

WESTERN EXTENDED TECHNIQUES IN TRADITIONAL JAPANESE WIND  
PERFORMANCE:  
*GAGAKU KANGEN AND SHAKUHACHI HONKYOKU*

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## Abstract

The term “extended techniques” in the context of Western art music refers to performance techniques that fall outside the normal course of study for an instrument. The purpose of this study is, 1) to show that woodwind techniques considered “extended” and relatively “new” in Western classical music appear in traditional repertoires in Japan, and 2) to show that these techniques do not function as merely ornamental or virtuosic devices, but are instead structurally significant. I approach these two objectives through case studies of the instrumental *kangen* repertoire of the *gagaku* court ensemble (with a focus on the *hichiriki* and *ryūteki* wind parts) and the classical Zen Buddhist *honkyoku* repertoire of the *shakuhachi* flute.

Whereas previous studies have disregarded the role of performance techniques in their analyses of form and mode, I have investigated how performance techniques confirm, emphasize, and even outline the formal and modal structure of the case-study pieces: *Etenraku* (*gagaku*) and *Sokaku Reibo* (*shakuhachi*). In this study, I analyze two recordings of the virtuosic *shakuhachi* piece *Sokaku Reibo* by recognized masters: Aoki Reibo II and Yamaguchi Gorō, and three recordings of the well-known *gagaku* piece *Etenraku* by Japanese court ensembles, in addition to recordings of the individual wind parts and sung mnemonics. In order to create a comprehensive picture of the role of the relevant performance techniques, I combine the methods of transnotation of tablature scores and mnemonics into staff notation (and lists of pitch cells in the case of *Sokaku Reibo*), transcription of recordings, and spectral analysis of recorded excerpts.

This study demonstrates that all elements of a performance should be considered in analysis. An analysis that considers only the basic melodic line of a piece risks discarding elements that could inform and confirm the results. In the case of *Etenraku* and *Sokaku Reibo*, my investigation of performance techniques has led to a discovery of their structural significance.

To  
Matthew

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
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## **Notes on language and names**

1. For Canadian English spelling, the *Canadian Oxford Dictionary* and Canadian Press *Caps and Spelling* guide were used.
2. For romanization of Japanese, the modified Hepburn system was used.
3. For romanization of Chinese, the pinyin system was used.
4. Japanese personal names are given with surname first, unless the individual is commonly known in academic circles or published with given name first, e.g., Minoru Miki, Sukehiro Shiba, and Akira Tamba.

## **Labeling of notes**

C1=middle C; an octave higher = C2, etc.

## **Notes on the pdf version**

In the pdf version of this dissertation, references to other sections or chapters are linked to those sections. To go to the linked page, hover over the reference and click. To return to the previous location, press Command + back arrow.

## Chapter 1: Introduction

### 1.1 Introduction and purpose of study

The purpose of this study is to identify and analyze the use of “extended techniques” in the performance practice of traditional flutes and reeds of Japan. In particular, I address techniques of the *shakuhachi* flute and the *gagaku* winds: *hichiriki* and *ryūteki*. The term “extended techniques” in the context of Western art music refers to performance techniques that fall outside the normal course of study for an instrument. In Western woodwind performance, these techniques include multiphonic effects, microtonality, pitch bending, and flutter tonguing. Each of these techniques (as well as others) has its counterpart in traditional Japanese wind practice. In *gagaku* and *shakuhachi* performance practice, techniques such as pulsating breath, pitch bending, timbral alteration, and finger percussion play a role that goes beyond mere ornamentation or highlighting the technical possibilities of the instrument. Indeed, advanced performance techniques play a structural role in the performance of the repertoire, and are thus integral to the tradition.

Extended techniques were not common in Western classical music before the twentieth century, when they gained popularity among musicians and audiences of avant-garde music and jazz. As Hugh Davies writes:

The 20th century saw an unprecedented expansion in the instrumentarium and a host of new approaches by composers and performers to the use of existing instruments...

Extended performance techniques have been thoroughly explored by woodwind players. Flutter-tonguing has become common, and other techniques, such as unorthodox cross-fingerings, multiphonics, split notes, circular breathing, and humming, singing or growling while playing, are

becoming increasingly so. Key noise is specified in a number of works, the earliest of which was probably Varèse's *Density 21·5* (1936).<sup>1</sup>

In contrast, these techniques have been documented as traditional techniques on flutes and reed instruments throughout Asia. In East Asia, the solo classical *honkyoku* repertoire of the Japanese *shakuhachi*, a repertoire canonized in the 18<sup>th</sup> century, calls for *tamane* (a flutter-tonguing technique), *koro-koro* (a finger tremolo that produces multiphonic effects), and pitch bending.<sup>2</sup> Elsewhere in East Asia, the double-reed Chinese *suona*, brought to China from Central Asia by the fifteenth century,<sup>3</sup> has traditionally been played in *chuida* and *guchui* shawm and percussion ensembles using circular breathing to facilitate longer melodic lines than would otherwise be possible;<sup>4</sup> the Korean bamboo flutes *taegeum* and *tungso* manipulate timbre and harmonics through the use of a membrane pasted over a hole bored between the blowhole and the tone holes;<sup>5</sup> and musicians of the Altai Uriangkhai minority in Mongolia play the *tsuur* rim-blown flute by simultaneously vocalizing a drone, creating a polyphonic texture.<sup>6</sup>

Although circular breathing, timbral effects resulting from membrane vibrations, and vocalization are extended techniques that do not appear in

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<sup>1</sup> *Grove Music Online*, s.v. "Instrument modifications & extended performing techniques," by Hugh Davies, accessed April 13, 2014, <http://www.oxfordmusiconline.com.ezproxy.library.yorku.ca>.

<sup>2</sup> Simura Satoshi, "Selections of Potential Playing Techniques on the *Syakuhati*: Changes of Stylistic Needs Through Periods," in *Music Cultures in Interaction—Cases Between Asia and Europe*, ed. Mabuchi Usaburō and Yamaguti Osamu (Tokyo: Academia Music, 1994), 158, 164.

<sup>3</sup> *The Garland Encyclopedia of World Music, Vol. 7, East Asia: China, Japan and Korea*, s.v. "Ensembles: Northern Chinese," by Stephen Jones, accessed April 14, 2014, <http://gnd.alexanderstreet.com.ezproxy.library.yorku.ca>.

<sup>4</sup> Stephen Jones, *Ritual and Music of North China: Shawm Bands in Shanxi* (Aldershot, Hants, England: Ashgate, 2007), 95.

<sup>5</sup> Keith Howard, *Korean Musical Instruments: A Practical Guide* (Seoul: Se-Kwang Music Publishing, 1988), 81, 99.

<sup>6</sup> Carole Pegg, "The Revival of Ethnic and Cultural Identity in West Mongolia: The Altai Uriangkhai *Tsuur*, the Tuvan *Shuur* and the Kazak *Sybyzgy*," *Journal of the Anglo-Mongolia Society* (1991): 71.

traditional wind practice in Japan, I give these examples to show that various modern Western techniques appear throughout the region, with different techniques serving the music of different instruments and ensembles. Nor do I mean to suggest that Western extended techniques travelled directly from Japan or elsewhere in East Asia to the West in the twentieth century, whereupon they were integrated into new compositions. The techniques may have been developed in the West independently of outside influences, or they may have emerged as a result of interaction among performers of multiple genres of music over time; it is beyond the scope of this study to trace the “origins” and global history of extended techniques. The purpose is rather two-fold.

First, through case studies in Japanese *gagaku* court music and *shakuhachi honkyoku* repertoire, I shall show that what are often presented in Western art music as relatively “new,” twentieth-century techniques<sup>7</sup> are not “new” in other performance traditions. Second, through analysis of recorded performances of one piece from each of the two genres on which I focus, namely, *gagaku kangen* and *shakuhachi honkyoku*, I shall show that advanced techniques have been fully integrated into traditional Japanese performance practice since well before the twentieth century and play structural roles with respect to form, mode, metre, and tempo.

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<sup>7</sup> For example, *The Oxford Dictionary of Music* credits Richard Strauss and Gustav Mahler with introducing flutter-tonguing to Western art music, but with no mention of how or where they learned of this technique (s.v. “Flutter-Tonguing,” accessed April 13, 2014, <http://www.oxfordmusiconline.com.ezproxy.library.yorku.ca>). Regarding circular breathing, *The Oxford Companion to Music* points to its use on the Australian Aboriginal *didjeridu*, a reference typically made; however, the text does not refer to circular breathing in traditional music of shawms or flutes such as the Chinese *suona* and the Mongolian *limbe*, an omission also typical (s.v. “Circular Breathing,” by Bryan White, accessed April 13, 2014, <http://www.oxfordmusiconline.com.ezproxy.library.yorku.ca>).

My starting point in this project was to locate extended techniques in Japanese wind performance. This investigation led to an understanding that techniques referred to as “extended” in the West are not used merely for surface-level ornamentation or virtuosic display in Japanese *gagaku* and *shakuhachi* performance practice, as might be expected of pitch bends and finger articulation, for example, but rather serve the music more deeply: they are structurally significant.

## 1.2 Literature review

The Western-language literature on extended techniques lacks detailed study of their history in traditional non-European music. A number of pedagogical sources are now available in the West for the performer who wishes to learn extended techniques or the composer who wants to exploit them. However, these texts do not address the techniques’ use in traditional music genres. Bruno Bartolozzi’s 1967 text *New Sounds for Woodwind* was the first book-length study to explore multiple extended techniques for the entire family of European orchestral woodwinds. Bartolozzi did not, however, address the history or possible origins of these “new sounds.” Subsequent studies and method books have likewise focused on the production and notation of extended techniques for Western winds, disregarding their pre-1960s non-Western use.<sup>8</sup>

Performers and researchers of Japanese winds have mentioned extended techniques in writings on the instruments and performance genres of the

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<sup>8</sup> Widely read texts include Phillip Rehfeldt’s *New Directions for Clarinet*; Robert Dick’s *The Other Flute*; and Peter Veale and Claus-Steffen Mahnkopf’s *The Techniques of Oboe Playing*.

*shakuhachi* flute and the *gagaku* court ensemble, but identifying the influence these instruments have had on Western music has not been their focus. Publications in English by Western writers include Gunnar Jinmei Linder's *Notes on Kinko-ryū Shakuhachi Honkyoku: Performance Techniques: Analysis, Classification, Explanation* and *Music of a Thousand Autumns: The Tōgaku Style of Japanese Court Music* by Robert Garfias. Manuals by Japanese musicians that refer to "extended" performance techniques include Sasamoto Takeshi's *Hajimete no Gagaku* はじめての雅楽 (Beginner's Guide to Gagaku), and *shakuhachi* study guides by Taniguchi Yoshinobu, Tokuyama Takashi, and Yokoyama Katsuya.<sup>9</sup> Issues of pedagogy and transmission are dealt with by Riley Kelly Lee in his dissertation, "Yearning for the Bell: A Study of Transmission in the 'Shakuhachi Honkyoku' Tradition," and by Kwok Wai Ng in "Orality and Literacy in the Transmission of Japanese Tōgaku: Its Past and Present."

Dissertations and other texts on Japanese and Western avant-garde composers' attempts to realize Eastern aesthetic values in composing for Western instruments have also been written;<sup>10</sup> however, the focus has been on the resulting compositions in Western classical styles, and not on the music and techniques that were imitated. For instance, in "Interpretation of Extended Techniques in Unaccompanied Flute Works by East-Asian Composers: Isang Yun, Toru Takemitsu,

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<sup>9</sup> However, as Linder states regarding *shakuhachi* manuals, "In the *shakuhachi* literature, there are few explanations about how to play the ornaments... Each separate sub-lineage within the Kinko-ryū have [sic] their own beginner's manual, but they contain very little of prescriptive and concrete explanations." (Linder, *Notes on Kinko-ryū Shakuhachi Honkyoku: Performance Techniques: Analysis, Classification, Explanation* [Lidingö, Sweden: nipponicom.com, 2010], 31.)

<sup>10</sup> For example, *Locating East Asia in Western Art Music*, edited by Yayoi Uno Everett and Frederick Lau.

and Kazuo Fukushima,” author Seon Hee Jang credits Korean and Japanese flutes for the development of some extended techniques, but the music dealt with is modern and composed in Western genres. The techniques are not considered in their traditional contexts. Exceptionally, Marty Regan has translated into English Minoru Miki’s guide for writing new music for traditional Japanese instruments, *Composing for Japanese Instruments*. Although this text deals only with new music in Western notation, it does outline for the composer traditional Japanese techniques on traditional Japanese instruments.

In both *gagaku* and *shakuhachi* performance practice, rhythm, tempo, and phrasing are connected to the breath. In my analyses of formal elements in the repertoire, I thus touch on the aesthetic concepts of space and time. Sources that consider Japanese music aesthetics include “Japanese Spirituality and Music Practice: Art as Self-Cultivation” by Koji Matsunobu; *La Théorie et l’esthétique musicale japonaises* by Akira Tamba; “Intervals (‘Ma’) in Space and Time: Foundations for a Religio-Aesthetic Paradigm in Japan” by Richard B. Pilgrim; and “Sacred Abjection in Zen Shakuhachi” by Zachary Wallmark.

Of particular relevance to the present study are analyses of specific repertoire or performances in the *gagaku* and *shakuhachi* literature. Publications available in English include Terauchi Naoko’s “Surface and Deep Structure in the *Tôgaku* Ensemble of Japanese Court Music (*Gagaku*),” a chapter in *Analytical and Cross-cultural Studies in World Music* that includes score analysis and transcription of one recording of *Etenraku*, the *gagaku* piece I deal with in Section II; Ng’s “In Search of the Historical Development of Double-Reed Pipe Melodies in Japanese

Tōgaku: Early Hypotheses and New Perspectives,” which includes *gagaku* score analysis; Andreas Gutzwiller’s “Rhythm in *Shakuhachi Honkyoku*,” a study of six recordings of a single piece of the repertoire, a genre on which I focus in Section III; and Gutzwiller and Gerald Bennett’s “The World of a Single Sound: Basic Structure of the Music of the Japanese Flute Shakuhachi.” Gutzwiller and Bennett make use of computer-generated spectral analyses of sound recordings in their analyses, an approach I have also taken.

### 1.3 Methodology and questions of tradition

In my investigation of extended performance techniques in performance practice of Japanese wind instruments, specifically *ryūteki*, *hichiriki*, and *shakuhachi*, I have selected two pieces as case studies: the well-known *gagaku* court music piece *Etenraku*, and the virtuosic classical *shakuhachi honkyoku* piece *Sokaku Reibo*. I analyze three recordings of *Etenraku* by Japanese court ensembles, in addition to recordings of individual wind parts and sung mnemonics, and two recordings of *Sokaku Reibo* by recognized *shakuhachi* masters: Aoki Reibo II and Yamaguchi Gorō.<sup>11</sup> In order to create a comprehensive picture of the role of the relevant performance techniques, I combine the methods of transnotation<sup>12</sup> of tablature scores and mnemonics into staff notation (and lists of pitch cells in the case of the *shakuhachi*), transcription of recordings, and spectral analysis of recorded excerpts.

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<sup>11</sup> See Appendices A (*Etenraku* recordings) and C (*Sokaku Reibo* recordings) for information on locating recordings.

<sup>12</sup> Avigdor Herzog defined transnotation as “transference of notation revised from one form to another” in contrast to “transcription: notation of music already existing in performance” in “Transcription and Transnotation in Ethnomusicology,” *Journal of the International Folk Music Council* 16 (1964): 100fn.

I discuss issues of transcription in Chapters 4 (on *gagaku*) and 9 (on *shakuhachi*).

Regarding spectral analysis, John Latartara and Michael Gardiner write:

Spectrographs facilitate analysis of the musical surface by creating a static picture of the surface details of a musical performance, which can then be examined.<sup>13</sup>

The addition of the spectrograph to the score and performance paradigm can be thought of as forming a cyclical relationship, connecting all three to one another. The score has a prescriptive relationship to the performance, a performance is used to create a descriptive spectrograph, and a spectrograph is a static visualization of a work, like a score, but with a descriptive relationship to the performance.<sup>14</sup>

In my analysis, I use spectral image examples not only as visual evidence of techniques such as pitch bending and timbral alteration, but also to show the interaction and relationships between techniques and elements such as added overtones in a spectrum and changes in intensity.

Nicholas Cook has said, “a musicology of performance really demands the integration of sound, word, and image achievable through current hypermedia technology.”<sup>15</sup> I would state more specifically that an analysis of performance techniques in Japanese wind practice demands the integration of sound (via recordings in this study), word (notation and literature, e.g., study manuals and other analyses), and image (spectral analyses). Further, as John Baily has said, “Learning to perform... is the best way of ‘musicing music’ as part of the process of data collection and analysis in ethnomusicological research.”<sup>16</sup> I have thus

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<sup>13</sup> John Latartara and Michael Gardiner, “Analysis, Performance, and Images of Musical Sound: Surfaces, Cyclical Relationships, and the Musical Work,” *Current Musicology* 84 (2007): 58.

<sup>14</sup> *Ibid.*, 66-67.

<sup>15</sup> Nicholas Cook, “Between Process and Product: Music and/as Performance,” *Music Theory Online* 7.2 (2001): 13 (<http://www.mtosmt.org/issues/mto.01.7.2/mto.01.7.2.cook.html>).

<sup>16</sup> John Baily, “Learning to Perform as a Research Technique in Ethnomusicology,” *British Journal of Ethnomusicology* 10.2 (2001): 93-94.

supplemented this method of sound-word-image with studying the *shakuhachi* flute for the past few years as a novice, an invaluable component to furthering my understanding of performance techniques in Japanese winds. I have found that when I learn to play an instrument, my body forms connections between the physicality of technical production and the sound produced. This then helps me to identify techniques in recorded or live performance as I am able to imagine ergonomically or physicalize the sounds that I hear. Techniques such as *meri-kari* (a type of timbral and pitch alteration technique discussed in Section 12.1) or finger articulation in *shakuhachi* practice thus become more easily identifiable by ear. Learning at least the basics of an instrument therefore has significant value in training the ear of the researcher and analyst.

My use of Japanese sources, in the form of scores and texts, focuses on notation symbols, symbols one can learn to effectively read without knowledge of the Japanese language. Nonetheless, I am aided in this by my basic ability in reading Chinese characters. A number of publications on Japanese traditional music have been written in, or translated into, English or other Western languages and the technical terms I employ have well-established meanings in international scholarship. Since this study is based primarily on recorded performances, limitations in Japanese language competency have had no bearing on the analyses.

To deal with problems of determining the degree to which a particular practice is traditional, I have consulted recordings of several performers and ensembles. For example, flutter tonguing, pitch bending, and *koro-koro* finger tremolos can be heard on several recordings of the *shakuhachi* and are documented

in various sources as well, pointing to their “traditional” nature. In contrast, I have identified a sustained multiphonic in *shakuhachi honkyoku* performance on a single track of a single recording by a *shakuhachi* master who is renowned for also being one of the first to use circular breathing on the instrument.<sup>17</sup> This casts doubt on the traditional nature of sustained multiphonics on the instrument. Mention of this technique is also absent from documentation in the form of music notation and written text sources.

The structure and aesthetic of the music can also indicate whether a technique is traditional. For example, in the *gagaku* court ensemble piece *Etenraku*, pitch bends and slides, as well as breath articulation that results in microtonal pitch alteration, are performed at structurally consistent points rather than *ad libitum*, making them integral to the piece, in much the same sense as the composer’s score is integral to a piece of European concert music. In the *shakuhachi honkyoku* repertoire, the pulsating breath technique heard in the piece *Daha* connects the instrument to its history as an implement of Zen meditation for the Fuke sect, and flutter tonguing and finger tremolos create multiphonic timbral effects that depict the flapping of a crane’s wings in the programmatic pieces *Sokaku Reibo* and *Tsuru no Sugomori*. The character of these pieces would change considerably without the use of “extended techniques.” It follows that the exploitation of these characteristics is part of the traditional aesthetic.

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<sup>17</sup> Aoki Reibo, “Shin Tsuki no Kyoku,” on *Living National Treasure Series Vol. 6 Shakuhachi Kinko*, 2006.

## 1.4 Chapter summary

In each case study (Section II: The *Gagaku* winds and Section III: The *Shakuhachi* flute), I first present a brief history of the genre, the instrument(s), and the repertoire in order to situate the representative piece. I then move on to questions of transmission and notation. Both the *shakuhachi* and *gagaku* repertoire are notated in tablature scores, with Japanese characters representing fingerings (the *hichiriki* and *ryūteki* of the *gagaku* ensemble thus have separate tablature systems); the *gagaku* scores also give corresponding syllables for oral mnemonics (called *shōga*), used in learning and practising the pieces.

I analyze the *gagaku* piece *Etenraku* in Chapters 4 through 7, dealing first in Chapter 4 with elements of mode, form, metre, and tempo, with reference to both traditional and modern scores as well as modern recordings. In Chapter 5, I deal exclusively with the recordings of sung *shōga* for *Etenraku* included on the compact disc that accompanies Sasamoto's guide. Some of the extended techniques relevant to this study are represented even in the sung mnemonics, thereby verifying aspects of the performance tradition that appear in the scores and ensemble recordings. In Chapters 6 and 7, I move on to a detailed analysis of performance techniques in ensemble recordings, and their role in the overall structure of the piece. For information on locating recordings, refer to Appendix A; my transcriptions of the *Etenraku* recordings appear in Appendix B.

In my analysis of *Sokaku Reibo* for *shakuhachi*, I work primarily with two tablature scores (by Aoki Reibo II and Kurahashi Yodo II) and two recordings (by Aoki and Yamaguchi). I devote Chapters 8 and 9 to the history and notation of

*honkyoku*, and then analyze *Sokaku Reibo* in terms of mode, form, and rhythm, as well as pitch content and intervallic relationships in Chapters 10 and 11; I identify 15 recurring pitch cells that make up the piece—listed and analyzed in Appendices F-I. In Chapters 12 through 16, I base my discussions of extended performance techniques on these pitch cells and intervallic relationships. Transnotation of *Sokaku Reibo* scores and transcription of recordings appear in Appendices D and E, respectively. Chapter 17 contains concluding comments on both the *gagaku* and *shakuhachi* repertoire.

Before beginning an analysis of wind performance techniques and their structural roles, I first define the term “extended techniques” for the purposes of this study and give brief explanations of the different types found in *Etenraku* and *Sokaku Reibo*, classified according to pitch, timbre, articulation, and breathing techniques.

## Chapter 2: What are extended techniques?

### 2.1 Definition

As stated in Chapter 1, in the context of Western art music, the term “extended techniques” refers to performance techniques that fall outside the traditional course of study—techniques not called for in the standard canon of pieces for a particular instrument.<sup>1</sup> In woodwind performance, these techniques have “extended” the palette of resources available to the performer and composer for pitch, timbre, articulation, compass, and physical endurance to include, for example, multiphonics, microtones, pitch bending, flutter tonguing, and circular breathing. As these techniques become increasingly popular with performers and composers in the West, the classification “extended” may change.

The terminology for individual extended techniques has evolved alongside the techniques themselves. In this study, I have chosen to use the terms most commonly employed in recent pedagogical texts for extended techniques on Western woodwinds.<sup>2</sup> Such sources, along with new repertoire, comprise an expanded resource of sounds and techniques for the musician and composer in the West. Meanwhile, in non-European-derived music genres, many of these techniques have long been part of the traditional aesthetic.

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<sup>1</sup> Repertoire lists are included in the “Yehudi Menuhin Music Guides” publications: *Bassoon* by William Waterhouse; *Clarinet* by Jack Brymer; *Flute* by James Galway; *Oboe* by Leon Goossens and Edwin Roxburgh; *Saxophone* by Paul Harvey. Although subjectivity is involved in selecting pieces for such lists, the most frequently performed pieces are included.

<sup>2</sup> Recent texts include: Carin Levine and Christina Mitropoulos-Bott, *The Techniques of Flute Playing*, Kassel, Germany: Bärenreiter Verlag, 2002; Libby Van Cleve, *Oboe Unbound: Contemporary Techniques*, Lanham, MD: Scarecrow Press, 2004; Marcus Weiss and Giorgio Netti, *The Techniques of Saxophone Playing*, trans. Laurie Schwartz, Kassel, Germany: Bärenreiter, 2010.

## **2.2 Classification**

In this study of traditional Japanese wind instruments, I identify numerous examples of traditional performance techniques that are considered “extended” in Western art music. I discuss the extended techniques found on Japanese flute and reed instruments according to the following categories:

1. Pitch
2. Timbre
3. Articulation
4. Breathing

### **2.2.1. Pitch**

Pitch-based techniques use or manipulate pitch in ways considered unconventional in the practice of Western classical music. These techniques may involve movement not confined to equal temperament, sliding from pitch to pitch, or a microtonal pitch vocabulary, and often require the musician to develop new approaches to embouchure, fingering or air pressure. Techniques included in the pitch category are:

1. Pitch bends
2. Pitch slides
3. Microtones
4. Beating or roughness (spectral dissonance)
5. Vibrato (through head position)
6. Extended range

**2.2.1.1** For the purposes of this study, “pitch bends” refer to a) gradual changes of pitch either upward or downward, and then return to the original pitch, or b) beginning or ending a tone above or below the main pitch and then moving into or away from it. This can be achieved through changes in embouchure or air pressure,

through gradual movement of the fingers onto or off a vent (i.e., tone hole), or by taking more or less reed into the mouth.

**2.2.1.2** Pitch slides are similar to pitch bends but move from one tone to another tone. Although a usual term for this technique is “portamento,” performers of classical woodwind music generally use the term “glissando.” Pitch bends and pitch slides are common on flute and reed instruments throughout Japan. For examples, refer to Chapter 6 on the *gagaku* winds—*hichiriki* and *ryūteki*—and Chapters 14 and 15 on the *shakuhachi*.

**2.2.1.3** Microtones are a) intervals smaller than the 100-cent semitone of equal temperament, or b) pitches that fall between semitones.

Microtonality is identifiable in performances on flutes and reeds of Japan and appears in different contexts. Sometimes it results from pitch bending and sliding. At other times tones that fall outside the Western tempered scale act as principal tones. In traditional Japanese music, pitches are treated as relatively large regions. For example, in *shakuhachi honkyoku* practice tones are treated as pitch regions to be explored through bends, slides and microtonal embellishments rather than as single fixed points. This “exploration” is not notated and must be learned aurally from a teacher. For examples in context, refer to Chapters 14 and 15 on the *shakuhachi*.

The winds of the *gagaku* ensemble alter pitch microtonally to prepare melodic leaps and to move through pitch areas of tones not considered “principal” in the mode. Section 7.1 offers examples of microtonal pitch alteration in *gagaku*.

**2.2.1.4** Exploiting roughness or beating (spectral dissonance) between parts is a contemporary compositional technique in Western art music. Beating or roughness can occur between the fundamental frequencies and/or overtones of two or more tones played by different instruments, or between the tones of a solo wind instrument and a simultaneously sung or hummed second line (performed by the same solo instrumentalist).

Contemporary Western examples of roughness or beating often involve microtonal intervals or pitch slides.<sup>3</sup> In *gagaku*, pitch slides and microtonal clashes between the *hichiriki* and *ryūteki* and their overtones create roughness.<sup>4</sup> For examples, see Section 7.1.3.

**2.2.1.5** Vibrato is referred to as an extended technique in this study when it is produced in a manner that contrasts with common practice in Western woodwind performance, that is, by movement of the head position in relation to the instrument. Movement of the head produces a wide vibrato on the *shakuhachi*. *Shakuhachi* tradition makes use of several head movements (circular, side-to-side,

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<sup>3</sup> For example, in the third of Robert Dick's "Flying Lessons: Six Contemporary Concert Etudes, Volume 1," the flute soloist must simultaneously sing and play. Dick calls for the two parts to begin in unison, followed by a narrow pitch slide (glissando) in the sung part as the flute sustains its tone. Dick notes: "beats appear." In Ernest H. Papier's saxophone quartet, "Axe à quatre: figure de concert pour double couple en sax," the four saxophones perform microtonal pitch slides in varying directions but beginning on a common tone, resulting in beating and roughness.

<sup>4</sup> Another non-Western traditional example of beating resulting from detuning in wind instruments can be heard in duets of the dung-khar conch shell of the Monpa tribe in northeastern India. For an audio example, refer to: "Music from India: Monpa dung-khar conch shell duet," *British Library Sounds*, <http://sounds.bl.uk/World-and-traditional-music/Music-from-India/025M-RKDATX0042XX-0300V0> (accessed April 1, 2014).

diagonal, etc.) for creating vibrato effects, called *yuri*.<sup>5</sup> Although vibrato is possible on the *gagaku* winds, it is not called for.

**2.2.1.6** Extending the range of the instrument to include tones above or below the standard compass is commonly referred to as an extended technique in Western avant-garde music. Woodwind musicians have experimented with fingerings, embouchure pressure, and placing the teeth directly on the reed to produce higher and higher tones, and have added extra piping to their instruments to extend the compass downward.

Identifying extended range as a traditional technique in Japanese winds poses many challenges and so will not be addressed in this study. I will note, however, that *shakuhachi* master Watazumi Dōso Rushi<sup>6</sup> (1911-1992) introduced very large unlacquered *shakuhachi* flutes called *hocchiku* or *dōgu* to the *Dokyoku* school of *shakuhachi honkyoku*, a school he founded in the 1950s.<sup>7</sup> These large bass flutes are used as implements for Zen meditation practice and challenge the breath control of the player.

## **2.2.2 Timbre**

A timbral technique results in perceptible differences in the quality or character of sound produced by an instrument. To produce an extended timbral technique in Western art music, tone quality is altered to the extent that it would be

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<sup>5</sup> Simura, "Selections," 163.

<sup>6</sup> Also known as Watazumidō and Watazumi Fumon.

<sup>7</sup> Liner notes: *Watazumido-so: His Practical Philosophy*, Columbia Music Entertainment COCJ-35936, 2009, compact disc, recorded 1973-74.

deemed “uncharacteristic” of the instrument. In contrast, the timbral techniques addressed in this study of Japanese woodwinds are considered idiomatic.

Techniques included in the timbre category are:

1. Embouchure and air pressure changes
2. Timbral breath sounds
3. Multiphonic timbral effects

**2.2.2.1** In the realm of extended techniques for Western woodwinds, unconventional fingerings, often called “timbral fingerings,” among other terms,<sup>8</sup> are explored to bring out tone colours that differ from the expected, or standard classical tone ideal of an instrument. In Japanese genres, altering the timbre of the wind instrument is common and is done through changes in embouchure shape and air and lip pressure, in addition to choosing different fingerings for the same pitch. Timbral modifications are especially varied in *shakuhachi* practice and will be addressed in Chapters 12 and 13.

**2.2.2.2** Timbral breath sounds, also called air sounds in Western extended-techniques terminology,<sup>9</sup> are produced by blowing air through the instrument without the pressure or embouchure needed to produce a characteristic pitched tone. Such sounds are commonly used as a timbral resource on the *shakuhachi*. The *shakuhachi* has a history as a Zen Buddhist meditation implement used to explore

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<sup>8</sup> Other terminology used to denote timbral fingerings: artificial harmonics, bamboo tones, color fingerings, diffuse tones, ghost sounds, hollow tones, residual tones, strong fingerings, velvet sounds, weak tones. (Refer to Bruno Bartolozzi, *New Sounds for Woodwind*; Robert Dick, *The Other Flute* and *Tone Development through Extended Techniques*; Pascal Gallois, *The Techniques of Bassoon Playing*; Thomas Howell, *The Avant-Garde Flute*; Wil Offermans, *For the Contemporary Flutist*; Phillip Rehfeldt, *New Directions for Clarinet*.)

<sup>9</sup> For example, in Levine and Mitropoulos-Bott, *The Techniques of Flute Playing*, 34-38; Rehfeldt, *New Directions for Clarinet*, 69.

the breath. It is fitting, therefore, that the sound of the breath be used as a timbral resource in its repertoire. One such technique is called *muraiki* – the “billowing” or “scattered” breath.<sup>10</sup> Timbral alteration through “breathiness” is discussed in Section 13.3.

**2.2.2.3** Multiphonic effects in Japanese woodwinds do not resemble those in Western practice. In Western composition and improvisation, multiphonics – the production of more than one pitch at a time through acoustic manipulation of the air column – are often sought as a special chordal effect on melody instruments.<sup>11</sup> A multiphonic is often sustained or multiple multiphonics are played in succession. In traditional Japanese *shakuhachi* practice, however, multiphonics emerge as the result of a broader timbral aesthetic.

Multiphonic timbral effects can result from finger tremolos and flutter tonguing. One of the most popular *shakuhachi honkyoku* pieces, *Tsuru no sugomori* (or *Sokaku Reibo*), a programmatic piece about nesting cranes, calls for the tremolo technique called *koro-koro*. In *koro-koro*, a gentle blowing technique (*meri*) and partially-covered tone holes are combined with an alternating finger tremolo<sup>12</sup> that can produce simultaneous overtones, especially when combined with flutter tonguing. Examples are discussed in Chapter 13.<sup>13</sup>

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<sup>10</sup> Simura, “Selections,” 164.

<sup>11</sup> Rehfeldt states: “It might be noted...that multiphonics really cannot be equated with chords. The reason for this is that the pitches characteristically appear at varying degrees of intensity.” (*New Directions*, 43)

<sup>12</sup> Tanimura Kō, Kitahara Ikuya, et al, *The Encyclopedia of Musical Instruments: The Shakuhachi*, (Tokyo: Tokyo Ongskusha, 1990), 107.

<sup>13</sup> Modern influence of the Western avant-garde on Eastern musicians has produced non-traditional exceptions. Sustained multiphonics are heard on a *shakuhachi* recording by Aoki Reibo II (“Shin Tsuki No Kyoku” on *Living National Treasure Series Vol. 6 Shakuhachi Kinko*, CD).

### 2.2.3 Articulation

Articulation techniques affect how tones are begun, separated, ornamented, or ended, and can involve the air, tongue, fingers, and embouchure. Techniques included in the articulation category are:

1. Flutter tonguing (also a timbral effect)
2. Finger percussion
3. Finger articulation

**2.2.3.1** Flutter tonguing is a rolling tone produced with a quick repetitive movement of the tongue against either the hard or soft palate, depending on the instrument or the individual performer's ability. On *shakuhachi*, flutter tonguing (called *tamane*) can be heard on its own or in combination with other techniques, such as the finger tremolo *koro-koro*. In addition to being a means to begin or ornament a tone, flutter tonguing produces timbral multiphonic effects (see Section 13.1). Flutter tonguing is not used in *gagaku*.

**2.2.3.2** On Western woodwind instruments, the keys can be exploited to create clicking or percussive sounds, referred to as key percussion. On traditional Japanese instruments, the direct contact between the fingers and the tone holes allows for a percussive popping sound to emerge, that is, finger percussion.

A somewhat forceful and deliberate "hit" is sometimes called for in the winds. In this case, an open hole is quickly closed then reopened, creating a percussive sound. Also common is a percussive "release" that involves removing all or most of the fingers simultaneously at the end of a breath phrase. The release of air pressure from the bore of the instrument creates a popping sound and signals

the end of the phrase. In *shakuhachi* practice, this popping sound can be more or less audible, depending on the technique of the player and the aesthetic of the particular school of playing.

**2.2.3.3** On East Asian woodwinds, repeated tones are often separated by finger articulation rather than by tongue strokes, as is practiced in Western music. In fact, tongued articulation is not heard at all in traditional Japanese *shakuhachi* practice or in *hichiriki* and *ryūteki* performance of *gagaku* works. Although this may not necessarily be considered an instance of “extended” technique, it is an example of a different approach.

In *gagaku* practice, repeated tones can be re-articulated with breath pulses or with a flick of the finger (see Section 7.3). In *shakuhachi*, the player re-articulates a tone with the *atari* technique—a brief opening or closing of one or more tone holes (see Section 16.3).

## **2.2.4 Breathing**

Breathing techniques involve the manner of inhalation and exhalation and the effect on the sound. Techniques in the breathing category are:

1. Pulsating breath
2. Circular breathing

**2.2.4.1** Pulsating breath is a blowing technique used on the *shakuhachi* in many guises. One such technique is called *komi-buki*—the lips, throat and/or diaphragm

are used to give an audible pulse to the breath.<sup>14</sup> Breath pulses are also heard in *gagaku* as a means for the *hichiriki* and *ryūteki* to emphasize metre (see Section 7.2).

**2.2.4.2** In circular breathing, the player stores air in the cheeks so that he or she can inhale through the nose while still pushing air through the mouth into the instrument. Although this technique has long been used in Asian practices, perhaps learned from blacksmiths<sup>15</sup> and glass blowers,<sup>16</sup> it is a more recent technique in the West, unnecessary for the performance of classical repertoire.

Circular breathing is used traditionally on Asian double reed instruments to create drone effects or extended melody lines. Value is placed on continuous sound. In East Asia, it is especially common on the small double-reed pipes *suona* of China and *rgya-gling* of Tibet. Although the practice is less common on flutes, it is considered important to the tradition of Mongolian *limbe* playing. Indeed, the circular breathing technique on *limbe* has been inscribed on the “UNESCO List of Intangible Cultural Heritage in Need of Urgent Safeguarding.”<sup>17</sup> Although some modern *shakuhachi* players have adopted circular breathing, it is not a traditional *shakuhachi* technique; nor is it used by the *gagaku* winds.

### **2.3 Comments on aesthetic factors**

Most of the techniques presented in this study are not bound by the construction of the instrument or national borders. Whether a technique is applied

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<sup>14</sup> Simura, “Selections,” 165.

<sup>15</sup> *Folk Long Song Performance Technique of Limbe Performances—Circular Breathing*, UNESCO, 2011, [http://www.unesco.org/archives/multimedia/index.php?s=film\\_details&id\\_page=33&id\\_film=2197](http://www.unesco.org/archives/multimedia/index.php?s=film_details&id_page=33&id_film=2197) (accessed April 1, 2014).

<sup>16</sup> Bernard D. Bolas, *A Handbook of Laboratory Glass-Blowing* (London: Routledge, 1921), 83.

<sup>17</sup> *Folk Long Song Performance*, UNESCO.

to a certain instrument tends instead to depend on the aesthetic of the genre. For example, the pulsating breath in *shakuhachi* performance is part of the Zen meditation aesthetic of the instrument, whereas the breath pulses in *gagaku* articulate the formal structure of the music. Even though pitch bends and microtonal embellishments are easier to produce on *hichiriki* than *ryūteki*, they are heard on both instruments to some degree because the aesthetic of the court repertoire calls for them.

## Section II:

### The *Gagaku* winds: *Hichiriki* and *ryūteki*, Japanese large double reed and transverse flute

#### Chapter 3: The *Gagaku* ensemble

The bamboo *hichiriki* double-reed pipe and *ryūteki* transverse flute are instruments of the Japanese *gagaku* imperial court orchestra. A music and dance performance tradition that reached its height of popularity in the Chang'an court in Tang China, *gagaku*<sup>1</sup> court music came to Japan from the Asian mainland beginning in the 5<sup>th</sup> century. In Japan, it has been promoted with nationalistic pride as the "world's longest continuous orchestral tradition"<sup>2</sup> and has survived periods of acculturation, simplification, decline, revival, and hybridization.

#### 3.1 Brief history of *gagaku*

The first recorded travel of musicians from the Asian mainland to Japan was in 453 CE for the funeral of Emperor Ingyō.<sup>3</sup> Korean musicians of the Silla Kingdom<sup>4</sup> brought with them the music of their court—likely a mixture of the music of China and the three Korean kingdoms.<sup>5</sup> Whether music from the mainland travelled to Japan earlier is unclear; however, for the next few centuries, Chinese court music was repeatedly brought to the islands of Japan directly from China and indirectly through Korea. As Japanese scholars and musicians went to study in China, Chinese

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<sup>1</sup> *Ga*=elegant, *gaku*=music; The term is of Chinese origin and shares its Chinese characters (雅樂) with *yǎyuè* from China and *a-ak* from Korea.

<sup>2</sup> David W. Hughes, "The Picken School and East Asia: China, Japan and Korea," *Ethnomusicology Forum* 19.2 (2010): 235.

<sup>3</sup> *Nihon Shoki, Book 13* (Japanese records from 720 CE), cited in Robert Garfias, *Music of a Thousand Autumns: The Tōgaku Style of Japanese Court Music* (Berkeley: University of California Press, 1975), 7.

<sup>4</sup> Tōgi Masataro, *Gagaku: Court Music and Dance*, translated by Don Kenny (New York: Walker/Weatherhill, 1971), 191.

<sup>5</sup> Garfias, *Music of a Thousand Autumns*, 7.

musicians likewise emigrated to Japan.<sup>6</sup> In the year 701, the Japanese Imperial Music Bureau (*Gagakuryō*) was established in Nara, the imperial capital from 710-784, and by 702, “T’ang music (Tōgaku) by far surpassed other kinds of foreign music in popularity.”<sup>7</sup>

During the Heian period, from about 833, emperors Saga (r.809-823) and his son Ninmyō (r.833-850) had the court ceremonies reorganized and simplified.<sup>8</sup> The “official changes in music” (*Gakusei-Kaikaku*) involved a division of the repertoire into “Music of the Left” (*sa-hō*) and “Music of the Right” (*u-hō*). “Music of the Left” was called *tōgaku* and included mostly repertoire from the Tang Chinese court. “Music of the Right,” *komagaku*, primarily included pieces from the Korean kingdoms and Manchuria.<sup>9</sup> Each division also included Japanese pieces composed in the style of the Left or the Right.<sup>10</sup> Instrumental forces and the number of modes used in the pieces performed were also reduced with the *Gakusei-Kaikaku*.

The *tōgaku* orchestra was originally similar to the contemporary Chinese orchestra in size and instrumentation. Although the ensemble always comprised three sections—bamboo winds,<sup>11</sup> plucked strings and percussion—many instruments were eliminated in the Heian-period reorganization. Nara-period ensembles had included the *shakuhachi* flute, two sizes of the *hichiriki* double-reed pipe, multiple sizes of the *shō* mouth organ, and panpipes. The wind instruments

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<sup>6</sup> Ibid., 7-9.

<sup>7</sup> Ibid., 9

<sup>8</sup> Ibid., 15.

<sup>9</sup> Ibid., 15-16.

<sup>10</sup> Steven G. Nelson, “Court and Religious Music (1): History of *Gagaku* and *Shōmyō*,” in *The Ashgate Research Companion to Japanese Music*, edited by Alison McQueen Tokita and David W. Hughes (Aldershot, England; Burlington, VT: Ashgate, 2008), 40.

<sup>11</sup> Sukehiro Shiba points out that the instruments are all bamboo winds, not woodwinds. (*Score of Gagaku: Japanese Classical Court Music*, Vol. 1 [Tokyo: Ryuginsha, 1955], 31.)

retained in the Heian period and still used today are the *ryūteki* transverse flute, the small *hichiriki*, and a single size of *shō*. The *tōgaku* string section comprises the *biwa* lute and *koto* zither, while the percussion section includes the *shōko* gong and two drums—the large *taiko* and the double-headed *kakko*. The strings are omitted in pieces that accompany dance (*bugaku*).

The *komagaku* wind section retained the *komabue* flute and small *hichiriki* but no other winds. Strings are absent from *komagaku* but the percussion section resembles that of *tōgaku*, with the substitution of the *san-no-tzuzumi* drum for the *kakko*.<sup>12</sup>

Despite changes in instrumentation with the *Gakusei-Kaikaku*, “each instrumental version was a complete piece of music, perfectly satisfying in itself, not requiring the addition of any other melodic instrument to make it complete.”<sup>13</sup> Meanwhile, new Japanese compositions were commissioned (although composition stopped after the Heian period).<sup>14</sup>

*Gagaku* encompasses several sub-genres of music performed at the imperial court. *Tōgaku* is further divided into *bugaku* (dance pieces) and *kangen* (instrumental pieces; *kan* = pipes, *gen* = strings). *Komagaku* comprises only *bugaku*, as *kangen* was not preserved after the Heian period.<sup>15</sup> The orchestra also accompanies vocal forms including *rōei*, recitations of Chinese poetry, and *saibara*,

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<sup>12</sup> Terauchi Naoko, “Gagaku,” in *The Garland Encyclopedia of World Music, Vol. 7, East Asia: China, Japan and Korea*, edited by Robert C. Provine, Yosihiko Tokumaru and J. Lawrence Witzleben (New York: Garland Pub., 1998), 621.

<sup>13</sup> Laurence Picken, *Music from the Tang Court*, Vol. 5 (Cambridge: Cambridge University Press, 1990), 107.

<sup>14</sup> Nelson, “Court and Religious Music (1),” 40.

<sup>15</sup> Terauchi, “Gagaku,” 621.

songs said to be derived from folk songs and adapted to the court by 859.<sup>16</sup> *Saibara* has been accompanied by flute, *biwa* and *koto* since the 10<sup>th</sup> century.<sup>17</sup>

Three recognized schools of *gagaku* performance developed in Nara, Osaka, and Kyoto,<sup>18</sup> primarily at shrines and temples as well as at private residences of the aristocracy. The Kyoto tradition was established when the imperial court moved from Nara to Kyoto at the end of the 8<sup>th</sup> century. Some musicians stayed behind in Nara, maintaining the Nara tradition until the Meiji period (1868-1912). The Shitennoji temple, built in 593 in Osaka, housed a *gagaku* ensemble as well, but the recognized Osaka tradition began at the end of the 16<sup>th</sup> century when Toyotomi Hideyoshi formed a new court, and with it a *gagaku* ensemble.<sup>19</sup>

When the imperial court was in danger in times of warfare, the court ceremonies suffered. However, despite shogunate rule in the Kamakura period (1192-1333), court music kept thriving.<sup>20</sup> Nevertheless, in war time during the Muromachi period (1392-1568), specifically the Onin Rebellion of 1467-1477, the musicians fled the capital at Kyoto, leading to the “almost complete destruction of the culture of the imperial court in Kyoto.”<sup>21</sup> The vocal forms *saibara* and *rōei* did

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<sup>16</sup> Elizabeth J. Markham, *Saibara: Japanese Court Songs of the Heian Period*, Vol. 1 (Cambridge: Cambridge University Press, 1983), xvii.

<sup>17</sup> Some of the flute parts are preserved in the 10<sup>th</sup>-century *Hakuga no Fue-fu* (Markham, *Saibara I*, 193) and *Saibara Ōteki-fu* (1193) flute manuscripts (Ibid., II, 341-3). The six *saibara* still performed are included in the *Meiji Sentei-fu* compilation of 1876 (Eta Harich-Schneider, “Koromogae: One of the Saibara of Japanese Court Music,” *Monumenta Nipponica* 8.1 (1952): 399).

<sup>18</sup> Garfias, *Music of a Thousand Autumns*, 24.

<sup>19</sup> Koizumi Fumio and Kazuo Okada, *Gagaku: the Noble Music of Japan* (Göttingen: Institut für den Wissenschaft-lichen Film, 1974), 3-4.

<sup>20</sup> Nelson, “Court and Religious Music (1),” 45.

<sup>21</sup> Ibid., 46.

not survive intact, but were reconstructed in the Edo and Meiji periods, respectively.<sup>22</sup> *Bugaku* and *kangen* continued outside the capital.<sup>23</sup>

With the priority of preservation in times of peace during the 16<sup>th</sup> century, musicians were brought from Osaka and Nara to reinforce the weakened ensemble at Kyoto,<sup>24</sup> forming the *Sanpō-gakuso* (the collective name for the three groups of musicians in the Music Department of the Imperial Court).<sup>25</sup>

The 17<sup>th</sup> century saw a revival of *gagaku* court traditions, the establishment of performance groups in Edo (Tokyo),<sup>26</sup> and the formation of the Silk and Bamboo Society (*Shichiku-kai*) in Kyoto, whose aim it was to counter the deterioration of the *gagaku* tradition and promote private study and performance.<sup>27</sup> The *Gakkaroku* (“Record of *Gagaku* Families”), an encyclopedic compendium, was also compiled in 1690.<sup>28</sup>

With the Meiji period (1868-1912) came a new effort to “restore” court ceremonies, including dance and vocal forms that had been lost.<sup>29</sup> This “restoration” also involved a codified hybridization of the three traditional schools of performance into what Steven G. Nelson has called “a sanitized and sanctified tradition.”<sup>30</sup> The Gagakukyoku ensemble was formed in Tokyo at the Imperial Palace in 1870 and brought together musicians from the three *gagaku* centres to compile

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<sup>22</sup> Terauchi, “Gagaku” in *Garland*, 625.

<sup>23</sup> Nelson, “Court and Religious Music (1),” 46.

<sup>24</sup> *Ibid.*, 47.

<sup>25</sup> Minamitani Miho, “*Gagaku*-Musicians in the Azuchi-Momoyama Period: A Study on the Organization of the *Sanpō-gakuso*,” in *Music Cultures in Interaction: Cases between Asia and Europe*, edited by Machubi Usaburō and Yamaguti Osamu (Tokyo: Academia Music, 1994), 75.

<sup>26</sup> Nelson, “Court and Religious Music (1),” 47.

<sup>27</sup> Eta Harich-Schneider, *A History of Japanese Music* (London: Oxford University Press, 1973), 491.

<sup>28</sup> Nelson, “Court and Religious Music (1),” 47.

<sup>29</sup> *Ibid.*

<sup>30</sup> *Ibid.*, 48.

standard scores of the entire repertoire—the *Meiji Sentei-fu* (“Notation Edited in the Meiji Period”)—with editions completed in 1876 and 1888.<sup>31</sup> Over time, the three schools had developed divergent practices of ornamentation.<sup>32</sup> *Gagaku* was still protected by the court in the Meiji period but this formerly secret tradition was given its first public performances in 1878 at the new *Gagaku* Rehearsal Hall; the cabinet had also decided to make *gagaku* instruction open to the public in 1873. In addition, the court musicians were required to learn and perform Western music on Western instruments beginning in 1874.<sup>33</sup>

### 3.2 Preservation

Court musicians belonged to a hereditary tradition of family guilds that passed their traditions of interpretation and ornamentation through the male line mainly through oral methods of imitation and memorization. This form of transmission was guarded and the repertoire kept secret within the court. The musicians placed great value on passing the music on just as they had learned it;<sup>34</sup> this was considered a “sacred obligation.”<sup>35</sup> The public would not have the opportunity to hear this music, let alone learn it. Prior to the Meiji period, *gagaku* was an isolated ceremonial tradition, reserved for the imperial court and religious centres.

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<sup>31</sup> Terauchi Naoko, “Beyond the Court: A Challenge to the *Gagaku* Tradition in the ‘Reconstruction Project’ of the National Theatre,” in *Performing Japan: Contemporary Expressions of Cultural Identity*, edited by Henry Mabley Johnson and Jerry C. Jaffe (Folkestone, UK: Global Oriental, 2008), 95.

<sup>32</sup> Garfias, *Music of a Thousand Autumns*, 25.

<sup>33</sup> Tōgi Masataro, *Gagaku*, 195.

<sup>34</sup> Regarding the challenges they faced in keeping the tradition “unchanged,” I refer the reader to Harich-Schneider, *A History of Japanese Music*, 550-560, and Garfias, *Music of a Thousand Autumns*, Chapter IX (“Conclusion: The Continuous Evolution of the Tōgaku Style”).

<sup>35</sup> Koizumi and Okada, *Gagaku*, 5.

*Shōga*, a system of mnemonics to aid memorization and transmission, developed in the eighth century<sup>36</sup> and minimal tablature notation is dated to as early as the 10<sup>th</sup> century. These two resources were used in teaching younger generations within the family guilds of *gagaku* court musicians.<sup>37</sup> Performance practice of ornamentation and embellishment was passed down orally.

The tablature system differs for each instrument of the ensemble, and in the case of the *hichiriki* and *ryūteki*, is based on fingerings. As a result, although today we have a guide to the fingerings employed in Heian times, we have no means of knowing in detail how the resulting music sounded.<sup>38</sup> According to Nelson, the tablature systems used by Japanese musicians seem to be based on “ancient Chinese models.”<sup>39</sup> This tablature, an outline of fingerings and metric structure, supplemented *shōga* mnemonics in transmission practices. Orally-transmitted mnemonics helped musicians learn and perform—as all music had to be played from memory—through codes for phrasing and pitch. Consonant sounds held clues to performance techniques and phrasing, while vowels instructed the musician concerning pitch relationships and melodic direction.<sup>40</sup> The mnemonics were to be memorized and sung before the student musician was permitted to play the piece being learned.<sup>41</sup> *Shōga* syllables were written down and added to the tablature

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<sup>36</sup> Shōno Susumu, “The Role of Listening in Gagaku: Interview with Shiba Sukeyasu, Master Musician of Gagaku, Conducted on 24<sup>th</sup> March, 1986,” *Contemporary Music Review* 1:2 (1987): 20.

<sup>37</sup> Garfias, *Music of a Thousand Autumns*, 24-25.

<sup>38</sup> Harich-Schneider, *A History of Japanese Music*, 132.

<sup>39</sup> Nelson, “Court and Religious Music (2),” 52.

<sup>40</sup> *Ibid.*

<sup>41</sup> Alison McQueen Tokita and David W. Hughes, “Context and Change in Japanese Music,” in *The Ashgate Research Companion to Japanese Music*, edited by the authors (Aldershot, England; Burlington, VT: Ashgate, 2008), 17.

notation in the Meiji scores (*Meiji-senteifu*)<sup>42</sup> and are still given in modern pedagogical publications.<sup>43</sup> The oral tradition of transmission continues though.

David W. Hughes writes:

Still today, despite the existence of written notations, a flute player in a *gagaku* or *nō* ensemble will learn each piece first by singing it, thus acquiring subtleties of expression that elude writing.<sup>44</sup>

FIGURE 3.1 Meiji-style *ryūteki* score of tablature and mnemonics for *Etenraku* in *Hyō-jō* mode.

テ	タ	フ	ト	六	ト
	ア	中	ヲ	テ	ラ
ノ	ハ	ノ	ホ	中	ロ
	ア		ヲ		ヲ
六	ラ	夕	ロ	夕	ル
丁	ロ	五	ル	中	ロ
	。	上	イ	テ	タ
五	ト	中	ト		ア
上	ラ	夕	ル	六	ロ
ノ	ハ	中	ロ	テ	ラ
中	リ	セ	タ		ア
夕	ラ	テ	ロ	六	。
	ア	中	ロ	テ	ト
	ア	夕	。	六	ラ
	。	セ	ト	テ	ハ
丁	ト	五	ロ	ノ	ト
六	ロ	上	ラ	五	ヲ
丁	ト	夕	チ	上	ロ
	ヲ	中	ヤ	夕	ラ
	イ	夕	ル	五	ル
夕	ロ	上	イ	上	イ
ノ	ホ	テ	タ	テ	タ
	ヲ		ア	六	ア
	引	六	ロ	テ	ラ
	引	テ	ラ		ア
	。		ア		。

Manuscripts dating back as far as 920 have contributed to the preservation of the *gagaku* repertoire. The earliest examples include *Shinsen Ojo-fu* (“Newly Edited

<sup>42</sup> Terauchi, “Gagaku” in *Garland*, 626.

<sup>43</sup> For example: Sasamoto, *Hajimete no Gagaku* はじめての雅楽 (Beginner’s Guide to Gagaku).

<sup>44</sup> David W. Hughes, “Japan, III, 4, Oral Mnemonics,” *Grove Music Online*, Oxford University Press, accessed May 30, 2014, <http://www.oxfordmusiconline.com/subscriber/article/grove/music/43335pg3>.

Score for Transverse Flute”) by Prince Sadayasu in 920,<sup>45</sup> and Minamoto no Hiromasa’s flute tablature scores *Hakuga Sanmi Fue Fu* from 966.<sup>46</sup> According to Allan Marett, the *Hakuga Sanmi Fue Fu* includes tablature fingerings, *taiko* drum strokes, and additional indications of phrasing, sustained tones (*hiku*), and mordent-like ornamentation.<sup>47</sup> Later manuscripts that include details on wind performance are the *Zoku-Kyōkunshō*, compiled by Koma no Tomokuzu between 1270 and about 1322,<sup>48</sup> and which gives drawings of wind instruments along with their pitch relationships;<sup>49</sup> *Nakahara Reseishō*, a 14<sup>th</sup>-century *hichiriki tōgaku* score for which an Edo-period copy has been preserved;<sup>50</sup> and *Taigensho*, a compendium from 1510-12 by Toyohara no Sumiaki that includes information on *ōteki (ryūteki)* flute ornamentation.<sup>51</sup> According to court musician Tōgi Masataro, about 300 works of *gagaku* have survived through to at least the mid-20<sup>th</sup> century,<sup>52</sup> though Robert Garfias stated in 1960, “the present tradition still makes use of about 150 pieces.”<sup>53</sup>

Although extant instruments cannot give the full picture of the music performed on them, they nonetheless hold value in the preservation of a tradition. A comparison of 8<sup>th</sup>-century instruments and those used in the meantime can offer insight into changes that occurred in the tradition.

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<sup>45</sup> Nelson, “Court and Religious Music (1),” 42.

<sup>46</sup> The original is lost; extant copies are from the 18<sup>th</sup> century or later. Allan J. Marett, “Tunes Notated in Flute-tablature from a Japanese Source of the Tenth Century,” *Musica Asiatica* 1 (1977), 1-2.

<sup>47</sup> *Ibid.*, 1-14.

<sup>48</sup> Nelson, “Court and Religious Music (1),” 45.

<sup>49</sup> Harich-Schneider, *A History of Japanese Music*, 384-5.

<sup>50</sup> Kwok Wai Ng, “In Search of the Historical Development of Double-Reed Pipe Melodies in Japanese Tōgaku: Early Hypotheses and New Perspectives,” *Asian Music* 42.2 (2011), 92.

<sup>51</sup> Harich-Schneider, *A History of Japanese Music*, 387.

<sup>52</sup> Tōgi Masataro, *Gagaku*, 59.

<sup>53</sup> Robert Garfias, “Modifications of the Gagaku Tradition,” *Ethnomusicology* 4.1 (Jan. 1960): 18.

The Imperial Shōsōin in Nara, Japan preserves the household goods of Emperor Shōmu from the 8<sup>th</sup> century. Among these goods are numerous instruments, including eight six-hole *shakuhachi* flutes (an original member of the *gagaku* ensemble) and four transverse flutes.<sup>54</sup> These flutes are slightly different in construction from the flutes played today. Most *shakuhachi* played today have five holes, not six, and modern transverse flutes have wider bores than those preserved in the Shōsōin. The bores of the preserved Shōsōin flutes are also unlacquered. Garfias points out that the flutes with narrow unlacquered bores would be softer in timbre than those played today. He suggests that these flutes would not respond as well to changes in air pressure as do modern flutes and that it is therefore likely that ornamentation practices relied more on fingering technique than on variation in air pressure. He refers to the instruments and performance practice of Korean court music for comparison—the modern Korean instruments resemble the Shōsōin instruments more closely.<sup>55</sup> Marett adds that the finger holes have also been enlarged in modern transverse flutes. This allows for greater variation in pitch.<sup>56</sup> How early and in which order the bore was widened and the finger holes enlarged is not clear.

### **3.3 *Gagaku* today**

After World War II, the *gagaku* tradition was in decline because many young members of hereditary families had died in the war<sup>57</sup> and others had to leave the

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<sup>54</sup> Tōgi Masataro, *Gagaku*, 59.

<sup>55</sup> Garfias, *Music of a Thousand Autumns*, 14-15.

<sup>56</sup> Marett, "Tunes Notated," 9.

<sup>57</sup> Nelson, "Court and Religious Music (1)," 48.

court when cuts were made to the Music Department.<sup>58</sup> The wind section of the orchestra reduced its size to three each of *hichiriki*, *ryūteki*, and *shō*, an ensemble that was “deplorably small” according to Sukehiro Shiba,<sup>59</sup> with a total of only 25 musicians employed in the Music Department of the Imperial Household Agency (the *Kunaichō Gakubu*).<sup>60</sup> According to Garfias,

At the beginning of the Meiji period (mid-nineteenth century) there were gathered about 100 court musicians in Edo (now Tokyo) from the various shrines and temples in Japan. This number gradually dwindled to forty-six just before World War II.<sup>61</sup>

Keepers of this ancient secret tradition chose to take steps to de-mystify *gagaku* in the face of decline. The ensemble opened itself up to increased public performance, international tours, and recordings by court musicians; composition and performance of new works; and instruction for amateurs and non-hereditary musicians. Females and non-Japanese were eventually accepted as students in amateur groups.<sup>62</sup> There remained, however, hesitation within the guilds to release centuries of performance secrets to the public and to researchers.<sup>63</sup>

Professional *gagaku* ensembles performing outside the court system today include the Tokyo Gakuso, founded in 1978 to promote traditional repertoire and

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<sup>58</sup> Tsukahara Yasuko, “Aspects of *Gagaku* in the Late Nineteenth and Early Twentieth Centuries,” in *Musicology and Globalization: Proceedings of the International Congress in Shizuoka 2002: in Celebration of the 50th Anniversary of the Musicological Society of Japan*, edited by the Musicological Society of Japan (Tokyo: Musicological Society of Japan, 2004), 75.

<sup>59</sup> Shiba, *Score of Gagaku*, Vol.1, 32.

<sup>60</sup> Tōgi Hideki, “Gagaku’s Pleasures and Possibilities,” *Japan Quarterly* 46.3 (July-September 1999): 32.

<sup>61</sup> Garfias, “Modifications,” 18.

<sup>62</sup> Nelson, “Court and Religious Music (1),” 37.

In 1946, a linguist named Leo M. Traynor was permitted to study *shō* and *shakuhachi*. (Harich-Schneider, *Japanese Music*, 578.)

<sup>63</sup> Harich-Schneider, *A History of Japanese Music*, 559.

new music,<sup>64</sup> and Reigakusha Ensemble, directed by a former musician of the Imperial Household Music Department, Sukeyasu Shiba, and formed in 1985 to promote both traditional and new pieces, such as "In an Autumn Garden" by Tōru Takemitsu.<sup>65</sup> Tōgi Hideki, a *hichiriki* player from a hereditary *gagaku* family traceable to the Nara period, left the court ensemble in the 1990s to pursue a solo career. He has recorded arrangements of *gagaku* pieces as well as new music for *hichiriki* and synthesizer.<sup>66</sup> Abroad, ensembles have been formed in Hawaii<sup>67</sup> and at universities in Europe and the United States.<sup>68</sup> UNESCO inscribed *gagaku* on the Representative List of the Intangible Cultural Heritage of Humanity in 2009.<sup>69</sup>

### 3.4 The *Gagaku* winds

The *gagaku* winds are the *shō* mouth organ, the *hichiriki* double-reed pipe, and the *fue* (the generic term for flute). In this study I focus on the *hichiriki* and the *ryūteki* flute. Extended techniques are not applicable to the *shō* mouth organ.

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<sup>64</sup> "Tokyo Gakuso and its leader, Tadaaki Ohno," *Celestial Harmonies*, accessed July 27, 2012, <http://www.blacksun.com/biographies/tokyogakuso.htm>.

<sup>65</sup> "Reigakusha Gagaku Ensemble: About Us," *Reigakusha Gagaku Ensemble*, accessed April 1, 2014, [http://reigakusha.com/English/index\\_e.html](http://reigakusha.com/English/index_e.html).

<sup>66</sup> Terence Lancashire, "The Gagaku of Tōgi Hideki," *Popular Music* 22.1 (Jan. 2003): 27.

<sup>67</sup> For example, the Hawaii Gagaku Society and the Gagaku ensemble at the University of Hawai'i at Mānoa.

<sup>68</sup> Columbia University formed an ensemble in 2006. Also in New York, the Tenri Gagaku Music Society of New York was founded in 1979. Ensembles were also formed at the University of California, Los Angeles in 1969, and the University of Washington in 1962. In Europe, the Cologne Gagaku Ensemble was started at the University of Cologne in 2000.

<sup>69</sup> "Gagaku," UNESCO video, 9:52, Mainichi Productions, 2000, posted 2009, <http://www.unesco.org/culture/ich/en/RL/00265>.

### 3.4.1 *Hichiriki*

The body of the bamboo *hichiriki* has a reverse conical bore and is approximately 18.2 cm long (or six *sun*).<sup>70</sup> The top of the bore is about 15 mm in diameter, the bottom about 10 mm. The body is wrapped in the bark of birch, cherry, or wisteria but for the finger holes (seven on the front, two for the thumbs on the back) and lacquered both inside and out. A large reed of *ashi* (mountain bitter bamboo) extends from the top of the bore about 4 cm and is fitted with a bamboo ring for adjustments in volume and tone. The *hichiriki* has a range of a little over an octave, from G1 to A2.<sup>71</sup> A larger size, the *dai-hichiriki*, existed in the early history of *gagaku* and was pitched a fourth lower. The ancestor of the *hichiriki* is the Chinese *bili* (predecessor to today's *guanzi*); it is also related to the Korean *piri*.<sup>72</sup>

### 3.4.2 *Ryūteki*

*Gagaku* flutists learn to play three transverse flutes: *ryūteki*, primarily for “Music of the Left,” *komabue* for “Music of the Right,” and *kagurabue* for indigenous ritual music. They share basic characteristics of construction. Similar to the *hichiriki*, the flutes are made of bamboo, wrapped in bark, and lacquered. The blowhole end is stopped with wood covered in fabric embroidered in colours that correspond to the Left or Right and plugged with wax for intonation. A metal weight is also inserted to improve balance.<sup>73</sup> The *komabue* is about 37 cm long, the *ryūteki* 40 cm, and the *kagurabue* 45 cm. The bore of the *ryūteki* is the widest of the three and has seven

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<sup>70</sup> Minoru Miki, *Composing for Japanese Instruments*, translated by Marty Regan, edited by Philip Flavin (Rochester, NY: University of Rochester Press, 2008), 54.

<sup>71</sup> Middle C = C1; an octave higher = C2, etc.

<sup>72</sup> David W. Hughes, “Hichiriki,” *Grove Music Online*, Oxford University Press, accessed April 1, 2014, <http://www.oxfordmusiconline.com/subscriber/article/grove/music/12985>.

<sup>73</sup> Hugh De Ferranti, *Japanese Musical Instruments* (New York: Oxford University Press, 2000), 58-59.

finger holes, whereas the *komabue* and *kagurabue* have six. The range of the *ryūteki* is C#2 to F#4, the *komabue* F#2 to G#4, and the *kagurabue* D2 to D4.<sup>74</sup>

### 3.4.3 The Wind section

The winds of the *gagaku* ensemble carry the melodic line in a heterophonic texture, with the *ryūteki* and *hichiriki* parts differing in ornamentation and certain tones. The *ryūteki* usually plays an octave higher than the *hichiriki*, with the *shō* filling in the space between them with chordal tone clusters above a lowest tone that follows the basic line of the melody.<sup>75</sup> Picken and his student-colleagues at Cambridge advanced the “revelation” that “the basic melodies of *Tōgaku* are preserved in the lowest notes (for the most part) of the mouth-organ” sonorities.<sup>76</sup> They claimed that when ornamentation and repeated notes are removed, an “unadorned, ancient melody” is uncovered in the *shō* parts, and that the *ryūteki* and *hichiriki* parts are “elaborate variations on ancient tunes, originally minimally embellished.”<sup>77</sup>

According to Tōgi Hideki, the *shō* is traditionally thought to represent “a ray of heavenly light” and is built in the shape of a phoenix at rest; the *hichiriki* represents “the voice of those who live on earth”; and the *ryūteki* represents the dragon, for which it is named, flying “in the space between heaven and earth.” Together, they represent the universe.<sup>78</sup> Although the *hichiriki* and *ryūteki* play the

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<sup>74</sup> Jarosław Kapuściński, and François Rose, “Orchestration in *Gagaku* Music: Ryūteki,” Center for Computer Research in Music and Acoustics, Stanford University, last modified October, 2010, <https://ccrma.stanford.edu/groups/gagaku/woodwinds/ryuteki.html>.

<sup>75</sup> Ibid., “Orchestration: Woodwinds.”

<sup>76</sup> Picken, *Tang Court*, 110.

<sup>77</sup> Ibid., 112.

<sup>78</sup> Tōgi Hideki, “Gagaku’s Pleasures,” 31-32.

same basic line, they embellish it differently, according to the idiomatic style of each instrument. For example, wide pitch bends and slides are easier to execute on the flexible large double reed than on the high-pitched flute and are thus employed more often on the *hichiriki*.<sup>79</sup> Because the timbres of the *gagaku* wind instruments do not blend, the individual tones of each kind of instrument are usually quite clear.

The techniques of the *gagaku* winds have been passed down orally since the court music first came to Japan from the mainland beginning in the 5<sup>th</sup> century. Although these techniques have surely undergone some degree of transformation and may or may not all date back to the earliest performances of *gagaku* in Japan, they are nonetheless integral to the tradition. Throughout its history, *gagaku* musicians have sought to preserve the tradition by transmitting the pieces orally through mnemonics, publishing manuscripts, and reorganizing the repertoire. Thus, this ancient music and dance is still performed in Japan today. In the following chapters, I analyze the performance techniques of the *hichiriki* and *ryūteki* in the best-known piece of the *gagaku* repertoire, *Etenraku*, as they pertain to Western extended techniques and the formal structure of the piece.

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<sup>79</sup> According to Koizumi and Okada, the *ryūteki* player would have to use “rather undignified motions with his hands and mouth” to match the flexibility of the *hichiriki*. These movements would compromise the solemnity of the performance. Pitch deviations from the mode are nonetheless achievable (*Gagaku*, 39).