Kluang, a small town in Johor, the southernmost state in West Malaysia. The son of farmers who owned a palm oil plantation, Chong received his early musical training at the Malaysian Institute of Arts in Kuala Lumpur, the capital city of Malaysia. He furthered his studies at the Xi'an Conservatory of Music in China under the tutelage of Professors Rao Yuyan and Zhang Dalong. He continued at the Royal Conservatory of Brussels (Flemish and French sections) studying with Professors Jan Van Landeghem and Daniel Capelletti. Chong's musical language was shaped by the sound of nature in Kluang, the richness of the multi-cultural musical landscape in Kuala Lumpur, the abundance of Chinese cultural and musical heritage in Xi'an, and the musically cosmopolitan city of Brussels. The trajectory of his worldwide footprint injected maturity and diversity into his musical style. Traces of Chinese opera and gamelan music can be heard in *Monodrama* (2004) for oboe, ensemble and electronics, and influences of Chinese calligraphy can be found in *I hear the Wind Calling* (2003) for flute, oboe, clarinet, trumpet, trombone, percussion, piano, harp, two violins, viola, cello and double bass.

¹⁴² "Kee Yong" is the first name; "Chong" is the family name. "Yong" is part of the first name and should not to be mistaken as a middle name.

¹⁴³ Kee Yong, Chong, "Kee Yong, Chong." Accessed June 25, 2017. <http://www.chongkeeyong.com/aboutme.html>.

Chong's unique voice has been recognized with a number of awards, commissions and grants. Among them are the Malaysian Philharmonic Orchestra International Composers' Award, the Giga-Hertz-Award from the Institute for Music and Acoustics Karlsruhe, a Serge Koussevitzky Music Foundation commission grant, the Luxembourg International Composition Competition, the Lutoslawski Award and the BMW Award at the International Isang Yun Composition Competition. His works have been performed by musicians Peter Eötvös, Kevin Field, Stephanie Griffin, Wu Wei, Min Xiao-Fen, Tomoko Honda and Nicholas Ong. Ensembles and orchestras such as Ensemble Prometheus, Ensemble Spectra, the Amsterdam Sinfonietta, the Nieuw Ensemble, Ensemble Mosaik, the Malaysian Philharmonic Orchestra, Melbourne Symphony Orchestra, Symfonie Orkest Vlaanderen, Estonian National Symphony Orchestra, Korean Symphony Orchestra and the Spanish National Orchestra have promoted his music. He served as a Visiting Professor at the Shanghai Conservatory of Music in China from June 2016 to January of 2017.¹⁴⁴

4.2 Analysis of *Endless Whispering* / 无尽的私语 (2006) for solo 37-reed soprano *Sheng* (also *Xun*) & 4 Western instruments with live electronics

Endless Whispering, a 2006 commission from the Akademie der Künste, Berlin, is written for a 37-reed soprano *sheng* doubling *xun*, flute/bass flute, oboe, clarinet/bass clarinet, tuba, fixed media and live electronics. The 13-minute work was premiered in the same year by Wu Wei, a Berlin-based Chinese *sheng* player, and the Kammerensemble Neue Musik Berlin.

¹⁴⁴ Ibid.

4.2.1 Formal Structure

TABLE 4.1 shows the formal structure of *Endless Whispering*, which is divided into three sections with several subsections. Section A begins *senza misura* and lasts for about 12 seconds. The first sound is a breathy tone on the *sheng* followed immediately by the multiphonic E/B in the oboe and then B5 in the *sheng*. Section A ends at measure 62 with another *senza misura*, this time 50 seconds long. The *sheng* again is sustaining B5, which serves to connect Section A to Section B. As Section B concludes, the *sheng* plays the dyad B5/C#6 within a 30-second *senza misura*. Before the end of the section, the *sheng* player switches to the *xun* and produces a breathy tone that connects Sections B and C. In the beginning of Section C, the *xun* has an extensive improvisatory solo accompanied by the note B3 on the *Thai gong*, struck by the tuba player, and F#6 on the crystal glass, played by the oboe. The *xun* solo extends into a 30-second *senza misura*, during which time the *xun* player returns to the *sheng*. Before the end of Section C, the *sheng* player switches back to the *xun* and ends with another *senza misura*.

TABLE 4.1. *Endless Whispering*. Formal Structure

Section	A					
	1	2	3	4	5	6
Duration	0:00 – 1:41	1:42 – 2:21	2:22 – 3:03	3:04 – 4:06	4:07 – 4:51	4:52 – 6:23
Length	1:41	0:39	0:41	1:02	0:44	0:31
Measures	1–13	14–24	25–34	35–43	44–51	52–62
Important Pitches (acoustic instruments)	<i>Sheng</i> : B Flute: F# Oboe: B, E Tuba: B	<i>Sheng</i> : B Flute: E Oboe: G#, C# B. cla.: F# Tuba: B	<i>Sheng</i> : B, C, D, F# Flute: E Oboe: C#, G#, B. cla.: F#, Tuba: B	<i>Sheng</i> : D, C# Flute: C# Oboe: B Cla.: C#	<i>Sheng</i> : D, C# Flute: C# Oboe: B Cla.: C#	<i>Sheng</i> : F# Flute: G, F# Oboe: B, F#, G# Cla.: F#, G# Tuba: D
Important Pitches (Fixed media)		E, F# (1:42 – 2:21)	E, F# (ends at 2:53)	D, A (3:46 – 3:52) D (3:56 – 4:04) F# (4:03 and continues)	F# (till 4:32) D (4:06 – 4:08, 4:40 – 4:43, 4:45 – 4:49) D, A (4:12 – 4:15)	D (4:55 – 4:58) F# (5:05 – 5:09) F (5:05 – 5:09); Fixed media solo (5:34 – 6:24) D (5:34 – 5:42); D (5:52, 6:07, 6:18)

B				
7	8	9	10	11
6:24 – 7:32	7:33 – 8:12	8:13 – 8:42	8:43 – 9:28	9:29 – 10:39
1:08	0:39	0:29	0:45	1:10
63–75	76–82	83–88	89–97	98–103
<i>Sheng</i> : B, F#, A#, D#, G#, D Flute: A Oboe: E B. cla.: A Tuba: F#	<i>Sheng</i> : D, C#, F# Flute: F# Oboe: C Cla.: B. F#	<i>Sheng</i> : F#, B, C#, E, G, C, D Flute: F# Oboe: F#, E# Cla.: D, C# Tuba: F#, A#	<i>Sheng</i> : D, A, C, E Flute: D, F#, C# Glass: F# Cla.: C#, F# Tuba: D, F#, B	<i>Sheng</i> : B Flute: B Oboe: A#, F# B. cla.: G# Tuba: B
				F# (10:00 – 10:06)

TABLE 4.1. (Continued)

C		
12	13	14
10:40 – 11:28	11:29 – 12:09	12:10 – 13:10
0:48	0:40	1:00
104–106	107–113	114–119
<i>Xun</i> : C, B Glass: F# B. cla.: D <i>Gong</i> : B	<i>Sheng</i> : G, C, D Flute: C <i>Gong</i> : B	<i>Xun</i> : D, C, B, E, C# Flute: C#, D Glass: F# Cla.: D <i>Gong</i> : B
A (11:05 – 11:13) F# (11:15 – 11:19) A (11:19 – 11:23) F# (11:23 – 11:26)	B (11:25 – 11:48)	

From TABLE 4.1, we arrive at two conclusions. On a large scale, the notes B, D, and F# are the harmonic foundation that underlies the entire work; on a small scale, most of the other notes in the work are either embellishments of the b-minor sonority or a fourth/fifth from those pitches.

4.2.2 Harmonic Material

The harmonic foundation of *Endless Whispering* is built on B, D and F#. EXAMPLE 4.1 shows how the E5/B5 oboe multiphonic initiates a chain reaction that spreads the note B to the *sheng*, tuba and flute, diffusing itself within each instrumental line to create a swelling texture. In measure 2 the B5 in the *sheng* is harmonically thickened by F#5 and B4 before it returns to B5 in measure 3. The tuba begins on a breathy B2, which is gradually transformed into a normal pitch and then to a multiphonic. The process is mirrored and returns to the initial breathy sound.

EXAMPLE 4.1 *Endless Whispering*, mm. 1–4. Harmonic Emphasis

無盡的私語
Endless whispering
for Sheng solo (also Xun) & 4 Western instruments with live electronics
Dedicated to His Wif & Governor of KDM Berlin

鍾啟榮
CHONG Kee Yong (*1971)

ca 12" *Senza misura* **A** *Lamento di lontano* =c.30

Sheng: ca 5" (breath only) *pp* *p* *mf* *ppp*

Flute: Pos. I ca 5" *pp* *mf* *ppp*

Oboe: Pos. I ca 6" *pp*

Bass clarinet (B): Pos. I ca 6" (sounds a major 9th lower) *pp*

Tuba: con. cord. throughout the piece. enters softly *ppp* *pp* *ppp*

Electronics: [For Ob.] R 254 [For Fl. Tuba & Bas:] Cl: H 044 [For Fl.] Dr 044

* sing the indicated diamond shape note with continuously articulate the indicated vowels to obtain a modification of timbre of the singing
** whisper the given phonemes (as english) into the instrument in the rhythm indicated whilst simultaneously playing the pitches and other events as marked.
The playing note will not be maintained throughout the passage, because of the interruption by the whispering text.

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EXAMPLE 4.2 shows the end of Section A, which is strongly supported by the notes D2 on the tuba, F#3 on the clarinet and B4 on the oboe. The note G4 played by the flute serves as a harmonic embellishment. The *sheng* sustains the note B5 into the *senza misura* measure that connects Sections A and B. In EXAMPLE 4.3, the note B5 starts Section B and is sustained from measures 63 to 67 embellished harmonically by other notes. The tuba joins the *sheng* by playing and holding the note F#2 in measures 66 and 67.

EXAMPLE 4.2 *Endless Whispering*, mm. 59–61. Harmonic Emphasis

56

Sheng

(falsetto voice)
wide vibr.
blas.

enter softly *pppp* *dolciss.* *sempre*

follow the audio materials to make improv... [in general: soft, with more air sounds and with melody fragments from far away!]

50"

Senza misura

R

Dy

25%

off

vibr. speed

Fl.

p *ff* *p* *molto* *f* break off suddenly

Ob.

vibr. speed

tone var. *p* *irregularly sempre* *molto* *f* break off suddenly [move slowly to Pos. II]

Cl. (B)

tone var. *p* *irregularly sempre* *molto* *f* break off suddenly change to bass Cl.

Tuba

p *molto* *f* break off suddenly

audio track 3 [1'34"]

Elec.

R

off

EXAMPLE 4.3 *Endless Whispering*, mm. 63–67. Harmonic Emphasis

G Più calmo =c.40

63

Sheng

ord. vibr.

pp *dolciss.* *legatiss. sempre* *pp*

R

pizz +key-click sounds

pp *sempre dolciss.*

Fl.

Pos. II

slap (soft) +key-click sounds

pp *sempre dolciss.*

Ob.

aeolian sounds +key-click sounds

(sounds a major 9th lower)

pp *sempre dolciss.*

Cl. (B)

Tuba

sing (diamond-shape note head) & played
voice gliss.

pp *mp*

Elec.

15

EXAMPLE 4.4 shows the strong presence of the harmonic foundation B, D and F#. From measure 98 to the first two beats of measure 99, the *sheng* sustains B3 decorated by grace notes. From the third beat of measure 99 to the first beat of measure 102, the *sheng* sustains B5, again with grace notes. A sung pitch, an explosive and loud flutter-tongue (“Bao Huashe”) and the trembling/shaking “Duo yin” is added to the texture. Immediate after that, the *sheng* sustains the B5/C#6 dyad until the *senza misura* at measure 103. The bass flute adds B3 to the texture, embellished by different speeds of vibrato, flutter-tongue, multiphonics and the aeolian sound. The tuba sustains B1 with different speeds of vibrato, flutter-tongue, multiphonics and a slap-tongue. From the last eighth note of measure 100 to the *senza misura*, the oboe adds F# 5, also with different vibrato speeds, flutter-tongue, multiphonics and the aeolian sound. The bass clarinet is the only instrument outside of the triadic texture holding G#2 with the usual decorative elements.

EXAMPLE 4.4 *Endless Whispering*, mm. 98–103. Harmonic Emphasis

The musical score for Example 4.4, "Endless Whispering", mm. 98–103, is presented in a multi-staff format. The score is in 4/4 time with a tempo of quarter note = 40. The instruments are Sheng, Bass Flute (Bass fl.), Oboe (Ob.), Bass Clarinet (B. cl. (B)), Tuba, and Electric Bass (Elec.). The Sheng part is marked "rituoso" and includes a "sung (diamond-shape note head) & played" section. The Bass Flute part includes "enter soft ppp sempre" and "cord." markings. The Oboe part includes "c.v." markings. The Bass Clarinet part includes "c.v." markings. The Tuba part includes "enter imperceptibly ppp", "pp sempre dolciss.", "mf", and "ppp sempre" markings. The Electric Bass part includes "R" and "H" markings. The score is annotated with various performance instructions such as "flutt.", "vibrato", "Duo yin", "Bao Huashe", and "Slap". The score is divided into measures 98, 99, 100, 101, and 102, with a "senza misura" section starting at measure 103.

EXAMPLE 4.4 (continued)

The musical score for Example 4.4 (continued) features the following parts and instructions:

- Sheng:** Marked with a box 'K' and a tempo of 103. The instruction is *Sen: a misura*. A red box highlights the first measure. Below the staff, it says "follow the audio material: to make improv." and "lectura".
- Fl. (Bass Cl.):** A red box highlights a passage marked *mf* with a duration of "ca 9''".
- Ob.:** A red box highlights a passage marked *mf* with a duration of "ca 11''". Below the staff, it says "Put down instr:". Another red box highlights a passage marked *mf* with a duration of "ca 13''".
- 1. cl. (B):** A red box highlights a passage marked *mf* with a duration of "ca 13''".
- Tuba:** Marked with a box "Thai gong". The instruction is "hard yam mallet".
- Elec.:** Marked "audio track 4 [?'02']".

An extensive improvisatory *xun* solo begins Section C and is supported with the familiar triadic complement of F#6 on the crystal glass (played by the oboist), D2 on bass clarinet and B3 on *Thai gong* (played by the tuba player) (EXAMPLE 4.5).

EXAMPLE 4.5 *Endless Whispering*, mm. 104–106. Harmonic Emphasis

The musical score for Example 4.5, *Endless Whispering*, mm. 104–106, is presented in a multi-staff format. The parts include Sheng, Fl. (Bass Fl.), Ob., B. cl. (B), Tuba, and Elec. The score is marked with performance instructions such as *Senza misura* and *Tempo rubato*. Red boxes highlight specific performance techniques: circular rubbing of a crystal glass (Ob.), Thai gong playing (Tuba), and multiphonics on the bass clarinet.

The harmonic foundation prevails in the final measures of *Endless Whispering*, where the *sheng* musician plays *xun*, the oboist circles the edge of a crystal glass with fingers, and the tubist strikes a *Thai gong* with a hard yarn mallet (EXAMPLE 4.6). The *sheng*, which often holds the note B, is playing a melody on the *xun* with only several hints of B and D. The oboe and the tuba sustain the notes F#6 and B3 on crystal glass and *Thai gong* respectively. The bass clarinet plays D3, transforming it into multiphonics before returning to D3, and the flute finishes its line with the note D4 with a hint of whistle tones.

EXAMPLE 4.6 *Endless Whispering*, mm. 115–119. Harmonic Emphasis

27

The musical score for Example 4.6, mm. 115–119, is presented in a multi-staff format. The instruments and their parts are as follows:

- Sheng (Xun):** Measures 115–119. Includes markings: *11.5 rubato*, *pp*, *molto espr.*, *return to instr.*, *rit.*, *1/4-tone vibr.*, *mp*, and *Senza misura*. Red boxes highlight specific melodic phrases.
- Flute (Fl.):** Measures 115–119. Includes marking: *100% 'infinitive reverb'*. Red boxes highlight specific notes.
- Oboe (Ob.):** Measures 115–119. Includes marking: *play crystal glass*. Red boxes highlight specific notes.
- Clarinet in B-flat (Cl. (B)):** Measures 115–119. Includes markings: *play toward timpano head. (with pedal glass effect!)*, *M-*, *ord*, *sub.*, *irregularly sempre*, and *pp*. Red boxes highlight specific passages.
- Tuba (Thai-g):** Measures 115–119. Includes marking: *Thai gong*. Red boxes highlight specific notes.
- Electric (Elec.):** Measures 115–119. Includes marking: *off*.

Red boxes are drawn around specific musical passages in the Sheng, Flute, Oboe, Clarinet, and Tuba staves, highlighting the harmonic emphasis mentioned in the text.

Besides the examples mentioned previously, the tuba only plays the timbrally embellished notes B, D and F# throughout the work. EXAMPLES 4.7 and 4.8 illustrate the embellishment of sound by way of flutter-tongue, breathy tones, multiphonics, slap-tongue, and different speed of vibratos. The recurrences of B, D, and F# in the lowest register reinforces the ever-familiar harmonic foundation.

EXAMPLE 4.7 *Endless Whispering*, mm. 51–54. Sustained D in Tuba

Musical score for Tuba, Example 4.7, showing a sustained D note. The score includes dynamics like *sfz ppp*, *sfz*, and *pp*, and performance instructions such as "open slap", "A ord", "det", and "gliss."

EXAMPLE 4.8 *Endless Whispering*, mm. 98–102. Sustained B in Tuba

Musical score for Tuba, Example 4.8, showing a sustained B note. The score includes dynamics like *ppp*, *pp*, *mf*, and *sfz secco*, and performance instructions such as "s.v.", "c.v.", "flutt", "Slap", "put down instr.", and "play Thai gong".

As previously mentioned the harmonic foundation of B, D and F# is sometimes modified by other notes. Table 4.2 gives a digest version of those pitches found in measures 37–41 (EXAMPLE 4.9). The pitches in Box 1 retain the triad with an added C#; D is present in Box 2 with an added G, A and C#; and B, D and F# are included again in Box 3 with an added A and C#. Besides the pitches C# and D, boxes 4 and 5 add G and C respectively. The notes D6 on the *sheng* and C#6 on the flute have served as drones throughout the entire passage.

TABLE 4.2. Pitch Synthesis Based on EXAMPLE 4.9 (mm. 37–41)

Box 1	B, C#, D, F#
Box 2	G, A, C#, D
Box 3	A, B, C#, D, F#
Box 4	G, C#, D
Box 5	C, C#, D

EXAMPLE 4.9 *Endless Whispering*, mm. 37–41. Variations on the Harmonic Foundation

9

The musical score for Example 4.9 consists of six staves: Sheng, Flute (Fl.), Oboe (Ob.), Clarinet in B-flat (Cl. (Bb)), Tuba, and Electric Bass (Elec.). The score is in 4/4 time and begins at measure 37. Measures 37-41 are highlighted with a red box. The Sheng and Flute parts feature complex rhythmic patterns and dynamic markings such as *p*, *pp*, *sempre*, *mp*, and *mf*. The Oboe and Clarinet parts enter softly with "lontano" markings. The Electric Bass part includes an audio track 2 [1'44"] and a rehearsal mark "R".

Another example of embellished triadic harmony is found in the red box of EXAMPLE 4.10. All the pitches of the harmonic foundation are present with the added notes E, G# and C#. The presence of B, D and F# preserves the harmonic cohesiveness, while the three added notes increase the level of dissonance and decorate B, D and F# with more colors.

EXAMPLE 4.10 *Endless Whispering*, mm. 28–32. Embellished Triadic Harmony

Inside the red box in EXAMPLE 4.11, the *sheng* sounds the notes B, D, F# and C#; the overblown flute passage contains the notes A, B, C#, D, E, F# and G; and the clarinet starts with the note B that morphs into a B/F# multiphonic. In EXAMPLE 4.12, the *sheng* sustains the B/D/F# chord in the high register while playing a melody in a pentatonic mode below. The flute, oboe, clarinet and tuba sustain the notes A, E, B and F# respectively.

4.2.3 Unifying Elements

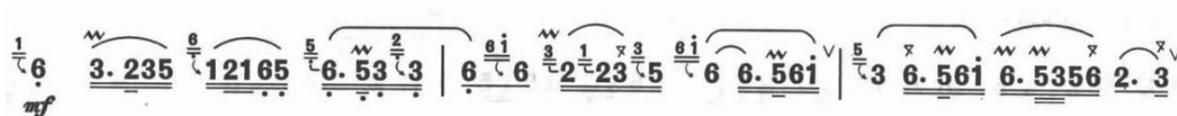
Endless Whispering has several important unifying elements: the coloristic effects, the grace notes, the glissandi and the chain reaction.

Coloristic Effects

Coloristic effects are integral to Chong's compositional language in *Endless Whispering*. The significance of the effects is comparable to what can be seen in the melodic ornamentation found in traditional Chinese music.

EXAMPLE 4.13 is an excerpt from *The New Shepherd Song* for *dizi* (Chinese flute) and EXAMPLE 4.14 is the Western notation of the same excerpt.¹⁴⁵ The tempo of the excerpt is around quarter note equals 50. Notice that the melody contains ornaments such as grace notes, glissandi, mordents, *da yin*¹⁴⁶ and *die yin*,¹⁴⁷ all of which enrich the melody. The ornaments found in the score are suggestions, and most Chinese flutists who are trained to improvise tend to add more. In a similar manner, Chong's music fully reflects the ornamental and improvisatory character of traditional Chinese music.

EXAMPLE 4.13 *The New Shepherd Song* for *dizi*, mm. 4–6. Numerical Notation



¹⁴⁵ Transcribed into Western notation by the author.

¹⁴⁶ *Da yin* is a Chinese flute technique that is similar to a grace note in Classical music. It decorates the main note by adding a quick and aggressive lower neighbor tone with brief and strong air support.

¹⁴⁷ *Die yin* is similar to *da yin*, but in reverse direction.

EXAMPLE 4.14 *The New Shepherd Song* for dizi, mm. 4–6. Western Notation



Numerous coloristic effects are found in the melodies of *Endless Whispering*. The prefatory materials of the work illustrate the many extended techniques that are used throughout (EXAMPLE 4.15), many of which stem from the traditional practices of the TAI.

EXAMPLE 4.15 *Endless Whispering*. Prefatory Materials

Tone deviations: slightly higher or lower intonation, which is a not precisely determined interval, and may reach a maximum of a quarter-tone!



Sheng



= a chromatic cluster within the indicated register



= “Da ying”: striking the notes very rapidly



= blowing the pipe like playing the panpipe



= tremble or shaking the Sheng with two hands.

“Xi Huashe”

= small flower tongue (flutt.)

“Bao Huashe”

= erupt flower tongue. (flutt.)

“Qu-qi”

= create 'sawing wood' sound effect (pronounced “si sou”)

“Duo ying”

= tremble or shaking the Sheng with two hands.

Woodwinds & Tuba:

M



= multiphonic

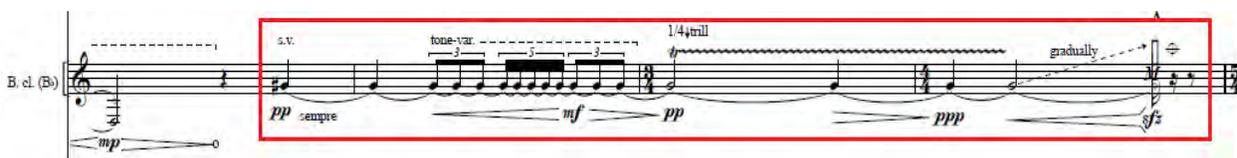
= Multiphonic: Fingering as shown, pressed embouchure

EXAMPLE 4.15 (Continued)

	= flutter tongue
	= aeolian sound
	= tone-color variation, alternating the different fingerings of same pitch to enrich the tone color
	= double trills (Ob.)
	= harmonics trill
	= jet whistle (Fl.)
	= tongue-ram. (Fl.)
	= key-noise with pitch
	= pizz
	= sung (diamond-shape note head) & played
	= double harmonics (Ob.)
	= whistle-tone, this sound can be obtained by blowing onto the mouthpiece, turning the mouthpiece well away from the lips. ("very open") it producing a "sweep" of the sound spectrum on a single note. As the notes produced follow the series of natural harmonics, it also called the "jews harp effect" (for Fl.)
emb. gliss.	= glissando by changing the embouchure

Examples of drones embellished by coloristic effects are seen consistently. EXAMPLE 4.16 shows a written G# that is decorated by *senza vibrato*, rhythmic *accelerando* and *ritardando*, tone-variations, a micro-tonal trill and multiphonics.

EXAMPLE 4.16 *Endless Whispering*, mm. 94–97. Drones with Coloristic Effects



The musical score for B. cl. (B) shows a drone passage with various coloristic effects. The score includes dynamics (pp, mp, pp, ppp, sfz), articulation (senza vibrato), and performance instructions (tone-var., 1/4 trill, gradually). A red box highlights the main drone passage.

EXAMPLE 4.17 shows how coloristic effects are applied simultaneously in multiple instrumental lines. In measure 14, the *sheng* starts softly with an upward glissando from a non-defined pitch in the style of a pan-flute. After a brief crescendo, the glissando gesture leads to a series of accented and short attacks that are tongued quickly and slow down as the dynamics get

softer. Measure 15 is a series of short attacks at *sffz* in the style of *Bao Huashe* (loud and aggressive flutter-tongue) that soften very quickly. The *Bao Huashe* gradually transforms into a sustained tone cluster at *pp* without flutter tongue in measure 16. The pitch B5 without vibrato finally surfaces after the adventurous coloristic journey. The static B5 is later decorated by irregular vibrato on the *sheng* and the player simultaneously adds a glissando that starts on B4.

Many of the previously mentioned effects on the *sheng* are echoed in the rest of the ensemble. In measure 15, the flute line starts softly with a flutter-tongued E6 bending upward to a slightly sharp F6 without flutter-tongue before bending downward to E6 on the last eighth note of measure 16 with a quarter-tone trill. In measure 14, the oboe also begins softly on G#5 and is quickly transformed into an explosive and loud multiphonic before returning to a sustained G#5 in measure 15. This is followed by a passage on a flutter-tongued C#6 on the last beat of measure 15 that arrives on a non-flutter-tongued and slightly sharp D5 on the third beat of measure 16. The slightly sharp D5 then returns to C#6 in measure 17. In measure 15, the clarinet also begins quietly on a sounding F#3. The note gets louder and experiences a series of ad libitum sweeping gestures on natural harmonics along with irregular crescendos and decrescendos. This is followed by a flutter-tongue on F#5 on the upbeat of the second beat of measure 16 that slides upward and downward on a quarter-tone trill similar to that of the flute. In measure 14, the tuba begins on a soft and breathy B2 that slowly transforms into an ordinary B2 which finds its destination in an *sffz* multiphonic on the first beat of measure 15. The tuba continues on the B2 with the addition of various extended techniques such as breathy tones, flutter-tongue and glissandi. The dynamic envelope with waves of crescendos and decrescendos in the clarinet and tuba is generally the same as those of the *sheng*, flute and oboe.

EXAMPLE 4.18 *Endless Whispering*, mm. 1–3. Grace-note Ornamentation on the *Sheng*

EXAMPLE 4.19 *Endless Whispering*, mm. 79–80. Grace-note Ornamentation on the Oboe

EXAMPLE 4.20 displays the bass flute's utilization of grace notes before and after a sustained note. In measure 94, the grace note B precedes the main note F# followed by a grace note G approached through a glissando. In measure 95, the grace note C natural harmonic follows the main note C# harmonic through a glissando. The F# aeolian sound on the first beat of measure 96 is preceded by a grace note of indefinite pitch. In measure 97, the trilled F# is preceded by a grace note on the same pitch.

EXAMPLE 4.20 *Endless Whispering*, mm. 94–97. Grace-note Ornamentation on the Flute

Glissandi and Chain Reaction

In *Endless Whispering* glissandi are often paired with chain reaction textures. Wide and slow glissandi are used often, and chain reaction textures maintain the continuous flow by way of

a series of overlapping instrumental lines with crescendos and diminuendos. One of the best illustrations of this can be found in EXAMPLE 4.21, where we see two waves of chain reaction. The first wave starts in the flute and this triggers the glissando and crescendo gesture consecutively from oboe to clarinet lines as marked [1a], [1b] and [1c]. Instead of a crescendo, the tuba starts with a sforzando followed by a decrescendo to niente. The second wave of chain reaction begins in the *sheng*. The crescendo in the *sheng* ends with an abrupt attack and triggers a series of similar attacks from flute to tuba, marked as [2a], [2b], [2c], [2d], and [2e].

EXAMPLE 4.21 *Endless Whispering*, mm. 42–46. Chain Reaction Texture

EXAMPLE 4.22 shows the boxed instrumental lines in another chain reaction texture. In measure 15, the flute glissando triggers a similar effect in the oboe, bass clarinet, tuba and eventually to the vocal part rendered by the *sheng* player.

EXAMPLE 4.22 *Endless Whispering*, mm. 13–17. Chain Reaction Texture

The musical score for Example 4.22, *Endless Whispering*, measures 13–17, illustrates a chain reaction texture. The score is written for Sheng, Flute (Fl.), Oboe (Ob.), B. cl. (B.), Tuba, and Elec. The Sheng part is marked **B Intenso =c.60** and includes the instruction "Pan-flute playing". The Flute part features a section labeled "Bao Huazhe". The score is annotated with various dynamic markings (e.g., *sfz*, *p*, *f*, *pp*, *mp*) and performance directions such as "return to instr.", "without instr.", "dense vibr.", "non flutt.", "slow gliss.", and "1/4 trill". A red vertical line is drawn through the score, and several red boxes highlight specific musical phrases in the Sheng, Flute, Oboe, and Tuba parts.

4.2.4 Electronics

In *Endless Whispering* there are two components to the electronics: fixed media and interactive effects. Chong edited and mixed the 3rd tape part with Pro Tools, and Mr. Andre Bartetzki from the electronic studio of the Akademie der Künste created the live electronic effects (reverberation, distortion, delay and harmonizer) with Supercollider.¹⁴⁸

¹⁴⁸ Kee Yong Chong, "Endless Whispering." Prefatory Materials.

Fixed Media

Fixed media is heard four times in the work: audio track 1 (measures 14 to 32, 1:13), audio track 2 (measures 38 to 55, 1:44), audio track 3 (measures 62 to 72, 1:34) and audio track 4 (measures 103 to 105, 2:02). According to Chong, the fixed media consists of samples from the *sheng*, *xun*, human voices, sounds of the instruments of the ensemble and nature sounds such as wind and echoes.¹⁴⁹ Table 4.3 gives the author's observation of pre-recorded samples and sample sources.

Table 4.3. Contents of the Tape Part of *Endless Whispering*¹⁵⁰

Audio track 1:	piano (E, F#), <i>xun</i> , metallic percussion, yodeling (D), Tibetan singing (A), gong, electric guitar (Eb, Ab)
Audio track 2:	adults and children whispering, male silent howling, <i>sheng</i> (or high register sine wave), gong
Audio track 3:	<i>xun</i> (key clicks, breathy tone and ordinary sound), soft breathing, <i>sheng</i> (E and F#), wind sound
Audio track 4:	<i>sheng</i> (starts with F# and ends with B), <i>sitar</i> , cello (col legno), ambient noise of children, piano interior effects (string striking and harmonics)

Live Electronics

The use of live electronics in *Endless Whispering* is faithful to Chong's musical language. For the most part, the acoustical sound and the electronic sounds are indistinguishable creating a seamless synthesis of the two mediums. There are four electronic effects that are used: reverberation, delay, distortion and harmonizer. Reverberation creates a continuous ambience that is integral to the flowing texture; delay is used to echo and emphasize certain musical outbursts; distortion transforms the *sheng*; the harmonizer is used with all acoustic instruments

¹⁴⁹ Kee Yong Chong, interview by Hong-Da Chin, July 6, 2016.

¹⁵⁰ The content of the tape part of *Endless Whispering* is based on Chong's answer. However, Table 4.2. shows the author's observation of the samples based on listening to the tape part. The author's observation contains processed samples that sound significantly different from the original samples.

except the *sheng* and fills out the already enriched melodic lines. Although the interactive electronic effects are present at most places in the work, they stand out at certain points in order to emphasize particular musical gestures.

Reverberation serves as an effect permeating the space with the prolongation of sound. The effect of reverberation with different percentages is present throughout the entire work. The percentage of reverberation changes according to the textural thickness, the dynamic level and the presence of the tape part. For instance, when the *sheng* is the only instrument playing, the percentage of the reverberation is higher; when the tape part is playing, there would be very little or no reverberation at all for wind instruments. EXAMPLE 4.23 shows the beginning of *Endless Whispering* with the reverberation at 25% for the *sheng* and 75% for the oboe. On many occasions, the same setting of reverberation is applied to all wind instruments simultaneously. EXAMPLE 4.24 displays the percentage change of the reverberation for key clicks and murmurs for flute, oboe, clarinet and tuba.

The electronic effect of delay creates a rippling effect to highlight certain gestures or effects found in the acoustic instruments. EXAMPLE 4.25 shows the use of delay on the *sheng* and the oboe. The delay on the *sheng* highlights the falsetto voice, abrupt clusters and murmurs, while the delay on the oboe highlights the aeolian sound.

EXAMPLE 4.25 *Endless Whispering*, mm. 107–110. Delay in the *Sheng* and the Oboe

25

-Edition Studio C 2016_EW_pg25-

Distortion is only used on the *sheng*. In EXAMPLE 4.26, it emphasizes the explosive *Bao Huashe*, adding more tension to an already aggressive sound.

EXAMPLE 4.26 *Endless Whispering*, mm. 82–85. Distortion in the *Sheng*

19

Sheng
 Fl.
 (Bass Fl.)
 Ob.
 Cl. (B)
 Tuba
 Elec.

[For Ob. Cl. & Tuba] R 0% 75% 25%

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The harmonizer and reverberation are displayed in EXAMPLE 4.27. Similar to delay, the harmonizer is used simultaneously for the wind instruments, adding more notes to the flute, oboe, clarinet and tuba. The effect starts at 0% and is increased to 75% before it returns to 0%.

EXAMPLE 4.27 *Endless Whispering*, mm. 28–32. Harmonizer and Reverberation

The musical score for Example 4.27, *Endless Whispering*, measures 28–32, is presented for a Western orchestra with a Sheng. The instruments are Sheng, Flute (Pos II), Oboe, Bassoon/Clarinet (B), Tuba, and Electric Percussion. The score includes various performance instructions such as "non flutt.", "string. e intenso", "slow gliss.", "f", "pp", "mf", "mp", "ff", "Shh.", "Dy", "extremely overblow!", "dense vibr.", "murmuring like incantation (whisper-like)", "sweeping ad lib. nat. harm.", "rattle the fingers on the keys (with different accents)", "slap (soft)", and "very fast clap, ad lib in the lowest register". A red box highlights a control bar at the bottom with settings for "H 0%" and "R 50%".

4.3 Cultural Mapping

The cultural map of *Endless Whispering* shows how the timbre, harmony and traditional techniques of the *sheng* and *xun* are incorporated into the Western instruments and the fixed media. The cultural map was created in an Excel spreadsheet and each box in the map is associated with a specific measure number and a specific instrument or fixed media from the musical score. To a certain extent, the cultural map is a graphic version of the score which highlights cultural influences. The complete cultural map of *Endless Whispering* can be found in Appendix B.

Table 4.4 shows the legends of the cultural map of *Endless Whispering*. All instrumentalists are doubling one other instrument and each instrument is marked with different

color codes. The *sheng* and *xun* timbres are abbreviated as “Sh” and “X.” The sound of the *sheng* can be traced by way of the harmonics produced by the acoustic instruments and the *sheng* samples on the fixed media; the *xun* samples can only be found in the fixed media. According to Wu Wei, the dedicatee of *Endless Whispering*, the traditional *sheng* chords are constituted by fourths and fifths (EXAMPLE 4.28). The traditional *sheng* chords heard in the acoustic instruments and the fixed media are marked with “C” or “C (with another instrument).” When a box of the flute row in the cultural map is marked with “C,” it means one or more traditional *sheng* chords, harmonically and/or melodically, can be heard. When a box of the flute row is marked with “C (with b. cla.),” it means the flute and the bass clarinet together harmonically produce one or more traditional *sheng* chords. The identified traditional *sheng* techniques are the flutter-tongue, glissando, *Duo qi*, *Dou ying*, *Da ying* and *Qu-qi*. They are abbreviated as “F”, “G”, “Du”, “Do”, “Da” and “Q”. *Xi Huashe* and *Bao Huashe* are both identified as flutter-tongue in the cultural map. There are four interactive electronic effects: reverb, distortion, delay and harmonizer. They are abbreviated as “R”, “D”, “Dy” and “H.”

Table 4.4. Legend of *Endless Whispering*

Sheng		Xun
Flute		Bass Flute
Oboe		Crystal Glass
Bass Clarinet		Clarinet
Tuba		Thai Gong
Fixed Media		

Table 4.4. (continued)

Timbre of *sheng* and *xun* as found in acoustic instruments and fixed media

Sh	<i>Sheng</i> sound/Harmonics
X	<i>Xun</i> sound

Traditional *sheng* chords

C	Traditional chords	C (with flt.)	Any instrument on this line constitutes a fourth or a fifth with the flute
---	--------------------	---------------	--

Traditional *sheng* techniques

F	Flutter-tongue	Du	Duo qi	Da	Da ying
G	Glissando	Do	Dou ying	Q	Qu-qi

Electronic effects

R	Reverb	Dy	Delay
D	Distortion	H	Harmonizer

EXAMPLE 4.28 Traditional *Sheng* Chords¹⁵¹

Traditional Chords
传统和音

traditional sheng chords

Wubaduhesheng-melody in bottom line

□ 五四度和音

traditional sheng chords

C: melody in bottom line

□ 五度和音

¹⁵¹ Wei, wu. 37's *discant sheng*.[http://www.atlasensemble.nl/assets/files/instruments/Sheng/37%60s%20discant%20Sheng%20by%20Wu%20Wei.p
df](http://www.atlasensemble.nl/assets/files/instruments/Sheng/37%60s%20discant%20Sheng%20by%20Wu%20Wei.pdf)

The second measure is marked with “2 (A)” and indicates the measure number and the rehearsal letter found in the score. The *sheng* continues to play in the second measure, and the abbreviations “R”, “G/R”, “C/R/D” and “C/F/R/D” are present on the respective four beats. In other words, “glissando” is present on the second beat; “flutter-tongue” is present on the fourth beat; traditional *sheng* chords and “distortion” are present on beats three and four; and “reverb” is applied on all beats. The tuba begins on the fourth beat of measure two with “harmonizer.”

EXAMPLE 4.29 *Endless Whispering*, mm. 1–4. Cultural Map and Score

Measure Numbers		2 (A)			
Duration/Beat		senza misura (12")			
		1	2	3	4
Sheng	Xun	R	G/R	C/R/D	C/F/R/D
Flute	Bass Flute				
Oboe	Crystal Glass	C/Sh/R	C/Sh/R		
Bass Clarinet	Clarinet				
Tuba	Thai Gong				H
Fixed media					

無盡的
Endless wh
for Sheng solo (also Xun) & 4 Western
Dedicated to Wu Wei &

ca 12" **A** *Lamento di lontano* =c.30

Senza misura

Sheng
ca 5" (breath only) ca 7" ord. v.v. ord. vibr.
blow air at a distance *ppp* *p* *sfz*
[R] 25% → continue [D]

Flute
Pos. I

Oboe
Pos. I ca 6" *ppp* [play]

Bass clarinet (B♭)
Pos. I
(sounds a major 9th lower)

Tuba
con sord. throughout the piece. (breath only) *ppp*
enter softly

Electronics
[For Ob.] [R] 75% [For Fl, Tuba & Bass Cl.] [H] 0% off

EXAMPLE 4.30 shows measures 28 and 29 of the cultural map and the score. Among other abbreviations, on beats two, three and four of measure 28 and beats one and two of measure 29, the bass clarinet and the tuba are marked “C (with tuba)” and “C (with bass clarinet),” which means the bass clarinet and the tuba produce either a fourth and/or a fifth together. On the four beats of measure 28 and first two beats of measure 29, the fixed media is marked with “X” because the *xun* samples are heard in the fixed media.

EXAMPLE 4.30 *Endless Whispering*, mm. 28–29. Cultural Map and Score

28				29			
1	2	3	4	1	2	3	4
R	R	R	R	R	F/R/D	F/R/D	F/R/D
		F/G/H	F/G/H	F/G/H	G/H	G/H	G/C (with tuba)/H
			F/G/H	F/G/H	F/G/H	G/H	G/H
	C (with tuba)	C (with tuba)/H	C (with tuba)/H	C (with tuba)/H	F/G/C (with tuba)/H	F/G/H	G/H
	C (with b. cla.)	C (with b. cla. and flt.)/C (with b. cla.)/H	C (with b. cla.)/H	C (with b. cla.)/H	C (with b. cla.)/H	H	H
X	X	X	X	X	X		

Sheng

Fl. Pos. II

Ob.

B. cl. (B.)

Tuba

Elec.

[For Fl. Ob. Cl. & Tuba] H 088

EXAMPLE 4.31 shows the cultural map and the score of measures 44 and 45. The “C (sung)” and “G (sung)” marked on the fourth and fifth beats of measure 44 and continuing into the next measure indicates that the *sheng* player sings while bending the note G to D, as seen in the score. The bass clarinet column is in blue in EXAMPLE 4.30 and in EXAMPLE 4.31 the column is in light green, which indicates the bass clarinetist has switched to the clarinet. The *sheng* samples are present in the fixed media (yellow boxes) throughout measures 44 and 45. In addition a glissando is present on the last beat of measure 45.

EXAMPLE 4.31 *Endless Whispering*, mm. 44–45. Cultural Map and Score

44 (5/4) (E)					45			
1	2	3	4	5	1	2	3	4
R	R	R	C (sung)/G(sung)/R/D	C (sung)/G(sung)/R/D	C (sung)/G(sung)/R/D	C (sung)/G(sung)/R/D	R/D	R/D
R/H								Sh/R
C/R/H	C/R/H							
C	C/R/H	C/R/H	C/R/H					
		G/R/H	G/R/H					
Sh	Sh	Sh	Sh	Sh	Sh	Sh	Sh	Sh/G

The musical score for measures 44 and 45 of *Endless Whispering* is presented in 5/4 time with a key signature of one flat (E-flat). The score includes five staves: a vocal line (sheng), a woodwind line (clarinet/bass clarinet), a piano line, a bass line, and a percussion line. The vocal line features a diamond-shaped note head for a sung note and a glissando on the final beat of measure 45. Performance instructions include 'dolciss.', 'mf', 'ppp sempre', 'off', 'r/ embouchure)', 'loutano', 'enter softly ppp sempre', 'molto', 'sub. ff', and 'molto'.

EXAMPLE 4.32 shows measures 86 and 87 of the cultural map and the score. All abbreviations have been seen at this point except the “Q” on beats two and three of the *sheng*. According to the performance notes of *Endless Whispering*, “Q” stands for the *Qu-qi* technique which creates a “sawing wood” effect as the *sheng* player pronounces the syllables “si sou.” On the fourth beat of measure 86, with the bass flute on F#, the oboe on C# and the clarinet on F#, a traditional *sheng* chord is created. Likewise on the third beat of measure 87, the bass flute and clarinet create a traditional *sheng* chord.

EXAMPLE 4.32 *Endless Whispering*, mm. 86–87. Cultural Map and Score

86				87 (3/4)		
1	2	3	4	1	2	3
C/R	C/R	G/R	R	C/R	F/Q/C/R	F/Q/C/R
		R	C (with ob.)/R	R	G/Sh/R	G/C (with cla.)/R
			C (with b. flt. and tuba)/R	G/R	G/R	F/R
G/R	G/R	G/R	G/R	F/R	R	C (with b. flt.)/R
R	R	R	C (with ob.)/R	G/R	G/R	G/R

EXAMPLE 4.33 shows that the *sheng* player, oboist and tubist have switched to *xun*, crystal glass and *Thai gong*. From the third beat of measure 104 to the last beat of measure 105, the crystal glass and the *Thai gong* create a compound perfect fifth.

EXAMPLE 4.33 *Endless Whispering*, mm. 104–105. Cultural Map and Score

104				105				
1	2	3	4	1	2	3	4	5
R	R	R	R	R	G/R	R	R	R
		Sh/C (with thai g.)						
		C (with cry. gla.)						

According to the cultural map of *Endless Whispering*, the effects of traditional *sheng* and *xun* can be found throughout the work. In analyzing how often the traditional techniques are heard, the percentage can be calculated. The boxes with *sheng* and *xun* effects are divided by the total boxes of an instrument. For example, in the flute/bass flute part, there are 309 highlighted boxes and 166 of them contain of either *sheng* or *xun* timbre, traditional *sheng* chords and/or traditional *sheng* techniques. Therefore, after dividing 166 by 309, we arrive at the percentage of

the traditional *sheng* and *xun* influence in the flute/bass flute as 53.72%. The mathematical operation as applied to every instrument and fixed media show results as follows: oboe/crystal glass = 19.03%; bass clarinet/clarinet = 47.56%; tuba/*Thai gong* = 41.72%; and fixed media = 54.79%. In total, 43.90% of all boxes (except the *sheng* and *xun* boxes) show influences of the *sheng* and *xun*. The data proves that Chong purposely synthesizes the cultural and traditional influences of the *sheng* and *xun* into the acoustic instruments and the fixed media of *Endless Whispering*.

CHAPTER FIVE: GENE COLEMAN'S *SPIRAL NETWORK***5.1 Composer Biography**

Gene Coleman is an American composer, musician and director, who was a 2014 Guggenheim Fellow and a recipient of the 2013 Berlin Prize for Music. His research interest is extensive. He was a student of painting, music and filmmaking at the School of the Art Institute of Chicago, where he worked with experimental film artists Stan Brakhage and Ernie Gehr, sound artist Robert Snyder and painter Barbara Rossi.

Among his honors are residencies at the American Academy in Berlin (2013), American Academy in Rome (2011), Shofuso Japanese House (Philadelphia, 2009), Foundation Kunst Raum Sylt Quelle (Germany, 2008), Westwerk (Hamburg, 2007), Taipei Artists Village (2007) and the University of Lübeck (Germany, February 2005). In 2001 he lived in Japan for eight months having been awarded the fellowship of the NEA/Japan-US Friendship Commission. His many grants include those from the National Endowment for the Arts, the American Composers Forum, Meet the Composer and the Japan Foundation. As a performer and improviser, he has collaborated with Evan Parker, Derek Bailey, Roscoe Mitchell, William Parker, Taku Sugimoto, Kevin Drumm and Yuji Takahashi. His works are found on the Okka Disc label with Jim O'Rourke and Mats Gustaffson and on the Hat Art label with music by Anthony Braxton and Guillermo Gregorio. His CD *The Adventures of Nabil Fawzi* with Lebanese musician Raed Yassin received rave reviews in the British magazine *The Wire*.¹⁵²

Coleman is an accomplished curator and artistic director of new music programs and festivals. In 2003 and 2004 he was the artistic director and guest composer for *Transonic*, a festival that addressed the issues of interaction between globalization and new music at the Haus

¹⁵² "Gene Coleman." Accessed June 25, 2015. <http://genecolemancomposer.com/>.

der Kulturen der Welt Berlin. He is currently serving as artistic director of *Ensemble Noamnesia*, a new music ensemble he founded in 1987, and of *Soundfield*, a producing and presenting organization. In 2001 Coleman established *Ensemble N_JP*, an innovative group of musicians from the Tokyo experimental and traditional music scenes.¹⁵³

5.2 Analysis of *Spiral Network* for 2 voices, video, ensemble and electronics

Gene Coleman's *Spiral Network* is written for 2 voices (male and that of the *koto* player), video, ensemble (*sho*, *koto*, bass clarinet, electric guitar, cello) and electronics.¹⁵⁴ The piece received its premiere at the 2013 *MaerzMusik Festival* in Berlin. Inspired by geometry and architecture, its major catalyst is the work of R. Buckminster Fuller as found in his lecture series *Everything I Know* and *World Game*, and it is these that shape the structure of *Spiral Network*.¹⁵⁵ *Everything I Know* suggests a vast vortex of thoughts, which unfolds in many ways (e.g., bowing and scraping the strings in the motion of a Fibonacci spiral, polygon or circle). The concept *World Game* is a foundation "for cellular growth and multiplication of visual and auditory material and forms" and a concern for "global communication and cooperation."¹⁵⁶ The use of Japanese traditional instruments, Western instruments, electronics and video embodies this concept, the mixture of which Coleman calls a "soundfield."¹⁵⁸ The sounds and images from Japan, buildings in particular, predominate the video. In *Spiral Network* Coleman sees the connection between Fuller's designs and Japanese architecture of the 1960s and 70s.¹⁵⁹ *Spiral Network* explores Coleman's long interest in geometry and the work of 19th-century architect

¹⁵³ Ibid.

¹⁵⁴ The score of *spiral Network* is transposed (bass clarinet sounding a major 9th below the written notes and *sho* an octave higher).

¹⁵⁵ "Spiral Network (clip #1)." Accessed June 25, 2015. <https://vimeo.com/66572391>.

¹⁵⁶ Ibid.

¹⁵⁸ Ibid.

¹⁵⁹ Ibid.

Benjamin Betts, who believed that “geometry could help describe the nature of human consciousness.”¹⁶⁰ The work also consists of the composer’s vortex drawings, as well as his Japanese and English texts. John Cage’s poetry as found in his book *M* influenced the visual style of the text; the cinematography of the video was conceived by Nick Lerman.¹⁶¹

5.2.1 Formal Structure

TABLE 5.1 shows the formal structure of *Spiral Network* as determined by the Fibonacci sequence, wherein every number is the sum of the previous two numbers:

$$1 + 1 + 2 + 3 + 5 + 8 + 13 + 21 + 34 + 55 + 89 + 144 \dots$$

Section A is comprised of three divisions, A1, A2 and A3, with eight, three and two subsections respectively. Section B consists of three subsections; and Section C has eight. All of the subsections are marked in the score in Roman numerals and each of them is or is very close to 55 seconds long with the exception of subsection III of Section B, which is 34 seconds long. All of the numbers—2, 3, 8, 34, 55—belong to the Fibonacci Sequence.

¹⁶⁰ Ibid.

¹⁶¹ Ibid.

TABLE 5.1 *Spiral Network*. Formal Structure

A1 (7:20)								
Subsection	I	II	III	IV	V	VI	VII	VIII
Duration	0:00 – 0:55	0:55 – 1:50	1:50 – 2:45	2:45 – 3:40	3:40 – 4:35	4:35 – ca. 5:30	5:30 – 6:25	6:25 – 7:20
Length	0:55	0:55	0:55	0:55	0:55	ca. 0:55	0:55	0:55
Measures	1–11	12–22	23–33	34–41	42–54	55–61	62–70	71–79
Important Events	Starts with electronics; harmony: tritone, fifth; coloristic effects: scraping, Fibonacci spiral scrape, air slap, etc; no voice	Previous activities continuing; first entrance of voice	Increased rhythmic activities; more texts for voice; Fibonacci spiral scrape and bowing on <i>koto</i> , electric guitar and cello respectively	<i>Sho</i> is prominent; the ensemble serves as background	Quiet overall; <i>koto</i> is prominent with polygonal spiral scrape	All instruments are active especially bass clarinet, cello, electric guitar and fixed media	Bass clarinet, cello, electric guitar and fixed media are active; quieter than Section VI in general	Rather homophonic followed by soft passage, and then followed by a brief pause

A2 (2:45)			A3 (1:50)	
IX	X	XI	XII	XIII
7:20 – ca. 8:15	8:15 – 9:10	9:10 – 10:05	10:05 – 11:00	11:00 – 11:55
0:55	0:55	0:55	0:55	0:55
80–88	89–96	97–104	105–108	109–111
Predictable and stable rhythmic pattern on <i>koto</i> and voice	Predictable and stable rhythmic pattern prevails with both improvisatory voices as the foreground	Predictable and stable rhythm pattern; the <i>koto</i> and the voice of the <i>koto</i> player become prominent	Both voices and fixed media are prominent, followed by solo electric guitar	Cello solo followed by bass clarinet solo; brief ensemble outburst; ends with sustained notes and glissandi in electronics; <i>koto</i> solo followed by ensemble outburst

B (2:24)		
I	II	III
11:55 – 12:50	12:50 – 13:45	13:45 – 14:19
0:55	0:55	0:34
115	116	117
Slow and wide glissandi of low frequencies between 55 Hz and 89 Hz	Low frequencies alternate between 55 Hz and 89 Hz without glissandi	Slow and wide glissandi of low frequencies between 55 Hz and 89 Hz

TABLE 5.1 (continued)

C (7:19)							
I	II	III	IV	V	VI	VII	VIII
14:19 – 15:13	15:13 – 16:08	16:08 – 17:03	17:03 – 17:58	17:58 – 18:53	18:53 – 19:48	19:48 – 20:43	20:43 – 21:38
0:55	0:55	0:55	0:55	0:55	0:55	0:55	0:55
118–125	126–136	137–144	145–149	150–155	156–161	162–164	165–169
Quiet; thick texture; <i>Sho</i> : A, E, B, F# <i>Koto</i> : rattling on F	Electronics: sine tone; Electric guitar: soloistic reflection on <i>sho</i> 's chord	<i>Sho</i> dominates	Electronics: sine tone; Voice dominates	<i>Sho</i> : sustaining chords	The voice dominates with background ensemble	<i>Sho</i> sustaining chords with tremolo in electronics	<i>Sho</i> sustaining chords with some ensemble background; Electronics ends the work

5.2.2 Harmonic Structure

Coleman's harmonic language can be characterized by the level of dissonance. Section A (divisions A1, A2 and A3) lasts for about 11 minutes and 55 seconds and is inundated with dissonant intervals, mostly tritones; Section B (2 minutes and 24 seconds) is less dissonant and is dominated by low frequencies in the electronics, specifically 55 Hz and 89 Hz as well as every frequency contained therein; Section C (7 minutes and 19 seconds) is supported by relatively consonant intervals. Selected excerpts from Sections A, B and C will be discussed in terms of dyads, chords and melody.

Tritones and fourths/fifths dominate Section A of *Spiral Network*. The tritones and the fourths/fifths are found in red and green boxes respectively (EXAMPLES 5.1, 5.2 and 5.3). In EXAMPLE 5.1, the tritones in the *koto* and *sho* are the most powerful because of the high dynamic range. In measure 2 the last two notes of the *koto* (C/Gb) are loud and powerful, while the F#/C in the *sho* is more quietly sustained. The tritones in other instruments are highly embellished by coloristic effects that place more emphasis on the effects rather than the pitch. In the first two beats of measure 2, the tritones in the cello are played as tremolos and bowed in a circular motion. In measure 4, the tritones in the electric guitar are performed as descending

glissandi from Eb/A to A/Eb while being scraped in a circular motion. The consonant quality of the fourths/fifths contrasts with the dissonant quality of the tritones. The green boxes in measures 2 and 4 display fifths that are played by the electric guitar and cello.

EXAMPLE 5.1 *Spiral Network*, mm. 1–4. Tritones and Fifths

The image shows a musical score for the piece "Spiral Network" by Gene Coleman, measures 1 through 4. The score is written for a large ensemble, including Soprano (S), Koto (K), Violin (V), Bass Clarinet (BC), Electric Guitar (EG), Violoncello (Vc), and Electronics (E). The time signature is 5/4, and the tempo is marked as quarter note = 40. The score is annotated with various performance instructions such as "flash", "scrape", "air", "osc.", "gliss.", and "gloss.". Red boxes highlight tritone intervals in measures 1, 2, 3, and 4. Green boxes highlight fifth intervals in measures 2 and 4. A circled "1" is in the bottom left corner. The score is titled "Spiral Network" and "© 2013 Gene Coleman".

More emphasis is put on tritones in EXAMPLE 5.2. In measure 5, the electric guitar has a double stop circular glissando from A/Eb to F#/C. In measure 6, the tritone Eb/A is played on the cello, *koto* and *sho*. In measure 7, the bass clarinet and electronics sound Bb, while the electric guitar sounds an E. The fact that both pairs of tritones are sustained increases their audibility and importance. In measures 8 and 9, however, fourths/fifths presented by the *koto*, electric guitar and cello provide a contrast to the previously mentioned tritones.

EXAMPLE 5.3 *Spiral Network*, mm. 55–61. Tritones and Fifths

The image shows a musical score for measures 55 through 61 of the piece "Spiral Network". The score is written for seven instruments: VI (Violin I), S (Violin II), K (Koto), V (Viola), BC (Bass Clarinet), EG (Electric Guitar), and VC (Violoncello). The time signature is 4/4. The tempo is marked with a quarter note equal to 50 or 60. The score includes various dynamics (p, ff, mf, f) and articulations (acc, marc, stacc). Several intervals are highlighted with colored boxes: red boxes highlight tritones and fifths, green boxes highlight other intervals, and purple boxes highlight specific intervals in measure 61. A circled number '8' is at the bottom left, and a circled number '8' is at the bottom center. The score ends at 5:32. A rehearsal mark '8' is at the bottom left, and a circled number '8' is at the bottom center. The score includes various dynamics (p, ff, mf, f) and articulations (acc, marc, stacc). A circled number '8' is at the bottom left, and a circled number '8' is at the bottom center. The score includes various dynamics (p, ff, mf, f) and articulations (acc, marc, stacc). A circled number '8' is at the bottom left, and a circled number '8' is at the bottom center.

In addition to tritones and fourths/fifths, other intervals add contrasting harmonic colors. These intervals include a minor second, major second, major sixth, minor seventh, major seventh and perfect octave.¹⁶² The red, green and purple boxes in EXAMPLE 5.4 show the tritones, fourths/fifths, and other intervals—minor second, major second, major sixth, minor seventh, major seventh and perfect octave. The purple boxes in measure 72 indicate that the bass clarinet plays a major seventh and a major sixth that contrast with the tritones and fourths/fifths played by the *koto*, electric guitar and cello. Intervals other than tritones and fourths/fifths dominate measures 74 to 77. For example, in measure 74, the *koto* and electric guitar together sustain a

¹⁶² Those intervals include the enharmonic and compound versions.

major seventh. In measure 76, the *sho* plays an octave E, while the *koto* and electric guitar hold a major seventh. The *sho* and cello combine to form a minor seventh in measure 77.

EXAMPLE 5.4 *Spiral Network*, mm. 72–79. Tritones, Fourths/Fifths and Other Intervals

The image shows a musical score for the piece "Spiral Network" from measures 72 to 79. The score is written for Sho, Koto, Violin, Bassoon, Electric Guitar, and Cello. The tempo is marked as $\text{♩} = 30$. The score includes various annotations such as chord symbols (M7, m9, P8, m7, M2), dynamics (pp, ff, p, f), and time signatures (4/4, 5/4). A circled "10" is present in the bottom left corner. The score is annotated with various intervals and chords, including M7, m9, P8, m7, and M2. The time signature changes from 4/4 to 5/4 at measure 74. The score is annotated with various intervals and chords, including M7, m9, P8, m7, and M2. The time signature changes from 4/4 to 5/4 at measure 74. The score is annotated with various intervals and chords, including M7, m9, P8, m7, and M2. The time signature changes from 4/4 to 5/4 at measure 74.

According to Naomi Sato, a professional *sho* player who is a member of Ensemble N_JP, there are ten traditional chords for the *sho* (EXAMPLE 5.5),¹⁶⁴ and these play a pivotal role in Section C of *Spiral Network*.

¹⁶⁴ Sato, Naomi. *About the sho*.

<http://www.atlasensemble.nl/assets/files/instruments/Sho/Sho%20by%20Naomi%20Sato.pdf>.

EXAMPLE 5.5 Ten *Sho* Traditional Chords

The image shows ten traditional Sho chords, numbered 1 through 10, arranged in two rows of five. Each chord is represented by a treble clef staff with a key signature of one sharp (F#) and a specific chord voicing. The chords are: 1. F#4, A4, C5, E5; 2. F#4, A4, C5, E5, G5; 3. F#4, A4, C5, E5, G5, B5; 4. F#4, A4, C5, E5, G5, B5, D6; 5. F#4, A4, C5, E5, G5, B5, D6, F#6; 6. F#4, A4, C5, E5, G5, B5, D6, F#6, A6; 7. F#4, A4, C5, E5, G5, B5, D6, F#6, A6, C7; 8. F#4, A4, C5, E5, G5, B5, D6, F#6, A6, C7, E7; 9. F#4, A4, C5, E5, G5, B5, D6, F#6, A6, C7, E7, G7; 10. F#4, A4, C5, E5, G5, B5, D6, F#6, A6, C7, E7, G7, B7.

EXAMPLE 5.6 shows how the fourth *sho* traditional chord is found in the score. This chord is reiterated melodically in the electric guitar one measure later.

EXAMPLE 5.6 *Spiral Network*, mm. 122–129. The Fourth *Sho* Traditional Chord in the *Sho* and Electric Guitar

The image shows a musical score for 'Spiral Network' (mm. 122-129). The score includes staves for Sho (S), Koto (K), Shamisen (V), Bass (BC), Electric Guitar (EG), and Voice (VC). The Sho part (S) is highlighted with a red box in measures 125-126, showing the fourth Sho traditional chord. The Electric Guitar part (EG) is highlighted with a red box in measures 127-128, showing the melodic reiteration of the fourth Sho traditional chord. The score includes various musical notations such as dynamics (p, f, mf), articulation (accents, slurs), and performance instructions (e.g., 'hand on table', 'open chords', 'slap').

EXAMPLE 5.7 shows the full and partial representation of the eighth *sho* traditional chord. On the second beat of measures 137 and 138, and the third beat of measure 139, the eighth chord—C#, D, E, G#, A, B—is presented in its entirety; on the first beat of measure 139, only three notes—G#, A, B—are present.

EXAMPLE 5.7 *Spiral Network*, mm. 137–142. The Eighth *Sho* Traditional Chord Based on EXAMPLE 5.5

The image shows a page of musical notation for a string quartet and piano. The staves are labeled S (Soprano), K (Koto), V (Violin), BC (Viola/Celli), E (Electric Guitar), and VC (Violoncello). The time signature is 4/4. The tempo is marked as quarter note = 50. A red box highlights the eighth Sho traditional chord in the Soprano part across measures 137, 138, and the first beat of 139. The score includes dynamic markings (pp, p, mf, f), articulation (accents), and performance instructions like 'trille' and '3x'. The bottom of the page shows time stamps: 16:08, 16:13, 16:18, 16:23, 16:28, and 16:43.

A major triad makes only one appearance in *Spiral Network*. EXAMPLE 5.8 displays an arpeggiated G major triad in the electric guitar, a stark contrast to the overall harmonic vocabulary in the work.

EXAMPLE 5.8 *Spiral Network*, mm. 5–9. The G Major Triad in the Electric Guitar

The image shows a handwritten musical score for the piece "Spiral Network" from measures 5 to 9. The score is written for a multi-instrument ensemble, including a string quartet (S, K, V, BC) and an electric guitar (EG). The electric guitar part is the central focus, featuring complex rhythmic patterns and dynamic markings such as f , p , ff , and mf . The score includes various performance instructions like "Fib. spiral scrape", "grind", "circ.", "fib. sp.", "circ.", "Horn v. vib.", "Fib. spiral gliss.", and "Gong w. CCG 2 Run". The electric guitar part is marked with a tempo of $(J=40)$ and a time signature of 4/4. A red box highlights a specific passage in the electric guitar part, showing a sequence of notes and rests. The score also includes a bass line (VC) and a drum part (E) with various rhythmic patterns and dynamic markings.

5.2.3 Coloristic Effects

Spiral Network is heavily decorated with coloristic effects. EXAMPLE 5.9 lists the extended techniques found in *Spiral Network*, the diversity of which exhibits the kaleidoscope of its colors.

EXAMPLE 5.9 A Collection of the Extended Techniques in *Spiral Network*For wind instruments

Air at tip



Air slap



Vibrato in the tempo of a quarter note equals to 60

For koto

Scrape strings in a Fibonacci Spiral motion



Vibrato that ends with the note pointed by an arrow



Fast scrape on the string



Pluck the strings in a polygonal motion

For cello

Bow the string in a circular motion



Bow the string in a polygonal motion

For voice

Back of throat



Falsetto

For all stringed instruments

Combination of scraping the string and glissando

EXAMPLE 5.10 shows a cello line that is sophisticatedly embellished by extended techniques. The first two measures in the excerpt are characterized by ascending glissandi that are bowed in a circular motion. This is followed by a measure with double stops that are bowed in a Fibonacci spiral motion. The excerpt ends with two measures of descending glissandi that are bowed in the same fashion. Both “arco circular glissando” and “Fibonacci spiral” bowing have a strong connection to the concept of Buckminster Fuller’s lecture series, *Everything I Know*. In the *Spiral Network* video, the Golden Spiral can be seen regularly, the motion of which is replicated in the cello bowing.

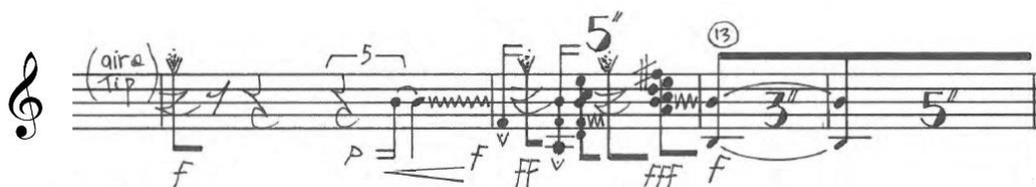
EXAMPLE 5.10 *Spiral Network*, mm. 10–16. Coloristic Effects in the Cello

The timbral versatility of the bass clarinet can easily be seen in a short solo passage in measure 110 (EXAMPLE 5.11). It begins by blowing air into the tip of the reed, followed by an air-slapped descending line. It continues with the note F6, which is devoid of any coloristic embellishments. The unembellished note is followed by a rapid series of effects that include pitch bends, multiphonics, rapid vibrato and microtones.

EXAMPLE 5.11 *Spiral Network*, m. 110. Bass Clarinet Solo

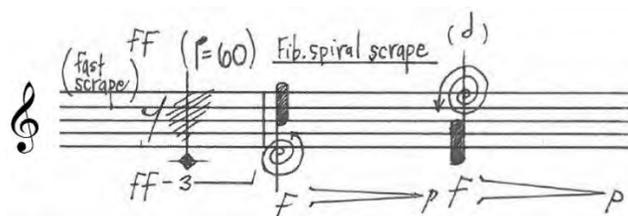
EXAMPLE 5.12 shows an excerpt on the *sho* that starts by blowing air into the tip of the mouthpiece. After about two beats of rest, the note B4 with fast vibrato takes over. This is followed with conventional and airy notes, as well as chords with quick vibrato. The excerpt ends with the octave dyad B3/B4.

EXAMPLE 5.12 *Spiral Network*, mm. 11–14. *Sho*'s Embellished Melodic Line



EXAMPLE 5.13 focuses on the *koto* with a fast scrape on one string followed by the Fibonacci spiral bowing covering a wider range of pitches.

EXAMPLE 5.13 *Spiral Network*, mm. 3–4. *Koto* Line with Coloristic Effects



5.2.4 Texture

The texture of *Spiral Network* is characterized by highly individualistic instrumental lines with distinct rhythmic patterns and colors. Division A1 is inundated with complex rhythmic activities that seem to interweave without a noticeable pattern. The complicated rhythmic patterns can be seen in the form of triplets. Besides the rich rhythmic activities, the coloristic effects that are shared among the Western instruments, TAI and electronics give equal roles to all sound sources. The shared and interchangeable coloristic effects among the instruments and

electronics also unify the sound world. EXAMPLE 5.14 displays the abundance of tuplets and coloristic effects in measures 1 to 4 of *Spiral Network*.

EXAMPLE 5.14 *Spiral Network*, mm. 1–4. Complex Rhythmic Activities in A1

The image shows a complex musical score for the piece "Spiral Network" by Gene Coleman, covering measures 1 through 4. The score is written for a large ensemble, with parts for S, K, V, BC, EG, VC, and E. The music is characterized by intricate rhythmic patterns, including numerous tuplets and dynamic markings such as *ff*, *f*, *p*, and *mf*. The tempo is marked as *flash* with a quarter note equal to 40 beats ($\text{♩} = 40$). The score includes various performance instructions like "air", "scrape", "gliss.", and "osc.". A red circle highlights the first measure of the E part, which is marked with a circled "1". The score is titled "Spiral Network" and "© 2013 Gene Coleman".

Rhythmically, the level of stability is greater in Division A2 (EXAMPLE 5.15). There are three factors that stabilize A2: the steady pulse in the *koto*, the absence of tuplets and the placement of notes on down beats.

The texture of Section B (EXAMPLE 5.18) is governed by the electronics in the low register with sustaining chords provided by the *sho*, bass clarinet, electric guitar and cello.

EXAMPLE 5.18 *Spiral Network*, mm. 116–121. Sustained Sonorities in Section B

12.50

116

55'

117

34'

4

118

119

120

2 121

Rattle = place long stick into strings, push down to create a rattle sound with many oscillations...

116 (non gloss)

13:45

118

119

120

121

14:19

14:27

14:35

14:43

The *sho* plays a pivotal role in Section C. The final section of *Spiral Network* is characterized by the sustaining *sho* traditional chords and steady rhythmic activity. The *sho* traditional chords serve as a soothing and recurring drone throughout Section C, while the *koto* injects a quasi-steady rhythmic pattern. The *sho* chords set the stage for the ending of *Spiral Network* with the electronics erupting in a brief and mild sine-tone explosion.

EXAMPLE 5.19 *Spiral Network*, mm. 165–169. The Ending of Section C

The image shows a musical score for the piece "Spiral Network" by John Cage, specifically measures 165 through 169. The score is arranged in a system with seven staves, labeled from top to bottom: VII (Violin), S (Soprano), K (Koto), V (Viola), BC (Bassoon), EG (English Horn), and VC (Violoncello). The bottom-most staff is labeled "E" and contains electronic sounds, with a circled number "26" below it. The score includes various musical notations such as notes, rests, and dynamic markings (e.g., *f*, *ff*, *p*, *sf*). Above the staves, there are markings for "13^o" and "8^o" which likely refer to rhythmic patterns or groupings. Time stamps are present on the right side of the score: 20:43, 20:56, 21:04, 21:17, 21:25, and 21:38. The title "Spiral Network" is written in the upper right corner of the score area.

The textural trajectory of *Spiral Network* can be seen as the rhythmic intensity decreases. Division A1 displays furious rhythmic activity that is characterized by triplets and the complex interweaving of individual lines. This texture is hardly seen in Division A2, with the steady *koto* line in quarter notes and half notes on main beats. The importance of individual lines is highlighted in Division A3, which could serve as a transition to the soothing stability of Section B. The sustaining *sho* traditional chords provide a drone that defines the textural foundation for Section C, the final section of the work.

5.2.5 Electronics

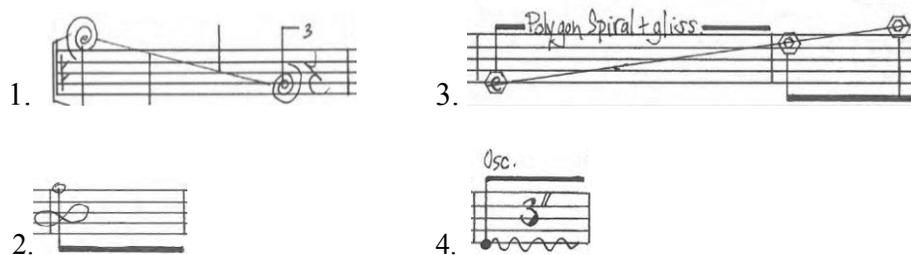
Based on the author's observation and analysis, the electronics in *Spiral Network* can be categorized into two groups: non-pitched and pitched. The non-pitched electronics are primarily samples recorded from the acoustic instruments. Among the recognizable materials are a sound

that resembles rubbing the body of the cello, one that resembles a clarinet key hole being blown intensely, and a gong being scratched by a metal stick or mallet. Some of the non-pitched materials are original and some are processed electronically. Among the processes involved are reverberation, panning, ring modulation and reverse of a sample.

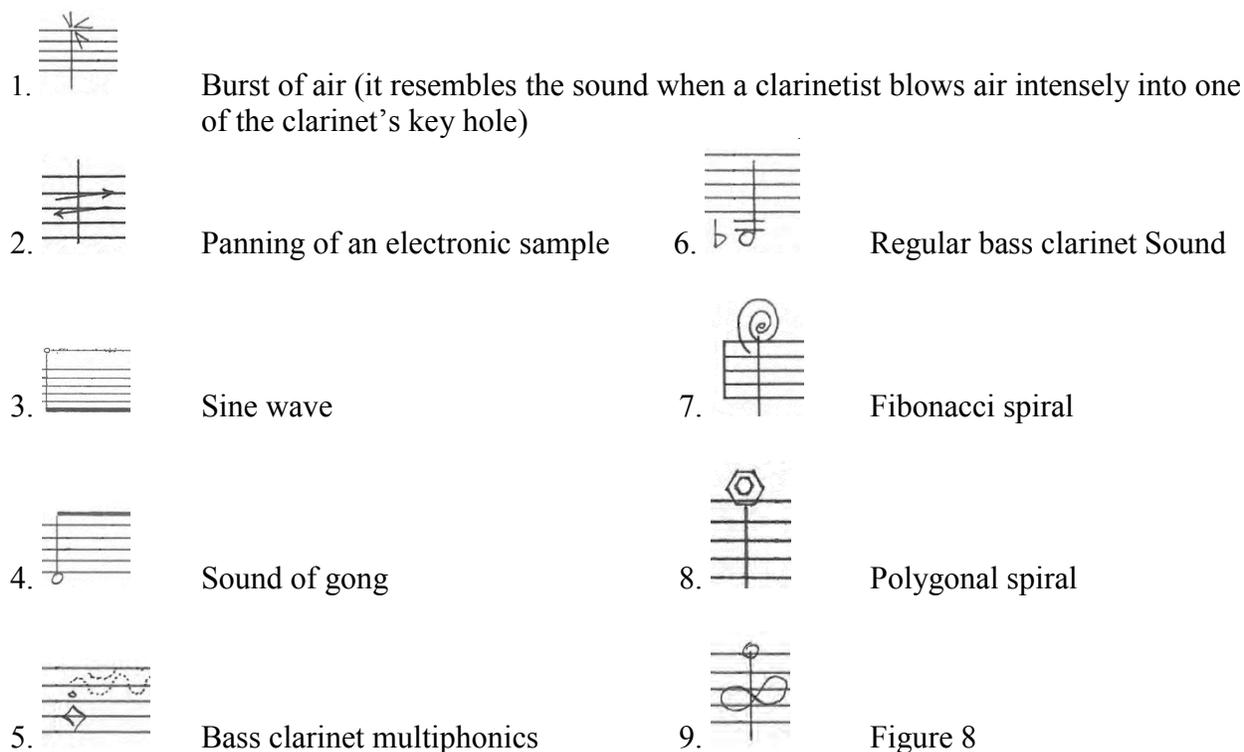
The pitched electronics are the processed low-register bass clarinet, the high squeaks that resemble that of a bass clarinet reed and the sine tones that present definite pitches. The sine tones are important to the structure of the Fibonacci Sequence-inspired work, because the exact frequencies of the sine tones are written out in the score and are the most audible lines in Section B. The most evident examples are the electronics-dominated passages from measures 114 to 117 (EXAMPLE 5.20). The low sine tones vacillate between 55 Hz and 89 Hz, two numbers of the Fibonacci Sequence.

EXAMPLE 5.20 *Spiral Network*, mm. 114–117. Electronic Passages in Section B

The electronics in *Spiral Network* unify the diverse sound worlds in the work. There are moments when the electronics blend smoothly into the acoustic world, and there are moments when they dominate the music. There are visual connections between the notation of the acoustic instruments and the electronics. EXAMPLE 5.21 shows four gestures in the electronics that are similar to the coloristic effects on the *koto*, cello, *sho* and bass clarinet. The visual connections strengthen the fact that the samples in the electronics originate from the acoustic instruments.

EXAMPLE 5.21 *Spiral Network*. Four Gestures in the Electronics

Of great interest is that the notation of the electronics is similar to the sounds that they resemble (Example 5.22).

EXAMPLE 5.22 Notation of Electronics

The first sound, the “burst of air,” mimics the intense air sound of the clarinetist. The second is the sound of panning, which must be used in combination with other electronic

samples. The third and fourth are the sine wave and gong respectively, presented in different pitches or timbres with various electronic processing. The fifth electronic sound is that of the bass clarinet multiphonics displayed as a diamond-shaped note head with a tiny circle above the note. What follows is a bass clarinet sound without any electronic processing. The seventh, eighth, and ninth electronic sounds (Fibonacci spiral, Polygonal spiral, and Figure 8) have the same effect as that of a cello bow rubbing against the wood of the body.

Frequently, more than one electronic sound and effect happen simultaneously.

EXAMPLE 5.23 shows two examples in which the electronics are combined with the effects.

EXAMPLE 5.23 Combined Electronic Sounds and Effects



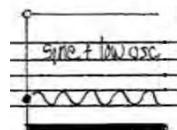
Gong + Panning



Sine tone + Low oscillator + Panning for 8 seconds

There are other electronic notations that are not present in EXAMPLES 5.23 and these are often accompanied by text descriptions. EXAMPLES 5.24 displays an example in which an electronic notation is accompanied by a text description “sine + low osc.”

EXAMPLE 5.24 Electronic Notation with a Text Description



5.3 Fibonacci Numbers

The influence of Fibonacci numbers can be seen in *Spiral Network* by way of the structure, the duration of fermatas, tempo markings, tuplets and the extended technique notation in the score.

As previously mentioned, the entire Section A (A1, A2 and A3) consists of thirteen fifty-five-second subsections; Section B is comprised of two 55-second and one 34-second subsections; and Section C consists of eight fifty-five-second subsections (Table 5.2). All these numbers are in the Fibonacci Sequence.

Table 5.2. Simplified Formal Structure of *Spiral Network*

Section A (Sections A1, A2 and A3)	13 x 55-second subsections
Section B	2 x 55-second, 1 x 34-second subsections
Section C	8 x 55-second subsections

Fibonacci numbers govern tempo markings and the duration of fermatas (Table 5.3). Although there are some anomalies, most numbers are faithful to the Fibonacci Sequence. For example, according to Table 5.3, subsection XII of A3 consists of fermatas that last 8, 13, 13 and 21 seconds. The numbers 8, 13 and 21 are part of the Fibonacci Sequence. Another example is the ratio relationship between two tempo markings. Table 5.3 shows that subsection I of A1 has a tempo marking of 40, 60, 40 and 60 beats per quarter note. The ratio of 40 and 60 is 2 to 3, numbers from the Fibonacci Sequence.

Table 5.3. Tempo Marking and Duration of Fermatas in *Spiral Network*

Division A1	Tempo marking and duration
I	q = 40, q = 60, q = 40, q = 60
II	5", 3", 5", 5", 3", 8", 5", 8", q = 60
III	q = 50, q = 60, 8", 5", 5", 8", 5", 3"
IV	q = 50, q = 30, q = 60

V	$q = 60, 8'', 5'', 8'', 5'', 5'', 3''$
VI	$q = 50, q = 30, q = 50, q = 30, q = 60$
VII	$q = 50, 8'', 13''$
VIII	$13'', q = 30, q = 60$
Division A2	
IX	$q = 50, q = 40, q = 34, q = 30$
X	$q = 50, q = 30, q = 40, q = 34$
XI	$q = 34, q = 40$
Division A3	
XII	$8'', 13'', 13'', 21''$
XIII	$21'', 13'', 3'', 5'', 5'', q = 60$
Section B	
I	$q = 30, q = 60$
II	$q = 50, q = 30, q = 50$
III	$q = 50, 8'', q = 40$
IV	$11'', 11'', 11'', 11'', 11''$
V	$q = 30, 15''$
VI	$q = 30, 15''$
VII	$21'', 13'', 21''$
VIII	$13'', 8'', 13'', 8'', 13''$

The Fibonacci numbers are also manifested in the tuplets of *Spiral Network*. EXAMPLE 5.25 shows the extensive use of triplets and quintuplets on page 17 of the score, more than a likely choice because of the Fibonacci Sequence.

EXAMPLE 5.25 Triplets and Quintuplets in *Spiral Network*

The image displays a complex musical score for 'Spiral Network'. It features multiple staves, including vocal lines (S, K, V) and instrumental lines (BC, EG, VC, E). A red rectangular box highlights a specific section from measure 113 to 115, which contains intricate rhythmic patterns including triplets and quintuplets. The score is annotated with various dynamics such as *f*, *ff*, *p*, and *mf*, along with performance instructions like 'Tenchu-kegting...'. Time stamps are provided at the bottom of the score: 11:37, 11:42, 11:47, 11:55, and 12:50. A circled number '17' is located in the bottom left corner of the score area.

The extended techniques throughout *Spiral Network* also display the influence of the Fibonacci Sequence. EXAMPLE 5.26 shows the “Fibonacci spiral scrape” on the *koto* with the drawing of an arrowed spiral on the stems of both notes.

EXAMPLE 5.26 Fibonacci Spiral Scrape

The image shows a musical notation for the 'Fibonacci spiral scrape' technique. It consists of two notes on a staff. The stems of the notes are decorated with spiral patterns and arrows, indicating the technique. The text 'Fib. spiral scrape' is written above the staff.

5.4 Cultural Mapping

The cultural map created for *Endless Whispering* shows how the traditional techniques of the *sho* and *koto* are incorporated into the Western instruments and electronics of the piece. Each box in the map displays a specific beat in a measure, whether or not an instrument or the electronics are sounding and what traditional technique is being used. To a certain extent, the cultural map is a graphic version of the score, showing how cultural influences permeate the work. The complete cultural map of *Endless Whispering* can be found in Appendix C.

Table 5.4 shows the legend of the cultural map of *Spiral Network*. Every instrument is color coded except for the *koto*, which is marked in three different colors for the treble, bass and vocal lines respectively. When a traditional technique is present, a small letter is added to the colored box. The sound of the *sho* is heard in the acoustic instruments and electronics and can be traced through the harmonics produced by the acoustic instruments and the sinusoidal samples in the fixed media. The traditional *sho* chords heard in the acoustic instruments and the electronics are marked with “C.” The identified traditional *sho* technique is the flutter-tongue (“F”) and the identified traditional *koto* techniques are scraping, glissando, vibrato and arpeggio (“S”, “G”, “V” and “A”).

Table 5.4. Legend of *Spiral Network*

	<i>Sho</i>
	<i>Koto</i> (treble)
	<i>Koto</i> (bass)
	<i>Koto</i> (voice)
	Voice
	Bass Clarinet
	Electric Guitar
	Cello
	Electronics

The sound of *sheng* and *xun* as heard in the acoustic instruments and electronics**Sh** *Sho* sound/harmonics***Sho* traditional chord****C** Traditional Chords***Sho* traditional techniques****F** Flutter-tongue***Koto* traditional techniques**

S	Scraping
G	Glissando
V	Vibrato
A	Arpeggio

EXAMPLE 5.27 shows the first two measures of the cultural map and the score of *Spiral Network*. The color-coded instruments and fixed media are on the far left. The top of the cultural map shows the measure numbers and below shows the number of beats or seconds in every measure. When a box is filled with a certain color, it indicates that the instrument is playing. Abbreviations inside a box indicate that the cultural influence is present.

EXAMPLE 5.27 *Spiral Network*, mm. 1–4. Cultural Map and Score

Measure Number	1				2				
Duration/Beat	1"	2"	3"	4"	5"	1	2	3	4
Sho									
Koto (treble)						S			
Koto (bass)							V		
Koto (voice)									
Voice									
Bass Clarinet									
Electric Guitar						S			
Cello						S	G	S	S
Electronics	Sh	Sh							

EXAMPLE 5.28 shows measures 8 and 9 of the cultural map and the score of *Spiral Network*. The *koto*, electric guitar, cello and electronics display various traditional techniques throughout the section.

EXAMPLE 5.28 *Spiral Network*, mm. 8–9. Cultural Map and Score

8				9			
1	2	3	4	1	2	3	4
	S/G	S/G	S/G	S			
	V	V/G	S/G	A			
V	S/V/G	S/G	G	G	G		V
V/Sh	V/Sh	V/Sh	V/Sh	V/Sh	V/Sh	V/Sh	V/Sh

EXAMPLE 5.29 shows measures 58 and 59 of the cultural map and the score of *Spiral Network* with various traditional techniques found in the male voice, cello, bass clarinet and electric guitar.

EXAMPLE 5.29 *Spiral Network*, mm. 58–59. Cultural Map and Score

58				59				
1	2	3	4	1	2	3	4	5
Sh	Sh	Sh	Sh					
						V	V	
				G	G	G	G	
G	G	G						

The musical score for measures 58 and 59 of *Spiral Network* is presented in a multi-staff format. The top staff is for the voice, featuring a treble clef and a 3/4 time signature. The second staff is for the cello, also in treble clef. The third staff is for the bass clarinet, in bass clef. The fourth staff is for the electric guitar, in bass clef. The score includes various musical notations such as notes, rests, and dynamic markings. The tempo is marked as 'J=30' and 'J=60'. The score is labeled with '58' and '59' at the top of the first and second measures, respectively.

Traditional *sho* chords are prevalent in Section C of *Spiral Network* from measures 118 to 169. EXAMPLE 5.30 shows measures 143 to 149 of the cultural map and the score of *Spiral Network*. The *sho* plays traditional chords (C#5, D5, E5, G#5, A5, B5) from measures 143 to 144. The acoustic instruments play a portion of the pitch collection from the traditional *sho* chords. The *koto* plays the notes G#5 and E4, the voice sings B3, A3, G#3, C#3, D3 and E3 and the electric guitar plays D4, G#4, A4, B4 and C#4.

EXAMPLE 5.30 *Spiral Network*, mm. 143–149. Cultural Map and Score

143				144				145					146					147					148					149								
1	2	3	4	1	2	3	4	2"	4"	6"	8"	11"	2"	4"	6"	8"	11"	2"	4"	6"	8"	11"	2"	4"	6"	8"	11"	2"	4"	6"	8"	11"				
C	C	C	C	C	C	C	C						C														S/C									

of all boxes (except the *sho* and koto treble and bass boxes) show influences of the *sho* and *koto*. The data proves that Coleman purposely synthesizes the cultural and traditional influences of the *sho* and *koto* into the acoustic instruments and fixed media of *Spiral Network*.

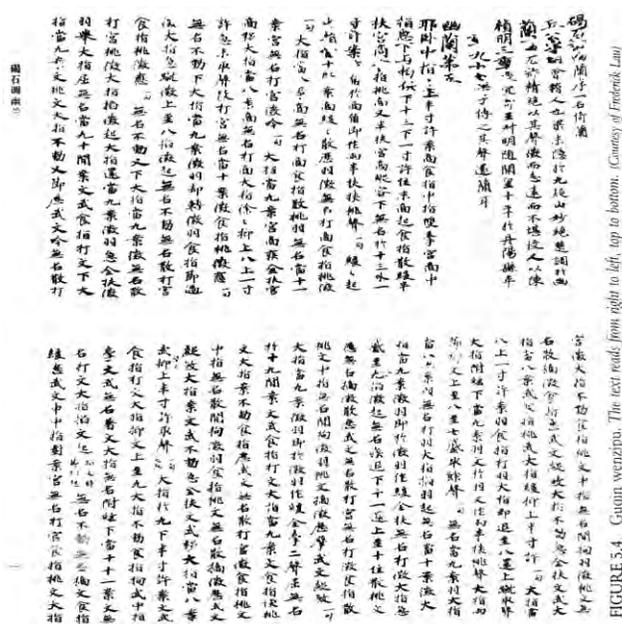
CHAPTER SIX: MUSIC NOTATION

6.1 Traditional Music Notation and Its Idiomaticity

Music notation is a written medium that transfers a composer's musical ideas into a form that can be rendered by others. The system of music notation changes according to the needs of a certain aesthetic or musical style or simply for practical purposes. An important part of this document explores the synthesis between different cultures, and the analysis of a score is indispensable in understanding the synthesis. Therefore, how the score is notated is an important tool in discovering how the cross-cultural synthesis takes place. The music notation of the traditional Asian instruments found in the works of Marc Battier, Kee Yong Chong and Gene Coleman will be discussed in this chapter.

Guqin, one of the oldest Chinese instruments, is believed to have existed as early as the fifteenth century BCE.¹⁶⁵ The earliest surviving written music of *guqin* is *youlan*, possibly from the sixth century (Figure 6.1). The first known *guqin* music is notated in *wenzipu*, which literally means music notation in words. In *wenzipu* Chinese characters give information regarding which fingers are used to pluck a specific string in a certain way. It is a form of tablature that tells the player how to produce a note, as opposed to Western notation which provides only pitch and rhythm.

¹⁶⁵ Lau, *Music in China*, 121.

Figure 6.1. Youlan. *Wenzipu* Manuscript from the Sixth Century

Wenzipu was later simplified into *jianzipu*, which literally means music notation in simplified words. *Jianzipu* and *wenzipu* are both forms of tablature, the former being a more advanced version of the latter. One fundamental difference between these two notations is that *jianzipu* combines several different Chinese characters into one character; while *wenzipu* uses several Chinese characters to convey the same idea that *jianzipu* would equivalently convey. In other words, *jianzipu* occupies significantly less space than *wenzipu*. Nevertheless, both notational systems give information to performers regarding the way to play the *guqin* (Figure 6.2).¹⁶⁶

¹⁶⁶ Malm, *Music Cultures of the Pacific, the Near East, and Asia*, 182.

Figure 6.2. *Guqin Jianzipu*. *Guqin* Simplified Word Notation

Stud Positions												
1	2	3	4	5	6	7	8	9	10	11	12	13
一	二	三	四	五	六	七	八	九	十	十一	十二	十三

Left Hand Symbols		Right Hand Symbols	
大	Thumb	夕	Middle finger pulls a string
中	Middle finger	尸	Thumb pulls a string with nail
夕	Ring finger	早	Pluck 2 strings simultaneously
一	Index finger	丁	Ring finger plucks a string inward
		丿	Index finger plucks a string outward

Figure 6.3. *Guqin Jianzipu* in Composite Form

(a)	一 二 三 四 五 六 七 八 九 十 十一 十二 十三									
	1 2 3 4 5 6 7 8 9 10 11 12 13									
(b)	<table border="0"> <tr> <td>left thumb stopping the string at the specified position string 2</td> <td>琴</td> <td>fen 7</td> </tr> <tr> <td></td> <td></td> <td>hui 8</td> </tr> <tr> <td></td> <td></td> <td>right middle finger plucks inwards</td> </tr> </table>	left thumb stopping the string at the specified position string 2	琴	fen 7			hui 8			right middle finger plucks inwards
left thumb stopping the string at the specified position string 2	琴	fen 7								
		hui 8								
		right middle finger plucks inwards								

A closer look into *wenzipu* and *jianzipu* reveals the importance of timbre in *guqin* music. Specific instructions on which finger to use on the same string in *guqin* will create different timbres, while plucking a string inward or outward gives another kind of sound. Marc Battier shared the following in his interview:

I wrote for *guqin* 古琴 for CCOM professor Ms. Zhao Xiaoxia 赵晓霞, a famous performer. Since I can't use *qin* notation, I could not specify the type of vibrato I wanted.

There are many types of vibrato on the qin. At the first rehearsal in Beijing, she asked me which vibrato I wanted. I answered that I would let her select the one she felt best suited [*sic*]. That's how I became convinced of the importance of giving leeway to the performers, of respecting their long training and use [*sic*] their artistry for the benefit of the piece.¹⁶⁷

Marc Battier's statement is an important insight into the idiomacy of traditional music notation that specifically applies to a musical instrument from a certain culture. In this instance, because Battier was not able to specify the type of vibrato that he wanted the performer to use, he allowed Ms. Zhao to incorporate *guqin*'s cultural idioms into his music, thereby promoting a meaningful cultural synthesis and exchange.

Figure 6.4 displays the traditional *gongche* notation for *pipa* and shows the indication of title, key signature, meter signature, pitch and beats in the *gongche* score. Figure 6.5 gives the notation for both *sho* and *koto*, a type of tablature system that uses Chinese characters or *kanji* to convey the contents of the music. The *koto* notation in Figure 6.6 appears slightly different than that of Figure 6.5; however, it retains the tablature form of notational system in its use of *kanji*.

¹⁶⁷Marc Battier, interview by Hong-Da Chin, September 18, 2016.

Figure 6.4. Gongche Notation for Pipa with Indication of Pitch, Beats, Meter, Key and Title¹⁶⁸

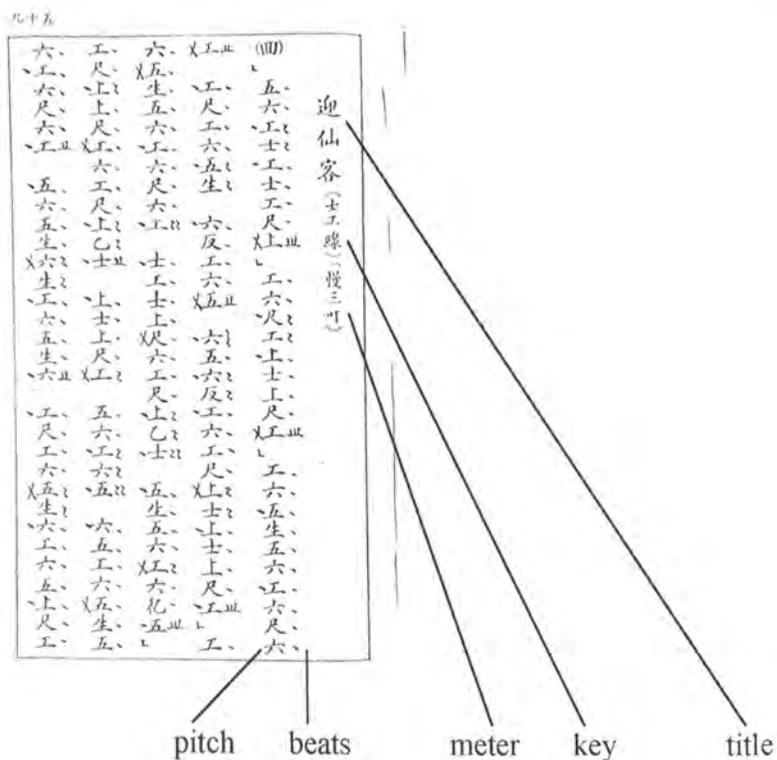


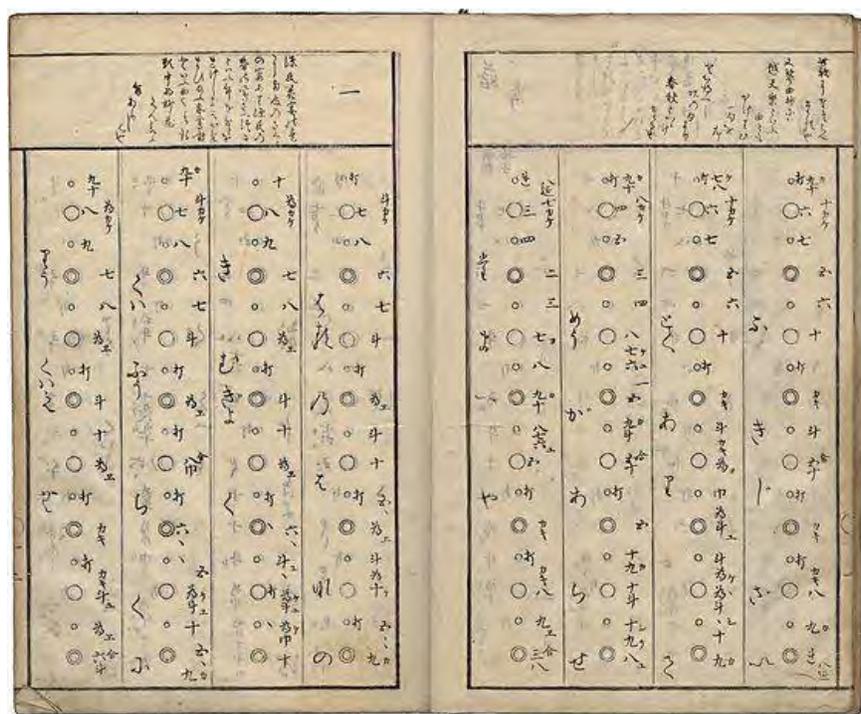
Figure 6.5. Music Notation for Sho and Koto¹⁶⁹



¹⁶⁸ Lau. *Music in China*, 52.

¹⁶⁹ "Koto." Accessed June 26, 2017. <https://edux.pjwstk.edu.pl/mat/266/lec/main44.html>.

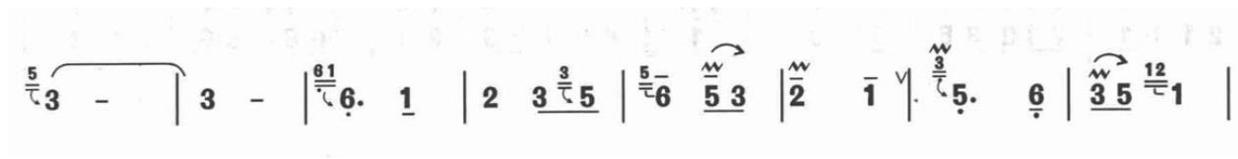
Figure 6.6. Music Notation for *Koto*¹⁷⁰



MS 5332
Koto music notation. Collection of 40 Koto songs composed by Miji Shinshi, Japan, 1811

EXAMPLE 6.1 is the numerical notation for *The New Shepherd Song* for Chinese flute. Despite the appearance, numerical notation resembles Western notation with “1” as “do”, “2” as “re,” and so forth. A number that stands alone indicates a quarter note; a dotted number indicates a dotted quarter note. A number with a line under it indicates an eighth note, while a number with a line that follows immediately after it indicates a half note. When a dot is placed above a note, it should be played an octave higher and vice versa. Numerical notation shares most of the articulation employed in Western notation. At the present time all Chinese musicians are trained to read numerical notation.

¹⁷⁰ “Koto music notations. Compilation of 40 Koto songs composed by Miji Shinshi, Japan, 1811.” Accessed June 26, 2017. <https://www.pinterest.com/pin/55732114112453310/>.

EXAMPLE 6.1. Numerical Notation**6.2 Problems with Western Music Notation for TAI**

A music notational system is a reflection of the aesthetic considerations of a specific culture. When a musical instrument from another culture is used to play a piece of music written in a different notational system, cultural and aesthetical confusion may occur. For example, significant importance is focused on the timbral variety on *guqin*, thus the invention of *wenzipu* and *jianzipu*. Although these notational systems “indicate simultaneously the note, the fingering, and the stroke to be used,” the length of each note is not revealed.¹⁷¹ Frederick Lau comments that, “the player has to determine the length of each note or series of notes according to the style and performance practice of his lineage.”¹⁷² This is a very foreign practice to Western instrumentalists. Western notation focuses on pitch and rhythm, while *wenzipu* and *jianzipu* focus on the placement of fingers and the timbres created by it. As a result, the effort of writing for TAI is challenging.

An additional problem remains with the compositional and aesthetic effects that a composer might desire. He/she may only want the basic sounds created by TAI and not the rich timbral variety that TAI could very well offer. I once heard a conversation between a prominent *erhu* (two-stringed bowed Chinese instrument) player and an American composer. The dialogue revolved around writing for the *erhu* within the Western ensemble. The *erhu* player commented on some very difficult and unidiomatic passages that were almost impossible to play. The

¹⁷¹ Malm, *Music Cultures of the Pacific, the Near East, and Asia*, 182.

¹⁷² Lau, *Music in China*, 124.

composer replied, “I write for the *erhu* with the same level of difficulty as I write for any Western instruments.”¹⁷³ In this instance, the composer was more concerned with the rather similar level of technicality of each instrument in an ensemble setting rather than writing idiomatically for the *erhu*. From my experience as both a Chinese and Western flutist, I notice that the cultural misunderstanding has been an issue. I once played Chinese flutes in a contemporary opera written by a Chinese composer. The music was highly chromatic and traditionally Chinese flutes are not accustomed to an excessive level of chromaticism. Chinese flutes do not have sophisticated mechanisms like Western flutes, and all chromaticism must be produced by pressing a half hole. In addition, a hole that is half pressed creates a hollow timbre. I, however, had the vantage point of mastering the highly chromatic passages with minimal problems given my classically trained Western flute background. In addition to being a Western flutist, I am also a composer trained in the West and see the possible need to have this technical ability. Historically, composers have been the ones who have driven the development of new techniques on musical instruments coupled with adventurous performers who are willing to collaborate to push the technical boundaries. My opinion is the same as the previously mentioned composer who wrote for the *erhu*. The opera composer writes for Chinese flutes in a way that he would write for the Western flute. He was more concerned with the buzzing and vibrating timbre created by Chinese flutes than the traditionally idiomatic Chinese flute writing.

6.3 Assimilation of Traditional Music Notation into Western Notation

This section will discuss how the works of Battier, Chong and Coleman assimilate traditional music notation into Western notation. EXAMPLE 6.2 shows the first page of Battier’s

¹⁷³ This is a paraphrased sentence.

Mist on a Hill. While Battier employs Western notation, he borrows traditional *pipa* techniques such as \wedge and \circ (“play the two strings together”), ‰ (“vibrato for left hand”) in the score. Battier’s solution retains both the values from Western notation and the values from traditional *pipa* techniques. In the first measure of the piece, he uses the rubato/introduction sign, which is widely used in traditional Chinese music. EXAMPLE 6.3 displays the first measure of *The New Shepherd Song*, a work for Chinese flute which uses the same rubato/introduction sign. Although the word “rubato” would suffice, by introducing the Chinese traditional rubato/introduction sign, Battier respectfully assimilated Chinese music notation into a Western composition. Figures 6.7 and 6.8 exhibit the traditional *pipa* techniques that Battier uses on the first page of *Mist on a Hill* (EXAMPLE 6.2).

EXAMPLE 6.2 *Mist on a Hill*, mm. 1–3. Traditional Techniques

The image shows a musical score for three measures of "Mist on a Hill". It features three staves: two for the Pipa and one for Electronics (El.).

- Top Pipa Staff:** Contains a rubato/introduction sign (a large 'X' in a box) at the start. It has dynamic markings *pp*, *f*, *sfz*, *pp*, *f*, and *PPP*. Above the staff, there are performance instructions: "ca 12" (with a slur), "lento", and "comodo. ca 10" (with a slur). A vibrato sign (‰) is also present.
- Electronics (El.) Staff:** Starts with "Start Electronics Seq. 1" and a dynamic marking *mp*. It has a performance instruction "ca 11" above it. A double-sharp sign (X) is boxed in red.
- Bottom Pipa Staff:** Starts with "tacet". It has dynamic markings *pp*, *f*, and *mp*. A double-sharp sign (X) is boxed in red. A circled number "1" is at the end of the staff.

Red boxes highlight the following traditional techniques: the double-sharp sign (X) in the first Pipa system, the vibrato sign (‰) in the second Pipa system, and the double-sharp sign (X) in the Electronics staff.

EXAMPLE 6.3 *The New Shephard Song*, m. 1. Rubato/Introduction Sign

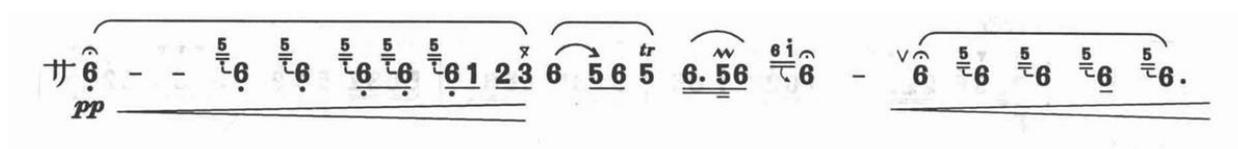


Figure 6.7. Traditional *Pipa* Symbols Used on Page 1 of *Mist on a Hill*

卩	Rubato / 散板
✻	Tremolo / 轮指
↷	Pull the string / 拉线
HH and HH	Play the four strings together, the combined technique can make the player play faster / 扫 and 拂
✻	Tremolo / 轮指

Figure 6.8. Performance Notes of *Mist on a Hill* (Page 2)

The Chinese numeral which under the musical notes are used to indicate the specific string you want to use.

- 一 refers to the 1st string.
- 二 refers to the 2nd string.
- 三 refers to the 3rd string.
- 四 refers to the 4th string.

The Chinese numeral which are in brackets () means use the open strings.

For example, the sign “三” means that the 3rd string is open.

The sign “一” means that the 1st string is not open (stopped string).

Similarly, Kee Yong Chong incorporates traditional *sheng* and *xun* notation in *Endless Whispering*. The various traditional *sheng* techniques used in the work are *Da ying*, *Xi Huashe*,

Bao Huashe, *Qu-qi* and *Duo Ying*. Figure 6.9 displays *sheng* performance notes from the work.

EXAMPLE 6.4 shows his use of *Bao Huashe* and *Xi Huashe*. Instead of using symbols to describe the traditional *sheng* techniques, Chong places the words *Bao Huashe* and *Xi Huashe* on top of the notes along with the three-slash tremolo sign, an idiom of Western notation.

EXAMPLE 6.5 shows a work in numerical notation from the traditional *sheng* repertoire. The red boxes indicate the flutter-tongue techniques. Instead of using the three-slash tremolo sign, asterisks are used to indicate a flutter-tongue.

Figure 6.9. Performance Notes in *Endless Whispering*

Sheng



The figure shows musical notation for various Sheng techniques. The first example is a chromatic cluster. The second example, 'Da ying', is marked with a three-slash tremolo sign and is enclosed in a red box. The third example is marked with a three-slash tremolo sign. The fourth example is marked with a three-slash tremolo sign. The fifth example, 'Xi Huashe', is marked with an asterisk and is enclosed in a red box. The sixth example, 'Bao Huashe', is marked with an asterisk and is enclosed in a red box. The seventh example, 'Qu-qi', is marked with an asterisk and is enclosed in a red box. The eighth example, 'Duo ying', is marked with an asterisk and is enclosed in a red box.

- = a chromatic cluster within the indicated register
- = “Da ying”: striking the notes very rapidly
- = blowing the pipe like playing the panpipe
- = tremble or shaking the Sheng with two hands.
- “Xi Huashe” = small flower tongue (flutt.)
- “Bao Huashe” = erupt flower tongue. (flutt.)
- “Qu-qi” = create 'sawing wood' sound effect (pronounced "si sou")
- “Duo ying” = tremble or shaking the Sheng with two hands.

sho techniques of flutter-tongue, vibrato, tremolo and glissando are used in *Spiral Network*.¹⁷⁴ In measure 55 of EXAMPLE 6.6, the flutter-tongue on the *sho* is seen. Traditional *koto* techniques include scraping the string, glissando, wide vibrato and arpeggio.

EXAMPLE 6.6 *Spiral Network*, mm. 55–61. Flutter-tongue in *Sho*

The image shows a musical score for measures 55-61 of 'Spiral Network'. The score is written for a Sho instrument, with a 4/4 time signature. The notation includes various dynamics (pp, p, f, ff) and articulations (acc, (Bly), (circ), (Vibr), (Vibr) gliss, (A)mov-ING). A red box highlights the flutter-tongue technique in measure 55, which is marked with '(ord. flz.)'. A red circle highlights the number 8 in the bottom left corner. The score is annotated with performance instructions such as '18" x 2 = 36"', 'P 5:11', '5:19', '5:24', and '5:27 f'. The piece ends at 5:32.

In an interview with Carl Stone in December 5, 2008 in Tokyo, Japan, Coleman said that noise is also an integral part of Japanese folk music.¹⁷⁵ Coleman incorporates noise with a variety of extended techniques on the *sho* and *koto*, as well as in the electronics and Western instruments

¹⁷⁴ "Naomi demonstrates the *sho*". YouTube, accessed October 6, 2017, <https://www.youtube.com/watch?v=yUpr1F1dZt0>.

¹⁷⁵ "Gene Coleman in conversation with Carl Stone." New Music USA, accessed October 6, 2017, <https://nmbx.newmusicusa.org/An-Interview-with-Gene-Coleman/>.

(EXAMPLE 6.7). Among the noise-based techniques are scraping the strings of *koto* and the electric guitar, breathy tones on *sho* and the air slaps on the bass clarinet.

EXAMPLE 6.7 *Spiral Network*, mm. 1–4. Noise-based Effects

The image shows a musical score for the piece "Spiral Network" by Gene Coleman, measures 1 through 4. The score is written for several instruments: S (Soprano), K (Koto), V (Violin), BC (Bass Clarinet), EG (Electric Guitar), and VC (Voice). The score includes various musical notations such as notes, rests, and dynamic markings. Several specific noise-based effects are highlighted with red boxes and labels:

- Soprano (S):** A "flash" effect is marked at the beginning of measure 1.
- Koto (K):** A "fast scrape" effect is marked in measure 1, and a "spiral scrape" effect is marked in measure 4.
- Violin (V):** A "fast scrape" effect is marked in measure 1, and a "spiral scrape" effect is marked in measure 4.
- Bass Clarinet (BC):** An "air slap" effect is marked in measure 4.
- Electric Guitar (EG):** A "fast scrape" effect is marked in measure 1, and a "circular scrape + gliss." effect is marked in measure 4.
- Voice (VC):** A "fast scrape" effect is marked in measure 1, and a "spiral scrape" effect is marked in measure 4.

The score also includes various musical notations such as notes, rests, and dynamic markings. The tempo is marked as $\text{♩} = 40$ and $\text{♩} = 60$. The score is titled "Spiral Network" and "© 2013 Gene Coleman".

Music notation is specific to musical instruments from different cultures and periods and has transformed throughout history. This is evident in Western, Chinese and Japanese notational systems as exhibited in the music examples in this chapter and their assimilation in *Mist on a Hill*, *Endless Whispering* and *Spiral Network*. The traditional techniques and aesthetics of the traditional Asian instruments are incorporated into these compositions to produce well-integrated musical statements.

CHAPTER SEVEN: CONCLUSIONS

Music compositions written for TAI and electronics are a recent phenomenon in contemporary concert music. Composers writing in this genre, while equipped with knowledge of electronics, come from different backgrounds and experiences with TAI, and may even compose works for TAI that are not from their own cultures. As such, the genre presents three challenges: the composers' cultural backgrounds influence their perspectives on treatments of traditional instruments; composers must navigate difficulties in dealing with the nuances in timbre and different notational systems; and composers must determine the role electronics will play in relation to the TAI. To examine the problems, three works by three composers of different cultural backgrounds were chosen: Marc Battier's *Mist on a Hill*, Kee Yong Chong's *Endless Whispering* and Gene Coleman's *Spiral Network*.

Marc Battier is a French composer who has made important contributions to electroacoustic music both in Europe and Asia. Because of his extensive collaboration with Chinese musicians, he understands the uniqueness of works for TAI and recognizes the importance of retaining the timbre, idiomacy and traditional techniques of these instruments. His experience is well reflected in *Mist on a Hill*. Battier frequently and consciously employs the open strings of the *pipa* for both idiomacy and best resonance, while incorporating the traditional *pipa* techniques of tremolo, plucking, arpeggios and glissandi. Although *Mist on a Hill* uses Western notation, the traditional techniques are usually accompanied by the symbols of the traditional *pipa* repertoire. The character and philosophy of the *pipa* are preserved in Battier's effort to synthesize his and the traditional values. This aesthetic also pervades the electronics of the piece. The *pipa* and the electronics not only have intimate dialogues, but the electronics are comprised of recognizable and unrecognizable *pipa* samples. The preservation of *pipa* traditions

in *Mist on a Hill* produces a cultural synthesis between Battier's personal compositional statement and the *pipa* philosophy.

Cross-cultural synthesis is also exemplified in the music of Kee Yong Chong, a leading Chinese-Malaysian composer with a strong background in both Western and Asian music. In composing *Endless Whispering*, Chong worked closely with Wu Wei, the dedicatee of the work. He primarily uses Western notation, but borrows the traditional *sheng* and *xun* techniques and notational practices. For example, *sheng* notation by way of the tremolo with three-slashes and the words *Xi Huashe* or *Bao Huashe* written on top of the note is an indication of the employment of traditional techniques. As a result, the use of two different notational systems creates a cross-cultural synthesis. On the other hand, *Xi Huashe* and *Bao Huashe* are played by Western instruments. These techniques are basically two variations of flutter-tongue, normal/soft and abrupt/loud, and are used extensively by the wind instruments throughout the piece. Besides the employment of traditional *sheng* and *xun* techniques on the Western instruments, the traditional *sheng* chords based on fourths and fifths are shared among the Western ensemble and are the main harmonic foundation of the work. Furthermore, the electronics in *Endless Whispering* serve to blend sounds from TAI and Western instruments. It is the only work explored in this document with both live electronics and fixed media. The live electronics using reverberation, delay, distortion and harmonizer embellish the sounds of the acoustic instruments, thereby producing a unified end result. The fixed media consists of samples from all acoustic instruments, as well as those reminiscent of traditional Malaysian instruments such as sitar and gamelan gongs. TAI, Western instruments and electronics are synthesized so well in *Endless Whispering* that at times it is difficult for listeners to recognize the sound source. More important

is the final product, which is a cross-cultural synthesis of a variety of traditions in Chong's musical language by way of skillful combination of various cultural elements.

Similar methods are employed by Gene Coleman in *Spiral Network*. A Philadelphia-based composer, Coleman expertly incorporates Asian traditional values, visual arts, electronics, architecture and geometry into his music compositions. Coleman has an affinity to the traditional *sho* and *koto* techniques of flutter-tongue and string scraping and ingeniously introduces these colors into the Western instruments and electronics. The electric guitarist often scrapes the strings to imitate the *koto*, and the bass clarinetist flutter-tongues to echo the *sho*. In terms of notation, Coleman's descriptive words often depict the desired effects, e.g., "fast scrape" and "Fibonacci spiral scrape." Just as Chong employed traditional *sheng* chords, so too Coleman uses traditional *sho* chords, more evident towards the end of the work. His electronic sounds serve as a platform that stylistically and philosophically unifies all the scientific and artistic elements in *Spiral Network*. The formal structure of *Spiral Network* is also noteworthy. The influence of the Fibonacci Sequence can be seen in the length of each division, the tempo markings and the notation. Coleman seamlessly integrates all elements—Japanese aesthetics, geometry, architecture, electronics, visual arts—in *Spiral Network* and creates a meaningful musical statement.

The methods used by Battier, Chong and Coleman to synthesize TAI values into their works are comparable. The data collected from the cultural maps clearly show that TAI traditional techniques are shared among the Western instruments and electronics. Moreover, traditional notation, especially those for techniques, is used along with Western notation. The end result is the successful synthesis of Asian and Western values, a product that is unique to contemporary music.

The topic posed two obvious challenges: music written for TAI and electronics is rare and, therefore, the research that is done is even rarer. Composers who have the capacity to write for this combination must be equipped with knowledge of both TAI and electronics. Despite the worldwide cultural exchange encouraged by globalization, TAI remain exotic and elusive to most composers for several reasons. First, the study of TAI by composers who are trained in music institutions is quite uncommon. Second, TAI musicians are trained to play traditional repertoire and most are not interested in playing contemporary music let alone promoting it. Third, although the study of electroacoustic music is required in many music institutions and the cost of doing so has dropped significantly, sophisticated music software and equipment may still be unaffordable. An additional challenge is to find information that adequately explains traditional techniques and shows composers how best to use them.

In recent years the situation has improved due to organizations such as IRCAM (Institute for Research and Coordination in Acoustics/Music), ICMA (International Computer Music Association), SEAMUS (Society of Electro-Acoustic Music), EMSAN (Electroacoustic Music Studies Asia Network), Music From China and the Silk Road Project. Through symposia, concerts and the dissemination of material, composers are encouraged to become familiar and equipped with sufficient knowledge to write effective pieces. Composers such as Chou Wen-chung, Chen Yi and Zhou Long have tirelessly promoted Asian music and have brought Asian composers to the United States. Ensembles such as Music From China have commissioned composers for decades and continue to premiere new works written for Chinese and Western instruments. More Asian-influenced music has been recognized with prestigious awards, such as Zhou Long's *Madame White Snake* being awarded the Pulitzer Prize in Music in 2011 and Huang Ruo's *Paradise Interrupted* premiered at the Spoleto Festival USA in 2015 with

subsequent performances at the Lincoln Center Festival and the Lincoln Center Global Exchange.

This document provides successful examples of the synthesis of TAI and electronics in music compositions by three accomplished composers with different backgrounds. It serves as a step in introducing this music to a wider audience, especially to composers, through analysis and evidence that can be a source of reference for those who are interested in writing for and promoting this unique and successful genre.

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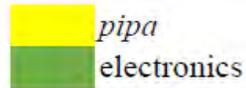
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APPENDIX A. CULTURAL MAP OF *MIST ON A HILL***Cultural Map of *Mist on a Hill*****Traditional *Pipa* Techniques**

<u>Symbol</u>			<u>Explanation</u>		
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>fen</td></tr></table>	fen	"fen"		
fen					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>r</td></tr></table>	r	"rou xian"		
r					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>la</td></tr></table>	la	"la xian"		
la					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>s</td></tr></table>	s	"san"		
s					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>lun</td></tr></table>	lun	"lun zhi"		
lun					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>sxta</td></tr></table>	sxta	"shuang xian tan"		
sxta					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>zhe</td></tr></table>	zhe	"zhe"	Play the two strings together	
zhe					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>fu</td></tr></table>	fu	"fu"	Play the four strings together Tremolo	
fu					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>sxti</td></tr></table>	sxti	"shuang xian tiao"	Play the adjacent strings together	
sxti					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>a</td></tr></table>	a		Artificial harmonic	
a					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>A</td></tr></table>	A		Arpeggio upward and downward	
A					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>zhai</td></tr></table>	zhai	"zhai"	Put the nail on the first string, then use another finger to pluck (click) the same string	
zhai					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>w</td></tr></table>	w		Put the front of the thumb on the fourth string, and then use another finger to pluck (click) the same string. Sounds like woodblock.	
w					
	<table border="1" style="display: inline-table; vertical-align: middle;"><tr><td>g</td></tr><tr><td>scr</td></tr></table>	g	scr		Glissandi
g					
scr					
			Scrape		

Measure numbers	1a										1b						
Duration/Beat	2"	4"	6"	8"	10"	12"	2"	4"	6"	8"	10"	2"	4"	6"	8"	10"	11"
Pipa	fen/zhe					la/g la/g la/g la/g la/g											
Electronics																	
Seq. 1 starts																	

2													3				4			
1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	13"	1	2"	3"	4	1	2"	3"	4
s/fu	lun/g	a				a														
Seq. 1 ends																				

5				6				7					8					9				
1	2	3	4	1"	2"	3	4	1	2	3	4	5"	1"	2"	3	4	5	1	1.5	2	3	4
lun	lun	lun	lun	lun lun				g g g g					g					lun/scr lun/scr lun/scr				

10					11				12				13					14				15			
1	2	3	4	5	1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3	4	1	2	3	4
a	lun	lun	lun	lun	lun/g	lun/g	lun/g	fe	lun	lun	lun	lun						lun	lun	lun/g	lun/g	lun	lun	lun	lun

16				17				18				19				20				21				22			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
lun	lun	lun	lun	lun/la								lun				lun	lun	lun	a/lun	lun	lun	lun	lun	lun/g	lun/g	lun/g	lun/g
g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g	g				
Seq. 2 starts												Seq. 2 ends															

23			24		25				26				27				28			
1	2	3	1	2	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
s/fu	s/fu	s/fu	lun	lun	s/fu	A	A	A	a	a	lun/r		lun/A	lun	lun/g	lun	s/sxta/sxti		s/sxta/sxti	lun/s

29		30				31			32			33				34
1	2	1	2	3	4	1	2	3	1	2	3	1	2	3	4	1
lun	lun	scr	scr	scr	scr	s/sxta/sxti		s/sxta/sxti	s/sxta/sxti	s		s/g	g			

35				36				37				38			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
lun/scr	lun/scr	lun/scr	lun/scr	lun/scr	lun/scr	lun/scr	lun/scr	lun/scr	lun/scr	lun/scr	lun/scr			A/scr	A/scr
g	g	g	g	g	g	g	g	g	g	g	g				
Seq. 3 starts															

39				40				41	42	43	44				
1	2	3	4	1	2	3	4	1 2 3	1 2 3 4	1 2	1	2	3	4	
A/scr	A/scr	A/scr	A/scr	lun/g	lun/g	lun/g	lun			lun/A	lun	lun/A	lun/A	lun/A	lun/A
Seq. 3 ends															

45				46				47				48				49			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
lun/A	lun/A	lun/A	lun/A	s	s/fu	lun/s	lun/s	lun/g	lun/g	s/fu	lun/A	lun	lun/g	lun	lun				

50				51				52				53				54					55				56			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	5.5	1	2	3	4	1	2	3	4
s/fu		lun/s/g	lun/g	lun		s/fu	s	w	w	w	s	s/fu	A/s	s		s	s	s	s	s	s	s	s	s				

57				58				59				60				61			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
lun	lun											a	a	lun	lun	lun	lun	lun	lun

62																							
2'30"																							
				scr	a	a	a	lun	lun	s/fu													
lun/g	lun/g	a	a	a	a	a	a						a	a	a	a							
Seq. 4 starts																						Seq. 4 ends	

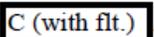
APPENDIX B. CULTURAL MAP OF *ENDLESS WHISPERING***Cultural Map of *Endless Whispering***

 <i>Sheng</i>	 <i>Xun</i>
 Flute	 Bass Flute
 Oboe	 Crystal Glass
 Bass Clarinet	 Clarinet
 Tuba	 <i>Thai Gong</i>
 Fixed Media	

Timbre of *sheng* and *xun* as found in acoustic instruments and fixed media

 <i>Sheng</i> sound/Harmonics
 <i>Xun</i> sound

Traditional *sheng* chords

 Traditional chords	 Any instrument on this line constitutes a fourth or a fifth with the flute
--	--

Traditional *sheng* techniques

 Flutter-tongue	 Duo qi	 Da ying
 Glissando	 Dou ying	 Qu-qi

Electronic effects

 Reverb	 Delay
 Distortion	 Harmonizer

Measure Numbers		1		2 (A)				3			
Duration/Beat		senza misura (12")		1	2	3	4	1	2	3	4
Sheng	Xun		R R	R	G/R	C/R/D	C/F/R/D	C/F/R/D	C/G/R/D	C/F/R/D	R/D
Flute	Bass Flute										H
Oboe	Crystal Glass		C/Sh/R C/Sh/R	C/Sh/R	C/Sh/R						
Bass Clarinet	Clarinet									H	H
Tuba	Thai Gong						H	H	H	H	H
Fixed media											

4				5				6				7			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
R/D	R/D	R	R	R	R	F/R/Dy	F/R/Dy	F/R/Dy	F/R/Dy	F/R/Dy	F/R/Dy	C/R/Dy	F/C/R/Dy	F/C/R/Dy	F/C/R/Dy
H	H	F/H	F/H/Dy	Dy	Dy	F/Dy	C/R/Dy	F/G/Dy	G/Dy	Dy	Dy				R/Dy
							C/R/Sh	C/R/Sh	R/Sh	G/R	G/R	F	F/C	G/R	G/R
H	H	H												R	R
F/H	F/H														

8				9				10				11			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
F/R/Dy	F/R/Dy	F/C/R/Dy	F/C/R/Dy	C/R/Dy	F/R/Dy	F/R/Dy	F/C/R/Dy	R/Dy	R/Dy	F/R/Dy	F/R/Dy	R/Dy	F/G/R/Dy	F/G/R/Dy	F/R/Dy
R	R	R	R	R	R	G/R	R	R	R	R	G/R	R	R	R	R
	F	R									G/R	G/R	R	F/G/R	F/G/R
R	R	R								R	R	R	R	R	R
F/R	F/R	F/R	G/R	G/R	R	R	R	R	R	R	R	R			

12				13 (B)			
1	2	3	4	1	2	3	4
C/R/Dy	C/R/Dy	C/R/Dy	C/R/Dy	C/R	C/F/R	C/F/R	
R	Sh/R	F/Sh/C/R					
F/R	G/R	R	R		G	G	C
F/Sh	F/Sh						
		C/R	C/R				

14				15			
1	2	3	4	1	2	3	4
	G/R/Dy	R/Dy	R/Dy	F/R/Dy	F/R/Dy	F/R/Dy	R/Dy
						F/G/C (with tuba)/R/H	F/G/C (with tuba)/R/H
			R	R	R	R/H	F/G/C (with b. cla.)/R/H
				R	R	R/H	R/H
		R	R	C/R	R	C (with tuba and ob.)/R/H	R/H
X	X	X	X	X	X	X/G	X
audio track 1 (1'13") starts							

16			
1	2	3	4
R/Dy	C (with b. cla.)/R/Dy	R/Dy	C (with flt.)/R/Dy
F/G/R/H	G/R/H	F/G/R/H	F/C (with tuba)/R/H
F/G/R/H	F/G/R/H	G/R/H	G/R/H
R/H	F/G/C (with sheng)/R/H	F/G/R/H	G/R/H
			F/G/C (with flt. and b. cla.)/R/H
X			

17			
1	2	3	4
C (with flt.)/R/H	C (with flt.)/R/H	C (with flt. and b. cla.)/R/H	C (with flt. and b. cla.)/R/H
C (with tuba)/R/H	C (with <i>sheng</i>)/R/H	C (with <i>sheng</i>)/R/H	C (with <i>sheng</i>)/R/H
G/R/H	R/H	R/H	R/H
G/R/H	G/R/H	C (with <i>sheng</i>)/R/H	C (with <i>sheng</i>)/R/H
F/G/R/H	G/R/H	G/R/H	G/R/H

18				19				20			
1	2	3	4	1	2	3	4	1	2	3	4
G/C (with flt. and b. cla.)/R	C (with flt. and b. cla.)/R	R	F/R	F/R/Dy	R/Dy	C/R/Dy	R/Dy	R/Dy	R/Dy	G/R/Dy	R/Dy
C (with <i>sheng</i> and tuba)/H	C (with <i>sheng</i> and tuba)/H	H	H	R	R	R	R	R	R		
H	H	H	H	R	R	R	R	R	R		
C (with <i>sheng</i> and tuba)/H	C (with <i>sheng</i> and tuba)/H	H	H	R	R	R	R				
C (with flt. and b. cla.)/H	C (with flt. and b. cla.)/H	H	H	R	F/R	F/R	R	R	R	R	R
X		X		G				G			

21			
1	2	3	4
G/R/Dy	R/Dy	R/Dy	C (with b. cla.)/R/Dy
		F/G/C (with tuba)/R/H	F/G/R/H
			G/C (with b. cla.)/R/H
C (with b. cla.)/R	C (with b. cla.)/R	C (with b. cla.)/R/H	C (with b. cla.)/R/H
C (with b. cla.)	C (with b. cla.)	C (with flt. and b. cla.)/R/H	C (with b. cla.)/R/H
X			

22			
1	2	3	4
C (with b. cla.)/R/Dy	C (with b. cla.)/R/Dy	R/Dy	R/Dy
F/G/R/H	G/R/H	G/R/H	R/H
F/G/R/H	F/G/R/H	G/R/H	G/R/H
C (with flt. and b. cla.)/R/H	F/G/C (with flt. and B. cla.)/R/H	F/G/R/H	G/R/H
R/H	R/H	R/H	F/G/R/H
X	X	X	X

23				24			
1	2	3	4	1	2	3	4
G/C (with flt.)/R	G/C (with flt.)/R	G/C (with flt. and b. cla.)/R	G/C (with flt. and b. cla.)/R	G/C (with b. cla.)/R	C (with b. cla.)/R	R	R
C (with sheng)/R/H	C (with sheng)/R/H	C (with sheng)/R/H	C (with sheng)/R/H				
G/R/H	R/H						
G/R/H	G/R/H	C (with sheng)/R/H	C (with sheng)/R/H	C (with tuba)/R/H	C (with tuba)/R/H		
F/G/R/H	G/R/H	G/R/H	G/R/H	C (with b. cla.)/R/H	C (with b. cla.)/R/H	R/H	R/H
X	X	X	X	X	X	X	X

25				26				27			
1	2	3	4	1	2	3	4	1	2	3	4
R	R	R	R	R	G/R	G/R	G/R	R	R	R	R
R	G/R	G/R	G/R							C (with tuba)	
X	X	X	X	X	X	X	X	X	X	C (with b. cla.)	

28				29			
1	2	3	4	1	2	3	4
R	R	R	R	R	C/F/R/D	C/F/R/D	C/F/R/D
		F/G/H	F/G/H	F/G/H	G/H	G/H	G/C (with tuba)/H
			F/G/H	F/G/H	F/G/H	G/H	G/H
	C (with tuba)	C (with tuba)/H	C (with tuba)/H	C (with tuba)/H	F/G/C (with tuba)/H	F/G/H	G/H
	C (with b. cla.)	C (with b. cla. and ft.)/H	C (with b. cla.)/H	C (with b. cla.)/H	C (with b. cla.)/H	H	H
X	X	X	X	X	X		

30				31				32			
1	2	3	4	1	2	3	4	1	2	3	4
F/R/D	F/R/D	F/R/D	F/R/D	F/R/D	F/R/D	R	R	F/G/R/Dy	F/G/R/Dy	R/Dy	R/Dy
C (with tuba)/H	C (with tuba)/H	C (with tuba)/H	C (with tuba)/H	H	H	H/R	H/R	H/R	H/R	R	R
G/H	G/H	H	H	H	H	H/R	H/R	H/R	H/R	R	R
G/H	G/H	C (with tuba)/H	C (with tuba)/H	H	H	H/R	H/R	H/R	H/R	R	R
C (with ft.)/k. click/H	C (with ft.)	C (with ft. and b. cla.)	F/G/C (with ft. and b. cla.)/H	G/H	G/H	G/H/R	H/R	H/R	H/R	R	R
	X	X	X	X	X	X	X	X			
								audio track 1 ends			

33				34				35 (5/4) (D)					36 (3/4 + 1/8)			
1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3	3.5
R/Dy	R/Dy	G/R/Dy	R/Dy	G/R/Dy	R/Dy		R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	Da/R/Dy	Da/R/Dy	Da/R/Dy	R/Dy
R	R	R				R/H	R/H	R/H								R
							R/H	C/R/H	R/H							
R	R	R	R					C/R/H	C/R/H	R/H	R/H					
R	R						R/H	R/H		G	G/R/H					

37				38				39				40				41			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
R	R	R	R	C/R	C/R	C/R	C/R	C/R	C/R	C/R	C/R	C/R	C/R	G/R	R	R	F/R	F/R	C/R
Sh/R	Sh/R	Sh/C/R	Sh/C/R	Sh/R	Sh/R	Sh/R	Sh/R	Sh/R	Sh/C/R	Sh/C/R	Sh/R	R							
																			R
																	Sh/R	Sh/R	Sh/R
				audio track 2 (1'44")															

42				43				44 (5/4) (E)				
1	2	3	4	1	2	3	4	1	2	3	4	5
R	R/H	R	F/R	F/R	F/R	F/R	C/R	R	R	R	C (sung)/G(sung)/R/D	
R	G/R/H	G/R/H	R/H			R/H	R/H	R/H				
R	R/H	G/R/H	G/R/H	R/H			R/H	C/R/H	C/R/H			
R	R/H	R/H	G/R/H	G/R/H				C	C/R/H	C/R/H	C/R/H	
		R/H		R/H	R/H	R/H				G/R/H	G/R/H	
				Sh				Sh	Sh	Sh	Sh	Sh

45				46				47				48				49					
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4		
C (sung)/G(sung)/R/D		C (sung)/G(sung)/R/D		R/D	R/D	R	R	R	R	C/R	C/R	C/R	C/R	C/R	C/R	C/R	C/R	C/R	C/R	R	R
			Sh/R	Sh/R	Sh/R	Sh/R	Sh/R	Sh/C/R	Sh/R	Sh/R	Sh/R	Sh/R	Sh/R	Sh/C/R	R	R	R	R	Sh/R/H	Sh/R/H	
																			R/H	R/H	
																				R/H	
																				R/H	
Sh				Sh				Sh	Sh/G	Sh/G	Sh	Sh	Sh	Sh	Sh	Sh	Sh	G		G	

60				61				62				63 (G)			
1	2	3	4	1	2	3	4	senza misura (50")				1	2	3	4
R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	R	G/R	G/R	F/C/R
R	R	R													
C (with cla.)/R	C (with cla.)/R	C (with cla.)/R	C (with cla.)/R	R	R										
C (with ob.)/R	C (with ob.)/R	C (with ob.)/R	C (with ob.)/R	R											
R	R	R	R												
								X	X	X	X			Sh/X	Sh/X
audio track 3 (1'34") starts															

64					65					66			67		
1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3
C/R	G/C/R	C/F/R	R	R	R	R	R	R	C/R	C/R	C/R	R	R	R	C/R
				C					C				C	C	
										G/C (sung)	G/C (sung)		G/C (sung)	G/C (sung)	G/C (sung)
Sh/X	Sh/X	Sh/X	Sh			Sh	Sh	Sh	Sh						

68				69			
1	2	3	3.5	1	2	3	4
C/R	C/R	C/R	C/R	C/R	C/R	C/R	C/R
C	C			C/R	C (with ob.)/R	C (with ob.)/R	C (with ob.)
				C/R	C (with fit. and b. cla.)/R	C (with fit. and b. cla.)/R	C (with fit. and b. cla.)/R/H
	C			C/R	C (with ob.)/R	C (with ob.)/R	C (with ob.)/R/H
G/C (sung)	G/C (sung)	G/C (sung)	F/C (with sheng)	F/C (with sheng)/R	F/C (with sheng)/R	F/C (with sheng)/R	F/C (with sheng)/R/H
Sh	Sh	Sh	Sh	Sh		Sh	Sh

83 (5/4)					84 (3/4)			85 (5/4)				
1	2	3	4	5	1	2	3	1	2	3	4	5
R	G/R	F/C/R/D	F/C/R/D	F/C/R/D	F/C/R/D	F/Da/C/R/D	F/Da/C/R/D	F/Da/C/R/D	C/R/D	C/R/D	C/R/D	C/R/D
			R	R	R	G/R	F/R	R				
R	C (with cla.)/R	R	G/R	G/R	G/R	G/R	R					
R	G (with ob.)/R	G/R	G/R	G								C (with tuba)
	C (with cla.)/R	R	R	C (with b. flt.)/R	R	G/R	G/R	G/R	G/R	R	R	C (with cla.)/R

86				87 (3/4)			88				89 (5/4)				
1	2	3	4	1	2	3	1	2	3	4	1	2	3	4	5
C/R	C/R	G/R	R	C/R	F/Q/C/R	F/Q/C/R	F/G/C/Da/R	F/Do/R	F/Do/R	R	R/Dy	R/Dy	R/Dy	G/R/Dy	R/Dy
		R	C (with ob.)/R	R	G/Sh/R	G/C (with cla.)/R	R	R	G/R	G/F/R	F/C/R	F/R	G/R	G/R	G/F/R
			C (with b. flt. and tuba)/R	G/R	G/R	F/R	R	R							
G/R	G/R	G/R	G/R	F/R	R	C (with b. flt.)/R									
R	R	R	C (with ob.)/R	G/R	G/R	G/R	G/R	R	Sh/R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	G/R/Dy	G/R/Dy

90					91				92			
1	2	3	4	5	1	2	3	4	1	2	3	4
				R/Dy	R/Dy	R/Dy	R/Dy	R/Dy	C/F/R/Dy	C/F/R/Dy	C/F/R/Dy	C/F/R/Dy
F/C										G		
						Sh	Sh		Sh	Sh	Sh	Sh
												C/H
G/Dy	G/Dy	Dy	Dy	Dy	Dy	Dy	Dy	Dy	C (with sheng)	C (with sheng)	C (with sheng)/H	H

APPENDIX C. CULTURAL MAP OF *SPIRAL NETWORK***Cultural Map of Spiral Network**

	<i>Sho</i>
	<i>Koto</i> (treble)
	<i>Koto</i> (bass)
	<i>Koto</i> (voice)
	Voice
	Bass Clarinet
	Electric Guitar
	Cello
	Electronics

The sound of *sheng* and *xun* as heard in the acoustic instruments and electronics

 *Sho* sound/harmonics

***Sho* traditional chord**

 Traditional Chords

***Sho* traditional techniques**

 Flutter-tongue

***Koto* traditional techniques**

 Scraping
 Glissando
 Vibrato
 Arpeggio

Measure Number	1					2				3				4				5				6					7		
Duration/Beat	1"	2"	3"	4"	5"	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3
Sho													V																
Koto (treble)							S						S																
Koto (bass)								V																					
Koto (voice)																													
Voice																													
Bass Clarinet													V																
Electric Guitar							S					V	V	G	G	G		G	G	G	G								
Cello						S	G	S	S	S	G	S	S																
Electronics	Sh	Sh																									V/Sh	V/Sh	V/Sh

8				9				10				11				12					13			14					15					16			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1"	2"	3"	4"	5"	1"	2"	3"	1"	2"	3"	4"	5"	1"	2"	3"	4"	5"	1"	2"	3"	
														V				V	C/V																		
									S			Sh	Sh					S	S	S	S	S	S										S	S	S		
	S/G	S/G	S/G	S														S	S	S																	
																																	Sh	Sh	Sh	Sh	
																																	Sh	Sh	Sh	Sh	
	V	V/G	S/G	A											G	G	G	G	S																		
V	S/V/G	S/G	G	G	S			V	G	G	G	G																G	G	G	G	G	G	G	V	V	V
V/Sh	V/Sh	V/Sh	V/Sh	V/Sh	V/Sh	V/Sh	V/Sh																														

17								18					19								20								21			22	
1"	2"	3"	4"	5"	6"	7"	8"	1"	2"	3"	4"	5"	1"	2"	3"	4"	5"	6"	7"	8"	1	2	3	4	5	6	7	8	1	2	3	1	2
S	G																														S		

46			47			48			49								50					51								52				
1	2	3	1	2	3	1	2	3	1"	2"	3"	4"	5"	6"	7"	8"	1"	2"	3"	4"	5"	1"	2"	3"	4"	5"	6"	7"	8"	1"	2"	3"	4"	5"
Yellow			Red			Yellow			Yellow													Red												
			Sh Sh			V																G G G G G G G G G								G G G G G G				
						S			G G G G G G G G G								A																	
G G G									G G G G G G G G G								G G G G G G																	

53					54			55				56				57				58				59					60			61				
1"	2"	3"	4"	5"	1"	2"	3"	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3	1	2	3	4	5
								F F				C C C C				Red				Red									Yellow			Red				
								S S				S				S																				
G G G G G					G			S S G				G G				G G G				Sh Sh Sh Sh				V V					Sh							
								S								G G G				G G G				G G G G G								S				

62				63				64				65				66				67		68							
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	1"	2"	3"	4"	5"	6"	7"	8"
												S				Red						Green							
				V												S						Green							
				Sh Sh				Sh/V Sh/V														Blue							
				Sh				Sh														Sh Sh Sh Sh Sh Sh Sh Sh							
				G				G G G G				G G G						G G G G G G G G											
G G G				G G G G				G G G G				G G G				G G		G G G G G G G G											

69													70				71													72											
1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	13"	1	2	3	4	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	13"	1	2	3	4								
V V V V V V V																	V V V V V V V V																								
														S																											
													S	S		S	S																								
Sh																																									
													S/A			G																									
G	G	G	G	G	G	G	G	G	G	G	G	G					G	G	G	G	G													G	G	G	G				
													G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G	G									

73				74					75			76		77			78					79								80				81				82							
1	2	3	4	1	2	3	4	5	1	2	3	1	2	1	2	3	1	2	3	4	5	1	2	3	4	5	6	7	8	1	2	3	4	1	2	3	4	1	2	3	4				
				Sh					Sh																																				
G				Sh					Sh	Sh																																			
														S	S	S																													

83				84				85				86				87				88										89				90							
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	1	2	3	4	1	2	3	4				
							</																																		

91				92				93					94				95				96				97							
1	2	3	4	1	2	3	4	1	2	3	4	5	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Yellow				Yellow				Yellow					Yellow				Yellow				Yellow				Yellow							
Sh Sh Sh				Sh Sh Sh				Sh Sh Sh					V V				V				V/Sh V/Sh				Sh Sh Sh							
G G G				G G G				G G G					V				V/Sh				V/Sh				G G							
Sh Sh				Sh Sh				Sh Sh Sh					Sh Sh				V V/G V/G V/G				V/Sh V/Sh				Sh Sh Sh							

98				99				100				101				102				103				104				105											
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1"	2"	3"	4"	5"	6"	7"	8"				
Red				Red				S S				S				S				S				Yellow				Yellow											
Sh Sh				Sh Sh				Sh Sh				Sh Sh				Sh Sh				Sh Sh				Sh Sh				Sh Sh				Sh Sh Sh							
V				V				V				V				V				V				V				V				V							
G G G G				G G G G				G G G G				G G G G				G G G G				G G G G				G G G G				G G G G											
V/Sh V/Sh				V/Sh V/Sh				V/Sh V/Sh				V/Sh V/Sh				V/Sh V/Sh				V/Sh V/Sh				V/Sh V/Sh				V/Sh V/Sh											
Sh Sh Sh Sh				Sh Sh Sh Sh				Sh Sh Sh Sh				Sh Sh Sh Sh				Sh Sh Sh Sh				Sh Sh Sh Sh				Sh Sh Sh Sh				Sh Sh Sh Sh											

106													107												
1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	13"	1"	2"	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"	13"
V/Sh													V/Sh												
V/Sh													V/Sh												
Sh													Sh												
G G G G G G G G G G G G													Sh												

115											116											117						
5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	5"	10"	15"	20"	25"	30"	35"	40"	45"	50"	55"	5"	10"	15"	20"	25"	30"	34"
G G G G G G G G G G G																						G G G G G G G						

118				119				120				121		122				123				124				125		126				127				128			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	1	2	3	4	1	2	3	4	1	2	3	4	1	2	1	2	3	4	1	2	3	4	1	2	3	4
								C C C C C						C C C C C				C C C C C				C C C C C																	
														Sh				Sh				Sh				S S													
																								C C C C C				C C C C C				C C C C C							
												Sh Sh		Sh Sh Sh Sh				Sh Sh Sh Sh				Sh Sh Sh Sh				V V		Sh Sh Sh Sh				Sh Sh Sh Sh				Sh Sh Sh Sh			

129		130				131				132				133				134				135				136			137				138				139			
1	2	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	1	2	3	4	1	2	3	4	1	2	3	4
																													C C C				C C C C C							
		Sh												Sh																										
C C		Sh Sh				A Sh C				A A				A A				Sh Sh Sh				A A A A				C C C														
Sh Sh																																								

140				141				142								143				144				145					
1	2	3	4	1	2	3	4	1"	2"	3"	4"	5"	6"	7"	8"	1	2	3	4	1	2	3	4	2"	4"	6"	8"	11"	
								C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C						
								A	A																				
								Sh	Sh	Sh	Sh	Sh	Sh	Sh	Sh									C	C	C	C	C	
																								V	V	V	V	V	
																								V	V	V	V	V	
																								V/Sh	V/Sh	V/Sh	V/Sh	V/Sh	

146					147					148					149					150				151			
2"	4"	6"	8"	11"	2"	4"	6"	8"	11"	2"	4"	6"	8"	11"	2"	4"	6"	8"	11"	1	2	3	4	1	2	3	4
C										S/C																	
C	C	C/Sh	C	C	C	C	C	C	C/Sh	C	C	C	C/Sh	C													
V	V				V	V																					
V	V	V	V	V	V	V	V	V	V																		
V/Sh																											

152				153				154				155						156				157				158				159				
1	2	3	4	1	2	3	4	1	2	3	4	2"	4"	6"	8"	10"	12"	15"	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

160				161							162			163		164			165		166		167	
1	2	3	4	2"	4"	6"	8"	10"	12"	15"	7"	14"	21"	7"	13"	7"	14"	21"	7"	13"	4"	8"	7"	13"
											C	C	C	C	C	C			C	C	C	C	C	C
														C/Sh		C/Sh								
S																								
				V/Sh																				
				V/Sh																				
																Sh					S	S		A
																					S	S		A
				V/Sh																				

168		169	
4"	8"	7"	13"
C	C		
S/A	V		
S			
		V/Sh	V/Sh

APPENDIX D. INTERVIEWS WITH COMPOSERS

The following unedited responses were received by email.

GENERAL QUESTIONS FOR MARC BATTIER

- 1. How did you get interested in writing for traditional instruments? What was your first music composition for traditional instrument and electronics? What was the impulse for the artistic decision? What was your inspiration?**

My first piece for TAI was a commission from Paris' GRM (Groupe de recherches musicales). Actually, the commission was given to me in 1984. I wanted to do a piece for soprano and electronic sounds, and the text was Japanese tank poem, which is a 31-syllable poem. That poem had a long introduction which described the situation; a tale of separation. This poem is very well known in Japan. It's called "miyako dori" which stands for the bird from the capital. I found a couple, of translators to translate from Japanese to French, a French writer familiar with Japan and a Japanese scholar. They did a wonderful job, keeping the translation simple and yet full of poetry.

I had the text read and performed (not sung) by a French singer, Franck Royon LeMée, who was quite famous at the time (he passed away several years later). We recorded his extraordinary performances in the studio of the GRM. I wanted to work with a soprano I know, who lives in Paris, but was Japanese, so that she would understand the meaning of the poetry.

I spent several days processing the recorded voice at the GRM studio, using the SYTER real time digital processor they had invented and developed.

Anyway, I had to leave Paris to go teach at the university of California at San Diego (UCSD) on an invited professorship position so I didn't finish the piece. I even didn't write the singer's part. I stayed two years at UCSD, and then went back to IRCAM. By that time, the Japanese soprano was cross and I could not write for her anymore. It's only in 2007 that I received an invitation from GRM to finish the piece. I then decided that a shakuhachi would be well suited, and I had a former student (French) who had become an expert at shakuhachi, so that was my first experience with TAI. I studied the various ways of playing the instrument, which I then put in the score. The tape part is composed entirely from the reading made by Franck Royon LeMée, and the poem emerges from time to time from the dense electroacoustic texture, while the shakuhachi comments on the mood expressed in the poem.

The result is what we call a "mixed piece" (a mixture of live instrument and tape or electronic sounds) with a strong Japanese influence.

- 2. How do you incorporate TAI (Traditional Asian Instruments) into a western ensemble? Have you been successful in achieving the ideal balance between preserving your artistic choice and the aesthetic value of TAI into your composition?**

All my TAI pieces are for solo instrument and electronics. Now that I compose increasingly for orchestra, I'm sure I will deal with this. It's what we call in France "musique mixte", a mixture of live instruments and electronics, either on a tape of live.

Now, the question of "aesthetic values" is of course a huge problem. My stance on the question is that I cannot write for TAI as I would write for Western orchestra instruments. I give the TAI performers lots of leeway. This is because a TAI is not played like a Western orchestra instrument. In a way, Western orchestra instruments are universal. They are built on the same model and offer similar possibilities, anywhere they're played. Not so with TAI. There are lots of local variations on single type of instrument (all the different biwa, shakuhachi or koto in Japan, the various guzheng in China, etc.). Furthermore, the canons of playing are totally different. The guqin qualities, for example, which is very old instrument, are described in terms of flavor and virtues. This is foreign to Western musicians, but strictly meaningful to Asian ones. Thus, I am not able to notate the ways of playing while respecting the Asian approach. Even Asian composers have difficulties, if they have not been trained with a particular instrument.

Giving freedom to choose specific ways of playing to traditional musicians cannot be categorized as exoticism. While they will produce sounds specific to the tradition, I see this more like an integration of specific instruments to Western-oriented music. In any case, there are many different ways to articulate Western music with traditional instruments.

3. How do you incorporate TAI into electronics?

I choose to produce electroacoustic layers based on the recording of the instrument played on stage. Even though the electronic processing transforms the original recording, something always remains: rhythms, spectra, tessitura... Of course, even those categories can be changed, but I pay attention to keeping some of them legible, so to speak, so that the performer will not be confronted to a foreign soundscape.

4. How do you solve the problems in notation for traditional instruments?

I write in common Western music notation (CMN).

It is a difficulty for performers. I worked twice with a Japanese koto player, in Japan, who had never played new music. I wasn't going to learn koto notation, and I wrote in CMN. She then had to transcribe, or at least annotate the score with koto notation.

But there's another problem.

I wrote for guqin 古琴 for CCOM professor Ms. Zhao Xiaoxia 赵晓霞, a famous performer. Since I can't use qin notation, I could not specify the type of vibrato I wanted. There are many types of vibrato on the qin. At the first rehearsal in Beijing, she asked me which vibrato I wanted. I answered that I would let her select the one she felt best suited. That's how I became convinced of the importance of giving leeway to the performers, of respecting their long training and use their artistry for the benefit of the piece. I even used some unusual modes of playing, some of which I learned from the performers. The pipa, for instance, can

produce sound in many different ways, and I used some of those techniques. I believe in *Mist on a Hill*, all the effects are in fact used traditionally. The only new effect I introduced under the name "musicbox" is a sort of circular and repeated arpeggio on the four strings, which does not pose much problem. I did not want to use the pipa for what it is not.

- 5. Do the traditional instrumentalists you write for read western notation? If they don't, how do you convey your musical ideas in the traditional notation they understand? If they do, how do you "translate" your musical ideas specifically for those traditional instruments into western notation?**

Yes, they do read CMN.

- 6. How successful could you convey musical ideas in the process of "translating" your musical ideas to the score, both to traditional notation and to western notation? How much of the information was "lost in translation" based on your experience writing for this genre?**

Since traditional notation is more precise in certain aspects of the ways of playing a specific instrument (I gave above the example of the qin), I leave the performers ample space for deciding how to perform. For this, it is important that I spend time with the player explaining what the piece is about. Of course, in an ideal world, this should be done in all situations, not only with TAI. Anyway, that koto player, in Nagoya, asked me what I wanted to express in that piece for koto and tape. I explained that, for me, the electroacoustic sounds were like clouds in the sky, always changing but rarely the center of attention. The koto was on the earth, the focus of attention. The audience would look at her performance, and the sound from the speakers would be like a decor, a setting. She understood better and gave a wonderful performance? Her husband, a shakuhachi player, had actually performed "*Miyako dori*" in Japan.

- 7. How many repeat performances have you had for your TAI and electronics pieces?**

The piece for shakuhachi (*Bird of the Capital — Miyako dori*) was first performed in Paris (2008). The player was French, but had a deep shakuhachi training. I had a performance in New York (American player), then in Beijing (Chinese player) and finally in Japan, with a traditional player. The koto piece (*Constellation*) was written for a Japanese koto player living in Germany, and was first performed in Berlin. It then was transcribed for Guzheng (Beijing) and had another performance with koto in Gifu (Japan). My first pipa piece, *Mist on a Hill*, was premiered in Beijing, then had a fine performance in Boston (with Min Xiaofen).

8. Is there anything you want to add?

QUESTIONS FOR MARC BATTIER

“Mist on a Hill” (2009) for pipa and electronic sounds

1. Why did you write for pipa?

The pipa player I wrote for had been my assistant when I came to the Beijing Central conservatory of music for a conference I co-organized, the Electroacoustic Music studies Network conference, which was held during the annual Musicacoustica festival which takes place each year in October. The organizer, Zhang Xiaofu, professor at the Central conservatory, asked to me write a piece for the festival.

My assistant was a very good pipa player. She was an undergraduate in composition who also played the piano (and hence could write CMN) and pipa. Her name is Gao Yunxiang 高韵翔。

I visited again Beijing in 2007 and we met, so that she could demonstrate the possibilities of the pipa. She was very inventive and gave a lot of information that I ended up not using, but I did retain some. I taped that session, went back to Paris. I designed a pipa fingerboard (on paper) to see which fingerings were allowed. I then wrote a fragment, sent it to Beijing. Yunxiang would play and record it and send me the MP3, and so on. We did that several times. She told me whenever what I wrote could not be played, and gave some advice.

2. What aspects of pipa, historically, culturally, timbrally and technically attracted you to write for it with electronic sounds?

Its ability to be both tender and dreamy, and strong and even violent.

My piece is all about contrast.

3. What was your compositional process when you were writing for pipa?

I like the pipa because this instrument is capable of wide contrasts: very subtle, soft sounds, and also very dramatic and violent textures. Since I always compose with lots of contrast, this suited me well. I tried to keep the idea of contrast in Mist on a Hill.

4. There are quite a number of traditional techniques, for example five-finger-tremolo and finger vibrato, that are specific for pipa in “Mist on a Hill.” How did you approach these techniques? How did you apply these techniques into “Mist on a Hill?”

Again, I owe a lot to Gao Yunxiang for that. In fact, I helped her be admitted at the university of California at Irvine because there was a new program at the music department in which

she could grow as a composer, improviser and performer. Indeed, she obtained her Master degree and is now in a Ph.D. program at UC Santa Cruz. I am grateful to UC Irvine for providing her with a with scholarship.

5. Follow up to question no. 3 - is the pipa player reading a traditional score or a western score? How did you translate those traditional techniques into the score?

I cannot write in traditional pipa notation. Furthermore, the performer Gao Yunxiang, as accustomed to Western notation.

6. What are the electronic sounds in “Mist on a Hill” and what made you choose these particular sounds compositionally and aesthetically?

All the sounds are processed pipa, to establish a relationship in timbre, texture, sound behavior between the tape and the pipa.

7. What are the relationships between pipa and the electronic sounds? How do you view those relationships?

Because the electroacoustic sounds are made of processed pipa sounds, there is an organic relationship in the texture and often timbre with the live pipa.

8. In “Mist on a Hill,” what is the significance of the balance between the pipa and electronics structurally and timbrally? Does the balance play an important role in your aesthetic?

This is an important question, one which is pretty much on my mind at the present. I have written pieces for orchestra, and the latest one is for orchestra and tape. The relationship is difficult. If I orchestrate the score, it's not easy to do the same with electroacoustic sounds.

There is a tape solo passage near the end of Mist on a Hill, during which the performer must stand still. This is because the audience looks at her: she is the center of attention, even if she does not play, because she will eventually play.

9. Is there anything you want to add?

When Min Xiao-fen 闵小芬 (Chinese pipa player living in New York) played it in Boston (Fenway Center), she added elements I had not foreseen (that's the version on Youtube). She enriched the piece differently, adding theatrical effects. Very interesting.

However, I heard the piece played by Gao Yunxiang several times (last time was at UC Irvine in January 2014 while I was in residence there) and I like very much her approach. Because the piece was written for her, she understand the contrast aspect I discussed above.

GENERAL QUESTIONS FOR KEE YONG CHONG (UNANSWERED)

1. **How did you get interested in writing for traditional instruments? What was your first music composition for traditional instrument and electronics? What was the impulse for the artistic decision? What was your inspiration?**
2. **How do you incorporate TAI into a western ensemble and/or electronics? Have you been successful in achieving the ideal balance between preserving your artistic choice and the aesthetic value of TAI into your composition?**
3. **How do you incorporate TAI into electronics?**
4. **How do you solve the problems in notation for traditional instruments?**
5. **Do the traditional instrumentalists you write for read western notation? If they don't, how do you convey your musical ideas in the traditional notation they understand? If they do, how do you "translate" your musical ideas specifically for those traditional instruments into western notation?**
6. **How successful could you convey musical ideas in the process of "translating" your musical ideas to the score, to traditional notation, and to western notation? How much of the information was "lost in translation" based on your experience writing for this genre?**
7. **How many repeat performances have you had for your TAI and electronics pieces?**
8. **Is there anything you want to add?**

QUESTIONS FOR KEE-YONG CHONG

"Endless Whispering" (2006) for Sheng (Xun) & 4 western instruments (Fl/Ob/Cl/Tuba) with live electronics

1. **Why did you write for sheng?**

This is one of my favorite Chinese instruments.

2. **What are the sounds of sheng that attract your attention?**

I was moved by the breath-like sounds of the sheng and also the continuity of chords that are produced by the sheng.

3. There are some unique sheng techniques and how did you use them in “Endless Whispering?”

After working with my sheng player, Mr. Wu Wei, I learned how to use the sheng’s unique techniques like strong accents, different types of tremolo and portamento bending in my work “Endless Whispering.”

4. What issues did you encounter when you incorporated these techniques into western notation?

I’m lucky that Mr. Wu Wei was able to read Western notation and understand my music very well, so in general I integrated traditional Chinese instrument notation symbols and Western notation at the same time.

5. What is the role of live electronics in “Endless Whispering?”

The live electronics serve as a dialogue with all instruments and also enrich the sound-space of the piece.

6. What is the relationship between sheng and the live electronics?

The live electronics contain pre-recorded materials from the nature sounds, sounds of different instruments and sounds from the interaction between sheng and live processing effects.

7. What are the similarities and differences of sheng and live electronics?

Both parties build a mixture of instruments and nature sounds in this piece, and the live electronics enrich the timbre of sheng with many processed sound effects.

8. What are the roles of flute, oboe, bass clarinet and tuba in “Endless Whispering?”

Most of them serve as the “echoes” or “passengers” for sheng. Those 4 offstage instruments surrounded the audiences to create a soundscape like in nature!

GENERAL QUESTIONS FOR GENE COLEMAN

1. How did you get interested in writing for traditional instruments? What was your first music composition for traditional instrument and electronics? What was the impulse for the artistic decision? What was your inspiration?

*I had an interest in Asian music (and its instruments) from a long time ago. As a teenager, I studied Asian martial arts and made copies of Japanese and Chinese paintings, all of which increased my interest in the music from these places. But my first chance to delve seriously into composing with traditional Asian instruments was in 2001, when I was a creative arts fellow of the Japan-US Friendship Commission. This program brought me to Japan for 7 months, at which time I met many great musicians (such as Sho master Ko Ishikawa) and began composing music for them.

*My first work for Japanese instruments and electronics was “Cloud Cut”, composed in 2001. The work is scored for 3 e-guitars, electronics, sho, hichiriki, ryuteki, bass clarinet, cello and contrabass. This was created for a concert at the International House of Japan, and featured Ko Ishikawa (sho), Sasamoto Takeshi (ryuteki), Aya Motohashi (hichiriki), Otomo Yoshihide, Taku Unami and Burkhard Stangl (e-guitars), myself playing bass clarinet, Michael Moser (cello) and Werner Dafeldecker (contrabass and electronics). *Because I was working with leading figures in both traditional Japanese instruments and Japanese experimental music, I was inspired to create some music that combined these two worlds, which I thought were similar in various ways.

*After several years of working with the Japanese musicians, I was able to expand into collaborations with Chinese instruments (in Taiwan, Berlin and Hong Kong) and also with instruments from the Middle East (such as the Oud).

2. How do you incorporate TAI (Traditional Asian Instruments) into a western ensemble? Have you been successful in achieving the ideal balance between preserving your artistic choice and the aesthetic value of TAI into your composition?

*One of my main ideas is to focus on timbre – what makes the instruments sound different, what makes them sound the same? I think timbre is actually the most important element in identifying the sounds. So by understanding how I can make all the instruments sound with the same timbre, its possible to create a unified soundfield. Likewise, the timbral differences can be emphasized to make strong contrasts of sound. In this way, scales of similarity and difference can be created, which gives the possibilities of composition. Not surprisingly, the use of specific noises is very important in this process – for example, an air noise on a bass clarinet and a sho can be done in such a way that they seem very similar, while hearing their “normal” produced tones makes their sounds very different from each other.

3. How do you incorporate TAI into electronics?

*Again, timbre is the key thing. I look to embed the electronic sounds in the timbre of the instruments – so (at certain times) it's hard to tell which sound is which. This ambiguity is critical in making a structure that transcends the normal barriers between these sound sources. Generally speaking, I'm working with electronics performers who can generate the sounds I'm looking for, which they find their own way of producing based on their equipment. That means I imagine the sounds and notate them in a way that allows the electronics performer to interpret them as an acoustic instrument musician would.

4. How do you solve the problems in notation for traditional instruments?

*I have been very lucky in this regard, often working with musicians who have a full command of western style notation for their instruments.

5. Do the traditional instrumentalists you write for read western notation? If they don't, how do you convey your musical ideas in the traditional notation they understand? If they do, how do you “translate” your musical ideas specifically for those traditional instruments into western notation?

*As I noted, I have been lucky in this regard. But I have used improvisation and open form notation in some works, as way of opening up the musical space. This creates musical dialogs that would be impossible if I was only writing western style notation.

6. How successful could you convey musical ideas in the process of “translating” your musical ideas to the score, both to traditional notation and to western notation? How much of the information was “lost in translation” based on your experience writing for this genre?

*Again, I have been extremely lucky to have such talented musicians to work with! Which means my rate of success has been very high in regards to my ideas being translated / interpreted in ways I am happy with. The key here is the depth and range of the musical comprehension possible with the musicians in my group N_JP, also with Chai Found Music Workshop (Taiwan), Hong Kong New Music Ensemble and Asian Art Ensemble (Berlin).

7. How many repeat performances have you had for your TAI and electronics pieces?

*I'd have to go back to 2001 to make an accurate count, but I would say I've had one or two new pieces for TAI and electronics each year (some years more), which have had several performances or more, so the total number of performances is around 100 or higher.

8. Is there anything you want to add?

*The current global situation is causing a crisis in art, politics and society. *Cultural Identity* is being weaponized, which is a very dangerous thing! I feel that this work of mixing western and non-western music with new technologies is very important now, perhaps more so than ever. It sends a powerful message about the human tendency to absorb and transform influences into something new, when there is freedom to explore and experiment. So I am more committed than ever to keep this work going.

QUESTIONS FOR GENE COLEMAN

“Spiral Network” (2012) for sho, koto, baritone voice, ensemble, electronics and video projections

1. There are various components of different cultures in “Spiral Network.” We have Japanese traditional instruments sho and koto, spoken texts, western ensemble, electronics and video. How and why did you choose these components? How did your decision inform your musical style and aesthetic?

Spiral Network was commissioned by The American Academy in Berlin, as part of my Berlin Prize Fellowship. I had a portrait concert in the MaerzMusik Festival and this is where the work had its premiere (March 2013). The work was actually created at the time because another work I intended for this concert had to be cancelled for technical reasons. I needed to create a new companion work for my composition “*A Page of Madness*”, which is scored for a similar ensemble of Japanese and Western instruments. Beyond the need to fill out an important concert there are the much more substantial aspects of this work. *Spiral Network* is closely related to another music-video work of mine called “*9 Chains...*”, which is based on the ideas of the architect and inventor Buckminster Fuller. In “Spiral Network” I was working to further articulate two key ideas derived from Fuller. The first idea (which is the basis for the first half of the piece) comes from Fuller’s epic lecture series called “Everything I Know”. In these lectures Fuller attempted to share all major components of his thinking and I found this to be an interesting idea. I took this idea as a model to represent Fuller’s thought processes, which lead me to construct a series of 11 episodes, each of which contains material from Fuller’s lectures, which appear as both spoken/sung words as well as words that are seen/read in the video. This tension between hearing and seeing the words in different spatial-temporal relationships (and in English and Japanese) is an important aspect of the composition. In each episode there is a cycle that starts with white noise type sounds, which were intended to represent the “sparks of the imagination”, followed by more pitched sounds that are subjected to “spiral processing” that also moves either up or down in frequency bands. In addition to the words, many other images appear in the video that has specific reference to Fuller’s work. The formal characteristics of the music were used to direct the placement of images and texts in the video, thus allowing the music to lead the visual material (a reversal from the conventions of image dominance in most film and TV). All of these ideas have lead me to much deeper research on the functions of the human brain, which has spawned an important new line of compositions, such as “The Geometry of Thinking” for solo cello (see: <https://mcachicago.org/Stories/Blog/2016/10/The-Geometry-Of-Thinking>).

In the second half of the work, Fuller's ideas about *networks* are explored, centered on a sonic metaphor for the network itself. I used the sho to play long sequences of chords that the other instruments and voices weave in and out of – a series of nodal points that are interconnected by many lines and shapes over time. Fuller's concept of the network was based on his desire for a *global consciousness*, which he thought was critical to human survival. He explored this idea many ways, from the concept of the Geodesic Dome to his so called "World Games", which was developed during his years in Philadelphia. In combining instruments and ideas from different cultures, I am also trying to develop a new global culture – a *hybrid experience* that mixes new technologies and ideas with very old and traditional ones.

2. There are other Japanese traditional instruments, such as shakuhachi, shamisen and biwa, that are popular. Why did you write for sho and koto? In fact, most of your output for Japanese traditional instruments was written for sho and koto. What are the aspects of sho and koto that inspire you to write for them?

I have composed works with shakuhachi, shamisen, ryuteki and hichiriki, but I have written more for the sho and koto than other Japanese traditional instruments. The reasons for this include that my first collaborators in Japan played these instruments (Ko Ishikawa (sho) and Yoko Nishi (koto), so I had more time to study them. I was also really drawn to the timbre of the sho and the koto, which lead to many ideas about what to compose. My plans going forward will feature some major new works featuring both the shamisen and the shakuhachi, so my interest in the sound of traditional Japanese instruments will continue.

3. There are quite a number of traditional techniques that are specific to sho and koto. How did you approach these techniques in the beginning? How did you apply them into the music compositionally and aesthetically?

One thing that interested me about the koto was the traditional techniques that are very noisy – there are different kinds of scrapes and swipes that sound very much like something from contemporary European music (such as Helmut Lachenmann). This is very interesting and gave me an immediate way into thinking about how to compose. In the case of the sho, I introduced different kinds of breath noise – this came from my techniques for the bass clarinet, which I have played for many years.

4. Follow up to question no. 3 - are the sho and koto players reading a traditional score or a western score? how did you translate those traditional techniques into the score?

They are reading from a "western" staff based score. A key element of my success to compose for these instruments is that I could write everything in western style staff notation. This is because the musicians I have worked with all had experience reading this notation. From this point I then introduced new playing techniques in staff notation, as well as some graphic (aleatoric) notation. Even in 2001 (when I began my work with Japanese musicians in Japan) the

players I worked with already had very impressive reading and conceptual skills. This allowed me to hear my ideas immediately and I progressed quickly into forming the group Ensemble N_JP (see: http://genecolemancomposer.com/n_jp/).

5. What are the relationships between the Japanese instruments and the rest of the components in “Spiral Network?” What roles do sho and koto play structurally and aesthetically?

The koto player sings as well as plays, and the combination of this voice plus the baritone voice creates a very important tension in the work, because the styles of singing are really different. The koto also uses the “geometric actions” used by the cello and e-guitar and this helps merge or fuse the timbres of these instruments together. In the case of the sho, it also merges noise type sounds with the ensemble in the first half of the piece, in the second half it forms the harmonic center of the work with a series of long held chords that the other instruments weave lines in and out of. This was a metaphor for the idea of a network – a series of nodes and lines that are interconnected.

6. What is the significance of the timbre of sho and koto in “Spiral Network?”

As in most of my works for “hybrid” ensembles, an important idea for me is the “identity” of the instruments, which is closely tied to their timbre. I use noise sounds in all the instruments as a way of blurring or changing your perception of that identity. So in *Spiral Network* that ambiguity of what is “western” or “Japanese” creates new spaces for the instruments to explore – spaces that are new and not bound by the burden of cultural identity. At the same time, I do allow the “normal” sounds to come out at certain times, so what you hear is a complex continuum of what sounds traditional (and separated) and what sounds new (and unified).

APPENDIX E. HSRB INFORMED CONSENT LETTERS



CONSENT FORM:

Informed Consent for Marc Battier

My name is Hong-Da Chin and I am currently a third year student of Doctor of Musical Arts in Contemporary Music at Bowling Green State University. My advisor is Dr. Marilyn Shrude, a composition faculty at BGSU. The topic of my document is *The Music of Marc Battier, Kee-Yong Chong and Gene Coleman: Compositions for Traditional Asian Instruments and Electronics in the Twenty-First Century*. For this document, I will study your music composition "Mist on a Hill" for pipa and electronic sounds.

There are three purposes in my research: investigating the cultural background of you and your perspectives on music you have written for traditional Asian instruments (TAI) and electronics, your approach in dealing with the nuances in timbre and notational systems, and the role of electronics in your music written for TAI and electronics. These questions will surround your general output for TAI and electronics and "Mist of a Hill."

In order to investigate your approach in synthesizing TAI and electronics in your music compositions, it will be necessary to interview you. If you agree to be interviewed, I will send the interview questions, in word document format, to you through email. Your direct involvement with this project will be limited to the time to complete the interview. You are required to type in your answers electronically into the word document and email it back to me. You will spend no more than ten hours to complete the interview questions. You will be informed should I plan to quote you directly and reveal your identity in any way. All of the information from the interviews will be stored in an external hard drive. The external hard drive will be located in a password-protected drawer that on I, the principal investigator, am the only person who knows the password to the drawer.

Your participation is completely voluntary. You are free to withdraw at any time. You may decide to skip questions or discontinue participation at any time without penalty. Deciding to participate or not will not affect your relationship with Bowling Green State University or any institution involved in the research.

The data that will result from our interview will be stored in a password-protected computer. During the writing of my document, I will be the only person to have access to your interview answers.

I do not perceive any potential risks to you as a participant in this study. The risk of participation is no greater than that experienced in daily life.

The BGSU Human Subjects Review Board (HSRB) has approved this project. If you have any questions or concerns regarding the study or your participation in it, you are welcome to contact me via email hchin@bgsu.edu or by phone at +1 361 232 3651.

My advisor, Dr. Marilyn Shrude, can be reached at mshrude@bgsu.edu or 419 372-2055. You may also contact the Human Rights Subjects Review Board Chair at 419 372-7716 or hsrb@bgsu.edu if you have any questions about your rights as a participant in this research. Thank you very much for your time, and for participation in this project.

I, (Marc Battier) have been informed of the purposes, procedures, risks, and benefits of this study. I have had the opportunity to have all my questions answered and I have been informed that my participation is completely voluntary. I agree to participate in this research.

Marc Battier (Participant Signature)

Date



Aug. 13, 2016

CONSENT FORM:

Informed Consent for Kee-Yong Chong

My name is Hong-Da Chin and I am currently a third year student of Doctor of Musical Arts in Contemporary Music at Bowling Green State University. My advisor is Dr. Marilyn Shrude, a composition faculty at BGSU. The topic of my document is *The Music of Marc Battier, Kee-Yong Chong and Gene Coleman: Compositions for Traditional Asian Instruments and Electronics in the Twenty-First Century*. For this document, I will study your music composition "Endless Whispering" for Sheng (Xun) and four western instruments (Flute/Oboe/Clarinet/Tuba) with live electronics.

There are three purposes in my research: investigating the cultural background of you and your perspectives on music you have written for traditional Asian instruments (TAI) and electronics, your approach in dealing with the nuances in timbre and notational systems, and the role of electronics in your music written for TAI and electronics. These questions will surround your general output for TAI and electronics and "Endless Whispering."

In order to investigate your approach in synthesizing TAI and electronics in your music compositions, it will be necessary to interview you. If you agree to be interviewed, I will send the interview questions, in word document format, to you through email. Your direct involvement with this project will be limited to the time to complete the interview. You are required to type in your answers electronically into the word document and email it back to me. You will spend no more than ten hours to complete the interview questions. You will be informed should I plan to quote you directly and reveal your identity in any way. All of the information from the interviews will be stored in an external hard drive. The external hard drive will be located in a password-protected drawer that on I, the principal investigator, am the only person who knows the password to the drawer.

Your participation is completely voluntary. You are free to withdraw at any time. You may decide to skip questions or discontinue participation at any time without penalty. Deciding to participate or not will not affect your relationship with Bowling Green State University or any institution involved in the research.

The data that will result from our interview will be stored in a password-protected computer. During the writing of my document, I will be the only person to have access to your interview answers.

I do not perceive any potential risks to you as a participant in this study. The risk of participation is no greater than that experienced in daily life.

The BGSU Human Subjects Review Board (HSRB) has approved this project. If you have any questions or concerns regarding the study or your participation in it, you are welcome to contact me via email hchin@bgsu.edu or by phone at +1 361 232 3651.

My advisor, Dr. Marilyn Shrude, can be reached at mshrude@bgsu.edu or 419 372-2055. You may also contact the Human Rights Subjects Review Board Chair at 419 372-7716 or hsrb@bgsu.edu if you have any questions about your rights as a participant in this research. Thank you very much for your time, and for participation in this project.

I, (Kee-Yong Chong) have been informed of the purposes, procedures, risks, and benefits of this study. I have had the opportunity to have all my questions answered and I have been informed that my participation is completely voluntary. I agree to participate in this research.

October 1, 2016 Shanghai

Kee-Yong Chong (Participant Signature)

Date



CONSENT FORM:

Informed Consent for Gene Coleman

My name is Hong-Da Chin and I am currently a third year student of Doctor of Musical Arts in Contemporary Music at Bowling Green State University. My advisor is Dr. Marilyn Shrude, a composition faculty at BGSU. The topic of my document is *The Music of Marc Battier, Kee-Yong Chong and Gene Coleman: Compositions for Traditional Asian Instruments and Electronics in the Twenty-First Century*. For this document, I will study your music composition "Spiral Networks" (2012) for sho, koto, baritone voice, ensemble, electronics and video projections.

There are three purposes in my research: investigating the cultural background of you and your perspectives on music you have written for traditional Asian instruments (TAI) and electronics, your approach in dealing with the nuances in timbre and notational systems, and the role of electronics in your music written for TAI and electronics. These questions will surround your general output for TAI and electronics and "Spiral Networks."

In order to investigate your approach in synthesizing TAI and electronics in your music compositions, it will be necessary to interview you. If you agree to be interviewed, I will send the interview questions, in word document format, to you through email. Your direct involvement with this project will be limited to the time to complete the interview. You are required to type in your answers electronically into the word document and email it back to me. You will spend no more than ten hours to complete the interview questions. You will be informed should I plan to quote you directly and reveal your identity in any way. All of the information from the interviews will be stored in an external hard drive. The external hard drive will be located in a password-protected drawer that I, the principal investigator, am the only person who knows the password to the drawer.

Your participation is completely voluntary. You are free to withdraw at any time. You may decide to skip questions or discontinue participation at any time without penalty. Deciding to participate or not will not affect your relationship with Bowling Green State University or any institution involved in the research.

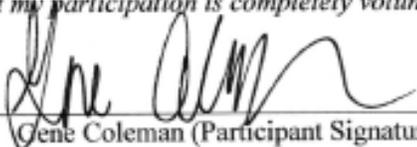
The data that will result from our interview will be stored in a password-protected computer. During the writing of my document, I will be the only person to have access to your interview answers.

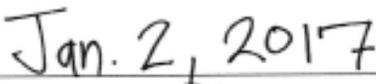
I do not perceive any potential risks to you as a participant in this study. The risk of participation is no greater than that experienced in daily life.

The BGSU Human Subjects Review Board (HSRB) has approved this project. If you have any questions or concerns regarding the study or your participation in it, you are welcome to contact me via email hchin@bgsu.edu or by phone at +1 361 232 3651.

My advisor, Dr. Marilyn Shrude, can be reached at mshrude@bgsu.edu or 419 372-2055. You may also contact the Human Rights Subjects Review Board Chair at 419 372-7716 or hsrb@bgsu.edu if you have any questions about your rights as a participant in this research. Thank you very much for your time, and for participation in this project.

I, (Gene Coleman) have been informed of the purposes, procedures, risks, and benefits of this study. I have had the opportunity to have all my questions answered and I have been informed that my participation is completely voluntary. I agree to participate in this research.


Gene Coleman (Participant Signature)


Date

APPENDIX F. PERMISSION LETTERS

Re: Permission to use excerpts of "Mist on a Hill"

1 message

Battier Marc <marc.battier@paris-sorbonne.fr>
To: Hong-Da Chin <hongda.chin@gmail.com>
Cc: BATTIER Marc <marc.battier@paris-sorbonne.fr>

Wed, Feb 15, 2017 at 12:11 PM

Dear Hong-Da,

That would be me who can grant you the authorization, so there you go, you have my permission.

I would like to receive a PDF copy of your dissertation once completed.

All the best,

Marc

On 15 févr. 2017, at 16:44, Hong-Da Chin <hongda.chin@gmail.com> wrote:

Dear Professor Battier,

Hope this finds you well.

I am thinking of using excerpts of "Mist on a Hill" in my doctoral document. Who should I get the permission from?

Sincerely,
Hong-Da

Re: Permission to use excerpts of "Endless Whispering" in my doctoral document

1 message

keeYong Chong <kychongcom@gmail.com>
To: Hong-Da Chin <hongda.chin@gmail.com>

Thu, Feb 16, 2017 at 4:25 AM

Please use from "Edition Studio C"

Thanks!

KY

On Wed, Feb 15, 2017 at 4:49 PM, Hong-Da Chin <hongda.chin@gmail.com> wrote:

Kee Yong,

Sorry for the typo.

"Should I get the permission to use excerpts of your music from Edition Studio C or from you?"

Sincerely,
Hong-Da

On Wed, Feb 15, 2017 at 10:48 AM, Hong-Da Chin <hongda.chin@gmail.com> wrote:

Hi Kee Yong,

My apology to have to turn down your generous invitation for the SoundBridge Festival.

I am thinking of using excerpts of "Endless Whispering" in my doctoral document. It says on score that it is published by Edition Studio C . Should I get the permission to use excerpts of your music from Edition Studio C of from you?

Thank you!

Sincerely,
Hong-Da

Re: Important questions of "Spiral Network"

1 message

Gene Coleman <soundfield7@gmail.com>
To: Hong-Da Chin <hongda.chin@gmail.com>

Wed, Feb 15, 2017 at 11:01 AM

Dear Hong-Da,

Greetings from Hamburg! I'm here in Europe until Feb. 19.

The Roman numerals refer to the subsections of the composition. The term "flash" is for the synapse-like flashes that occur in the first part of the video. *I imagined this work as being "inside" the brain of Buckminster Fuller - this led to my research over the last 3 years on brain function and music, especially the Auditory Pathway of the Brain. My composition for solo cello "The Geometry of Thinking" is an example of how I use this research:

<https://mcachicago.org/Stories/Blog/2016/10/The-Geometry-Of-Thinking>

Also: I know I need to send you the answers for the other questions! I try to do it in the next day or so...

Lontano Music is my publishing - so I give you permission to use the score :-)

Best and more soon, ---G---

On Wed, Feb 15, 2017 at 4:54 PM, Hong-Da Chin <hongda.chin@gmail.com> wrote:

Hi Gene,

Hope this finds you well.

I wonder what do the roman numerals and "flash" mean on the score of "Spiral Network." Do the roman numerals and "flash" suggest structural points and visual cues respectively?

My other question is that I am thinking of using excerpts of "Spiral Network" in my doctoral document. It says on score that it is published by Lontano Music. Should I get the permission to use excerpts of your music from Lontano Music or from you?

Thank you!

Sincerely,
Hong-Da