EXTENDED MULTIPLE MALLET PERFORMANCE IN KEYBOARD PERCUSSION THROUGH THE STUDY OF PERFORMING TECHNIQUES OF *FLAME DANCE* AND *WATER FAIRIES* BY WAN-JEN HUANG

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ABSTRACT

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Pei-Ching Wu

This paper provides keyboard percussionists an overview of innovative extended multiple mallet techniques through the analysis of Wan-Jen Huang's six-mallet marimba compositions, *Flame Dance* and *Water Fairies* and the author's grip, the Wu Grip. This grip involves the Burton grip as a fundamental with a third mallet added below the original two in each hand. *Flame Dance* and *Water Fairies* use most of the spectacular extended multiple mallet techniques that are in vogue today. The study of these pieces and techniques provides a solid foundation for the performance of extended multiple mallet percussion music at more advanced levels. Extended multiple mallet techniques create new approaches and consequently explore the possibilities of the marimba further. Extended multiple mallet grips, mallet positions and innovative techniques as well as the significant artists who employ these techniques will be discussed in this paper.

DEDICATION

This paper is dedicated to my parents Bao-Fong Hsieh, Tsang-Hai Wu my parents-in-law Hui-Feng Ko, Chi-Wang Lin, and my husband Yi-Ping Lin.

ACKNOWLEDGMENTS

Many people have made this research project possible through their kind assistance and encouragement. Words are not enough to convey my deep gratitude to them for their help. My most heartfelt thanks go to Professor Tzong-Ching Ju, my percussion instructor for his patience and encouragement. I am also indebted to Wan-Jen Huang, not only for her expertise on the extended multiple mallet music and her masterpieces *Flame Dance* and *Water Fairies,* but also for sharing her music, ideas, and friendship with me. I am also grateful to members of the Ju Percussion Group, for providing valuable resources and assistance during this project. I am extremely grateful to Dr. Paschal Younge, my committee chairman and research project adviser, for his encouragement and guidance throughout this project. His constructive criticisms and advice have been a constant source of inspiration. Thanks are also due to all my committee members at West Virginia University: Dr. Keith Jackson, Dr. Mary Ferer, Mr. George Willis and Dr. Ernest Goeres, for their valuable comments and advice. My thanks also go to all the professors at the Creative Arts Center who were present during my one-year residency at the university. Special thanks to former Dean, Philip Faini and Dr. Tim Peterman for preparing me to think creatively about music. To my husband, Yi-Ping, I extend my gratitude for the countless midnight snacks and moral support.

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PREFACE

Marimba has become one of the most popular solo instruments in the percussion world since the 1970s. Marimba players therefore strive for better musical expression through exploring new techniques, instruments and mallets. There are many composers and marimba players writing fantastic music for the marimba in diverse styles in addition to marimba activities and competitions taking place all over the world. During the last 35 years, the use of six mallets has been increasing; however research focusing on this performance practice is very limited. This research project therefore attempts to address this issue.

Two-mallet technique is an important prerequisite for marimba players since it contains the most basic concepts dealing with mallet position in the hand. This technique also introduces important percussion rudiments that will be expanded upon when additional mallets are used. Concepts such as wrist flexibility, speed, distance accuracy, and tone production are facilitated through the use of two mallets.

Four-mallet technique expands the harmonic and coloristic possibilities of the instrument. Chords in four note density are possible along with harmonized lines in a contrapuntal texture. The various grips and technical consideration of four mallet technique are considered the basic requirements for a professional in the field of keyboard percussion. A percussionist must therefore demonstrate a substantial level of mastery with four mallets before undertaking six-mallet playing.

Even with increased complexity and technical considerations afforded to the marimbist with the use of four mallets, complex shapes and sounds that are possible on

other harmonic instruments such as the piano are not possible on the marimba without the use of a six mallet technique. Some of these technical considerations and solutions have been outlined by Dean Gronemeier and Linda Pimentel whose work have been reviewed in Chapters Four and Five of this project. There are certain performance skills which until now have been creating difficulties for marimba players. It is my hope that this project introduces procedures that would solve these performance technicalities through the use of six mallets.

CHAPTER ONE

INTRODUCTION

One of the most important developments in keyboard percussion[1] performance is the use of extended multiple mallets[2]. The key to fully capitalizing on the versatility of the marimba is the ability of the player to be free from limitations of the grip.

Keyboard percussionists begin the study of mallet techniques with one mallet in each hand, gripping the mallet shaft between the thumb and first joint of the index finger (Figures 1.1 and 1.2) and lightly closing the remaining fingers around the shaft to form a whole-handed, supportive grip on the mallet.[3] Generally four-mallet grips (or multiple mallet grips) are introduced soon after the percussionist has developed a consistent control of the grip with two mallets. Three grips have been recognized as the standard multiple mallet grips. These are the traditional grip, the Burton grip, and the Musser/Stevens grip.

The traditional grip is established by adding a second mallet to the hand (with palm facing up) between the index and middle fingers and grasping the end of the added second mallet shaft with the little and ring fingers to form a secure grip on the crossed shafts (Figures 1.3 and 1.4). Drawbacks with this grip include an increased amount of

[1] For this project the term "keyboard percussion" refers to marimba, vibraphone, xylophone and glockenspiel.

[2] The adding of four-mallet grips with extra mallets for the performance is referred to by the term "extended multiple mallet techniques."

[3] Gary Cook. *Teaching Percussion*. 2nd edition, N.Y.: Schirmer Books, (1997): 112.

hand tension during mallet movements and a minimum amount of support for the mallet in the bottom of the hand.

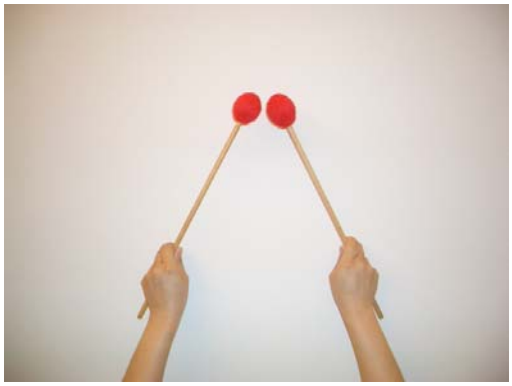

Figure 1.1: One mallet in each hand

Figure 1.2: One mallet, palm up

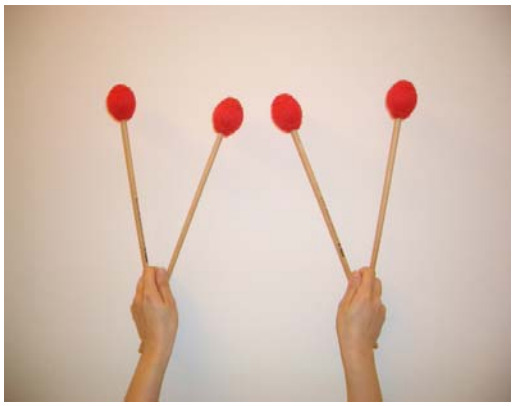

Figure 1.3: Traditional Grip

Figure 1.4: Traditional Grip, palm facing up

The Burton grip was invented by the great vibraphonist Gary Burton. The grip is achieved by placing one mallet between the index and middle fingers and gripping the shaft into the palm of the hand. This mallet remains roughly parallel to the middle finger. The other mallet is then crossed underneath the first mallet, and held against the thumb by curling the four fingers underneath the second mallet (Figures 1.5 and 1.6).

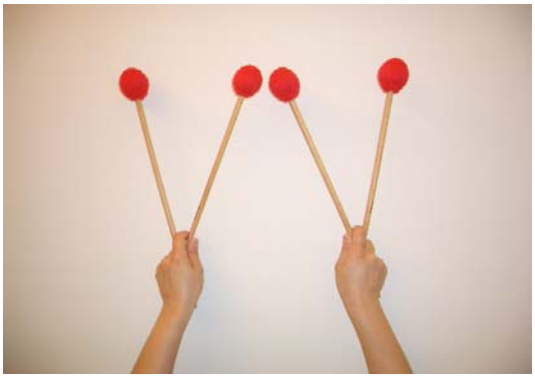

Figure 1.5: Burton Grip

Figure 1.6: Burton Grip, palm facing up

The Musser/Stevens grip was invented during the 1920s by Clair Omar Musser and was further advanced by Leigh Howard Stevens in 1971. The grip is established by pulling the first mallet out to a point where it is held only by the thumb and index finger and supported by the middle finger. The second mallet is inserted in the hand (with palm facing up) between the middle and ring fingers along the side of the palm of the hand. The little and ring fingers then grasp the shaft firmly and close by curling securely into the palm (Figures 1.7 and 1.8). The mallets do not cross in the hand. This grip is most effective because of independent control of each mallet.[4]

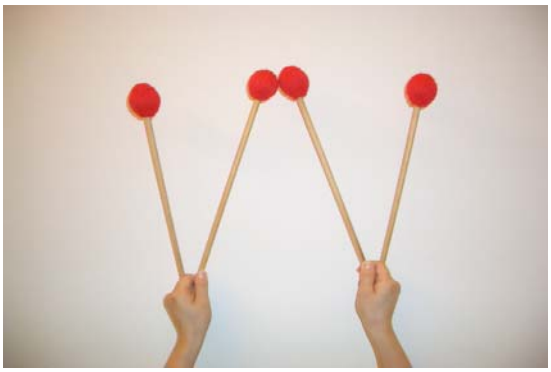

Figure 1.7: Musser/Stevens Grip

Figure 1.8: Musser/Stevens Grip, palm facing up

[4] Information from www.uh.edu/~tkoozin/projects/WanHwaLow/Overview.html

Four-mallet techniques present seemingly limitless performance possibilities and have quickly become standardized. Several professional artists, such as Keiko Abe, Ludwig Albert, Wesley Bulla, Dean Gronemeier, Rebecca Kite, Robert Paterson, Linda Pimentel and Kai Stensgaard, have over the years explored with varying degrees the possibility of augmenting these four-mallet grips with extra mallets to produce even greater variations for performances. These techniques are referred to as "extended multiple mallet techniques."[5]

The attempt to use five, six, or more mallets demonstrates that marimba technique is in a continuous state of development. Timothy Andrew Jones, Associate Professor of Music at the University of Nevada, who conducted a study of artists and literature employing extended multiple mallets in keyboard percussion, echoed the view that all creative arts are in a constant state of evolution, including keyboard percussion. He states, "Keyboard percussion has been evolving in western society for over a century, and through a natural process certain limits have been achieved, furthered and recreated. One of these is the exploration of how many mallets can be manipulated successfully while maintaining musical integrity."[6]

Most marimba performers have developed extended multiple mallet techniques from the four-mallet grip they use. Linda L. Pimentel, an expert on extended multiple mallet performance agrees and states, "One avenue of approach toward using three mallets in one hand is to proceed from a standard four-mallet grip to the new grip. The marimbist

[5] Timothy Andrew Jones. "A Survey of Artists and Literature Employing Extended Multiple Mallets in Keyboard Percussion; Its Evolution, Resulting Techniques and Pedagogical Guide." DMA Dissertation, University of Nevada, Las Vegas, (2003): viii.

[6] Jones, ix.

can proceed from the grip with which he is most familiar as one of three points of departure."[7]

In the early 1990s, the director of percussion studies at the University of Nevada in Las Vegas, Dean Gronemeier, introduced the possibility of complete independence with six mallets. His idea of utilizing the Musser grip with the Burton grip superimposed provides the performer with limitless possibilities. The Gronemeier grip involves the holding of the middle and outermost mallets with the Musser grip. With this mallet in place, the innermost mallet is crossed underneath the middle mallet to obtain the six-mallet independent grip.[8] (Figures 1.9 and 1.10)

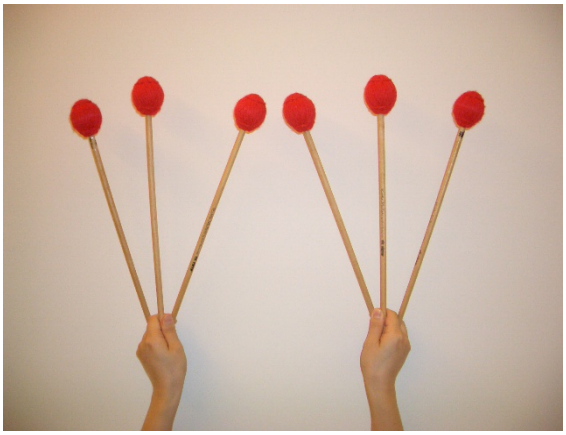

Figure 1.9: Gronemeier Grip

Figure 1.10: Gronemeier Grip, palm facing up

The author's personal approach to the six mallet grip involves the Burton grip as a fundamental with a third mallet added below the original two in each hand. The extra mallet is added to the inside of the hand and held by the middle, ring and little fingers.

[7] Linda Pimentel. "Multiple Mallet Marimba Techniques." *Percussionist* 14 No. 1 (Fall 1976): 11.

[8] Dean Gronemeier. "Six Mallet Independence: A New Twist on an Old Idea." *Percussive Notes* 34 No. 6 (December 1996): 41-45.

The end of the innermost mallet then rests at the base of and in the curve of the little finger in the palm. As with the Burton grip, fingers are curved around the innermost and middle mallets which are manipulated by the thumb and first finger (Figures 1.11 and 1.12).

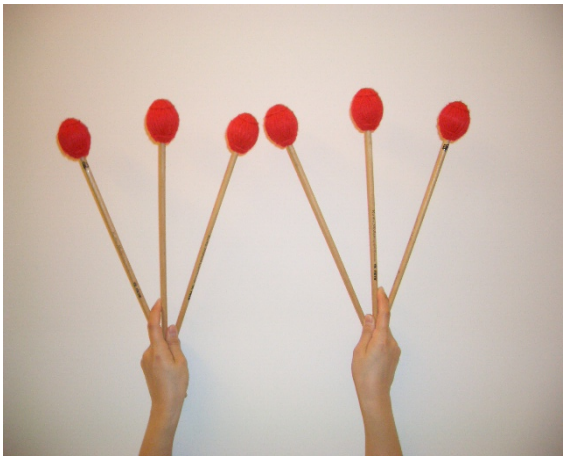

Figure 1.11: Wu Grip

Figure 1.12: Wu Grip, palm facing up

According to Gronemeier, "Certain intervallic positions on the marimba are extremely difficult to achieve, and sometimes impossible. For example, the major triad in root position E^{b}-G-B^{b} does not lend itself to be performed with one hand. Quite simply, the mallets do not shape in the formation necessary to play that chord."[9] This limitation could actually be overcome by the author's grip, the Wu grip. This paper is an attempt to offer a solution for some of these limitations. Few percussionists are using extended multiple mallet techniques today due to the lack of literature focusing on research and development of these techniques. As noted by Timothy Jones, "To date, no document

[9] Gronemeier, 45.

exists that explores the important history and literature of extended multiple mallet techniques that are rapidly becoming a part of the keyboard percussionist's repertoire. During the past forty years, more than ninety works have been composed and published specifically employing this technique, the most significant of them during the last decade."[10]

Flame Dance and *Water Fairies*, representative works of extended multiple mallet repertoire, are the earliest six-mallet marimba solos written by a Taiwanese composer Wan-Jen Huang. There was no work written for six-mallet marimba solo in Taiwan until 1995. The Ju Percussion Group (JPG), with which I have been serving as Principal since 1988, therefore commissioned *Flame Dance* and *Water Fairies* from this aspiring Taiwanese composer. Following the world premieres at Taipei's National Concert Hall in 1995 of *Flame Dance* and in 1996 of *Water Fairies* by the author, these pieces have been performed extensively in Taiwan, Europe, and the United States by several marimba artists.

The opportunity to work with Huang inspired the author in many ways to invent new techniques of six-mallet playing including arpeggio technique. This technique is executed by twisting the wrist and at the same time allowing mallets to descend to the marimba one after the other. This technique could be developed into another important technique: arpeggio roll by continuously turning the wrist without a stop and letting the mallets descend in the same manner as the arpeggio passages.

The author has performed several dramatic and exciting six-mallet marimba solo compositions which have seldom undergone any serious scholarly analysis of playing

[10] Jones, 8.

techniques; hence the author's resolve to undertake this study with focus especially on *Flame Dance* and *Water Fairies*. I hope that through this study, percussionists will gain a broader knowledge of six-mallet grips and bring the style into the realm of standard percussion literature.

Purpose of the Study

The purpose of this study is to provide keyboard percussionists with an overview of innovative extended multiple mallet performance through the analysis of the author's grip and of Wan-Jen Huang's six-mallet solo marimba compositions *Flame Dance* and *Water Fairies*. The study of these techniques should provide a solid foundation for extended multiple mallet performance at more advance levels.

Statement of Research Questions

1. What is extended multiple mallet performance? How is it derived?
2. Who are the significant keyboard percussionists employing extended multiple mallet techniques?
3. How many types of extended multiple mallet grips are there? What are the techniques involved in extended multiple mallet performances?
4. Are there any limitations of the extended multiple mallet grip? How can these limitations be overcome?
5. What are the backgrounds of *Flame Dance* and *Water Fairies* by Wan-Jen Huang? When were they composed? What are the structures of the compositions? What kinds of extended multiple mallet techniques are required in these compositions? How does

one execute all the techniques?

Research Methodology

1. Review and analysis of materials dealing with extended multiple mallet performance in keyboard percussion instruments through periodicals, dissertations and percussion publications.
2. Internet survey of the terms of “six-mallet”, “six mallets”, “extended multiple mallets”, “multiple mallet grips”, “marimba grip” through the world-wide web.
3. Photography of various grips and mallet positions. In order to have a better understanding of six-mallet grips, the author will provide an overview of four-mallet grips and summarize various six-mallet grips and movements of the mallets. In this research project, mallets’ numbering from left hand to right hand, from left to right is as follows: left hand 1 - 2 - 3, right hand 4 - 5 - 6. With palm facing up, the mallets’ numbering from left hand to right hand, from left to right is as follows: left hand 3 - 2 -1 , right hand 6 - 5 - 4 .
4. Experimentations on certain intervallic positions such as C-C$^{\#}$-D and E^{b}-G-B^{b}, to find out the better mallet positions for them will be explored.
5. Personal email interviews with performers involved in the field of extended multiple mallet performance will be included.
6. Finally, analyses of the *Flame Dance* and *Water Fairies* and interviews with the composer will be conducted and data provided.

Organizations

This study comprises five chapters, a list of consulted sources and appendices. Chapter One introduces the reader to the problem and explains the purpose for the study in addition to identifying the methodology by which the study is constructed and distributed, together with the review of related literature. In Chapter Two, the author will outline a general description of the different types of extended multiple mallet techniques and of keyboard percussionists who adapt them. Chapter Three presents a complete description of the author's mallet positions and playing techniques of extended multiple mallet grip, including 'First Position,' 'Second Position,' 'Third Position,' 'First Position Squeeze,' 'Palm Lock,' 'Third Position Lock,' and 'Manual Push / Pull.' Chapter Four focuses on the six-mallet marimba solo work *Flame Dance by* Wan-Jen Huang. The background of the work, the structure of the composition, and a description of the mallet positions and performance techniques will be provided. Chapter Five provides the background and structure of *Water Fairies* as well as a description of the mallet positions and performance techniques. The main points and ideas of this research will be outlined in the conclusion of this paper.

Review of Related Literature

Studies of four-mallet grip and techniques

Most method books and essays about mallet percussion have been written for four-mallet grips and techniques for marimba. These include descriptions of various grips, mallets coordination, performance techniques, and practical body movements. Gary

Cook's *Teaching Percussion*[11] is one of the most significant contributions to percussion pedagogy. All aspects of percussion education, performance, and pedagogy are presented in thorough detail. It presents a very detailed and consistent description of basic percussion techniques, playing systems and philosophies throughout the text. Chapter four of this book, deals with keyboard percussion, including the origins and classifications of the keyboard percussion. Keyboard percussion technique and individual keyboard methods and supplemental studies are discussed. In this chapter Cook clearly explains the grip, playing areas on the bars, the approach, various kinds of strokes as well as various multiple mallet grips and techniques, which include traditional cross-grip, the Musser/Stevens grip and the Burton grip. This book is an ideal comprehensive textbook for all percussionists.

The mallet percussion textbook *Modern Mallet Method* by Phil Kraus, a truly fine teacher in keyboard percussion, provides a course of progressive lessons in theory and harmony to equip the mallet player. Many exercises on all intervals and chords are included, but performance techniques are not addressed.[12]

One of the most outstanding comprehensive multiple percussion method books is *Method of Movement for Marimba* by Leigh Howard Stevens. In this book, Stevens teaches his version of Musser grip. Stevens presents concepts about "speed of interval change, interval limit, wrist maneuverability, finger control, stroke height, stroke efficiency and accuracy, shift and interval change efficiency, along with the fundamental strokes of four-mallet marimba technique, which includes single independent strokes,

[11] Gary Cook. *Teaching Percussion*. 2nd edition, N.Y.: Schirmer Books, 1997.

[12] Phil Kraus. *Modern Mallet Method.* Ed. Doug Allan. Rockville Centre, N.Y.: Belwin, 1966.

single alternating strokes, double vertical strokes and double lateral strokes."[13]

In Michael Burritt's article "Marimba Moves,"[14] he explains the importance of understanding and using efficient body movement regardless of the type of grip employed. He divides the major chords into five different positions of the marimba. The first and most comfortable are chords that fall with all the notes on one manual, lower manual white notes and upper manual black notes or accidentals. This applies to the keys of C, F, $F^{\#}$ and G major. In these four keys, the body is positioned squarely in front of each chord with the arms reaching straight out. In all other keys, the arms must be positioned at various angles, forcing the body to make adjustments accordingly. The second position is for the keys of D^{b}, E^{b} and A^{b} major. The left arm must extend outward from the body in order to play the lower third of the chords in these keys. He finds it more comfortable to move his body slightly to the left into the lowest note, making it easier for his left arm.

The third position applies to D, E and A major chords and is the most involved because it requires moves from both arms as well as from the body. Because the third of the chord is on the upper manual, the left arm must come in towards the torso, therefore making it necessary to shift the body to the right. In doing so, the right arm turns outward from the body, placing both arms at somewhat parallel angles. The fourth and fifth positions work exclusively for B^{b} and B major. These are combinations of positions two and three. Burritt states that "once a solid understanding and execution of these basic positions is established, it becomes much easier to begin working on moving the body up

[13] Leigh Howard Stevens. *Method of Movement.* 2nd ed. Elberon, New Jersey: Keyboard Percussion, 1990.

[14] Michael Burritt. "Marimba Moves." *Percussive Notes* 31 No. 8 (December 1993): 45-47.

and down the instrument using different inversions of the chords."[15]

Besides dividing the chords into the five positions, Burritt takes exercise number 430 from the Stevens' *Method for Movement* as an example to explain how to move efficiently. He states, "Learning to move comfortably and efficiently around the marimba is a necessary technique that should be a strong component in the development of any keyboard percussionist."[16]

In "Simply Four"[17] Gifford Howarth states that the Stevens grip seems to be the most popular four-mallet grip in North America and it is also the most improperly used grip giving young students the most physical problems. He offers a breakdown of how to correctly hold the mallets, the roles of the fingers, the basic strokes, common problems with beginners and ways to fix them.

In her 1976 essay "Multiple Mallet Marimba Techniques,"[18] Linda Pimentel clearly describes her approach to four-mallet techniques with many illustrations and descriptions. Pimentel points out that the basic motions for striking any two tones simultaneously can be divided into three categories. These are the frontal position, the inner swing and the outer swing. In the frontal positions, both notes are played on the same set of bars, either the naturals or the sharps and flats. The body assumes a comfortable position when performing the frontal position. The other two categories of striking two notes at once employ exaggerations of the two movements discussed in the frontal position category.

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[15] Burritt, 46.

[16] Ibid, 47.

[17] Gifford Howarth. "Simply Four." from http://www.vicfirth.com/education/articles/howarth.html.

[18] Linda Pimentel. "Multiple Mallet Marimba Techniques." *Percussionist* 14 No. 1 (Fall 1976): 1-21.

The wrist must flex and lead in the inner swing category; the elbow is closest to the body in the outer swing. Both of these movements are compounded when both arms sustain different positions, and then rapidly move to opposite positions. She emphasizes that "technical experience must be applied to and further developed with actual music."[19]

Nancy Zeltsman's article "Traditional Four-Mallet Grip" [20] is probably the most comprehensive step-by-step method about the traditional grip. Zeltsman believes that traditional grip has become far less traditional than it deserves to be because a clear written description of it doesn't exist or hasn't been widely distributed. The point of her article is to introduce and encourage percussionists to use the traditional grip. There are very clear descriptions and photographs about how to hold the mallets. The following are some of the primary merits of the traditional grip from her article:

1. Its basics can be learned quickly affording immediate application.
2. The mallets crossing in your hand and your fist around them afford natural leverage and power.
3. You can grasp the mallets at any point on the handles. This enables you to control how much length you use. In some instances, e.g., one-handed rolls on one note, less handle extension means your arm positions can be much more relaxed and natural.
4. Becoming accustomed to the subtle shifts in hand position necessary to play different sized intervals means that your fingers are primed for and sensitized to subtle shifts they can make to achieve different tone qualities.
5. The traditional grip can be applied equally well to the vibraphone as to the marimba. It also works well in the context of multiple percussion performance that involves quick mallet/stick changes. You can pick up four mallets very quickly with the traditional grip.[21]

[19] Ibid, 2-6.

[20] Nancy Zeltsman. "Traditional Four-Mallet Grip." *Percussive Notes* (August 1995): 50-54.

[21] Ibid, 54.

Reviews of extended multiple mallet keyboard percussion literature

A section entitled "Selected Review of New Percussion and Recordings" in the April 1996 issue of *Percussive Notes* (the Journal of the Percussive Arts Society)[22] provides detailed reviews of keyboard percussion literatures which include some of the extended multiple mallet repertoires. The reviews often include excellent information about extended multiple mallet performance. In John Raush's review of Gronemeier's six-mallet composition *Tied by Red*[23] in *Percussive Notes* April 1996, he points out that the contemporary mallet technique is no longer identical with four-mallet technique. Raush is well aware of the development of the six-mallet performance, and he thinks that before *Tied by Red*, the use of three-mallet grip in one hand was very limited. He states:

> The impediment to performing with three mallets in one hand has been the lack of flexibility in adjusting the angles between mallets. Consequently, its use has been primarily relegated to the performance of repeated structures, such as triads, that do not require significant changes of intervals. Gronemeier's solo reveals that his approach to six-mallet performance challenges many of these limitations, with one-handed rolls notated, and chords that required adjustments of the middle mallet. The solo exploits step-wise movements of chords on the "white key." Much repetitious patterning is found – not surprising, considering the technical difficulties. Variety is provided by the use of constantly changing rhythmic schemes and a variety of textural settings. Gronemeier's *Tied by Red* has progressed a lot in the depth of the six-mallet music.[24]

Another review by Raush of Joan Griffith's *December's Ballad* from *Jazz Suite for Marimba,*[25] offers some information on how five mallets function in the composition. He

[22] John Raush. "New Percussion and Recordings." *Percussive Notes*. (April, 1996): 74.

[23] Dean Gronemeier. *Tide by Red: Six Mallet Marimba Solo*. M Baker Publications, 1995.

[24] John Raush, 74.

[25] Joan Griffith. "December's Ballad." from *Jazz Suite for Marimba.* Pleasing Dog Music, 1998.

states, “This suite for marimba solo includes three movements and incorporates five- as well as four-mallet technique. In the second movement, which intends to ‘evoke the stride piano style,’ the marimbist's control of a left-hand, three-mallet grip is put to the test while executing an accompaniment that embraces both a bass line and chordal structures in the form of triads.”[26]

Raush also provides an observation on Ney Rosauro’s vibraphone solo music *Bem-Vindo*.[27] He states, “Rosauro has ventured into the daunting realm of five-mallet performance (three mallets in the right hand to play triads in root position). This is a piece for the college vibraphonist who wants a challenge in the arena of technique.”[28] In review of Dean Gronemeier’s *Five Short Pieces for Marimbas: six mallet marimba solo,*[29] George Frock recognizes the value of the compositions. He states, “The solos in this collection present new challenges for the marimbist by requiring three mallets in each hand. Performing with six mallets presents unique challenges, particularly when the intervals are not constant and when the mallet spread includes notes on both the lower and upper keyboards. These solos cover a variety of moods, technical demands and styles—an excellent manner to introduce this relatively new technique.”[30]

As reviewed by Karen Ervin about Jack Jenny’s *Ethos*[31] in 1978, “*Ethos* is a more

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[26] John Raush. “New Percussion and Recordings.” *Percussive Notes*. (August 1999): 72.

[27] Ney Rosauro. *Bem-Vindo for Vibraphone Solo*. Mallet Works Music, 1988.

[28] John Raush. “New Percussion and Recordings.” *Percussive Notes*. (April 1995): 71.

[29] Dean Gronemeier. *Five Short Pieces for Marimbas: Six Mallet Marimba Solo. (1.Genesis, 2. Cloud Mist, 3. Distinctive Personality, 4. Which Hunt, 5. Roccata.)* M Baker Publication.

[30] George Frock. “New Percussion and Recordings.” *Percussive Notes*. (February 1995): 76.

[31] Jack Jenny. *Ethos – A Six Mallet Marimba Solo*. Permus Publications, 1978.

than usually imaginative six-mallet solo, escaping in part the parallelism that seems to be an inherent part of most six-mallet techniques. It is therefore, rather difficult and requires considerable previous experience with six mallets."[32]

Extended multiple mallets grip and technique

In his essay "Six-Mallet Independence: A New Twist on an Old Idea," Dean Gronemeier provides a clear description of a grip that presents complete independence and extraordinary operation with six mallets. The basis of his technique is derived from the Musser/Stevens grip, with a cross Burton grip superimposed. He develops three basic mallet positions along with a few additions for each position. Gronemeier clearly explains how to manipulate the mallets in each position and discusses the role of each position. His grip opens up a complete innovative realm of independence.[33]

Linda Pimentel was a pioneering figure in the development of multiple extended mallet techniques throughout the 1970s and early 1980s. In the second part of Pimentel's essay entitled "Marimba: Five- and Six-Mallet Positions," she explains and illustrates three ways of six-mallet grip, which are from the Musser grip, the cross (traditional) grip and the Burton grip.[34] She also addresses control of individual mallets as well as two unusual positions. There are three kinds of roll discussed in Pimentel's essay; they are the Musser or ripple roll, the mandolin roll and the one hand roll.

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[32] Karen Ervin. "New Publications." *Percussive Notes* 17 (Fall 1978): 37.

[33] Dean Gronemeier. "Six Mallet Independence: A New Twist on an Old Idea." *Percussive Notes* 34 No. 6 (December 1996): 41-45.

[34] Linda Pimentel. "Multiple Mallet Marimba Techniques." *Percussionist* 14 No. 1 (Fall 1976): 1-21.

Wesley Bulla discusses the possibilities available to the vibraphonist employing additional mallets in his essay "A Study in Expanded, Five- and Six-Mallet Solo Vibraharp Techniques-Part 1[35] and Part 2."[36] His five- and six-mallet technique is based on the Burton grip. A dissertation by Timothy Jones traces the evolution of extended multiple mallet performance from the first performers to employ the techniques and the general history of the craft and technical variations to significant artists, composers and literature.[37] According to Jones, three periods can be applied to the development of extended multiple mallet techniques. The first period, between 1915 and 1975, experienced very sporadic experimentation with very few performers having any success with the technique. The general attitude towards the technique was that the technique was fun and a novelty. Between years 1975 to 1990, there were a number of artists who made serious attempts to expand four-mallet playing to make five- and six-mallet performance a common practice.

1990 to the present has seen tremendous improvement in the techniques, along with new developments that have extended multiple mallet performance earning the admiration and recognition that existing two- and four-mallet techniques enjoy. The most important development in this era is the concept of total independence and operation of all mallets. Jones not only provides the most detailed analysis of Gronemeier's grip but

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[35] Wesley Bulla. "A Study in Expanded, Five- and Six-Mallet Solo Vibraharp Techniques: Part I." *Percussive Notes* 29 No. 3 (February 1991): 47-50.

[36] Wesley Bulla. "A Study in Expanded, Five- and Six-Mallet Solo Vibraharp Techniques: Part II." *Percussive Notes* 29 No. 4 (April 1991): 72-73.

[37] Timothy Jones. "A Survey of Artists and Literature Employing Extended Multiple Mallets in Keyboard Percussion; Its Evolution, Resulting Techniques and Pedagogical Guide." DMA Dissertation, University of Nevada, Las Vegas, 2003.

also encompasses six-mallet performers, grips, techniques, pieces, books and thesis/dissertations currently available. It is the most comprehensive document of extended multiple mallet techniques to date.[38]

[38] Timothy Jones. Email interview, 27 April 2004, world-wide web.

CHAPTER TWO

IMPORTANT KEYBOARD PERCUSSIONISTS AND THE EXTENDED MULTIPLE MALLET TECHNIQUES THEY EMPLOY

Keiko Abe

Abe, an internationally renowned marimba artist has traveled all over the world popularizing the marimba. She has also dedicated herself to increasing the instrument's repertoire and establishing it as a solo instrument. During a career that expands more than forty years, Abe has delighted international audiences with her distinctive six-mallet technique and highly individual musical styles.

Her six-mallet grip involves the traditional cross grip as a fundamental (Figures 2.1) with a third mallet added between the middle and ring finger in each hand (Figures 2.2). With mallet 1 in the left hand or mallet 6 in the right hand, one extra mallet is added to the outside of the hand and held by the middle, ring and little fingers. When viewed from the palm, the end of mallet 1 or 6 should rest at the base of and in the curve of the ring and little finger. The outer and inner most mallets can be manipulated for single note lines by raising and angling the wrist (Figures 2.3).

In 1968, Japanese composer Akira Yuyama composed *Divertimento for Marimba and Alto Saxophone* for Abe's first recital in Tokyo. In this work, the composer requires the player to use six mallets for thirty measures. The rest of the piece is performed with four mallets. Yayuma understood the difficulty of this technique and kept a consistent

hand position and chord structure throughout most of the piece.[39]

Figure 2.1: Keiko Abe's four-mallet Traditional Grip[40]

Abe has continued to use six mallets frequently in her repertoire and has composed significant works for this technique. The most important of these works are *Itsuki Fantasy*, *Wind across Mountains*, and *Prism Rhapsody*. Her works which are precious additions to the marimba's repertoire blend Western and Eastern musical ideas while

[39] Note by composer from CD of *Keiko Abe Marimba Selections II*. Denon 30CO-1728. Nippon Columbia Co., Ltd., 1987.

[40] Author's own photograph.

pushing the limitations of conventional marimba technique.[41] Abe emphasizes that six-mallet technique ensures the richest and fullest sound on the marimba. She is a professor at the Toho Gakuen School of Music and has conducted many master classes and performances in Asia, the United States and Europe. She has also appeared at the Helsinki Festival, the Berlin Percussion Festival, the Vienna Summer Festival, etc.[42]

Figure 2.2: Keiko Abe's six-mallet grip[43]

[41] Information from www.yamaha.com/band/bsp/F2001/03.htm

[42] Information from www.yamaha.com/band/bsp/F2001/03.htm

[43] Author's own photograph.

Figure 2.3: Keiko Abe's six-mallet grip[44]

Ludwig Albert

Ludwig Albert graduated with distinction from the Royal Conservatory of Music in Antwerp, Belgium and obtained a first prize for percussion with L. Cauberghs. After his studies in musicianship and pedagogy, he cooperated with several orchestras and now teaches at the Royal Conservatory of Music and the State School for Art in Antwerp. In 1995, he searched for new sound-combinations and founded the marimba-soprano duo, called Patrasche.[45] Recently, he founded the Belgian Marimba Society and has conducted

[44] Author's own photograph.

[45] Information from www.marimba.org/players.htm/

various events, including the Belgium International Marimba Competition.[46]

Albert performs with both six and eight mallets during his concerts, presenting his own compositions and the works of Keiko Abe. Albert's six-mallet technique is based on the traditional cross grip and is similar to that of Abe's. When performing, he has free control of the outer and innermost mallets; he can perform double stops with any two neighboring mallets and play block chords with all three mallets at the same time. His composition *Let's Dance for Solo Marimba with 6 Mallets* is based on a Peruvian folksong.

Albert's eight-mallet technique is very unique. An additional mallet is held with the little finger in each hand to increase the existing six-mallet grip (Figure 2.4).[47] His work *Marimba Moods II for Solo Marimba with 8 Mallets* fully exploits the effectiveness of using eight mallets (Figure 2.5).

[46] Information from www.ludwigalbert.com

[47] Timothy Andrew Jones. "A Survey of Artists and Literature Employing Extended Multiple Mallets in Keyboard Percussion; Its Evolution, Resulting Techniques and Pedagogical Guide." DMA Dissertation, University of Nevada, Las Vegas, 2003: 10.

Figure 2.4: Ludwig Albert's six-mallet grip[48]

Figure 2.5: Ludwig Albert's eight-mallet grip[49]

[48] Photographs from www.ludwigalbert.com/EN/HOOFDPAGINAS/GEHEEL.htm

[49] Photographs from www.ludwigalbert.com/EN/HOOFDPAGINAS/GEHEEL.htm

Wesley Bulla

Wesley Bulla's extended multiple mallet technique was developed in 1977 to perform a series of Debussy preludes.[50] In his 1991 essays, "A Study in Expanded, Five- and Six-Mallet Solo Vibraharp Techniques: Part 1[51] and Part 2,[52]" Bulla discusses the movement of each mallet; some technical observations and the possible musical applications of extended multiple mallet techniques. His technique begins with the Burton grip. The extra mallet is added to the inside of the existing Burton grip. Movement of the middle mallet is obtained by the opposing movement of the thumb and first finger (Figure 2.6). In some cases, the extra mallet can be used for melodic dampening or to carry part of the melody with the two other mallets functioning to play the accompanying chord.

When using three mallets in the right hand and two in the left in an E-flat major triad, there are two different stickings. One option is the left-hand playing the root-3rd with the right hand playing 5th-octave-3rd. The other choice is the left hand playing the root-5th and the right playing the 3rd-octave-3rd. Bulla experiments with striking various inversions of triads, 7th and 9th major, minor, diminished and augmented chords, using either grip 3-left / 2-right or 2-left / 3-right, and finds that some variations of all chord structures are available for use with this technique. He states, "Ultimately, which sticking to use will be determined by the needs of the musical situation. As with any other approach to mallet performance, where you are coming from and where you are going will be your main

[50] Wesley Bulla. "A Study in Expanded, Five- and Six-Mallet Solo Vibraharp Techniques: Part I." *Percussive Notes* 29 No. 3 (February 1991): 47.

[51] Bulla, 47-50.

[52] Wesley Bulla. "A Study in Expanded, Five- and Six-Mallet Solo Vibraharp Techniques: Part II." *Percussive Notes* 29 No. 4 (April 1991): 72-73.

considerations for grip and sticking choice."[53]

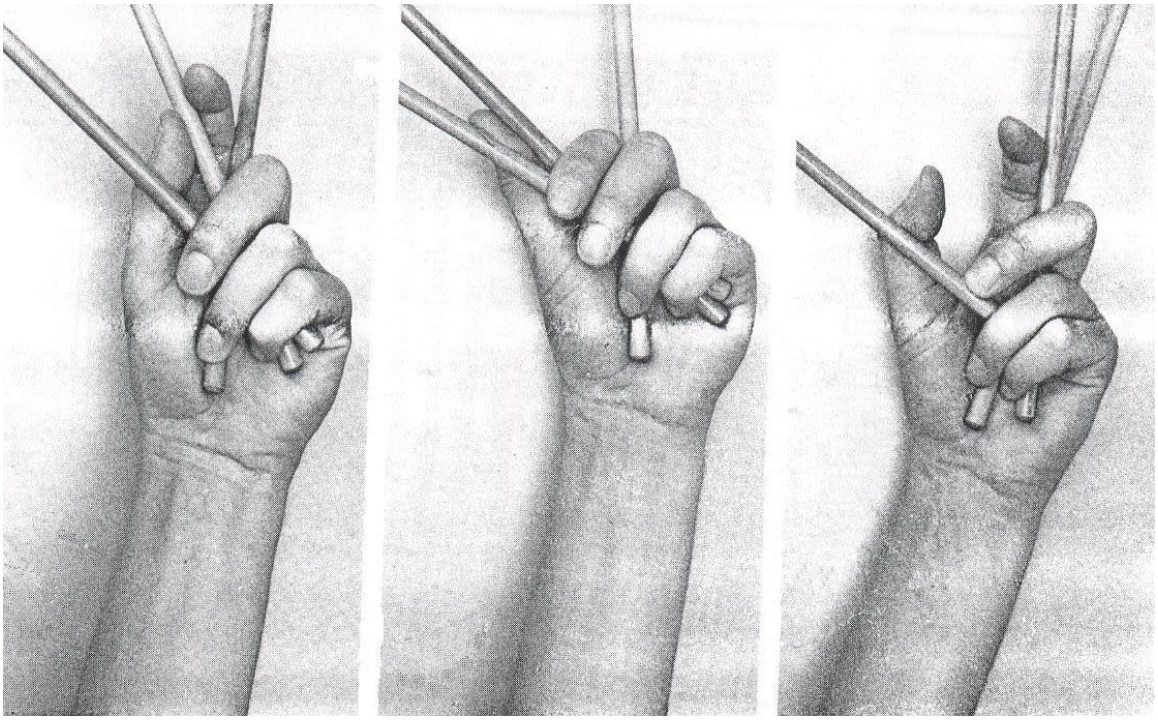

Figure 2.6: Movements to the middle mallet[54]

Dean Gronemeier

Dean Gronemeier is Director of Percussion Studies at the University of Nevada, Las Vegas since 1989. Additionally since the fall 2003 semester, he also serves as the Associate Dean of the College of Fine Arts. Gronemeier has soloed extensively throughout the United States, England, France, Switzerland, Austria, Germany, Australia, Chile and Mexico.[55]

[53] *Percussive Notes* 29 No. 3 (February 1991): 50.

[54] Photographs taken from *Percussive Notes* 29 No. 3 (February 1991): 47.

[55] Information from www.unlv.edu/Colleges/Fine_Arts/Music/bios/Grone/DGronemeier.html

Gronemeier has developed his six-mallet technique, which includes three basic mallet positions along with various embellishments, through many years of experimentations. His technique is derived from superimposing the Musser grip and the Burton grip. The grip involves holding mallets 5 and 6 with the Stevens grip. With this in place, mallet 4 is crossed underneath mallet 5 to obtain the six-mallet independent grip (Figure 2.7).

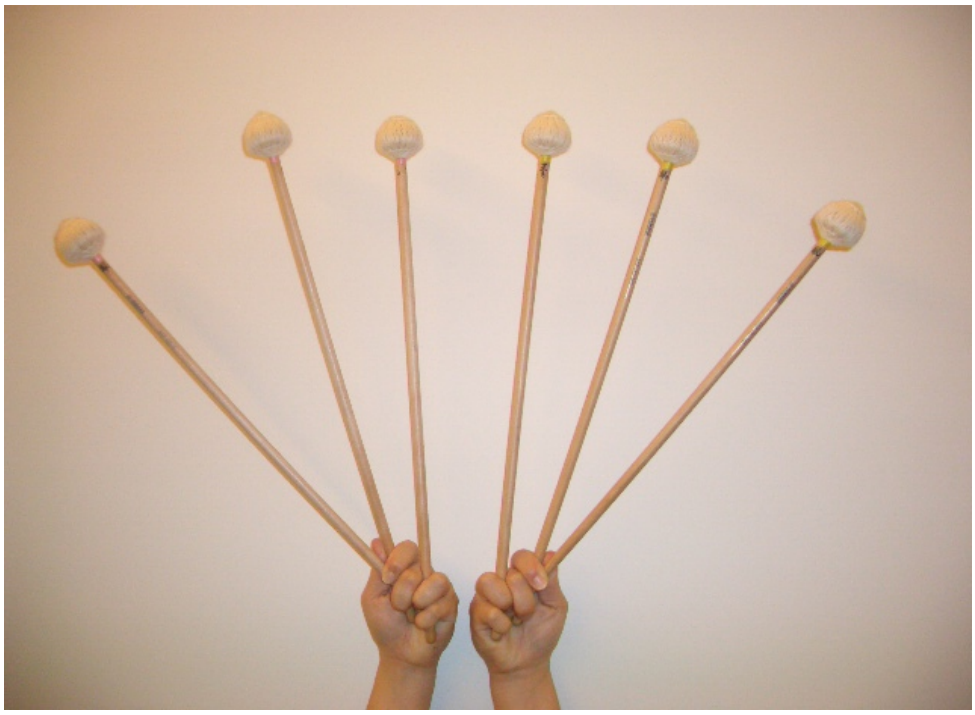

Figure 2.7: Gronemeier Grip, palm facing up

In his article "Six-Mallet Independence, A New Twist on an Old Idea,"[56] Dr. Gronemeier explains all the mallet positions and their functions. Excerpted from this article are the following descriptions of each position.

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[56] Dean Gronemeier. "Six Mallet Independence: A New Twist on an Old Idea." *Percussive Notes* 34 No. 6 (December 1996): 41-45

First Position

“First Position is the most basic position to learn because it is the most natural. Mallets 4 and 5 are on the inside of the hand, spread apart from mallet 6, which is on the outside of the hand. First Position is the position most similar to the Musser grip except that two mallets extend from the thumb and index finger instead of one, as in the Musser grip. Also, due to the split between mallets 4 and 5 and mallet 6, the First Position is often set to an intervallic structure in which there is a considerably larger interval between mallets 5 and 6 than there is between mallets 4 and 5 (Figure 2.8).”

Figure 2.8: First Position, right hand[57]

Second Position

“Second Position is formed when the thumb is pressed between mallets 4 and 5, and therefore expands the interval between them. Mallet 5 is controlled by the index finger and the inside of the thumb, and mallet 4 is controlled by the index finger and the outside of the thumb. Second Position is generally used when equal or nearly equal intervals between mallets 4 and 5 and mallets 5 and 6 are needed (Figure 2.9). Often in six-mallet playing, tonal passages lend themselves well to a voicing consisting of the tonic, fifth and octave. This mallet positioning occurs often enough to warrant its own title of 158 (tonic, fifth, octave) or Expanded Second Position. As can be seen in Figure 2.10, the 158 is achieved by a combination of widening mallets 4 and 6 by pulling mallet 4 with the index finger while maintaining the approximate equal interval with mallet 5 by sliding the

[57] Author’s own photograph.

thumb up mallet 5."

Figure 2.9: Second Position, right hand

Figure 2.10: Expanded Second Position, right hand

Third Position

"The Third Position is formed when mallet 5 is positioned next to mallet 6, therefore creating a larger intervallic distance between mallets 4 and 5 than

between mallets 5 and 6 (Figure 2.11). Due to this rather awkward positioning, playing in the Third Position requires the least natural hand position of all three positions. To position these intervals, the index finger and pad of the thumb must control mallet 5 by collapsing the index finger towards mallet 6."

Figure 2.11: Third Position, right hand

First Position Squeeze

"The locked positions have a correlation to the basic positions and are generally applied to passages that use the same position for an extended period of time. One may need to employ the First Position Squeeze when playing a consistent interval between mallets 2 and 3 while these mallets are positioned at a sizable intervallic distance away from mallet 1, or if mallets 2 and 3 need to be playing double stops while either playing dependently or independently with mallet 1. Basically, the squeeze is realized by pulling the index finger down slightly while applying additional pressure to the thumb via the crossed mallets (Figure 2.12)."

Figure 2.12: First Position Squeeze

Palm Lock

"In my piece *Distinctive Personality*, the performer plays a D-F#-A# augmented triad in the right hand, which serves as the harmony to the left hand melody. Since this chord is played for an extended period of time with a triplet rhythm, it makes good sense to incorporate the Palm Lock. The Palm Lock is achieved by squeezing or contracting the muscles of the hand around the previously established Second Position intervals (Figure 2.13)."

Figure 2.13: Palm Lock

Third Position Lock

"Due to the very unnatural hand positioning used to play in Third Position, it is often necessary to employ the Third Position Lock. This lock is especially called upon when playing a physically demanding passage in Third Position for an extended period of time. This lock is achieved by simply putting the index finger above mallet 5 as opposed to below mallet 5 as would be the case in standard Third Position playing (Figure 2.14). When the Third Position Lock is engaged, it is very difficult to change mallet positions rapidly."

Figure 2.14: Position Lock

"Certain intervallic positions on the marimba are extremely difficult to achieve, and sometimes impossible. For example, the major triad in root position E^{b}-G-B^{b} does not lend itself to be performed with one hand. Quite simply, the mallets do not shape in the formation necessary to play that chord. Similarly, the major triad A^{b}-C-E^{b} is also very difficult to play in root position with one hand; however, this can be done."

Manual Push/Pull

"Many difficult triads can be played with some slight alterations of trajectory direction. For example, the root position of D-F#-A (Figure 2.15) can be played by raising the hand and somewhat pulling the mallets towards you (Figure 2.16). This pulling helps to avoid the nodes on the D and A bars, and a resonant sound can be obtained."

Figure 2.15: D-F#-A without Manual Pull

Figure 2.16: D-F#-A with Manual Pull

"Let us consider, for example, the major triad in root position B-D#-F#. In this case, I suggest a slight pushing outward (Figure 2.17). This push is nowhere near the amount of pull one would use for the Manual Pull, but a slight push helps keep the mallets more stable for better accuracy. I call this motion the Manual Push."

Figure 2.17: B-D#-F# position for Manual Push

Rebecca Kite

Rebecca Kite has been performing as a marimba soloist for twenty years. She has appeared in concerts and clinics across the United States, Europe and Japan. She is chair of the Marimba Committee and was co-leader of the WPN/PAS Web site Project for which she was awarded the 1999 PAS Outstanding Service Award. Kite has commissioned a number of works for four, five and six-mallet techniques in jazz, classical and contemporary styles. Her extended multiple mallet repertoire includes *Jazz Suite for Marimba* (1998) by Joan Griffith and *Circle* (2000) by Evan Hause. Kite's music may be heard on her two solo marimba recordings, Across Time (1993) and Prism (1996).[58]

Rebecca Kite's six mallet technique is derived from the Musser grip with the extra mallet inserted across the two existing mallets. Kite has a slide show of her six mallet grip with step by step illustrations (Figures 2.18 to 2.22).[59]

[58] Information from www.gppercussion.com

[59] Ibid.

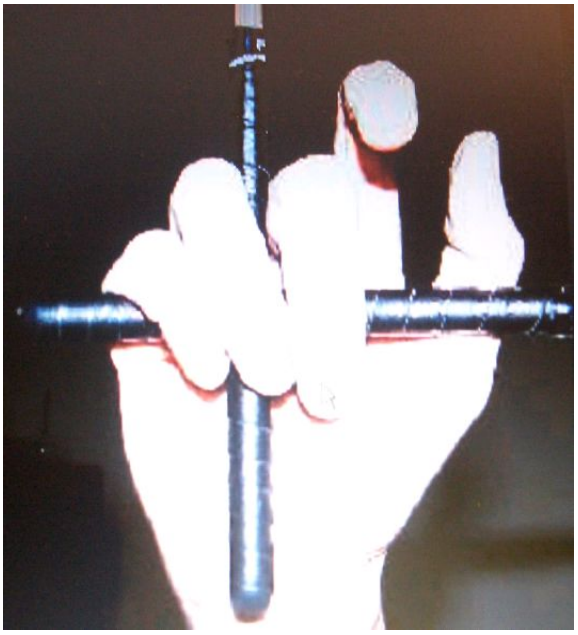

Figure 2.18: Place the outside mallet first, touching the skin of your palm, then the inside mallet so it can pivot freely.[60]

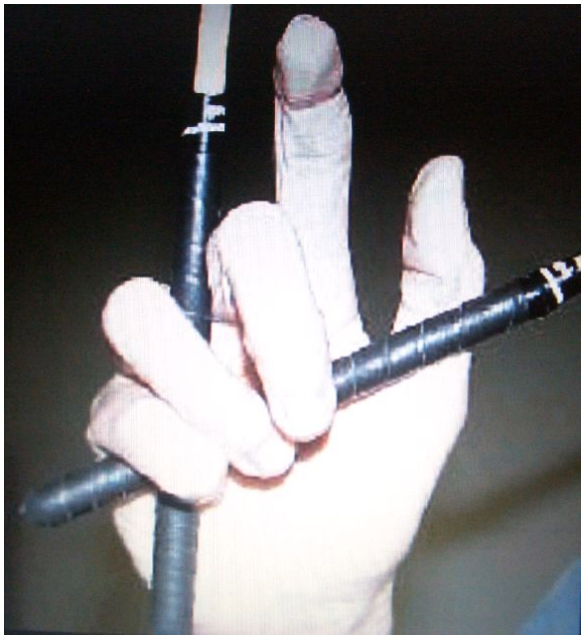

Figure 2.19: This grip leaves your thumb and first finger free. Inside mallet rests below first joint of thumb.[61]

[60] Photograph taken from www.gppercussion.com

[61] Ibid.

Figure 2.20: Slide third mallet under inside mallet. Control this middle mallet with your thumb tip and first finger.[62]

Figure 2.21: This is the position for the middle and outside mallets to be close together.[63]

[62] Photograph taken from www.gppercussion.com

[63] Ibid.

Figure 2.22: This is the position for the middle and inside mallets to be close together.[64]

Robert Paterson

Robert Patterson's music has been performed in the United States and abroad by many outstanding ensembles, including the New York New Music Ensemble, the Chicago Ensemble, The California EAR Unit, the Aspen Contemporary Ensemble, Ensemble Aleph (Paris), Ensemble Nouvelles Consonances (Belgium), the Kairos String Quartet, the Intergalactic Contemporary Ensemble (ICE), the Eastman Marimba Ensemble and Percussion Ensemble, Duo Palmos (Netherlands), Iluminada and the Cayuga Chamber Orchestra.

As a professional percussionist, Paterson has created a six-mallet technique for the marimba and has given numerous master classes across the United States on the use of this technique. In 1993, he gave the world's first all six-mallet marimba recital at the

[64] Photograph taken from www.gppercussion.com

Eastman School of Music. Robert Paterson developed his six-mallet technique from the Burton grip in 1988 (Figure 2.23). His six-mallet compositions include *Komodo* (2004) for solo marimba, *Duo for Flute and Marimba* (1998-99) for flute (doubling alto flute and piccolo) and marimba (four, five and six-mallet), *Braids* (1998) for violin and marimba, *Links & Chains* (1996) for violin and marimba, *Fantasia* for Tuba & Marimba (1992) for tuba and marimba, *Postludes Nos. 1-3* (1990-93) for solo marimba and *Merry Go Round* (1988-90) for solo marimba.[65]

Figure 2.23: Robert Paterson's six-mallet grip[66]

Linda Pimentel

Linda Pimentel was a pioneering figure in the development of multiple extended mallet techniques throughout the 1970s and early 1980s. Pimentel promoted, composed,

[65] Information from www.robpaterson.com

[66] Photograph from www.robpaterson.com

commissioned and arranged works for extended multiple mallets; a number of works were also composed for and dedicated to her.

In her essay, “Marimba: Five and Six-Mallet Positions” Linda expresses her ideas about extended multiple mallet techniques. She believes that one way to approach using three mallets in one hand is to proceed from a four-mallet grip to the new grip. Pimentel developed her technique during the 1960s as a natural extension of four-mallet performance. She has switched freely among variations of the Musser, Burton and traditional grips within individual works and from one work to another (Figures 2.24, 2.25).

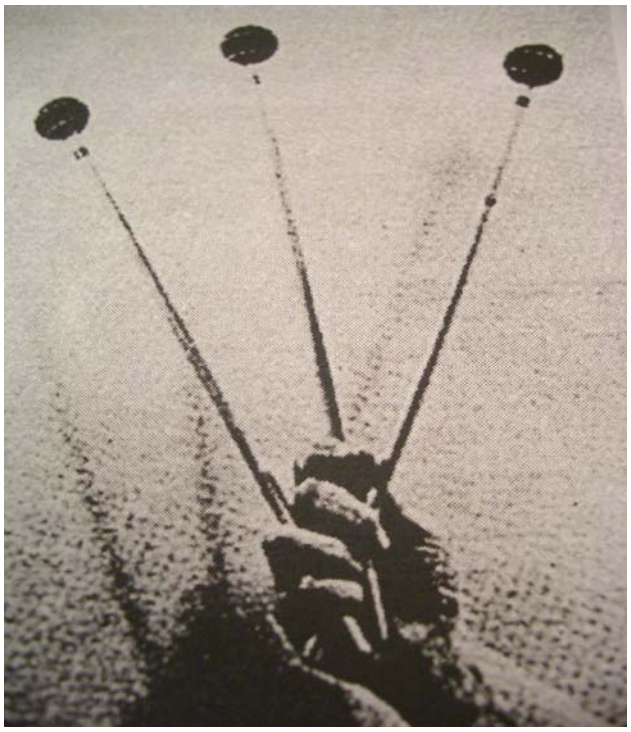

Figure 2.24: Pimentel’s six-mallet grip based on the traditional grip[67]

[67] Photograph taken from Linda Pimentel. “Multiple Mallet Marimba Techniques.” *Percussionist* 14 No. 1 (Fall 1976): 13.

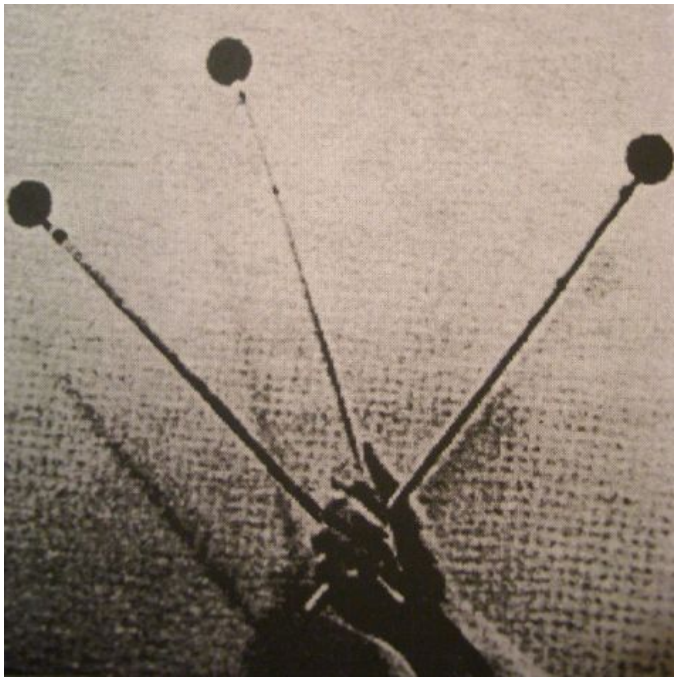

Figure 2.25: Pimentel's six-mallet grip based on the Burton grip[68]

In the second part of her essay, Pimentel explains and illustrates three ways of six-mallet grip, which are from the Musser grip, the traditional grip and the Burton grip. According to Pimentel, mallet number two is both versatile and flexible, being controlled by both the thumb and the index finger, and can be rotated around at will. Certain extended positions can be more easily and firmly played in this juxtaposition fashion than in the normal mallet ordering.

The most important concepts presented by Pimentel are the various positions that must be coordinated with three mallets in one hand. These can be thought of as extensions of triads and inversions (Figure 2.26). There are three kinds of rolls discussed

[68] Photograph taken from Pimentel, 14.

in Pimentel's essay[69]; they are the Musser or ripple roll, the mandolin roll and the one hand roll. In executing these rolls, one may compare the rolls to a normal four-mallet technique.[70] To play a ripple roll, mallets one and three can be struck simultaneously, with mallet two entering later. The mandolin roll is usually performed on the lower, natural bars, and one or two bars are struck with the up-down alternation. Usually mallet two is placed above the bars, with mallets one and three below the bars. The one hand roll that is maintained by rotating the forearm can be performed between any two mallets in one hand. The rotation is also possible between three mallets by having two mallets strike at the same time.[71]

Figure 2.26: Linda Pimentel's six-mallet performance[72]

[69] Linda Pimentel. " Multiple Mallet Marimba Techniques." *Percussionist* 14 No. 1 (Fall 1976): 1-21.

[70] Definitions of the ripple roll, the one hand roll, and the mandolin roll can be found in *The Solo Marimbist – Music Arranged and Composed for the Marimba*, Volume II, by Linda Pimentel and James Moore. Permus Publications, 1976: 3.

[71] Pimentel, 21.

[72] Photograph taken from *Percussive Notes* 18 (Summer 1980): 66.

Kai Stensgaard

Kai Stensgaard was among the first Scandinavian musicians to advance the marimba as a serious solo instrument. He has toured extensively throughout the last 15 years presenting more than 3,000 concerts, master classes and clinics in Northern Europe, Mexico, Puerto Rico, U.S.A. and Japan.

He started to use six mallets with his easy pieces *Lain Nebaj* and *Manzanilla* (or Two Mayan dances). Stensgaard's six-mallet grip is based on the Stevens four-mallet grip (Figure 2.27). He uses the same grip as Gronemeier, making effective use of the additional mallets to broaden the harmonic structure and chord voicing in his six-mallet solo marimba works.[73]

Stensgaard's six-mallet works includes *Concierto Mexicano for Marimba and Symphony Orchestra* (2004), *Concierto Mexicano* (2003), *Salsa Mexicana* (2001), *Lain Nebaj* (1987) and *Manzanilla* (1987). His works are published by Steve Weiss Music, USA and Herbert Brandt Music, Germany.[74]

[73] Kai Stensgaard. Email interview, 10 March 2004, world-wide web.

[74] Kai Stensgaard. Email interview, 21 February 2004, world-wide web.

Figure 2.27: Kai Stensgaard's six-mallet grip[75]

[75] Photograph from www.oberlin.edu/percussn/media/photos

CHAPTER THREE

MALLET POSITIONS AND PLAYING TECHNIQUES OF PEI-CHING WU'S EXTENDEDMULTIPLE MALLET GRIP

Pei-Ching Wu Grip (Wu Grip)

The author's six-mallet grip involves the Burton grip as a fundamental (Figures 3.1 and 3.2) with a third mallet added below the original two in each hand (Figures 3.3 and 3.4). With mallet 3 in the left hand or mallet 4 in the right hand, the extra mallet is added to the inside of the hand and held by the middle, ring and little fingers. The middle and outside mallets become mallets 1 and 2 in the left hand or mallets 5 and 6 in the right hand (Figures 3.5 and 3.6). As in the Burton grip, fingers are curved around the innermost and middle mallets which are manipulated by the thumb and first finger. The end of mallet 3 or 4 rests at the base of and in the curve of the little finger. One needs to have enough strength to support the weight of mallets when operating and balancing three mallets. I find this way of holding the mallets very comfortable and easy to manipulate.

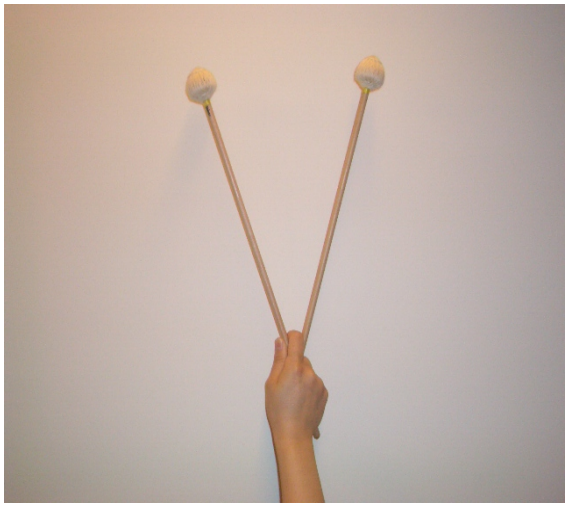

Figure 3.1: Burton Grip

Figure 3.2: Burton Grip, palm facing up

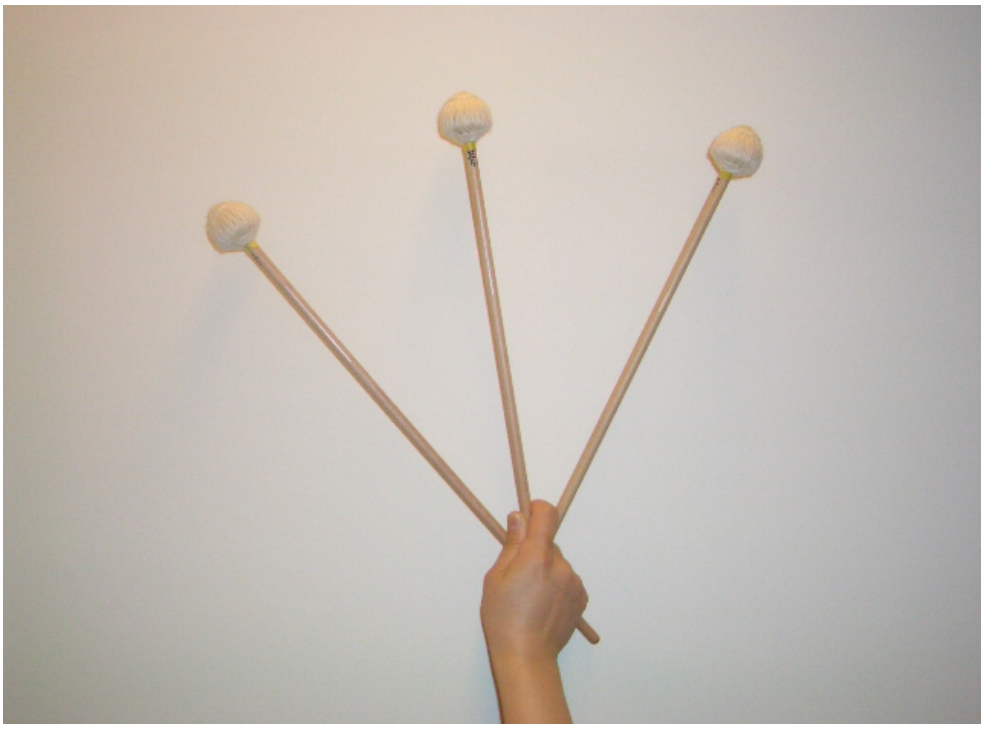

Figure 3.3: Wu Grip

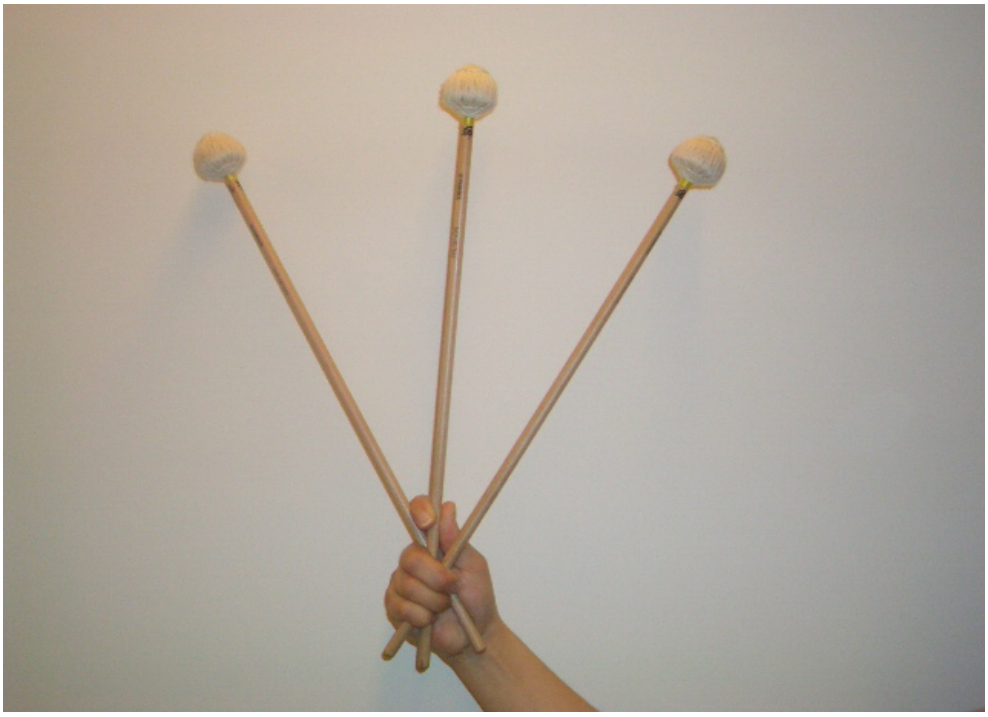

Figure 3.4: Wu Grip, palm facing up

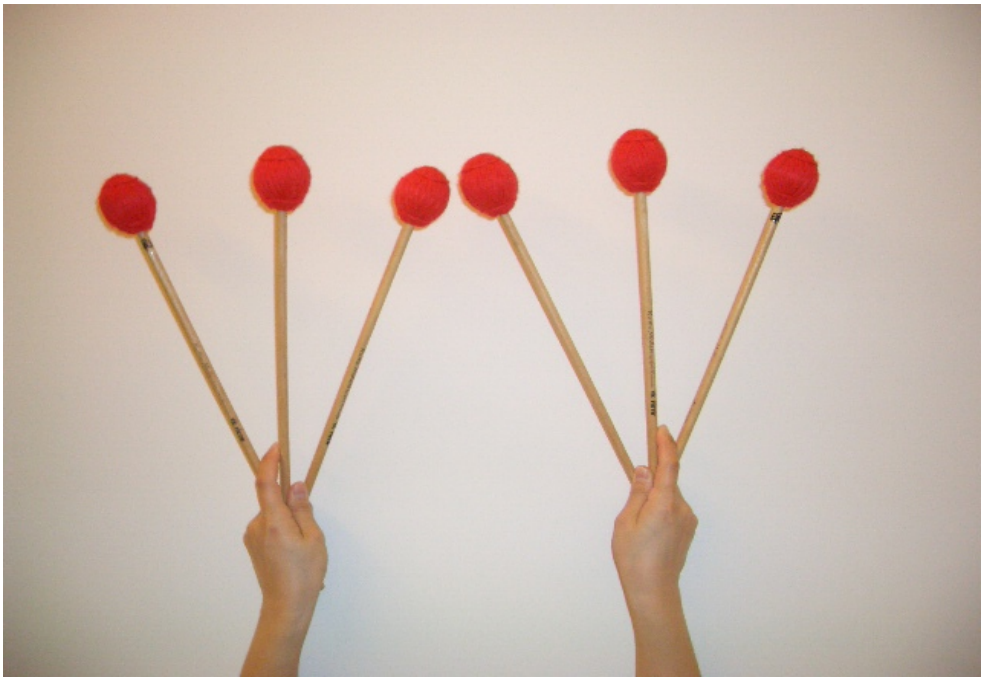

Figure 3.5: Wu Grip, Left to right mallets: 1-2-3-4-5-6

Figure 3.6: Wu Grip, palm facing up. Left to right mallets: 3-2-1-6-5-4

Mallet Movement

Movement of the middle mallet is obtained by the differing movements of the thumb and the first finger. By curling the index finger between mallets 5 and 6 one will force mallet 5 to move toward mallet 4 (Figure 3.7). An opposing movement can be obtained by using the thumb to push mallet 5 toward mallet 6 (Figure 3.8).

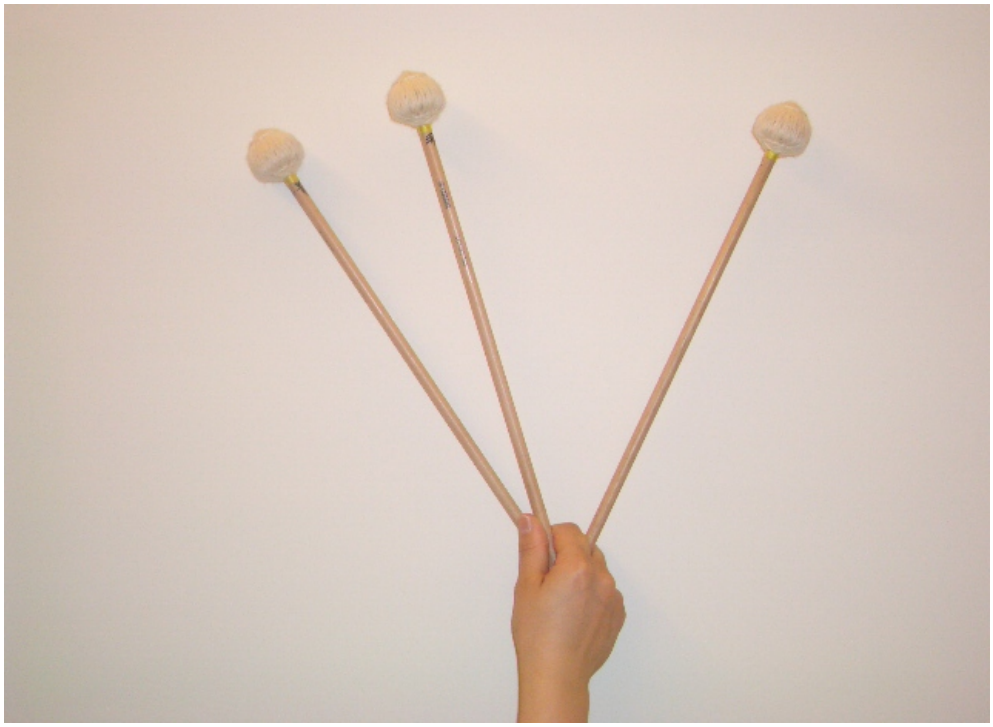

Figure 3.7: Movement of middle mallet by curling the index finger

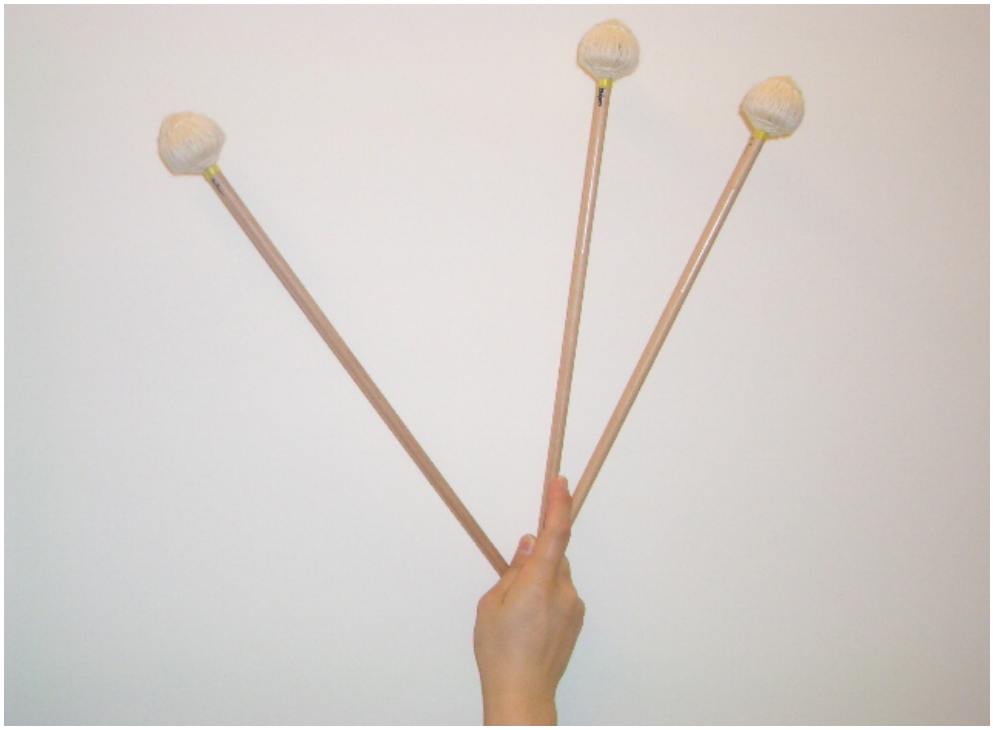

Figure 3.8: Movement of middle mallet by pushing the thumb

For widespread intervals between mallets 4 and 5, the index finger shifts position and moves to the top of mallets 5 and 6 and applies downward pressure (Figure 3.9) similar to Gronemeier's Third Position Lock. When moving the middle mallet, the inside and outside mallets can and occasionally will remain motionless. Mallet 5 should be able to be in contact with mallet 4 (Figure 3.10) or mallet 6 (Figure 3.11).

Movement of mallet 4 is obtained by opening and closing the grip. The thumb and index finger pull or push mallet 4 in and out as it slides from the tip to the base of the thumb (Figures 3.12, 3.13, 3.14). This will generally cause mallet 5 to move somewhat and the effect will be a mixture of open and closed distances from mallet to mallet. Most of the time, mallet 6 is not the main issue for changing intervals, but when extremely large intervals are needed between each mallet, mallet 6 has to be pushed forcefully by the index finger toward the outside of the hand to obtain an oversized interval (Figure 3.15).

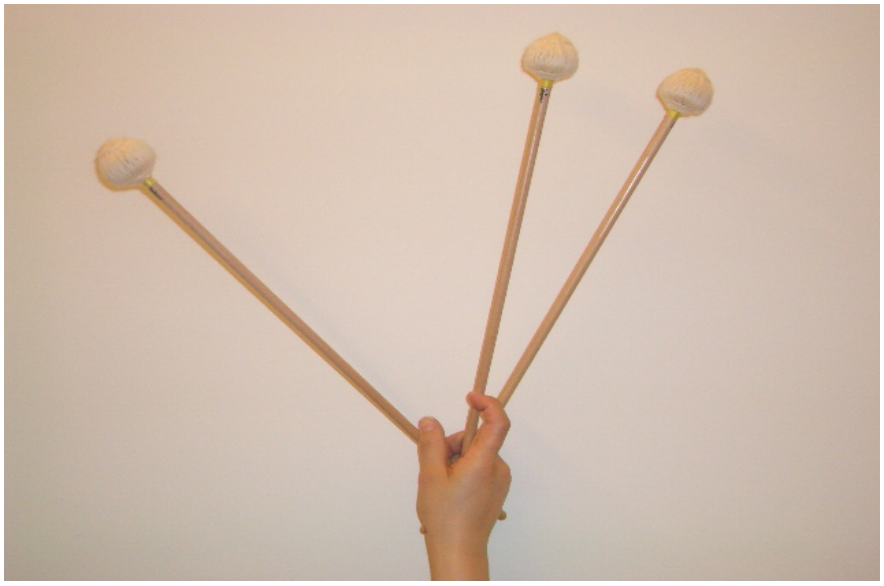

Figure 3.9: Widespread interval between mallets 4 and 5

Figure 3.10: Mallet 5 close to mallet 4

Figure 3.11: Mallet 5 close to mallet 6

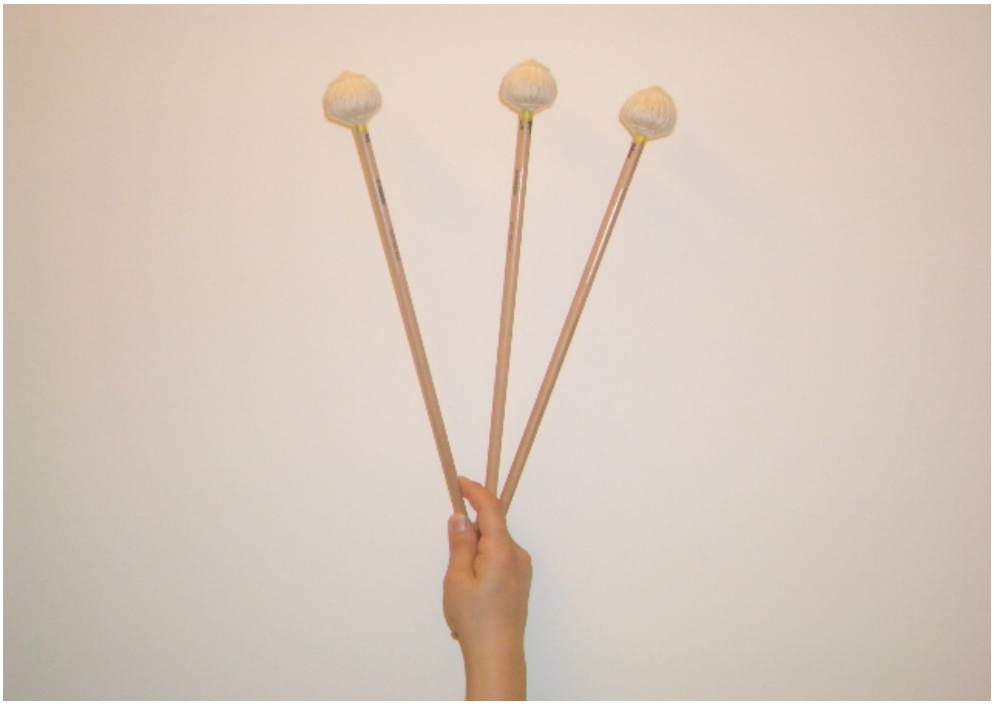

Figure 3.12: Closed movement of mallet 4

Figure 3.13: Open movement of mallet 4

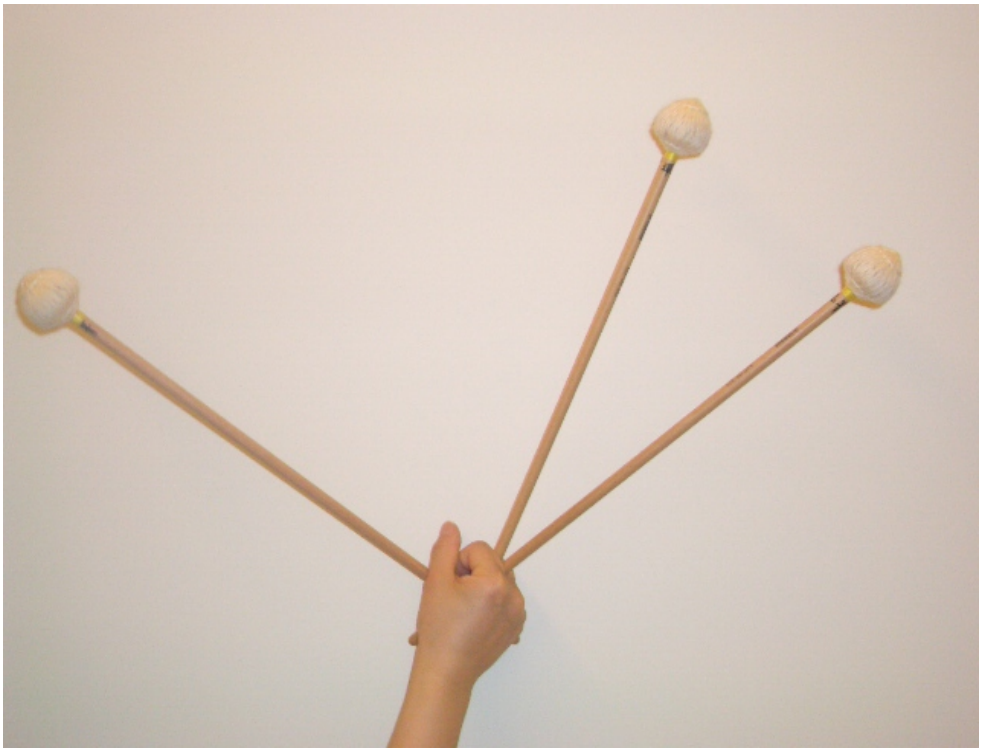

Figure 3.14: Wide open movement of mallet 4

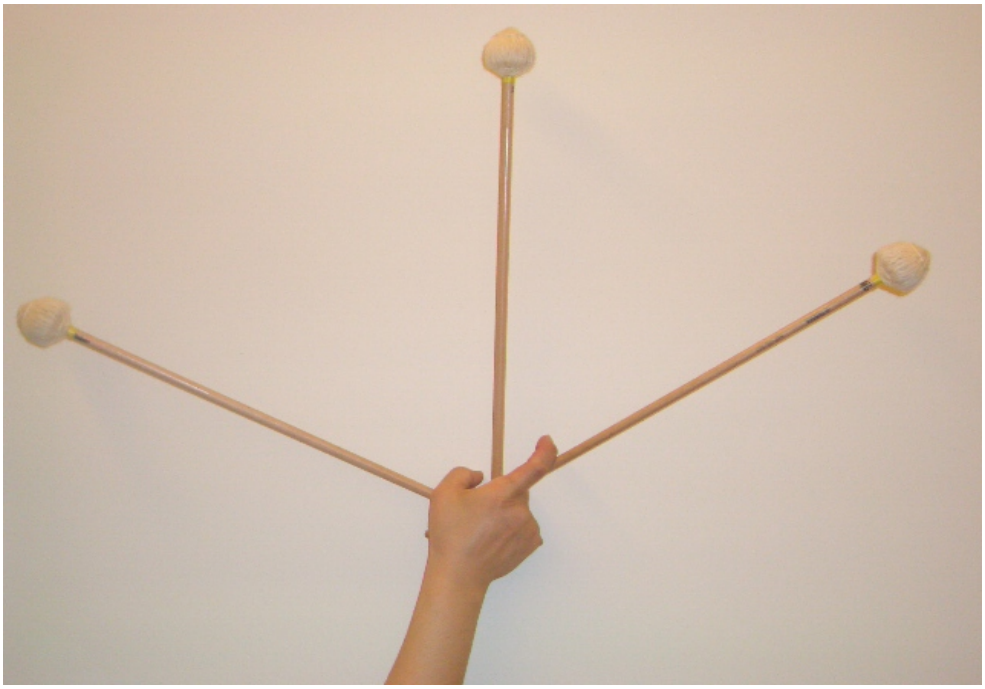

Figure 3.15: Wide open movement of mallet 6

Mallet Positions

Dean Gronemeier's concept of three basic mallet positions along with various embellishments[76] provides a basic idea for the author's grip. However the author's techniques of manipulating mallets are different from Gronemeier's.

First Position

First Position (Figures 3.16 and 3.17) is often set to an intervallic structure in which there is a considerably larger interval between mallets 5 and 6 than there is between mallets 4 and 5. Such is indicated by the natural extension of the hand. Mallets 4 and 5 are on the inside of the hand, spread apart from mallet 6, which is on the outside of the

[76] Dean Gronemeier. "Six Mallet Independence: A New Twist on an Old Idea." *Percussive Notes* 34 No. 6 (December 1996): 41-45.

hand, due to the split between mallets 4 and 5 and mallet 6.

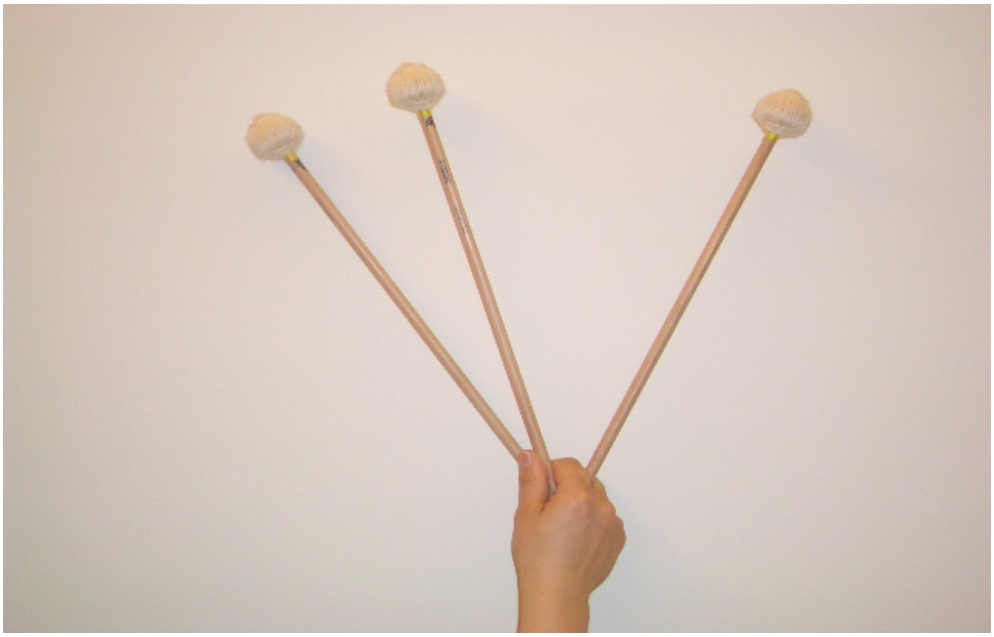

Figure 3.16: First Position

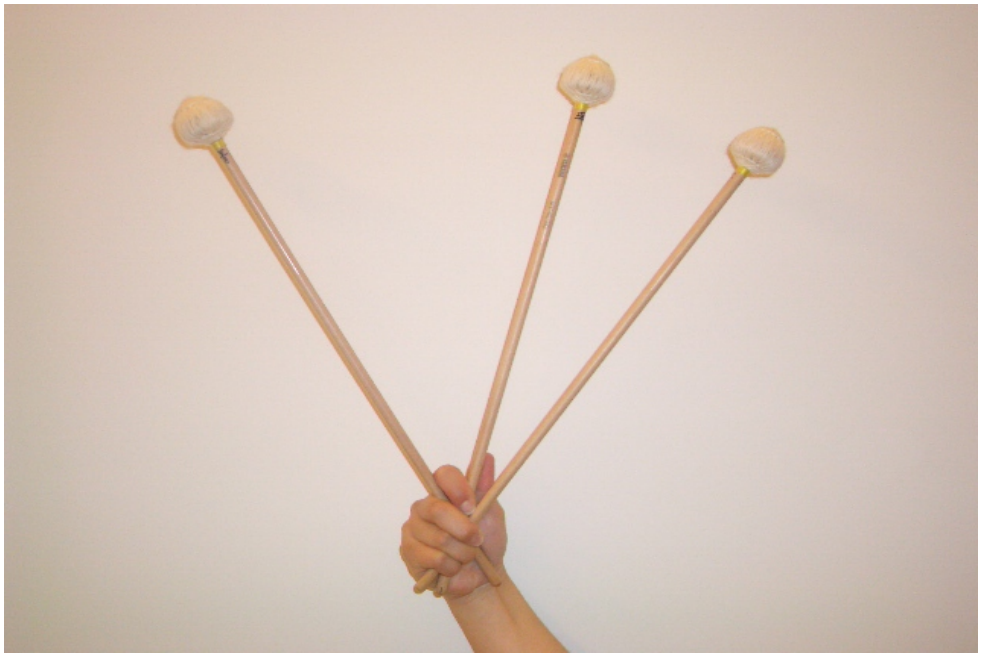

Figure 3.17: First Position, palm facing up

Second Position

Second Position (Figure 3.18 and 3.19) is the most basic position to learn in this grip, because it is the most natural (compared with the Gronemeier Grip, when the First Position is the most basic position). Second Position is formed when the thumb is pressed between mallets 4 and 5, and therefore expands the interval between them. Mallets 4 and 5 are not manipulated by the pad of the thumb in Second Position as they are in First Position. Instead, mallet 5 is controlled by the index finger and the inside of the thumb, and mallet 4 is controlled by the outside of the thumb. Due to this positioning, Second Position is generally used when equal or nearly equal intervals between mallets 4 and 5 and mallets 5 and 6 are needed.

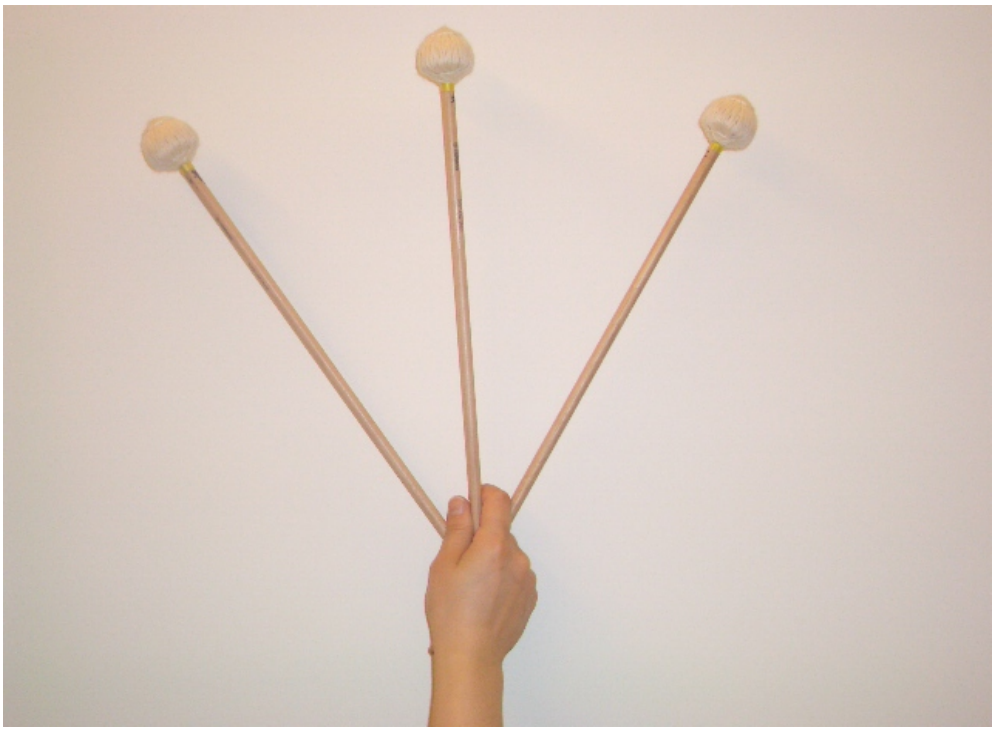

Figure 3.18: Second Position

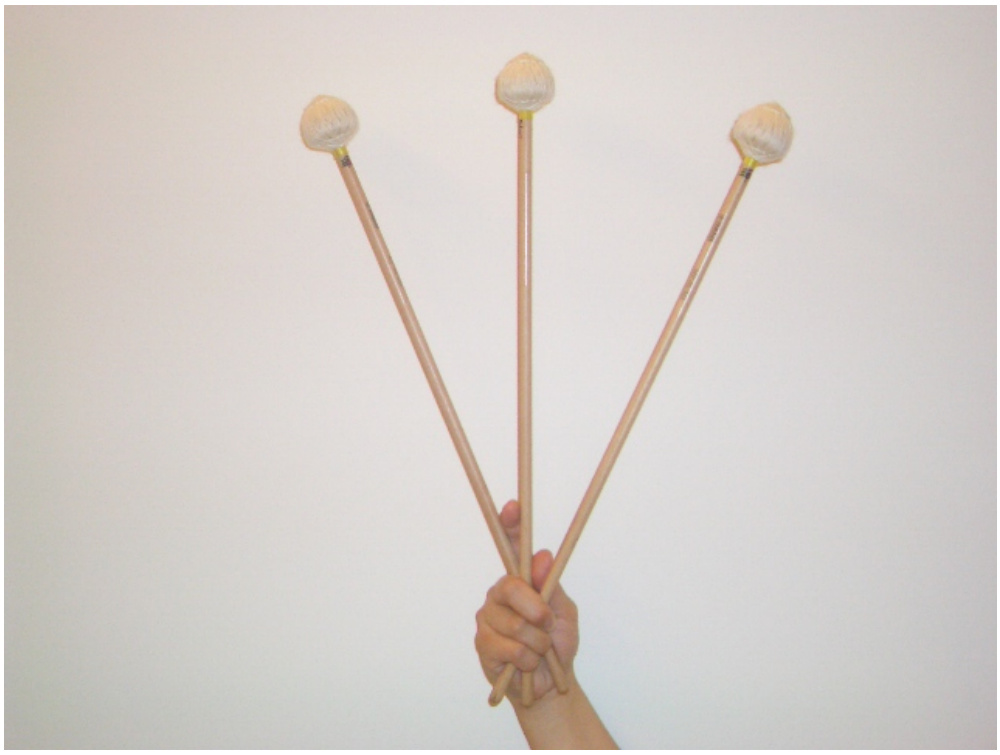

Figure 3.19: Second Position, palm facing up

The most representative voicing of Expanded Second Position is the tonic, fifth and octave played in left hand (Figure 3.20 and 3.21), which is achieved by a combination of widening mallets 1 and 3 by pushing the index finger towards outside of the body and pressing the thumb down between mallets 2 and 3 while maintaining the approximate equal interval with mallet 2.

Figure 3.20: Expanded Second Position, mallets: 1-2-3

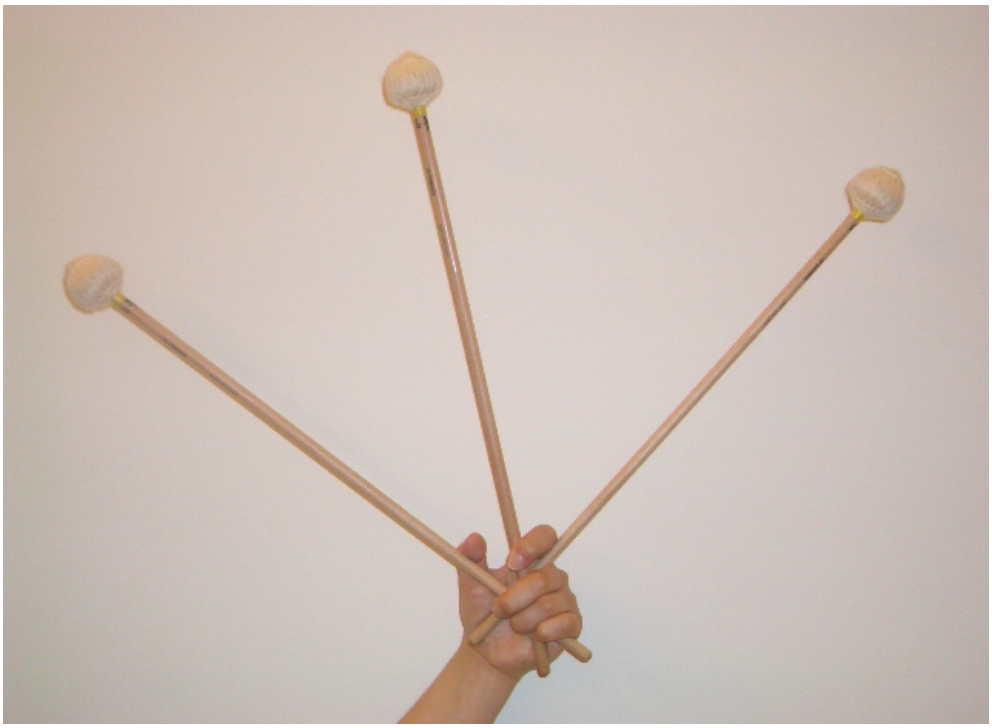

Figure 3.21: Expanded Second Position, palm facing up, mallets: 3-2-1

When extremely large intervals (sixth, seventh, and octave) are needed between each mallet, the key point of the operation is the index finger. The index finger should press down forcefully on mallet 6 and pull mallet 5 up towards the palm while curling the middle finger on mallet 5 to secure the stability of mallets 5 and 6. By pressing the thumb down firmly to the center of the palm and the ring finger holding mallet 4 tightly, a large interval between mallets 4 and 5 can be achieved (Figure 3.22 and 3.23). This mallet position has not yet been explored; I call this position ~~as~~ "Further Expanded Second Position." This Further Expanded Second Position is very difficult to grip. One needs a lot of patience experimenting, feeling the balance of each mallet, and securing the stability of all mallets.

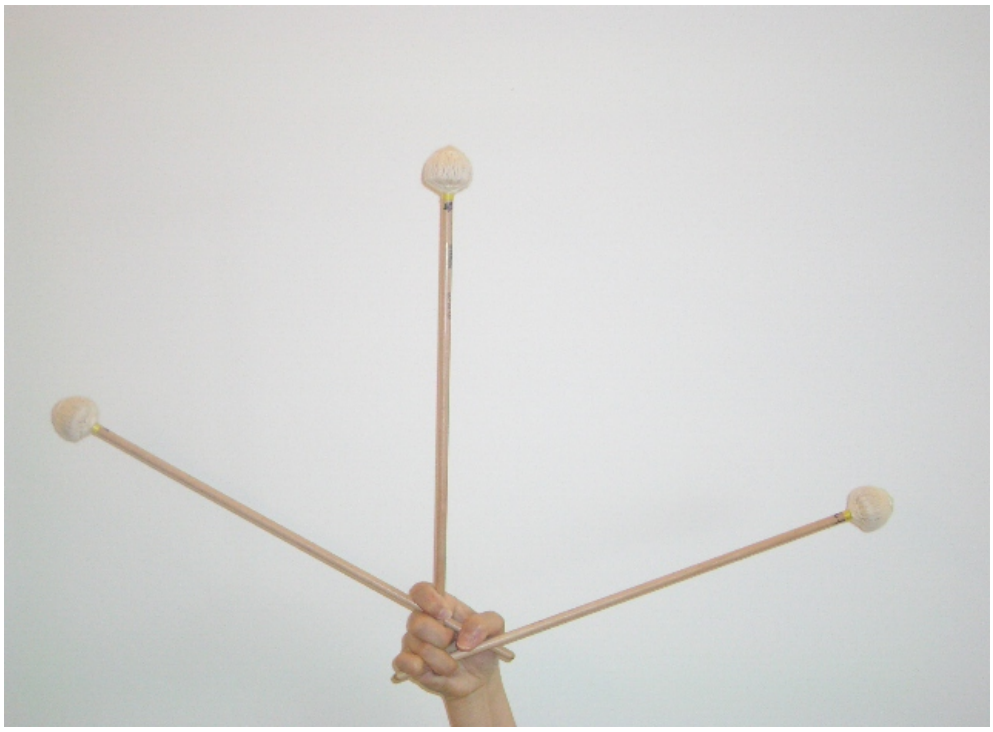

Figure 3.22: Further Expanded Second Position, palm facing up, mallets: 6-5-4

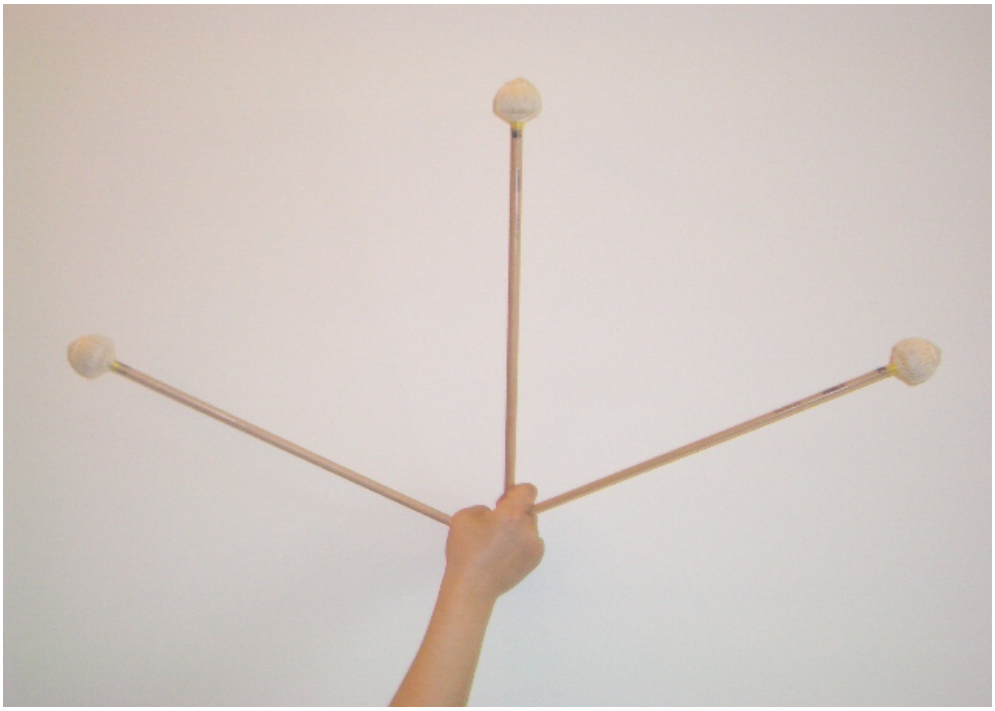

Figure 3.23: Further Expanded Second Position, mallets: 4-5-6

Third Position

The Third Position is formed when mallet 5 is positioned next to mallet 6, therefore creating a larger distance between mallets 4 and 5 than between mallets 5 and 6 (Figure 3.24). Due to this rather awkward positioning, the index finger must control mallet 5 by collapsing towards mallet 6.

Figure 3.24: Third Position

First Position Squeeze

Along with explaining the basic hand positions used for six-mallet independence, it is important to consider some of the more common manipulations performed within the boundaries of the three positions. The position locks are generally used when the intervals played in any given hand position remain steady for an extended period of time. One may need to employ the First Position Squeeze when playing a consistent interval between mallets 4 and 5 while these mallets are positioned at a sizable intervallic distance away from mallet 6, or if mallets 4 and 5 need to play double stops while either playing dependently or independently with mallet 6.

The squeeze is realized by pulling the index finger down slightly while applying additional pressure to the thumb via mallets 4 and 5. This additional pressure helps to ensure that mallets 4 and 5 will not slip from their interval (Figure 3.25).

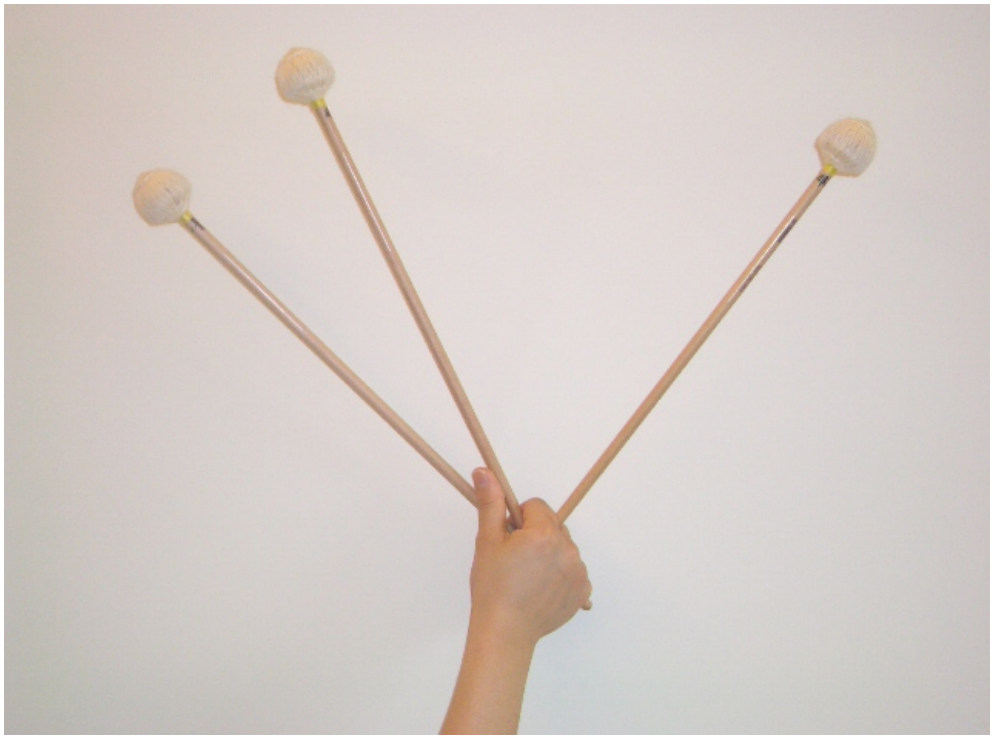

Figure 3.25: First Position Squeeze

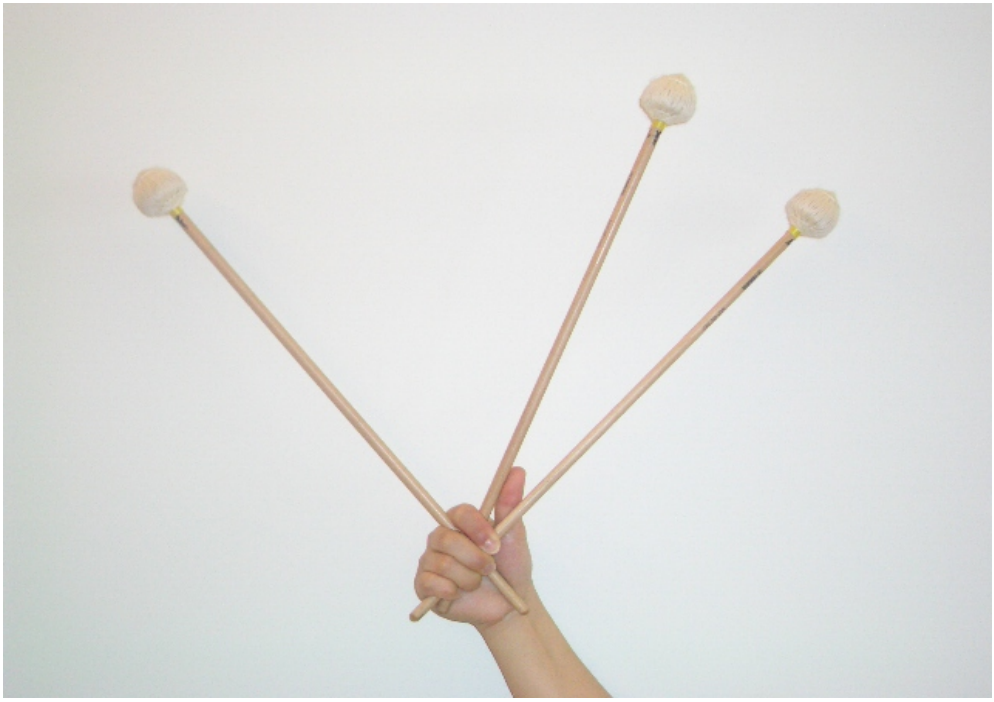

Figure 3.26: First Position Squeeze, palm facing up

Palm Lock

The Palm Lock is achieved by squeezing or contracting the muscles of the hand around the previously established Second Position interval. Be careful not to change the intervals when squeezing; the hand must be locked evenly (Figures 3.27, 3.28).

Figure 3.27: Palm Lock

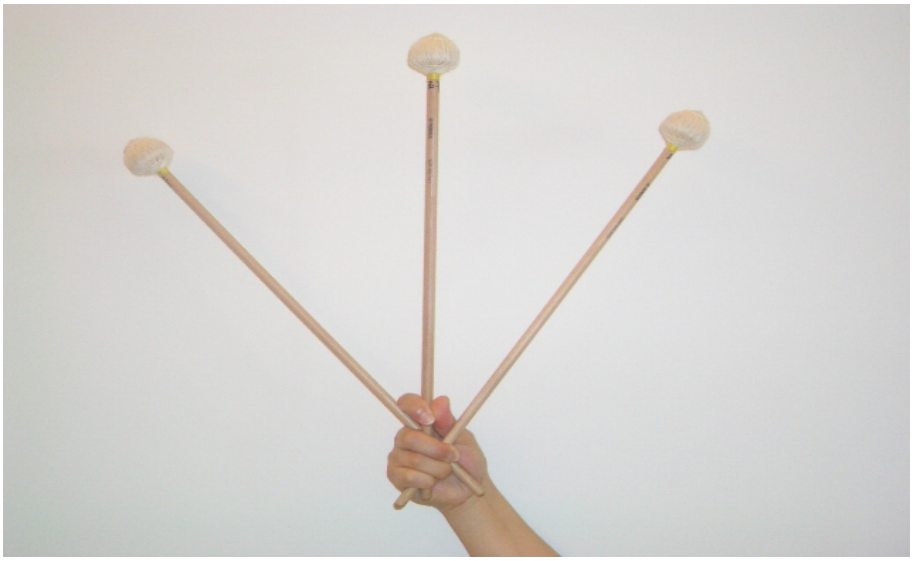

Figure 3.28: Palm Lock, palm facing up

Third Position Lock

This lock is especially important when playing a physically demanding passage in Third Position for an extended period of time. For additional strength and control, the performer may desire using the Third Position Lock (Figure 3.29, 3.30). This lock is achieved by simply putting the index finger above mallet 5 as opposed to below mallet 5 which would be the case in standard Third Position playing. With the Gronemeier grip, when the Third Position Lock is engaged, it is very difficult to change mallet positions rapidly; this technical consideration must be taken into account when choosing between standard Third Position and the Third Position Lock. But with the Wu grip, it is quite easy to switch in and out from the Third Position Lock.

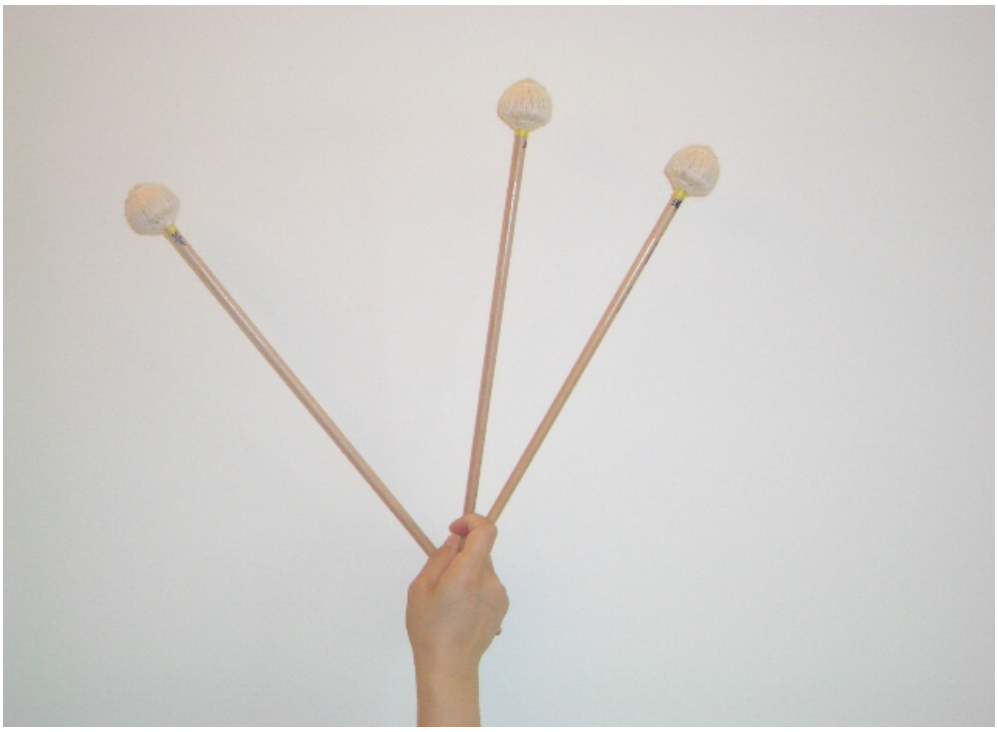

Figure 3.29: Third Position Lock

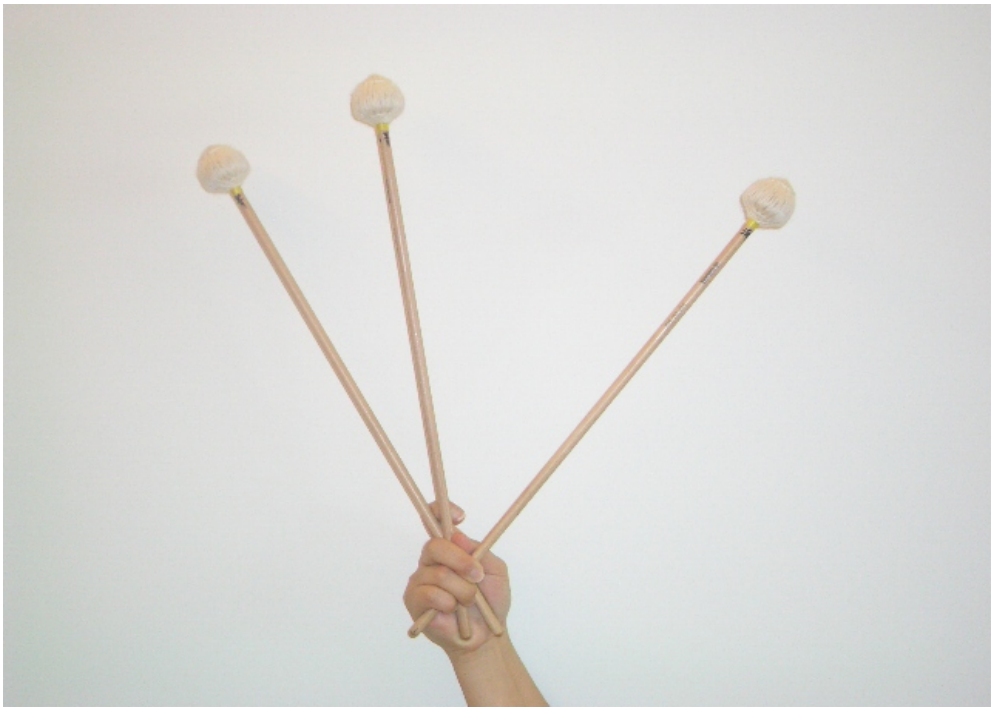

Figure 3.30: Third Position Palm Lock, palm facing up

Manual Pull

Many difficult triads can be played with some slight alterations of route direction. The term “difficult triads” refers to triads such as C-E^{b}-G, D-F$^{\#}$-A, E-G$^{\#}$-B, F-A^{b}-C, G-B^{b}-D and A-C$^{\#}$-E which are difficult to execute on the marimba. These triads are all in the same category of mallet placement, which is the inside and outside mallets placed on the natural keys (C, D, E…etc.) and the middle mallet placed on the accidental keys (E^{b}, F$^{\#}$, G$^{\#}$...etc).

For example, the root position of D-F$^{\#}$-A can be played by raising the hand and somewhat pulling up the mallets towards the player (Figure 3.31 and 3.32). This pulling helps to avoid the nodes on the D and A bars, and a resonant sound can be obtained. Notice that pulling up on mallet 5 with the index finger is the key to getting a better

sound with Manual Pull. By lifting the hand and pulling, the nodes are avoided for the D and the A. This motion is called the Manual Pull.

Figure 3.31: D-F#-A, without Manual Pull

Figure 3.32: D-F#-A, with Manual Pull

Manual Push

Other triads such as $C^{\#}$-E-$G^{\#}$, D^{b}-F-A^{b}, $G^{\#}$-B-$D^{\#}$, A^{b}-C-E^{b} are also difficult to execute on the marimba. These triads all belong to the same category of mallets placement, which is the inside and outside mallets placed on the accidental keys (E^{b}, $F^{\#}$, $G^{\#}$...etc) and the middle mallet placed on the natural keys (C, D, E…etc). To play these triads, one needs to push down the middle mallet towards the marimba bar with the index finger (Figures 3.33 and 3.34). Also when performing a major triad in root position B-$D^{\#}$-$F^{\#}$; a slight push down the inner mallet towards the marimba bar with the thumb helps keep the mallets more stable for better accuracy. This motion is called the Manual Push (Figure 3.35).

Figure 3.33: A^{b}-C-E^{b}, without Manual Push

Figure3.34: A^{b}-C-E^{b}, with Manual Push

Figure 3.35: B-$D^{\#}$-$F^{\#}$, with Manual Push

Technical Considerations

Below are the author's observations based on experimenting with six-mallet positioning in various intervallic positions. Most often a triad from the root to the top notes is played in an array by mallets 1-2-3 (left hand) or 4-5-6 (right hand). With C-E-G triad, for example, C is played with mallet 4, E by mallet 5, G by mallet 6 (Figure 3.36).

Figure 3.36: C-E-G played by mallets 4-5-6

There are certain types of intervallic positions that could not be played well with this method, such as E^{b}-G-B^{b}, $F^{\#}$-A-$C^{\#}$, C-$C^{\#}$-D and D-$D^{\#}$-G, since the mallets do not shape in the formation necessary to play these chords or interval positions. To play such intervallic positions, one has to move the middle mallet to fit these intervallic positions. Moving only the middle mallet forward to the marimba bar or to the body is quite difficult. This

could be done by using the thumb and the index finger to push the middle mallet forward to the marimba bar or to pull it toward the body. This operation takes a few seconds. If there is sufficient time between musical passages, the player might choose to do this in order to complete intervallic positions such as C-C$^{\#}$-D-, D-D$^{\#}$-G, F$^{\#}$-A-C$^{\#}$ and E^{b}-G-B^{b}. But if there is no additional time to do such movements another approach is necessary.

Finding a way of playing these intervallic positions without moving the middle mallet back and forth is of great importance. It is not required to play a triad from the root to the top notes in an array by mallets 1-2-3 (left hand) or 4-5-6 (right hand). One can place the mallets according to notes' positions on the marimba. According to the positions of the notes on the marimba, one may play C-C$^{\#}$-D with the sticking of 5-6-4 by moving the elbow slightly toward the marimba (Figure 3.37).

Figure 3.37: C-C$^{\#}$-D played by mallets 5-6-4

It is not necessary to play from the bottom to the top notes in the order of mallets

4-5-6. This method could be applied to approximately all intervallic positions, including the triad E^{b}-G-B^{b} which is unattainable using the Gronemeier method. The Major triads D^{b}-F-A^{b}, E^{b}-G-B^{b} and A^{b}-C-E^{b} could be achieved by dramatically widening mallets 5-4-6 with the index finger while maintaining the approximate equal intervals between mallets 4 and 6, pulling up on mallet 5, and at the same time pushing down mallet 4 with the thumb. (Figure 3.38, 3.39, 3.40).

Figure 3.38: E^{b}-G-B^{b} played by mallets 5-4-6

Figure 3.39: D^{b}-F-A^{b} played by mallets 5-4-6

Figure 3.40: A^{b}-C-E^{b} played by mallets 5-4-6

CHAPTER FOUR

A STUDY OF *FLAME DANCE*

The Background of *Flame Dance*

Flame Dance is the first six-mallet five-octave marimba solo written by a Taiwanese composer and is a representative work of extended multiple mallet performance. Before 1995, no works had been written for six-mallet marimba solo in Taiwan. The Ju Percussion Group (JPG), with which the researcher has been serving as Principal since 1988, commissioned *Flame Dance* from the aspiring Taiwanese composer Wan-Jen Huang. Following the world premieres at Taipei's National Concert Hall in 1995 by the author (to whom the work is dedicated), the music has been performed extensively in Taiwan, Europe, and the United States by several marimba artists.

As one of the talented new-generation of composers in Taiwan, Wan-Jen Huang studied piano with Li-Ying Huang and composition with Hsing-Kuei Tseng, and received both her bachelor's and master's degrees with distinction from the National Taiwan Normal University. She has written many chamber music works such as *People of the Right Side, Greed, Chasing, Construction, Overlap*, among others.[77] After many years of writing for percussion and working with percussionists such as Richard Jensen, Tzong-Ching Ju, Ya-Wen Lien, Herman Rieken, and José Vincent, Huang has developed a dynamic variety of percussion tone colors and has challenged the percussionist with innovative musical or technical possibilities.

[77] Information provided by Wan-Jen Huang.

Her percussion works have been played extensively at important arts festivals. Her percussion quintet *Adventure* was premiered to widespread acclaim by the world renowned Amsterdam Percussion Group at the Taipei International Percussion Convention (TIPC) at Sun Yat-Sen Memorial Hall in 1996. The work was expanded to a septet and was performed by the Taipei Percussion Group during the 1999 TIPC. The JPG has also performed the piece at the 2000 Percussive Arts Society International Convention (PASIC) to critical acclaim.

Flame Dance is a brilliant piece in terms of style, rhythm, and performance technique. The piece opens with triplet arpeggios in allegro to demonstrate the brightness and vibration of the flame. By utilizing various dynamics and layers of harmony, the work exhibits the extreme passion of the flame. Fire burning in the sky is described with bright colors and passionate movements just like red fairies.[78]

The opportunity to work with Huang inspired the author to invent a new technique of six-mallet playing, the “arpeggio technique”. This is executed by making a twist of the wrist, and at the same time allowing mallets to descend to the marimba one after the other. This technique is further developed into another important technique: the “arpeggio roll” which is executed by continuously turning the wrist without stopping while letting the mallets descend in the same manner as in the arpeggio technique.

[78] Program notes provided by Wan-Jen Huang.

Analysis of *Flame Dance*[79]

Structure

The work which is in A-B-A'-Coda form, has three main themes. The motive of the first theme (measures1-27) is made up of inverted triads. The second theme (measures 54-77) does not employ the same triadic structure; rather, it uses chords overlapped by seconds and fourths. The third theme (measures 104-109) combines harmonic elements of the first two themes while introducing inversions of triads and chords overlapped by seconds and fourths. The previous two themes in section A are presented in a brisk and passionate allegro. The third theme in section B is in rubato tempo. The themes alternate and develop from the latter half of section B to the end.

Rhythm

Three themes exhibit three different rhythmic patterns, demonstrating the versatile operation of six mallets. The first theme (measures 1-27) is primarily a realization of chords. The irregular meter is created by alternating bars of 4/4, 2/4 and 5/8. The second theme (measures 54-77) is in 2/4 featuring rhythms constructed by a series of two sixteenth notes played by one hand and followed by one sixteenth note by the other. It uses a liberal amount of chromaticism creating a highly unstable feeling. The third theme (measures 104-109) is found at the beginning of section B. It is written in un-metered form and features melodic lines and parallel harmony comprised of half and quarter notes in a flexible tempo. At this point in the piece, the performer is given the opportunity to stretch and compress the tempo at will.

[79] Information provided by Wan-Jen-Huang.

Harmony

In order to emphasize the use of six-mallet technique, the work uses three themes to illustrate three distinctive structures of harmony and chord. The first theme uses inversions of triads; the second theme contains chords overlapped by seconds and fourths; the third theme blends the previous two.

Tonality and Intervallic Relationships

The intervallic relationship of three-theme motive focuses on the interval of a fourth. The bass notes on the first four measures of first theme descend in half steps from a D to an A^{b}, high notes ascend in half steps from a $d^{2b}$to a g^{2b}; both are in the fourth interval relationship. The second theme proceeds with high note, g^{2} - d^{2}, b^{1b} - f^{1}, g - d respectively, all are in the fourth interval relationship. The third theme melody starts from e^{2} on first measure and descends to a^{1}; g^{1} descends to d^{1b} on second measure; perfect fourth ascending sequence from third to fifth measures. Therefore, the piece is based on the fourth interval relationship to develop the key and main note, whether it be in a section, phrase or motive.

Form Analysis of *Flame Dance*[80]

Form: A – B – A' – Coda

Form	Phrase	Measures	Key tone	Remarks
A	1	1-8	D	Theme 1, Group A
	2	9-16		Theme 1, Group A, continued
	3	17-27		Theme 1, Group A, continued
	4	28-39		Theme 1, Group B
	5	40-50		Theme 1, Group B, continued
	6	51-53		Episode
	7	54-61	G	Theme 2, Group A
	8	62-77		Theme 2, Group A, continued
	9	78-89		Theme 2, Group B
	10	90-103		Theme 2, Group C or codetta
B	11	104-109	E	Theme 3, Group A
	12	110		Theme 3, Group A, continued
	13	111-122	A	Theme 3, Group B
	14	123-129		Transition (derived from Theme 2, Group C)
	15	130-133	E	Derived from Theme 2, Group C
	16	134-147	G	Transition (derived from Theme 2, Group C)
A'	17	148-155	D	Theme 1, Group A
	18	156-163		Theme 1, Group A, continued
	19	164-177		Theme 1, Group A, continued

[80] Information provided by Wan-Jen Huang.

	20	178-186	E	Derived from Theme 3, Group A
	21	187-190		Episode
	22	190-198		Derived from Theme 3, Group A
	23	199-204		Transition (derived from Theme 1, Group A)
	24	205-211		Derived from Theme 2, Group C
	25	212-220		Derived from Theme 2, Group C
Coda	26	221-230	G	Derived from Theme 3, Group B
	27	231-236		Transition (derived from Theme 2, Group C)
	28	237-249	A	Derived from Theme 2, Group C

Mallet Positions and Performance Techniques

The work starts with triplet arpeggios using the author's new six mallet technique. This is executed by making a twist of the wrist, and at the same time allowing mallets to descend on the marimba one after the other. It is important to get independence of each mallet to produce an even sound. The sticking pattern of measures 1 to 3, 9 to 11, 17 to 19 are similar to measure 1: 1-2-3-4-5-6, 1-2-3-4-5-6, 1-2-3-4-5-6, 1-2-3-4-5-6-1.

When performing each chord, emphasis should be on mallet 1 since there is an accent on the bottom note. Special attention should be paid to the end note of each measure and the beginning note of the next measure because the double strokes of mallet 1 with different accented notes requires extra strength. To maintain the smooth flow of the descending semi-scale in the left hand, while increasing the volume at the same time, the performer needs to control his/her strength very carefully. The three chords on the last beat of measure 3 and the beginning of measure 4 should be played with concentrated

intensity with each mallet.

The continuous sixteenth-notes in measures 4 and 6 start with mallet 3 followed by mallet 4 and alternate between them. In contrast with measures 12, 14 and 23, the continuous sixteenth-notes start with mallet 4 instead. The accompanying chords are switched from the right hand as in the former measures to left hand. This is for shifting smoothly between single note lines and chords.

The mallet position of Theme I (measures 1-50) is First Position. The Manual Push is used in measures 1-3, 11, 17-18, 23, 28-31, 34-35, 44, 46-48 with right hand, and measures 12, 20-22, 40-43 with both hands. One needs to get used to switching from the normal strength of natural performance or position to unnatural Manual Push very quickly and precisely, because there is no additional time for the switching; otherwise it is very easy to possibly play wrong notes.

Attention should be paid to the wide distance (about three octaves) between two hands in the beginning of measures 28, 34, 40 and 41. Concentration and repeated practice are necessary in order to become familiar with the distance between these two positions. Also be sure to add more strength with the outside mallet for the melodic lines created by the top notes of the chords in measures 19-23, 28-31, 33-37 and 40-51.

Theme II (measures 54-103) is constructed of chords overlapped by seconds and fourths. First Position Squeeze is applied extensively with right hand in this section. There is a consistent interval (seconds) between mallets 4 and 5 while these mallets are positioned at a sizable intervallic distance (fourths) away from mallet 6 in measures 54-59 and 78-89. The left hand primarily uses First Position with the only exceptions in measures 54-55, during which Second Position is employed.

The sticking of single sixteenth-notes lines in measures 62-74 should be carefully considered because the right hand needs to play back and forth from the chords to the single lines. Also pay attention to measure 77 because there is a long distance (three and a half octaves) between the lowest and highest notes.

A different tone color with the shafts of mallets making glissando on the edges of marimba bars is found in measures 78-81 and 84-85. Another tone color is produced by playing the marimba bar with the mallet heads and the edge of bar with mallet shafts simultaneously. This type of tone color happens in measures 101-103 and 110 to reinforce the intensity of the music.

The positions of accents change frequently from measures 54 to 103. Notice the exact positions of the accents, and try to play them correctly. In this part, the dynamics change frequently as well. There are many sudden changes of dynamics, requiring special consideration.

Section B (Theme III) is un-metered and starts with ad. Lib rolls in First Position; one may choose any type of roll techniques to produce the expressive melodic lines and parallel harmony. No matter which roll technique is used, the speed of rolls could be changed according to the feeling of the phrases. The various roll techniques are the ripple roll, the mandolin roll, the one hand roll[81] and the arpeggio roll.

To play a ripple roll, mallets 1 and 3 can be stuck simultaneously, with mallet 2 entering later. The one hand roll that is maintained by rotating the forearm can be performed between any two mallets in one hand. The rotation is also possible between

[81] Definitions of the ripple roll, the one hand roll, and the mandolin roll can be found in *The Solo Marimbist – Music Arranged and Composed for the Marimba*, Volume II, by Linda Pimentel and James Moore. Permus Publications, 1976: 3.

three mallets by having two mallets strike at the same time. The mandolin roll is usually performed on the lower, natural bars, and one or two bars are struck with the up-down alternation. Usually mallet 2 is placed above the bars, with mallets 1 and 3 below the bars. Since there are several accidentals in Theme III, the mandolin roll technique is not suggested. I prefer to use the arpeggio roll in this section. It is very easy to change the arpeggio roll speeds to express various feelings of the music, such as tenderness and passion.

The B group of Theme III combines the arpeggio technique with traditional hand-to-hand roll, which means that the left hand plays an arpeggio and immediately repeats the last note alternating with the right hand chord (measures 111-114). The right hand has the interaction of single notes and chords in measures 113 and 115.

The positions of accents change frequently from measures 128 to 146, just like measures 54-103 (Theme 2, Group C). Measures 148 to 220 present the recurrence of Theme I, II and III with slight differences. The sticking of measures 236 to 238 requires the repeating of R (right hand)-L (left hand)-L-R-L-R-L-R pattern. In measures 239 to 242, left hand and right hand simply alternate. The last seven measures have many sudden wide interval changes in left and right; they need a lot of practice to acquire accuracy.

The mallet positions most frequently employed in *Flame Dance* are First Position and First Position Squeeze. Second Position is used only for two measures. In my opinion, it is not difficult to execute the mallet positions in the music, but the arpeggio technique and arpeggio roll require a lot of practice to achieve the desired effect and interpretation.

Figure 4.1: Pei-Ching Wu's performance of *Flame Dance*

CHAPTER FIVE

STUDY OF *WATER FAIRIES*

The Background of *Water Fairies*

Water Fairies is the second six-mallet marimba solo written by Wan-Jen Huang. This work was commissioned by the Ju Percussion Group and premiered by the author at Taipei's National Concert Hall in 1996.

The work represents yet another endeavor on the marimba for six mallets. "Crystal water drops are like pure and beautiful fairies characterized by witty and fickle demeanor. Sometimes they play; sometimes dance. Sometimes they are active; sometimes tranquil analogous to a kaleidoscope reflecting a variety of patterns. A half-tone scale is widely used throughout the piece. The piece possesses brisk rhythm, variable strength and nimble lineation. The different combinations of six-mallet positions are applied to present various layers of register and timbre, requiring superb techniques by the player."[82]

The work calls for the player to have great ability for controlling different muscles of hands, forearms and most importantly each and every finger, because there are many accents happening in different layers of register and voices. Many fast interval changes increase the level of difficulty in this piece. Interval changes and wide variations pose one of the most difficult challenges to the marimba player.

[82] Program notes provided by Wan-Jen Huang.

Analysis of *Water Fairies*[83]

Structure

The work is in the form of A-B-Cadenza-A'. Section A is in the style of a toccata. The whole section is made up of sixteenth notes as a fundamental unit that produces various combinations, coupled with accents in varying positions highlighting the rhythmic variations. Section B is in fantasia style. Full of expression and flexible tempo, it evolves around a sleek and melodic theme followed by a cadenza section.

The cadenza section inherits the fantasia style from section B. Section A' is a condensed section. The whole section comes to an end with a powerful and brisk coda.

Harmony

In order to explore the possibility of six-mallet playing, this work uses different combinations of six mallets, including left one and right three, left two and right two, left two and right three, left three and right two, left three and right three, left one and right two, left one and right one, etc. In terms of the use of harmonies and chords, the piece is characterized by various tone colors generated by varied combination of six-mallet positions.

Tonality and Intervallic Relationships

The work's intervallic relationship is built on minor seconds and semitones. The semitone imitation and semitone linear organization are consistent throughout. Key tones in section A are $C^{\#}$-C; in the second section $F^{\#}$-G, in section B E^{b}-E-E^{b} and in section A'

[83] Information provided by Wan-Jen Huang.

E-E^{b}. All are in a semitone relationship.

Form Analysis of *Water Fairie*[84]

Form: A – B – Cadenza – A'

Form	Phrase	Measures	Letter	Key tone
A	1	1-10	a	C$^{\#}$
	2	11-24	b	C
	3	25-36	c	
	4	37-52	a'	F$^{\#}$
	5	53-60	d	G
	6	61-73	b'	
	7	73-87	Transition	
	8	88-91	Episode	
	9	92-101	Derived from a	
	10	102-108	d'	C$^{\#}$
	11	109-119	e	A
	12	120-134	Codetta	G
B	13	135-141	f	E^{b}
	14	142-145	Episode	
	15	146-156	g	E
	16	157-170	f'	E^{b}

[84] Information provided by Wan-Jen Huang.

	17 18	171-177 178-192	h h continued	C
Cadenza	19 20	192-200 201-239	Cadenza, Group A Cadenza, Group B	C
A’	21 22	240-249 250-262	a, in 8 va a’, in 8 va	$C^{\#}$ $F^{\#}$
	23 24	263-273 274-281	e Coda	E E^{b}

Mallet Positions and Performance Techniques

Phrase 1 (measures 1-10) is composed of four kinds of mallet positions: Second Position, Third Position Lock, First Position Squeeze and First Position. From measures 1 to 5, the right hand plays with Second Position while the left hand plays a single note line with mallet 3. Take note that there is a slight difference between accents (>) and sforzando (sf). The effect of the sf. should be more pressing and powerful than that of the accents. Using mallets 5 and 6 to play the interval of perfect fourths independently with mallet 4, Third Position Lock is used in measures 6-9 while left hand uses First Position Squeeze in the accompaniment. The contrasting dynamics of measures 6-9 also challenge the marimba player’s strength and control. As a transition to Phrase 2, a double note descending half-tone scale in measure 10 is played with the alternation of both hands using First Position Squeeze, while the right hand uses First Position on the first beat of the measure.

The cross over technique is used extensively in Phrase 2 (measures 11-24). To

determine the sticking of phrases, the player should experiment with different possibilities to find the best way to maintain the music's fluency. As for the cross over technique, the choice of sticking is critical. The sticking of measures 11 and 12 requires the repeating pattern of LRR-LR-LRR-LR. The left hand needs to cross over the right hand to play the notes back and forth. Measure 13 uses the sticking of LR-LRR-LR-LRR. Although the rhythm patterns are the same as measures 14 and 15, the sticking is slightly different. Measure 14 uses LR-LR-LRL-RLR, and measure 15 uses LR-LR-LRR-LRL. This is because the latter measure is about to approach a different section (measures 16-17 are scored in the sticking pattern of RLR-LRL). In order to play measure 16 with the right hand, the last note in measure 15 is to be played with the left hand to ensure the smooth transfer. From measures 16 to 23, simply alternate the left and right hands with a few cross over points. In the entire Phrase 2, only First Position and First Position Squeeze are used.

Phrase 3 (measures 25-36) combines the alternations of both hands with LL-RL-RLL (mallets 1 and 2 playing double stops) sticking pattern. Third Position Lock is used in measures 25-28 with mallets 1 and 2 playing major seconds and measures 25 to 27 with mallets 5 and 6 playing independently with mallet 4. In measures 28-30, the right hand uses First Position Squeeze. However from the end of measure 30, Second Position Palm Lock is used. This mallet position is also engaged in measures 29, 30 and 33 with left hand. In the last two measures of Phrase 3, mallet shafts are employed to play on the edges of marimba bars to produce a crashing effect.

Phrase 4 (measures 37-52) is similar to Phrase 1, but is transposed up a perfect fourth. The entire Phrase 5 (measures 53-60) uses only Third Position Lock. Phrase 6

(measures 61-73) has a recurrence of Phrase 2 but elevated a perfect fourth. In Phrase 7 (measures 73-87), mallets 2 and 3 play independently with mallet 1, interlocking with the right hand with First Position Squeeze. Phrase 8 (measures 88-91) is a melodic line made of a single note (left hand) and major seconds (right hand) with a crescendo from mp to forte.

Phrases 9 and 10 include elements derived from Phrases 1 and 5. Phrase 11 (measures 109-119) sounds quite interesting. The cross over technique is the main issue for measures 109-115. Another tone color used in measures 109, 110, 114 and 115 is the marimba bar struck with the mallet heads and the edge of bar with the mallet shafts simultaneously. From measures 116 to 119, the right hand plays a glissando blending with the left hand chords. Phrase 12 (measures 120-134) starts from the interplay between chords (played by mallets 4, 5, and 6 with First Position) and ascending half-tone scales (played by alternating mallets 4 and 3) to chords played by both hands simultaneously. In the last part, a lot of practice is needed to overcome the difficulty of moving mallets from the low register to the high register in a very short time; it is like jumping from the left side to the right side in an instant.

One may use the same roll techniques in Phrase 13 (measures 135-141) for the expressive melodic harmonies. Phrase 14 (measures 142-145) is played with two hands alternating. The performance techniques in Phrase 15 (measures 146-156) are a little more difficult than the earlier ones. Both hands repeat switching from Third Position to First Position rapidly, which is not easy to do without hours of practice. In measure 149, to execute the chord of c^{1}, e^{1b}, f with right hand, Manual Pull is needed. One needs to pull up mallet 5 by the index finger to play the note e^{1b}. The following chord of b, e^{1}, and $f^{1\#}$

is played by left hand with Manual Push. The continuous sixteenth-notes of major seconds e^2 and $f^{2\#}$ is played by alternating right and left hands. When played by left hand, e^2 is played with mallet 3 and $f^{2\#}$ is played with mallet 2.

Phrase 16 (measures 157-170) is comprised of melodic harmonies played by the right hand with Second Position Palm Lock while the left hand plays accompaniments with First Position Squeeze. Manual Push is employed in measures 157 and 162 to 166 with several chords. In phrase 17, (measures 171-177) six-note chords interplay with single note arpeggio-like passages. One needs extensive practice to get the arpeggios fluid. In Phrase 18 (measures 178-192), the arpeggios are no longer with single notes as in Phrase 17 but with sixths and fifths. Therefore, the difficulty of execution increases. These arpeggios may be played by alternating the left hand (mallets 1 and 3 alternating single notes) and the right hand (mallets 5 and 6 playing sixths and fifths). A different tone color generated by using mallet shafts to create a glissando on the edges of marimba bars is found in measures 187-189 and reinforces the intensity of the music.

Phrase 19 (measures 192-200) uses the same arpeggio technique as in Phrase 18. Measure 194 (mallets 4 and 6 alternating single notes, mallets 5 and 6 playing fourths) is an inversion of the former technique. Phrase 20 (measures 201-239) requires the interplay of both hands with alternating chords and single notes. Measures 201 to 227 call for Third Position Lock for both hands. Measures 228 to 235 use the right hand with Second Position Palm Lock. The left hand uses First Position Squeeze in measures 228-231 and Third Position Lock in measures 232-234.

Phrases 21 (measures 240-249) and 22 (measures 250-262) repeat Phrases 1 and 2 transposed up an octave. Phrase 23 (measures 263-273) presents a reappearance of Phrase

11. In Phrase 24 (measures 274-281) both hands use First Position Squeeze to end the music in great intensity.

Figure 5.1: Pei-Ching Wu's performance of *Water Fairies*

CHAPTER SIX

CONCLUSION

For the last fifty years, keyboard percussion instruments, especially the marimba, have become among the most popular solo instruments. Multiple performing techniques have been engaged to realize the performance potential of the marimba. One of the most important developments in marimba performance has been the use of extended multiple mallets. Many keyboard percussionists, such as Keiko Abe, Ludwig Albert, Wesley Bulla, Dean Gronemeier, Rebecca Kite, Robert Paterson, Linda Pimentel and Kai Stensgaard, have explored with varying degrees of success extended multiple mallet techniques.

In the early 1990s, Dean Gronemeier introduced the possibility of complete independence with six mallets. His idea of superimposing the Stevens grip with the Burton grip provides the performer with limitless possibilities. Gronemeier explains all the mallet positions and their functions.

The author's six-mallet grip, the Wu grip, which was developed in 1994 and 1995, involves the Burton grip as a fundamental with a third mallet added below the original two in each hand. The Wu grip forms the foundation for several mallet positions. First Position is often set to an intervallic structure in which there is a considerably larger interval between mallets 5 and 6 than there is between mallets 4 and 5. Second Position is generally used when equal or nearly equal intervals between mallets 4 and 5 and mallets 5 and 6 are needed. It is formed when the thumb is pressed between mallets 4 and 5, and therefore expands the interval between them. Further Expanded Second Position is used

when extremely large intervals are needed between each mallet. Third Position is formed when mallet 5 is positioned next to mallet 6, therefore creating a larger intervallic distance between mallets 4 and 5 than between mallets 5 and 6. The position locks are generally used when the intervals played in any given hand position remain steady for an extended period of time. There are three lock position: First Position Squeeze, Second Position Palm Lock and Third Position Lock.

Flame Dance and *Water Fairies* are the earliest six-mallet marimba solos composed by Taiwanese composer Wan-Jen Huang in 1995 and 1996. *Flame Dance* is a brilliant piece in terms of style, rhythm, and performance techniques. New techniques which are explored in these works, include the arpeggio technique and the arpeggio roll. *Water Fairies* calls for the player to have great ability controlling different muscles of hands, forearms and most importantly each and every finger. A lot of fast interval changes increase the difficulty in the piece. Interval changes and wide variations pose among the most difficult challenges to the marimba player.

During the course of my research, I have found that the possibility of extended multiple mallet techniques is almost infinite. Extended multiple mallet techniques challenge the performer to strive for a new way of thinking and consequently to explore the possibilities of the marimba. There are a very limited number of written materials about multiple mallet techniques. It is my hope that more keyboard percussionists and scholars will find this study interesting, and that they will perform and do more research on keyboard percussion. Keyboard percussion will usher in a revolution further expanding its realm of artistic expression and creativity.

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APPENDIX A

SCORE OF *FLAME DANCE*

火 舞

馬林巴琴獨奏

－為六枝擊槌

Flame Dance

Marimba solo

-- for six mallets

黃 婉 真

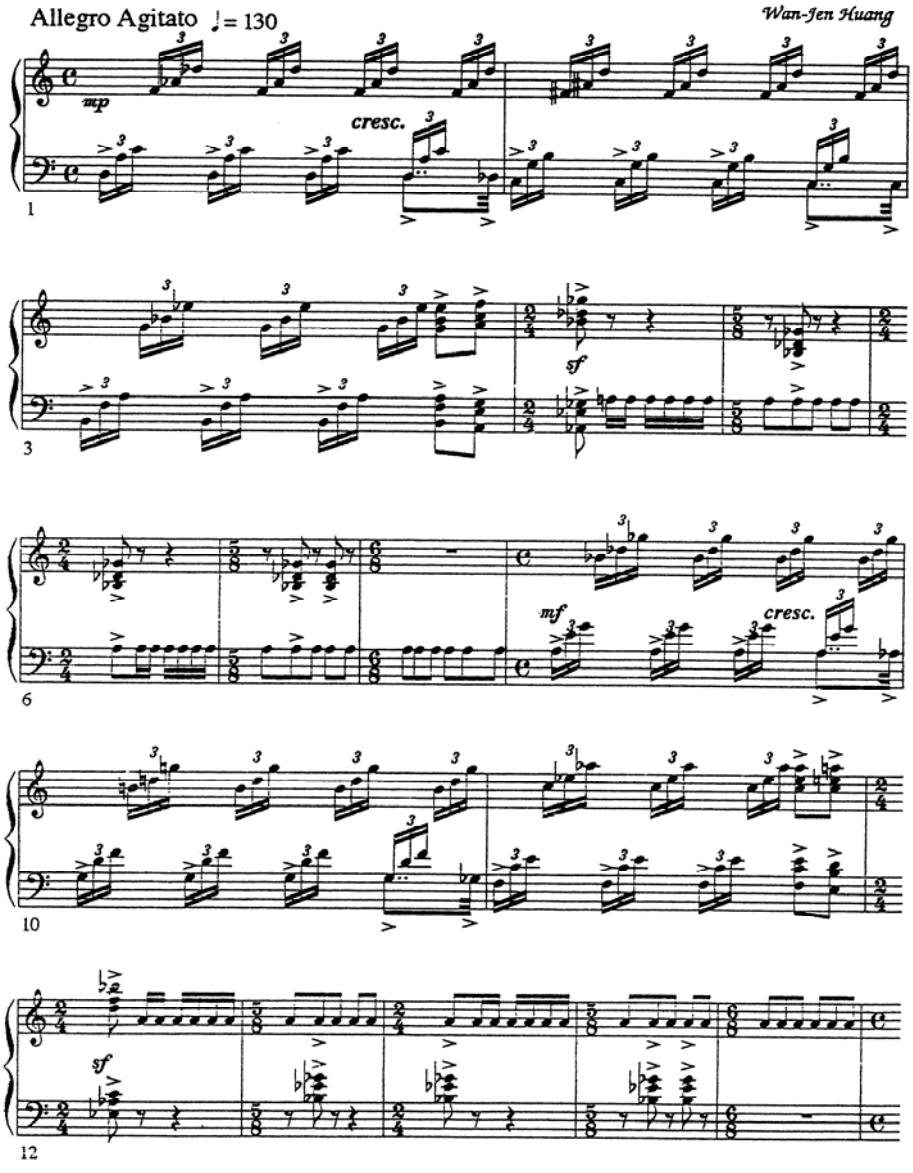
Wan-Jen Huang

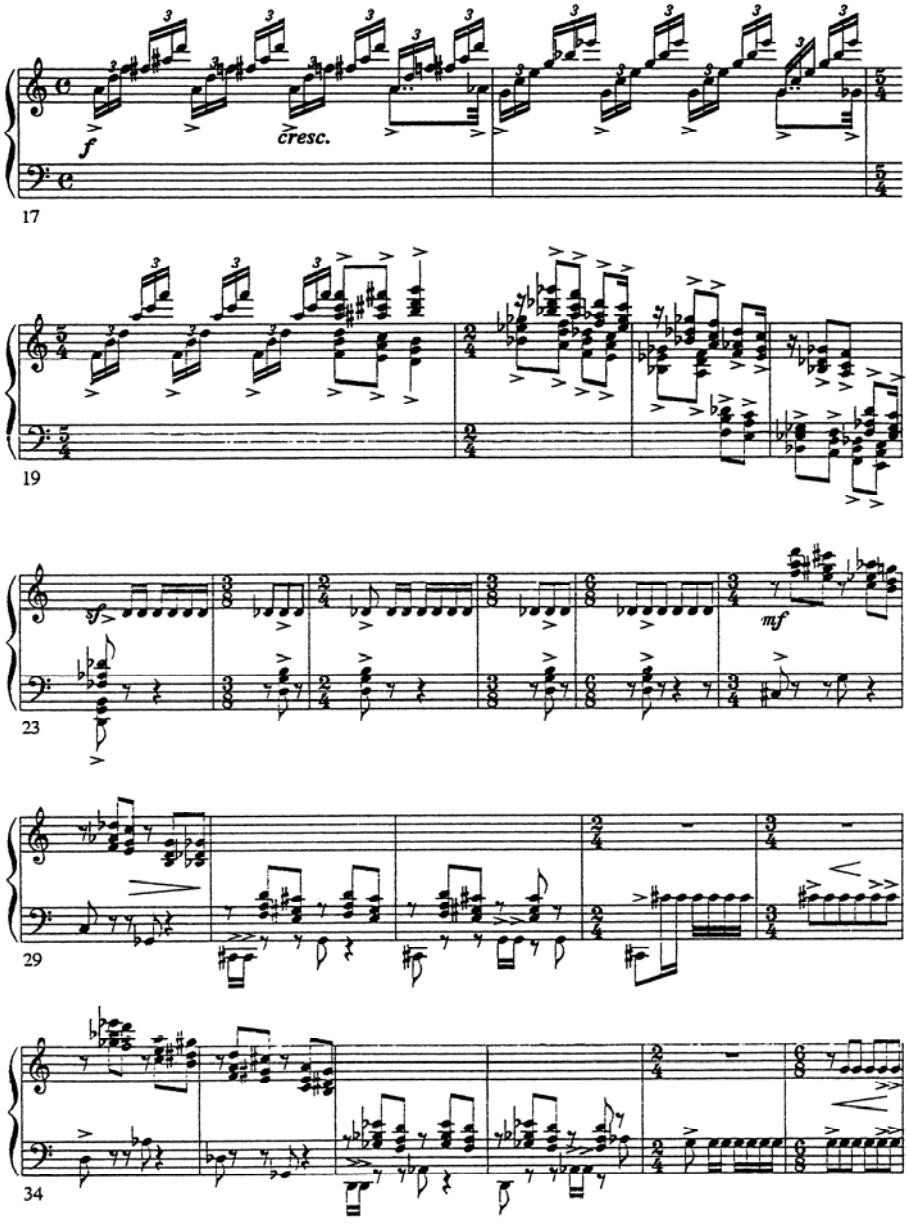
火 舞

Flame Dance

- for six mallets

黃婉真
Wan-Jen Huang

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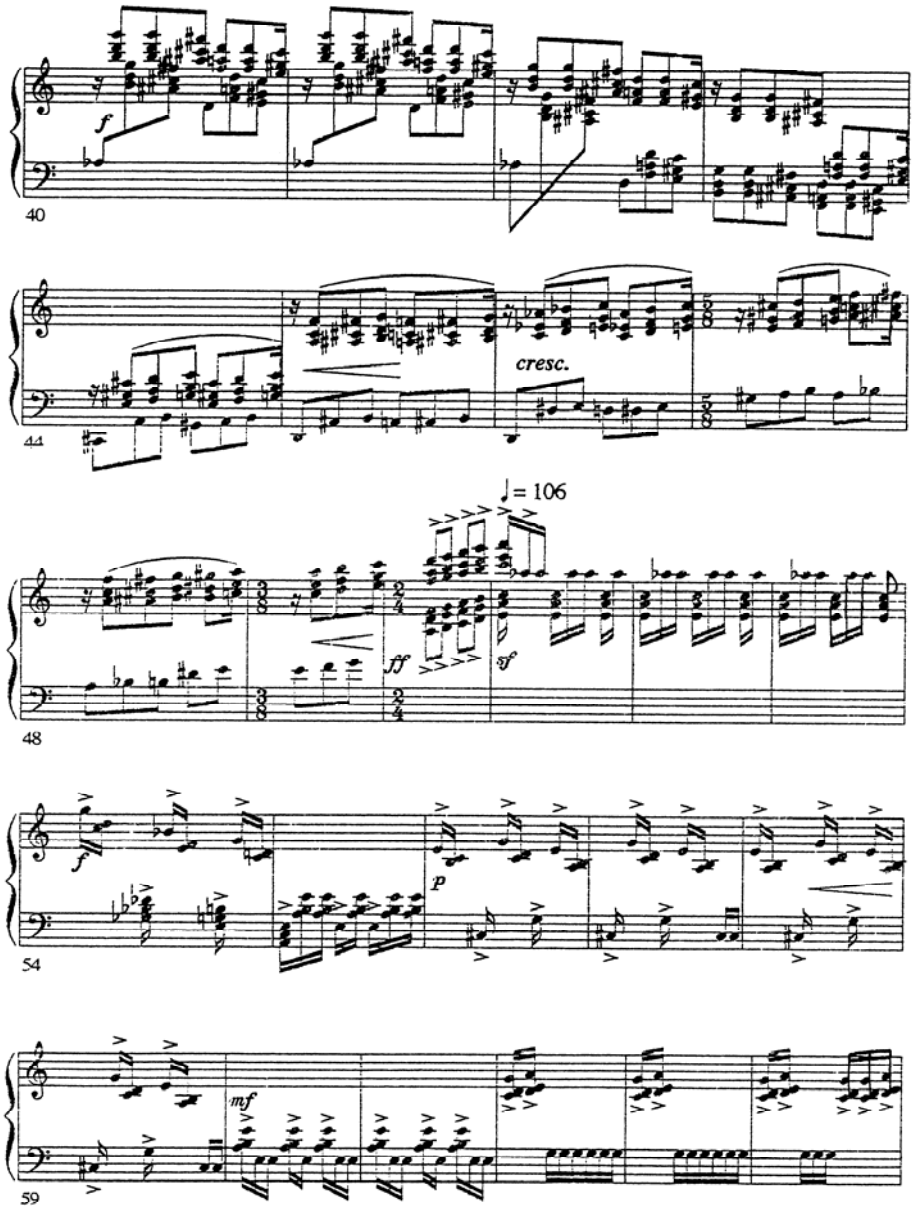
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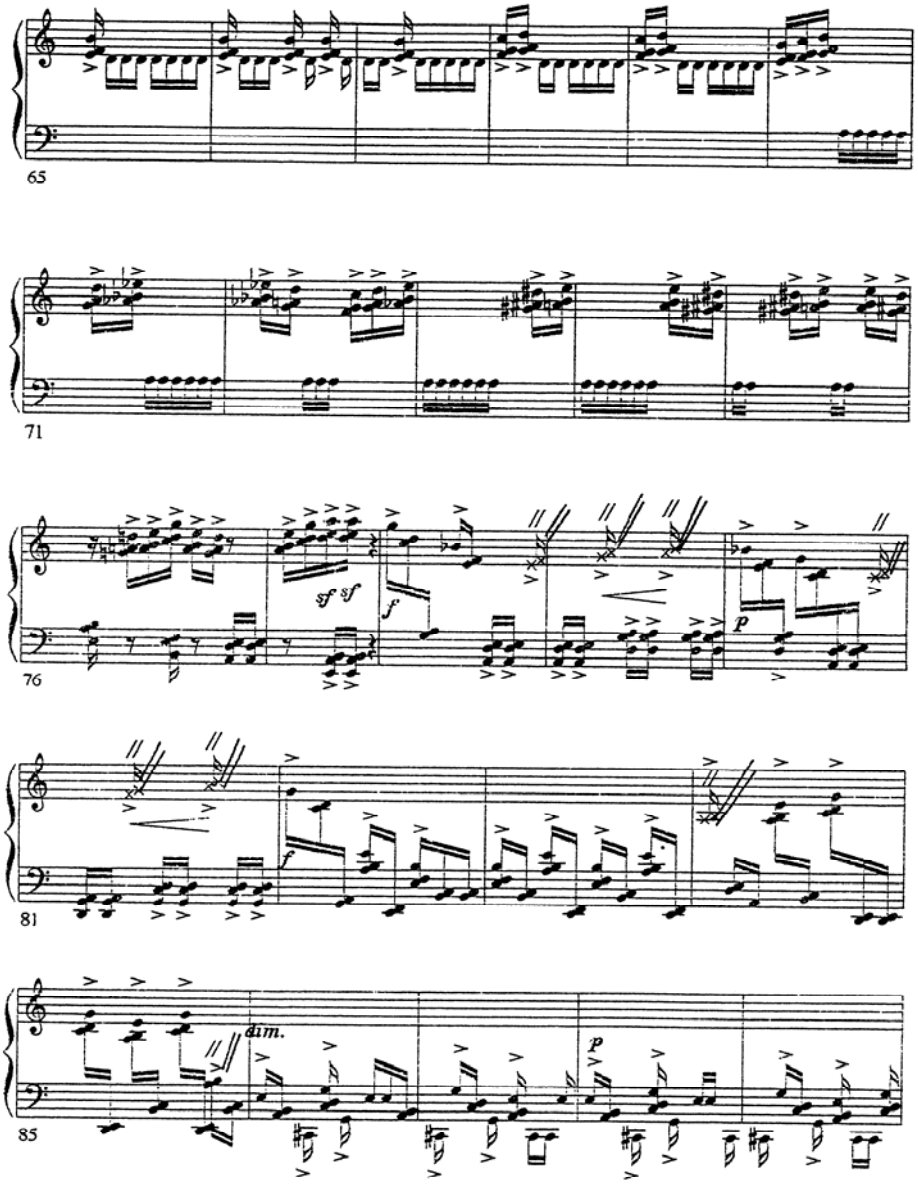

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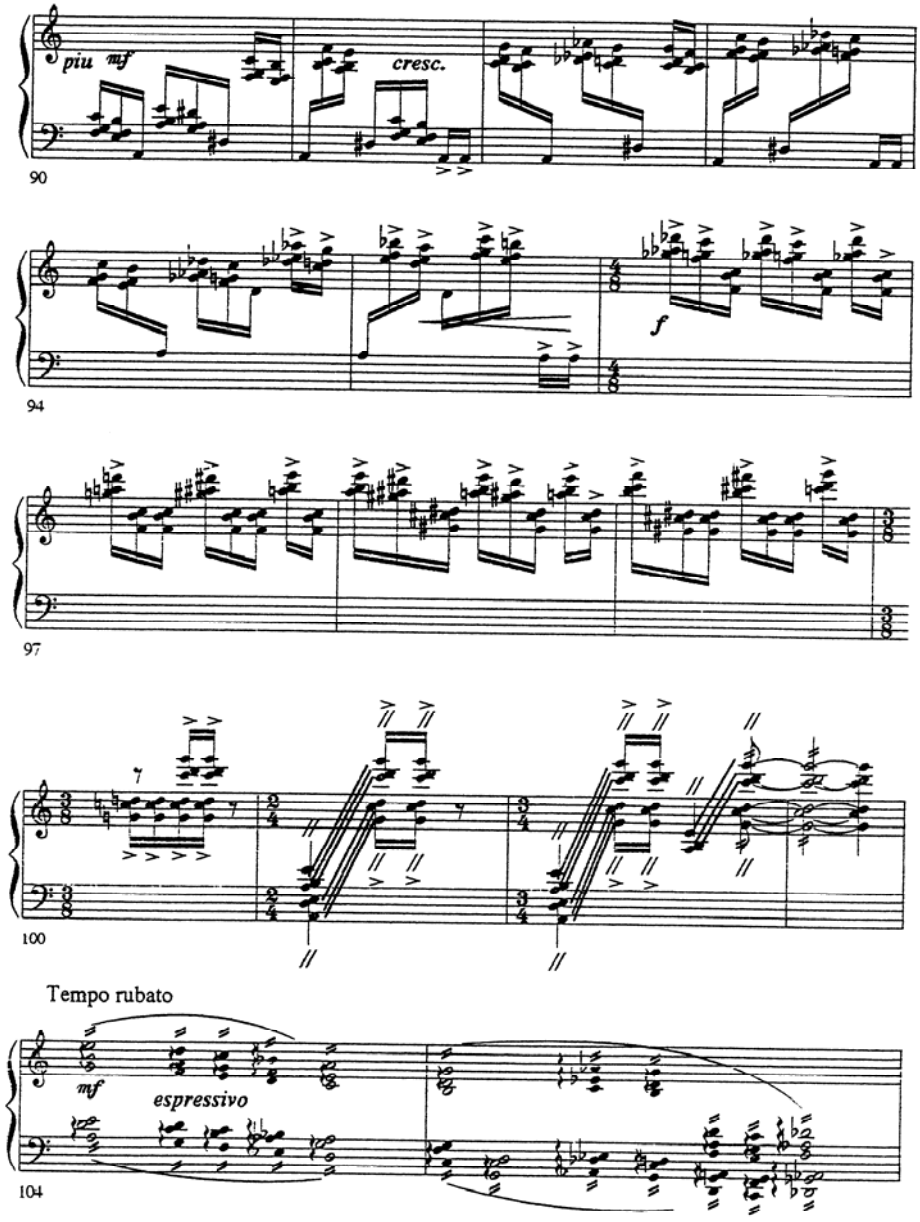
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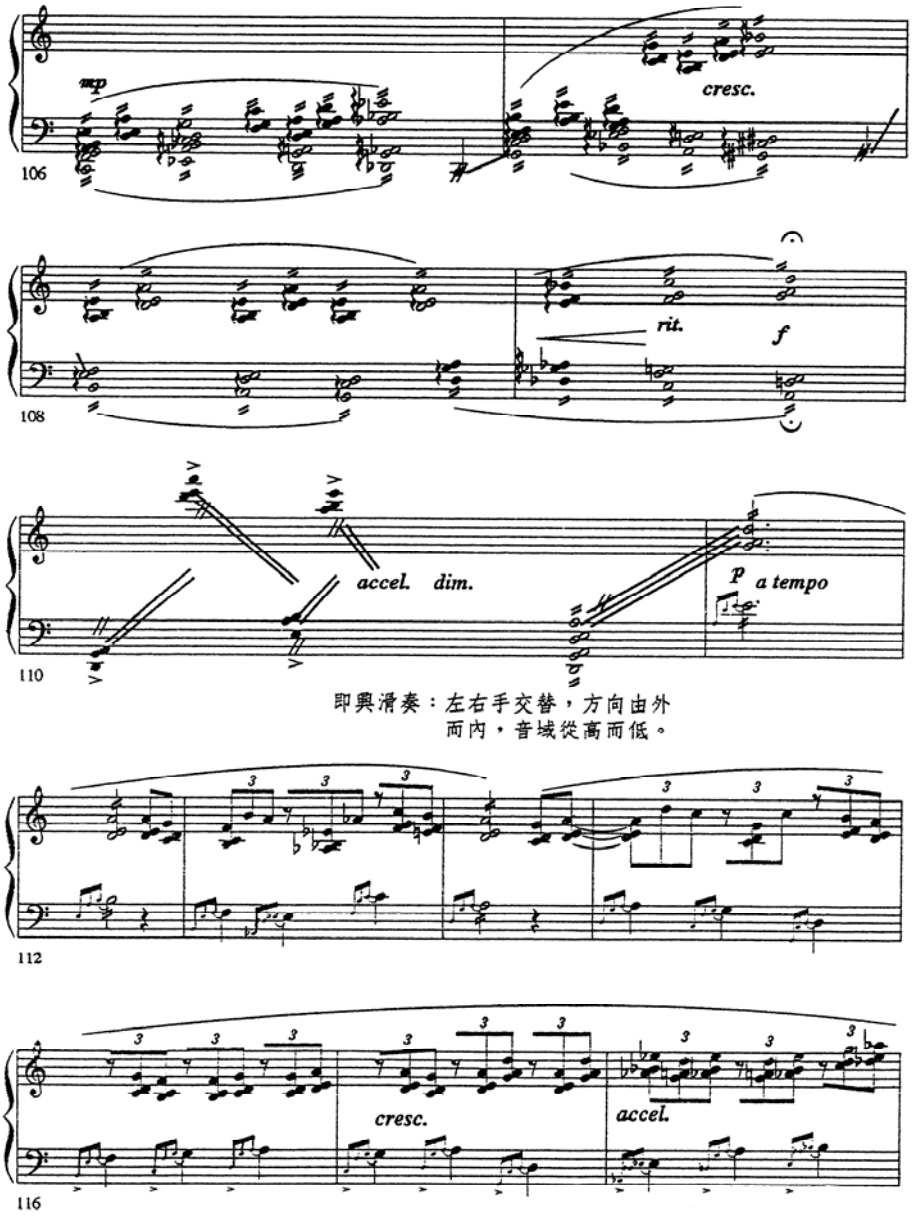
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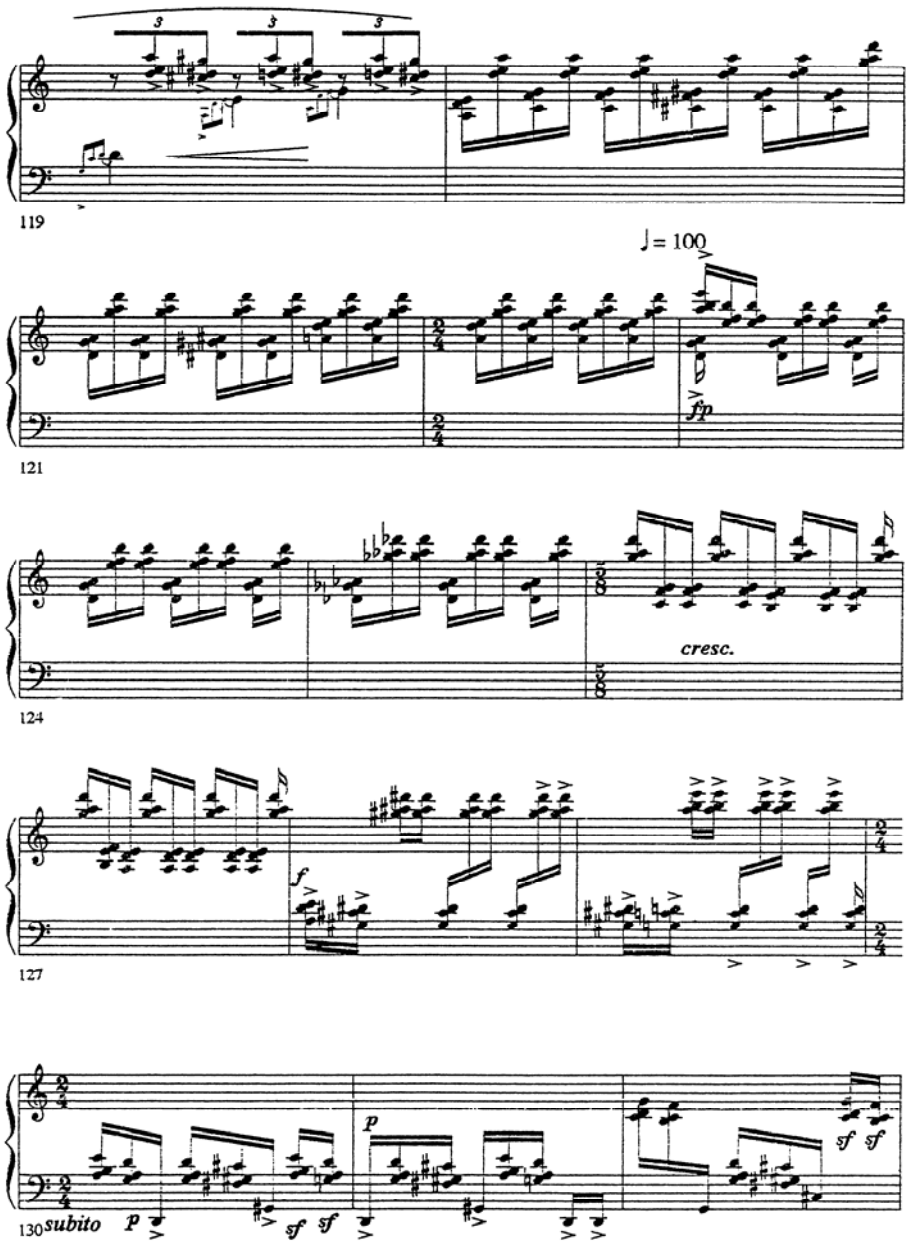
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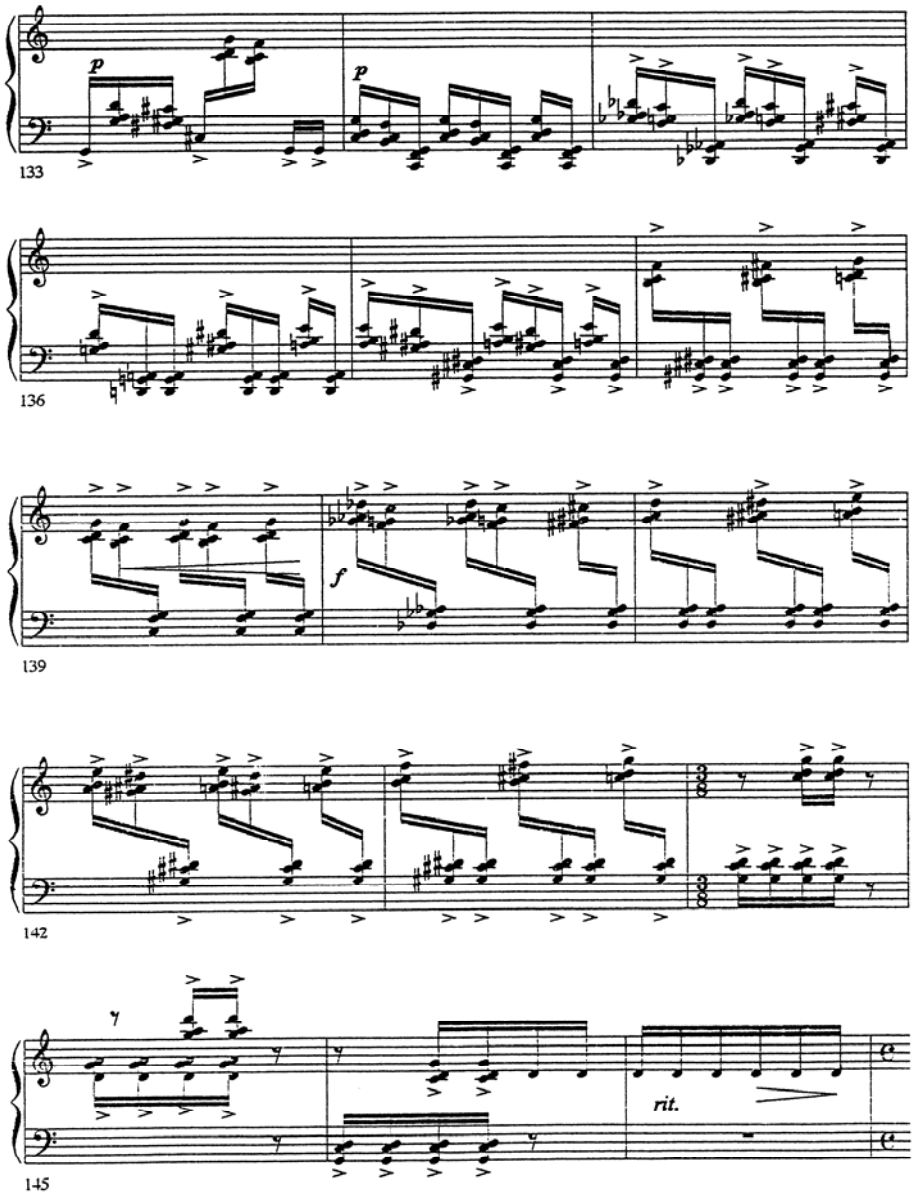

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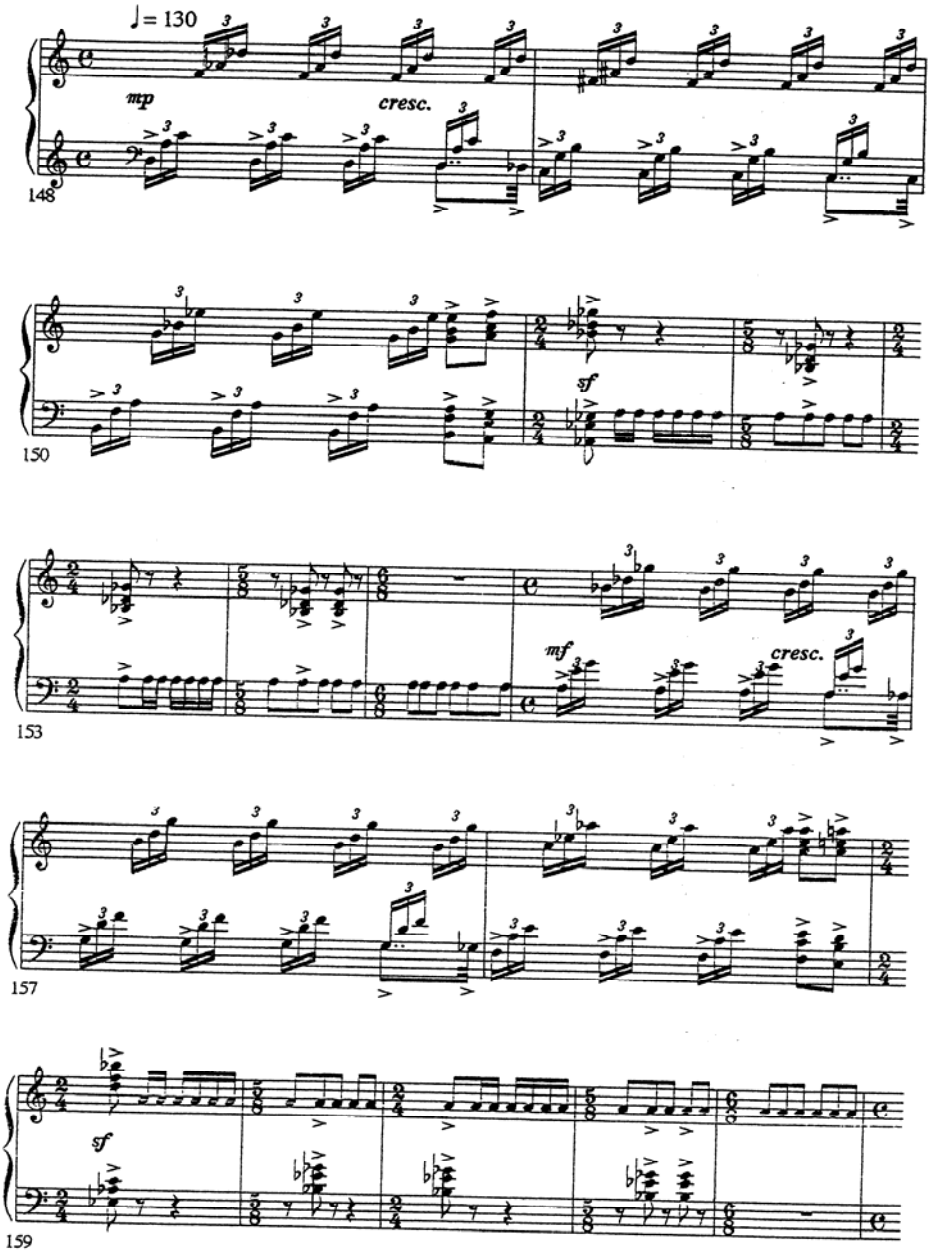
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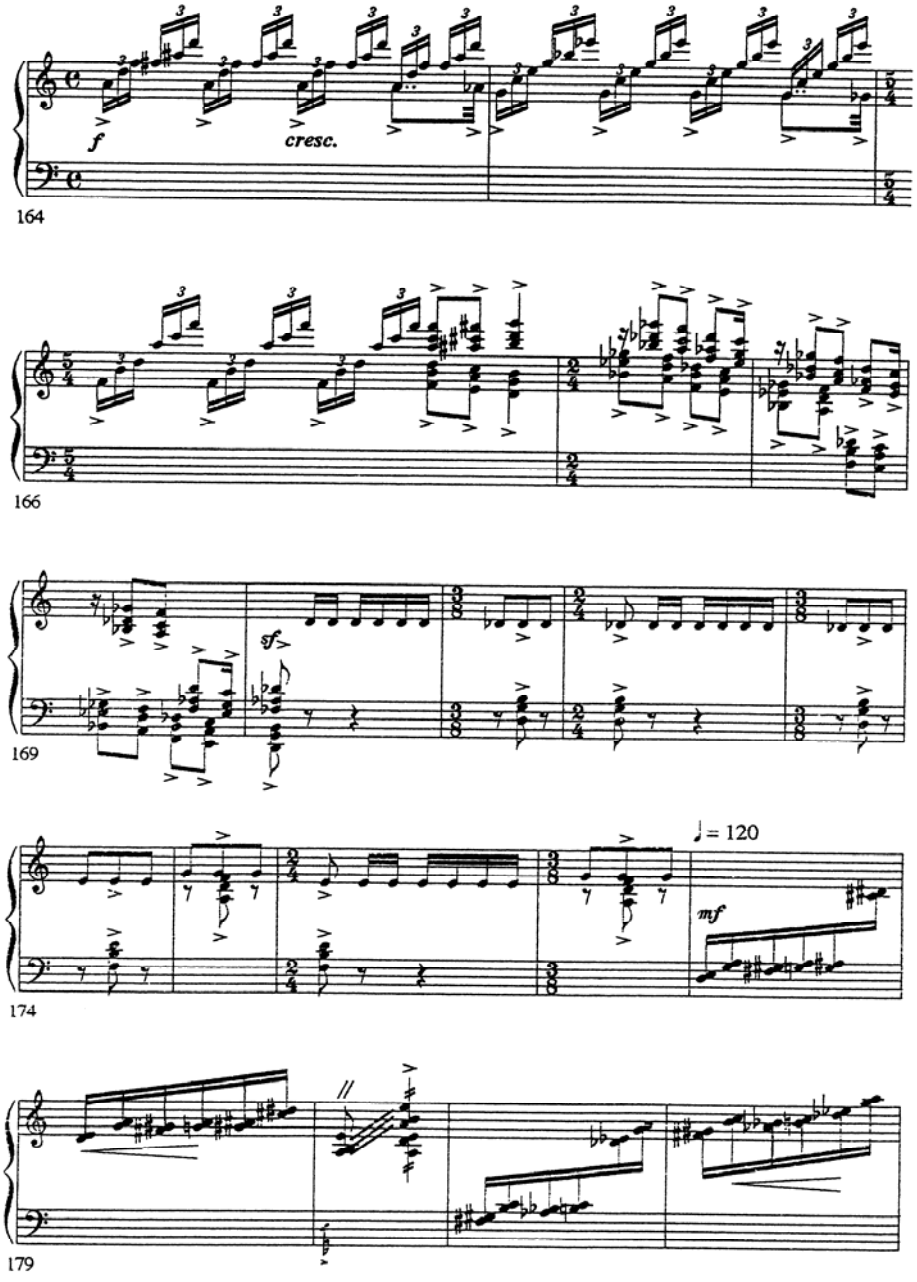
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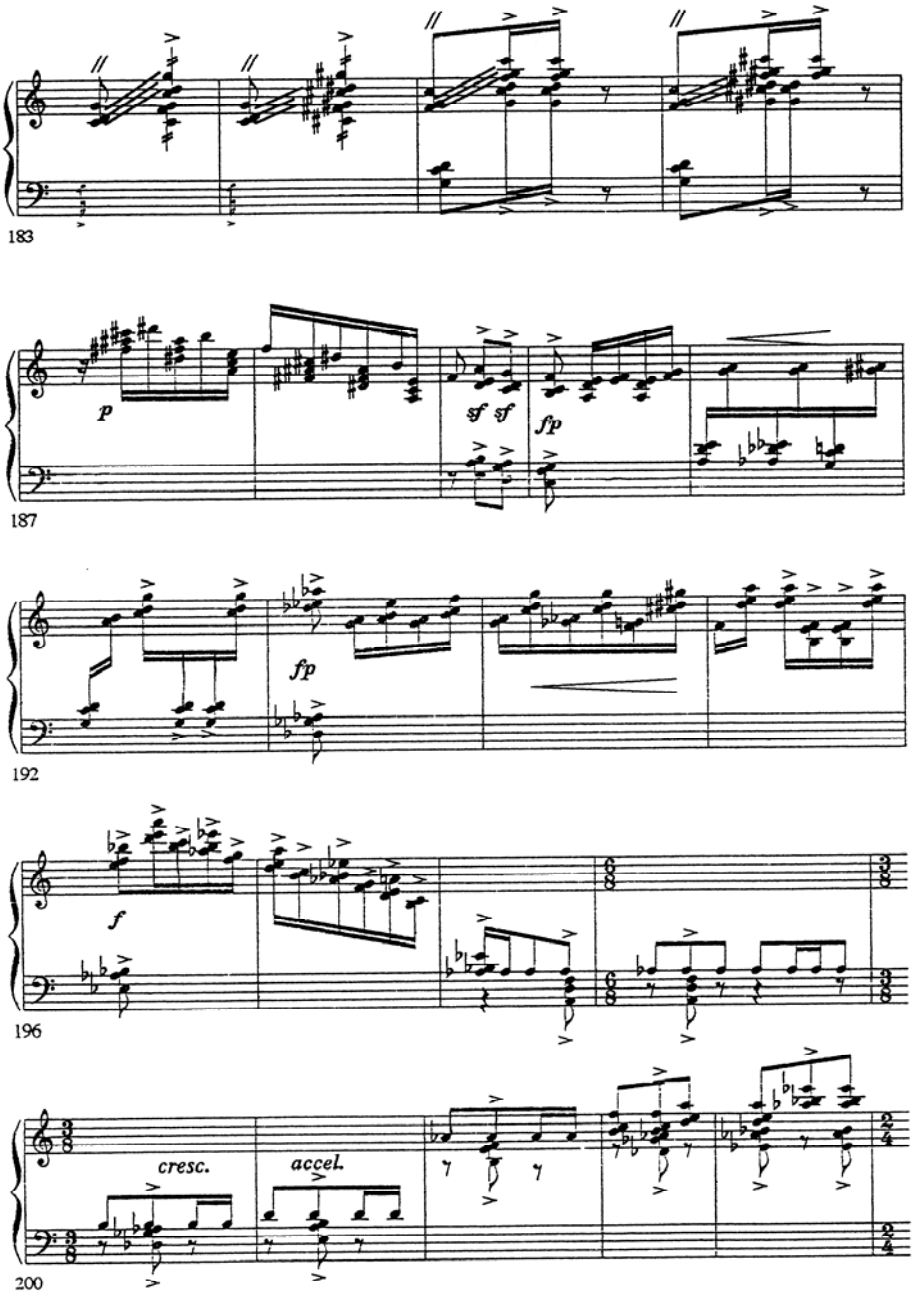
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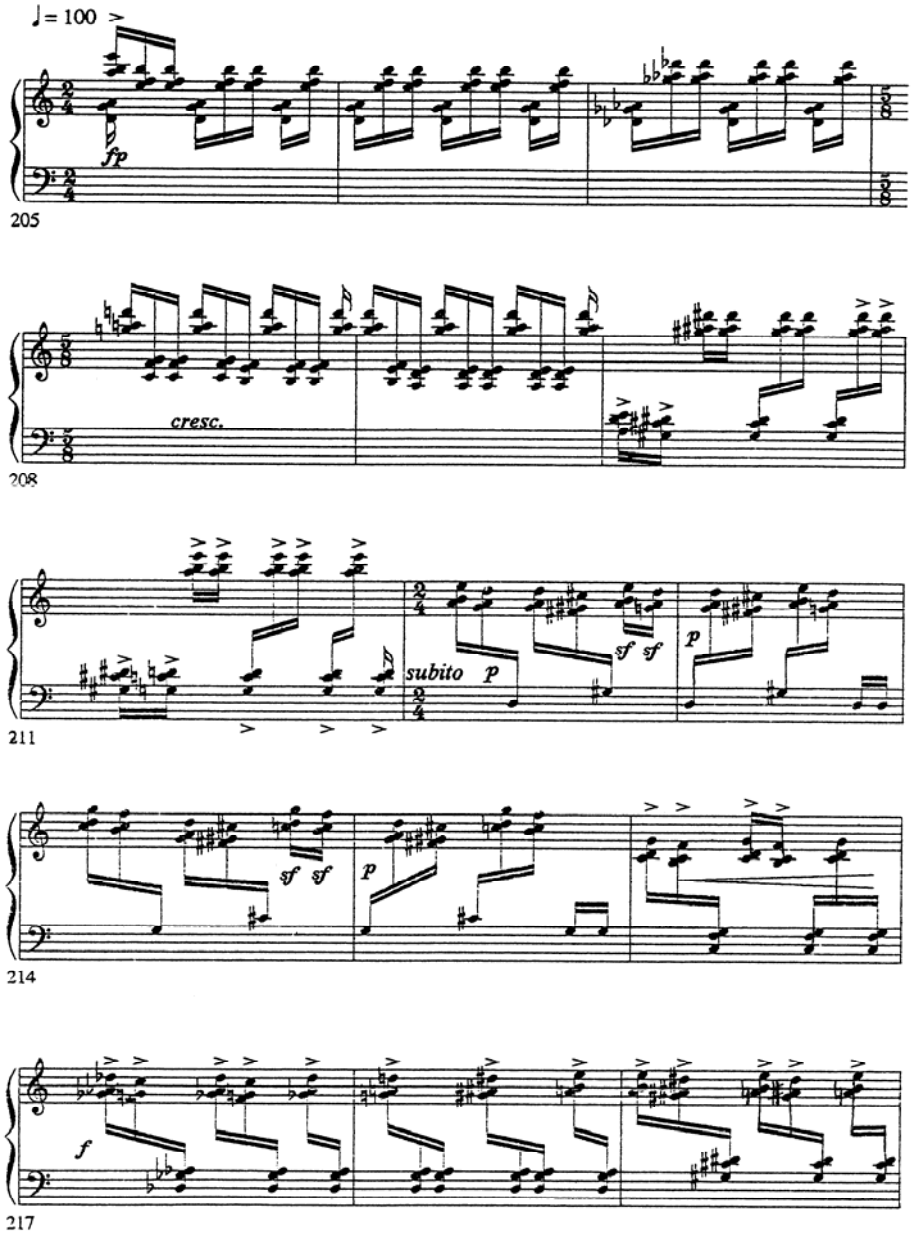
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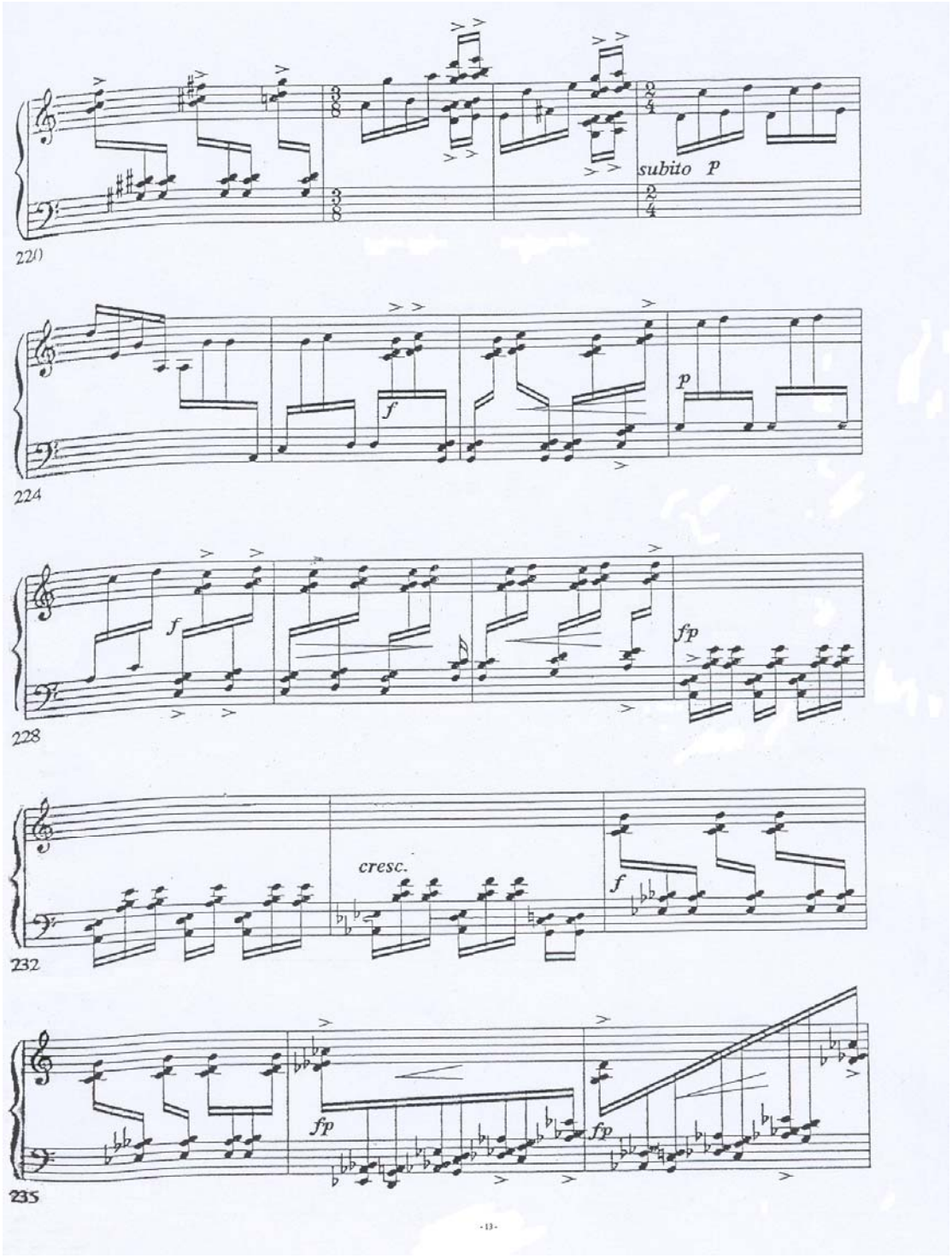
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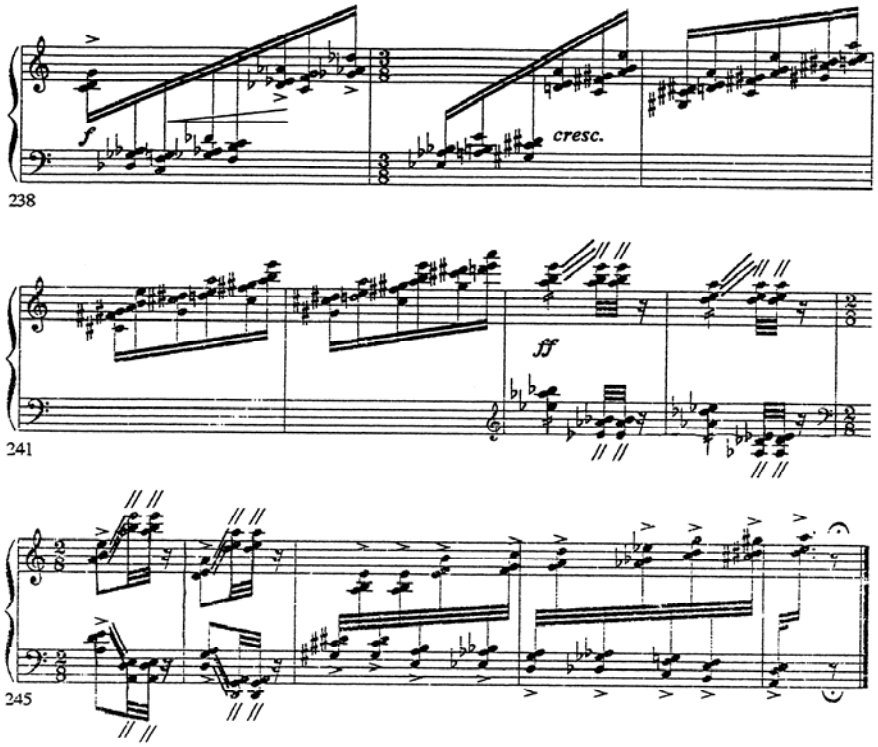
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APPENDIX B

SCORE OF *WATER FAIRIES*

水之精靈

Water Fairies

爲六枝擊槌的馬林巴琴獨奏曲協奏曲

Marimba solo

for six mallets

黃 婉 真
Wan-Jen Huang

水之精靈

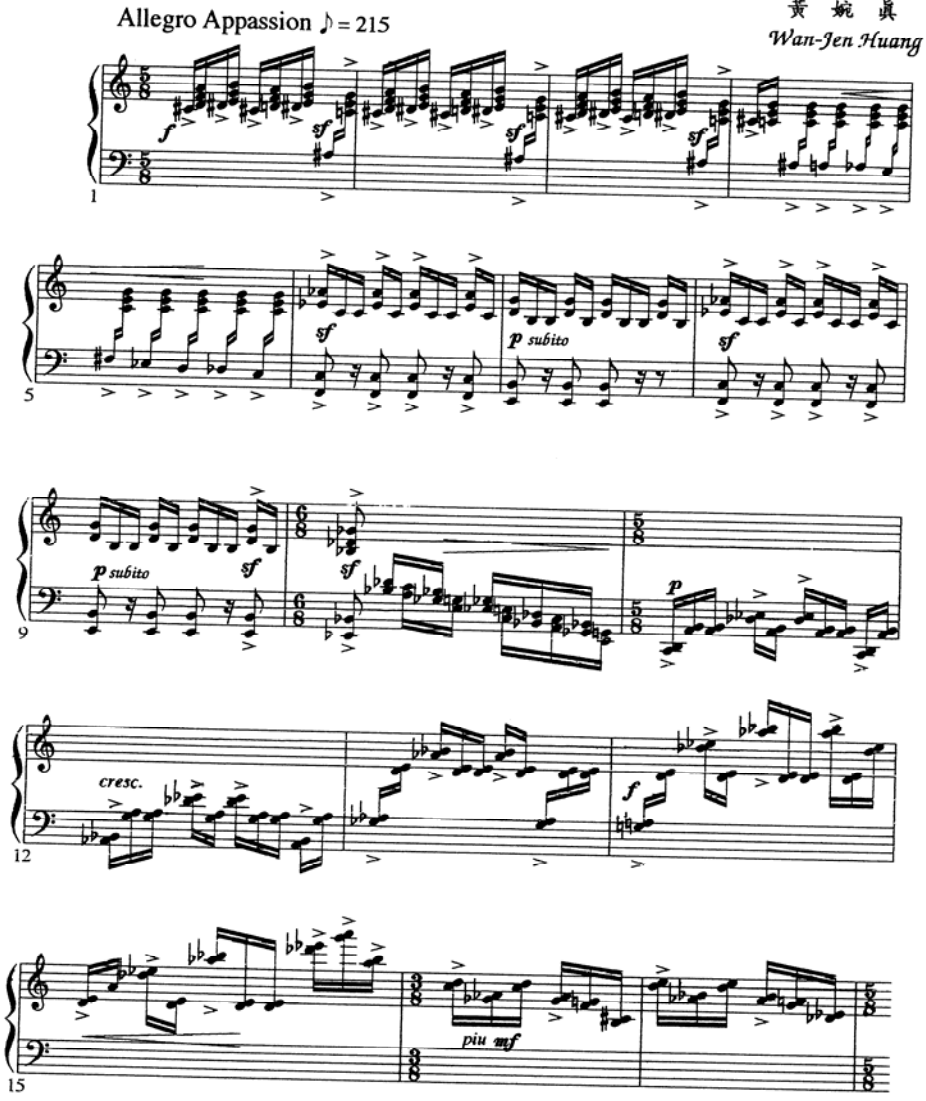
Water Fairies

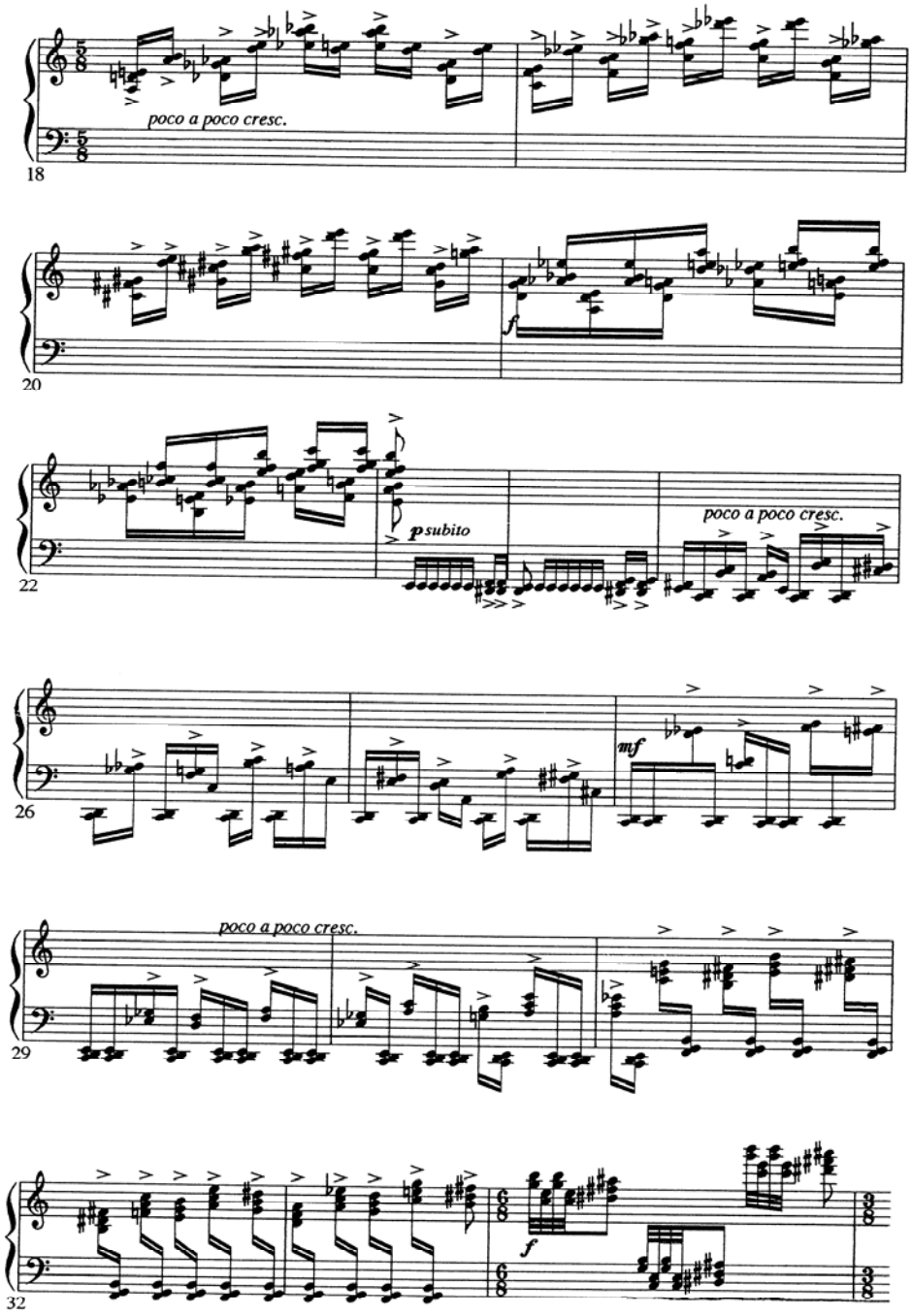
- for six mallets

1996

黃婉眞

Wan-Jen Huang

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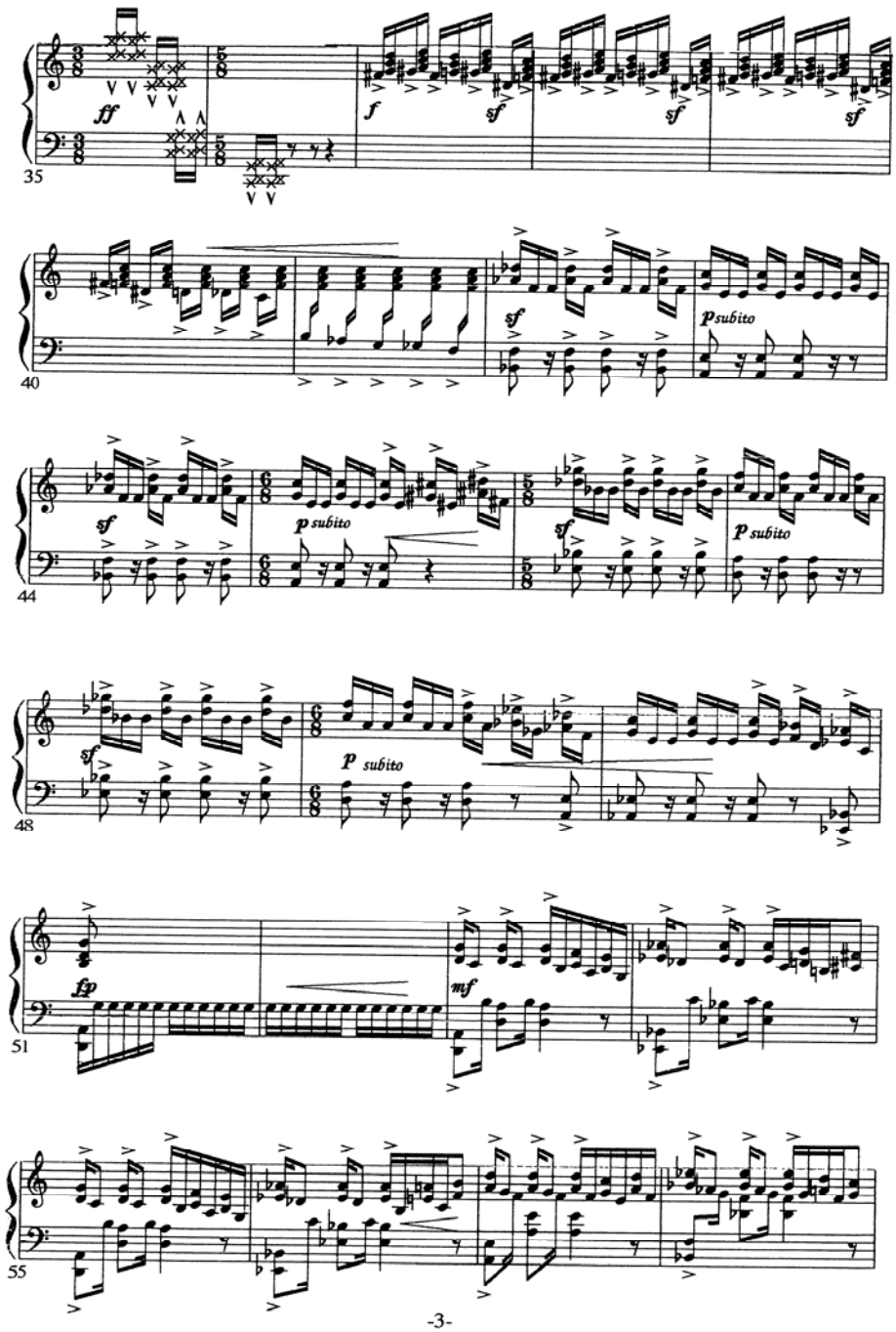
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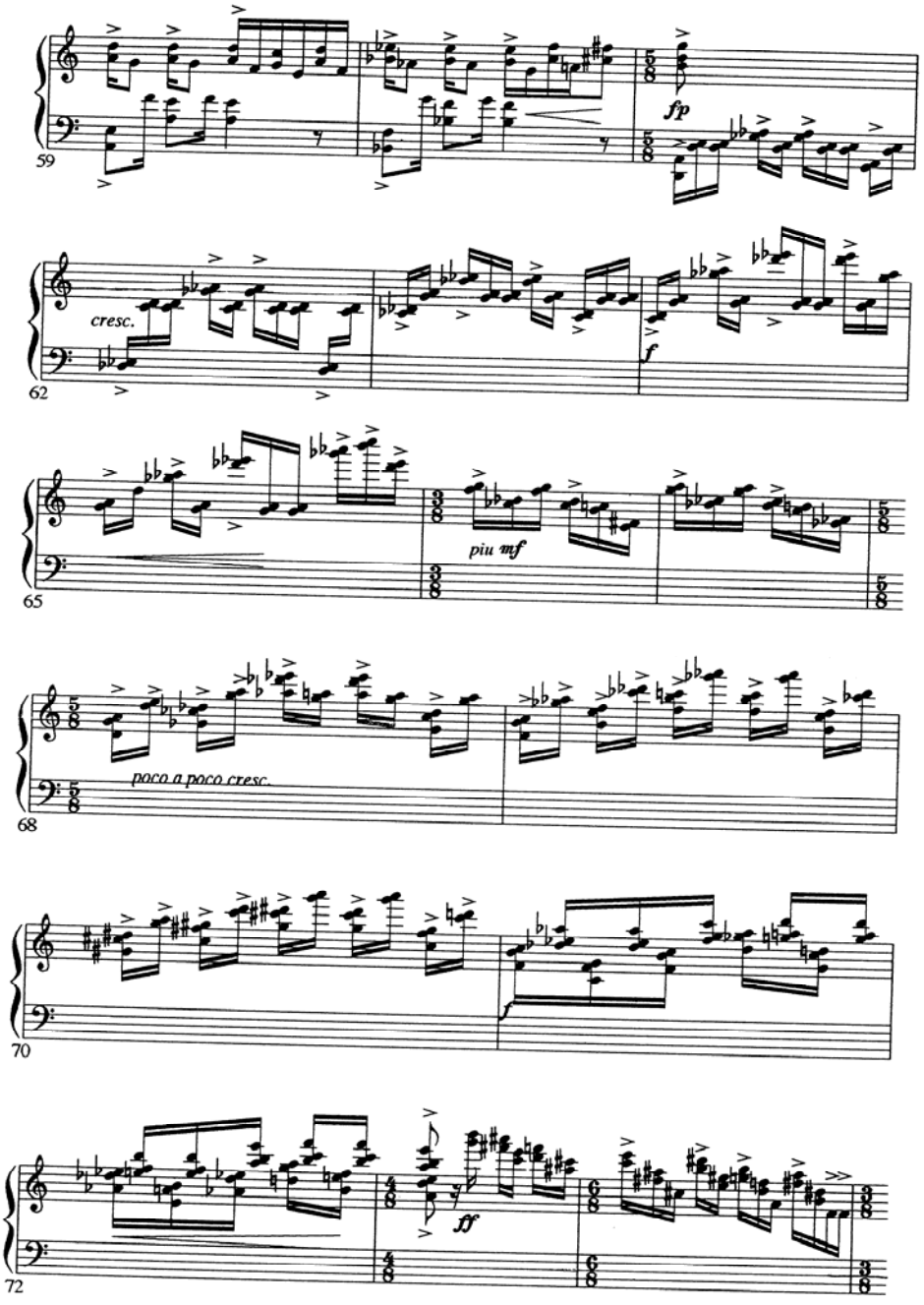

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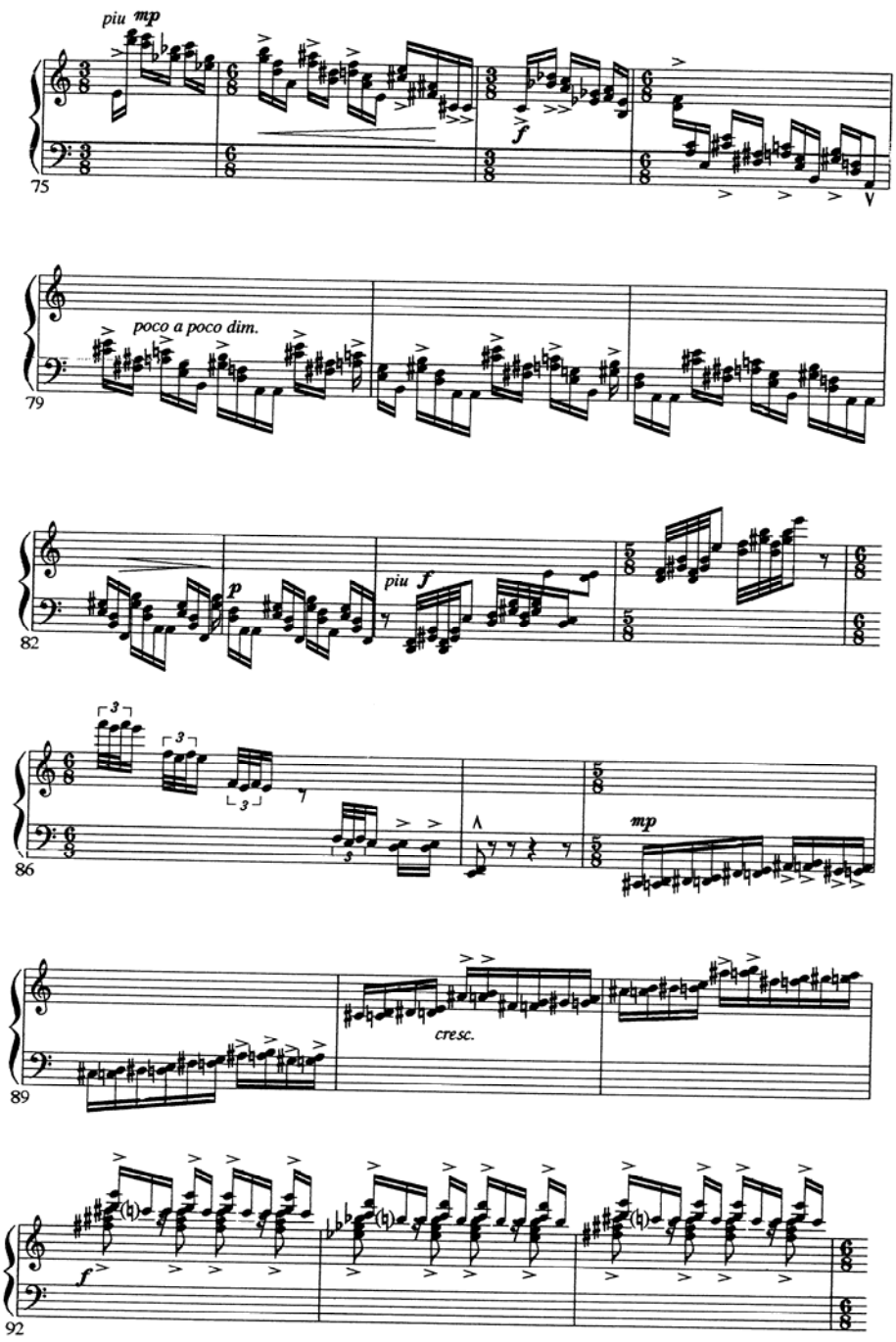
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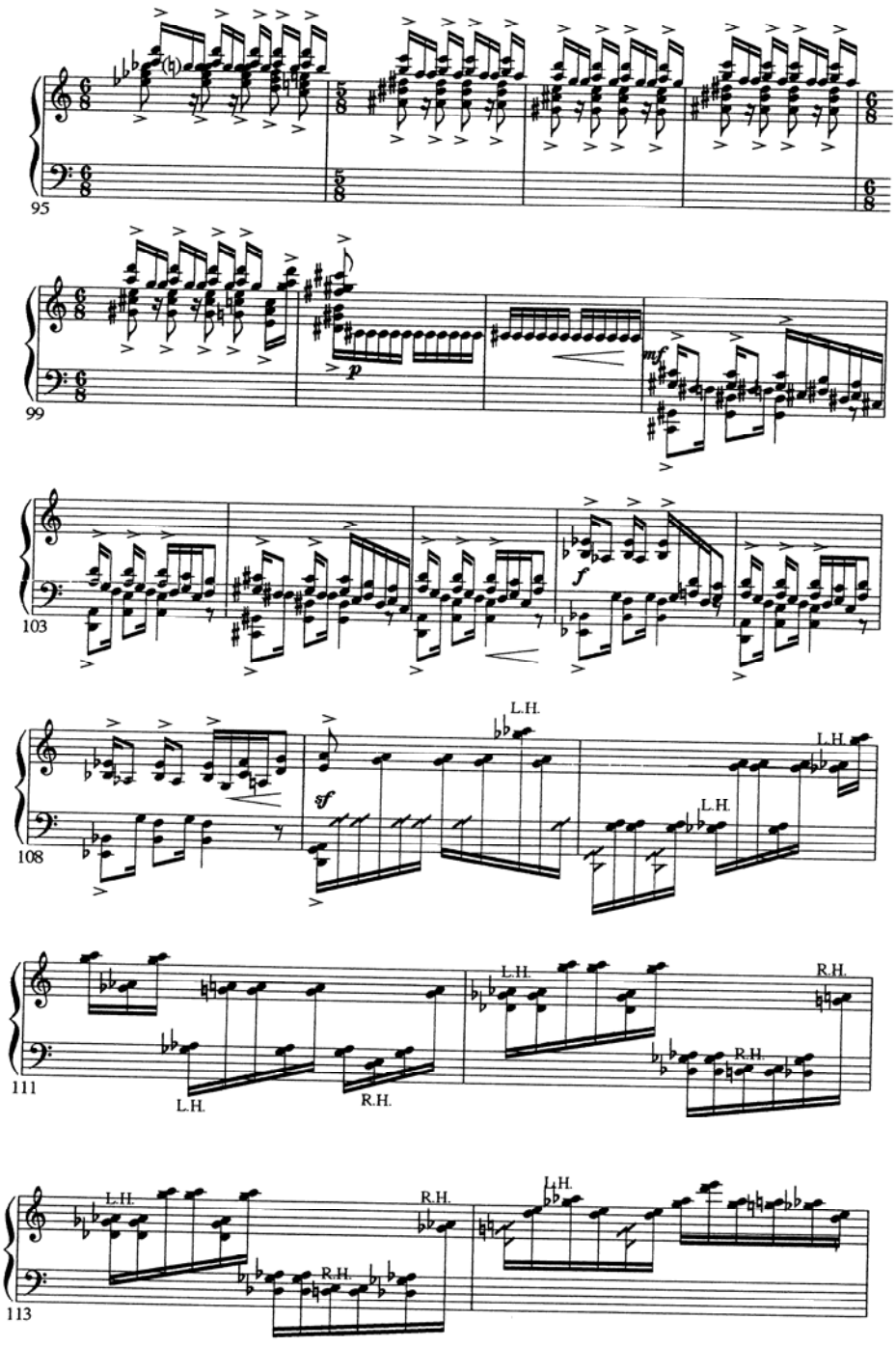
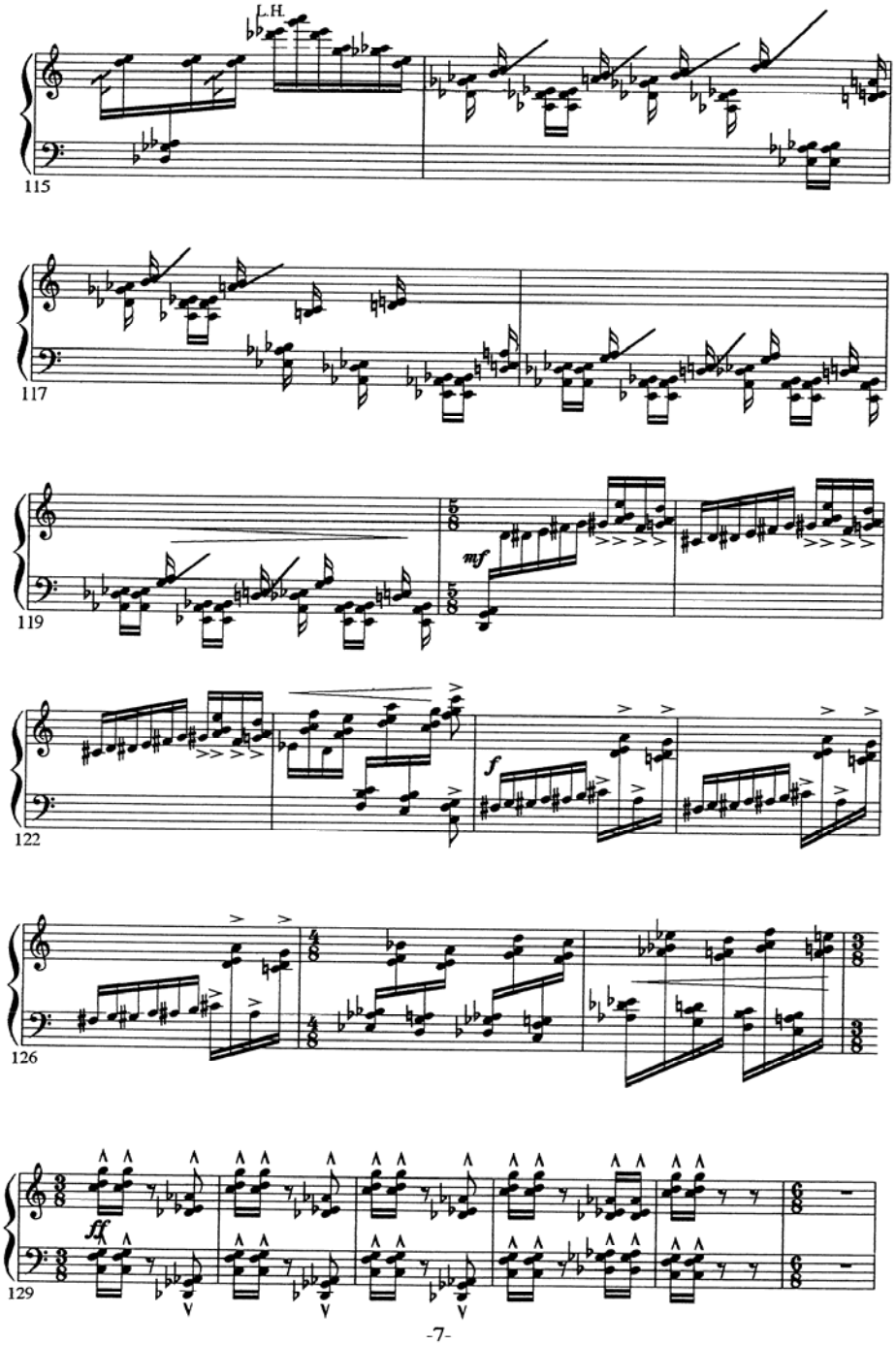
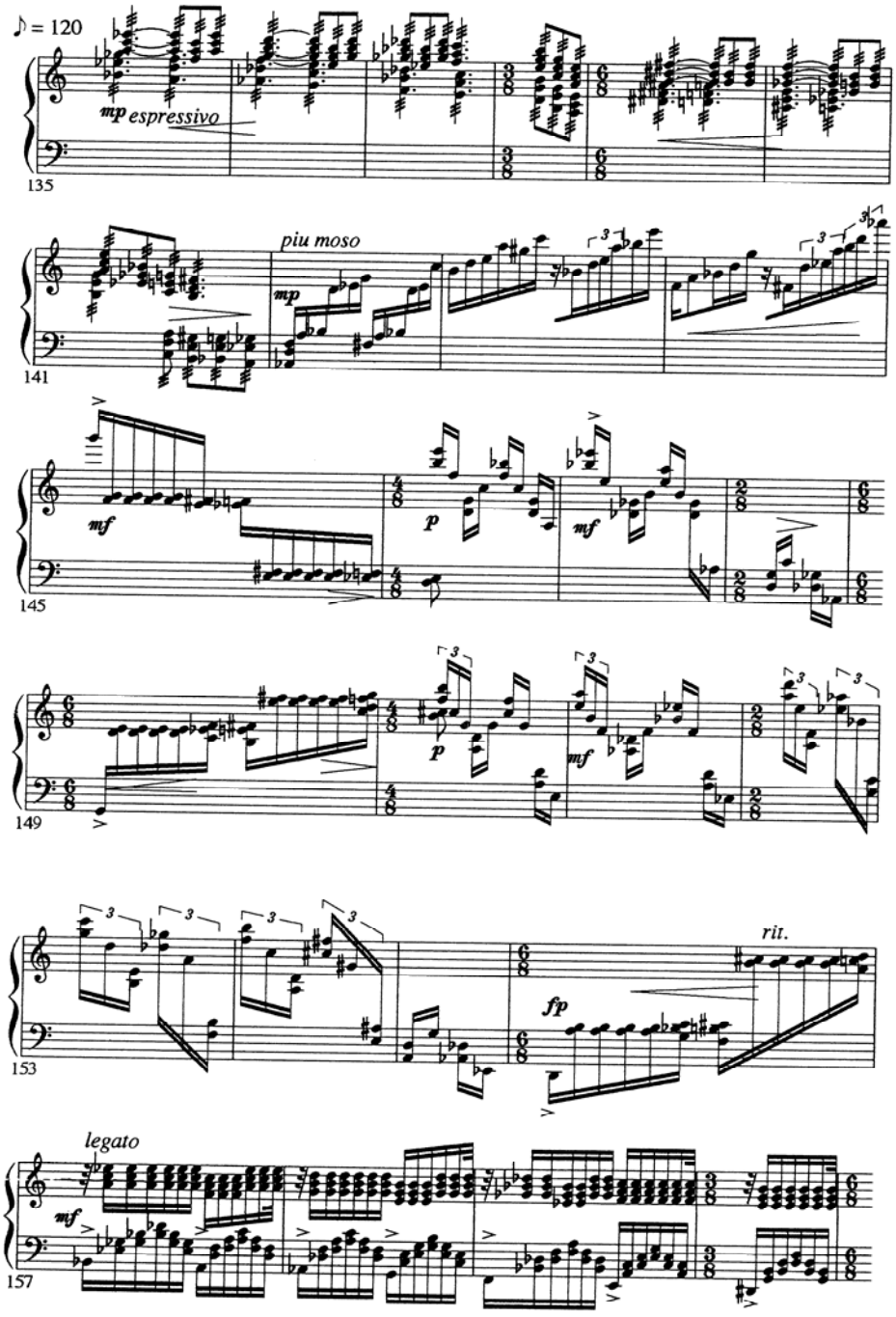
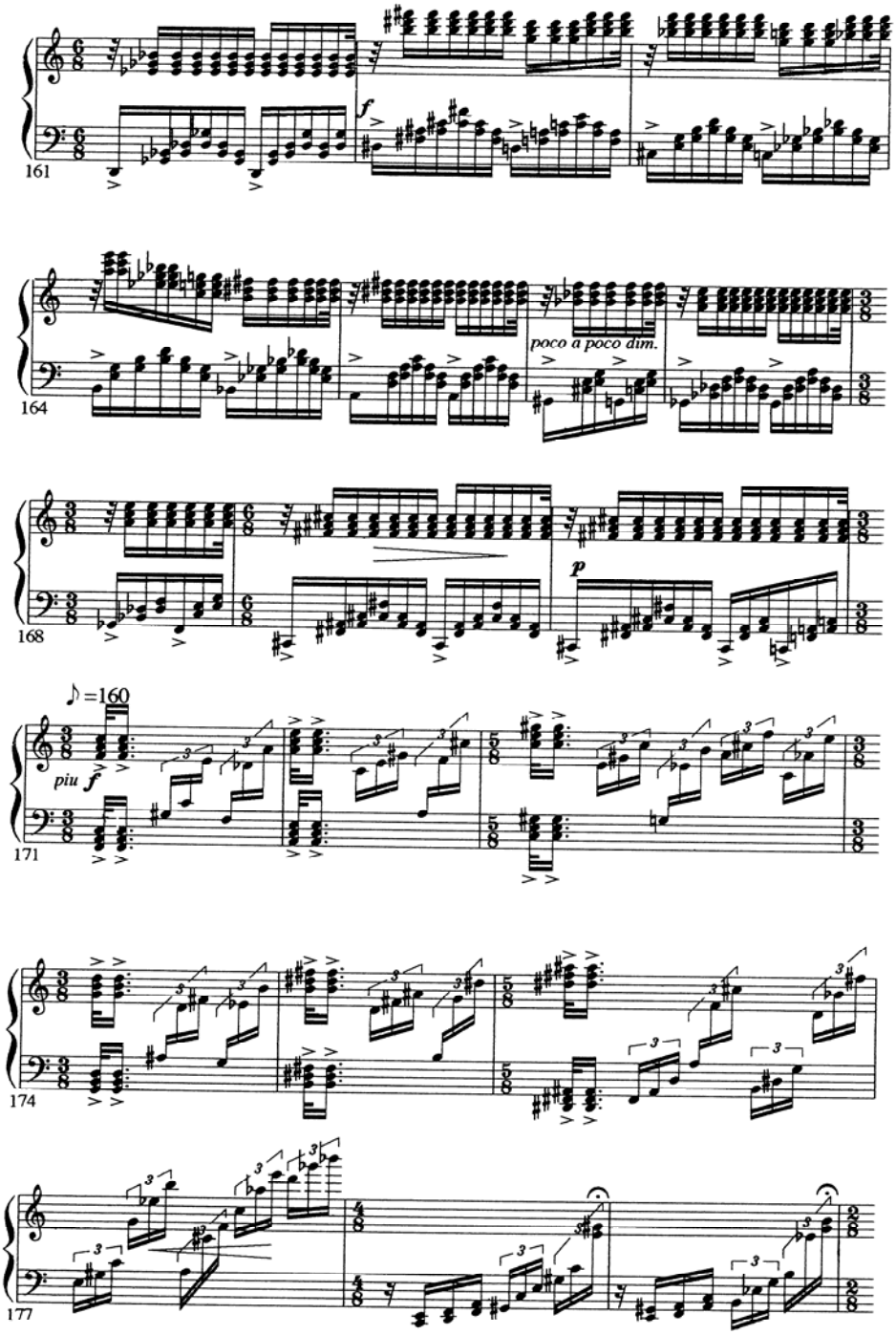
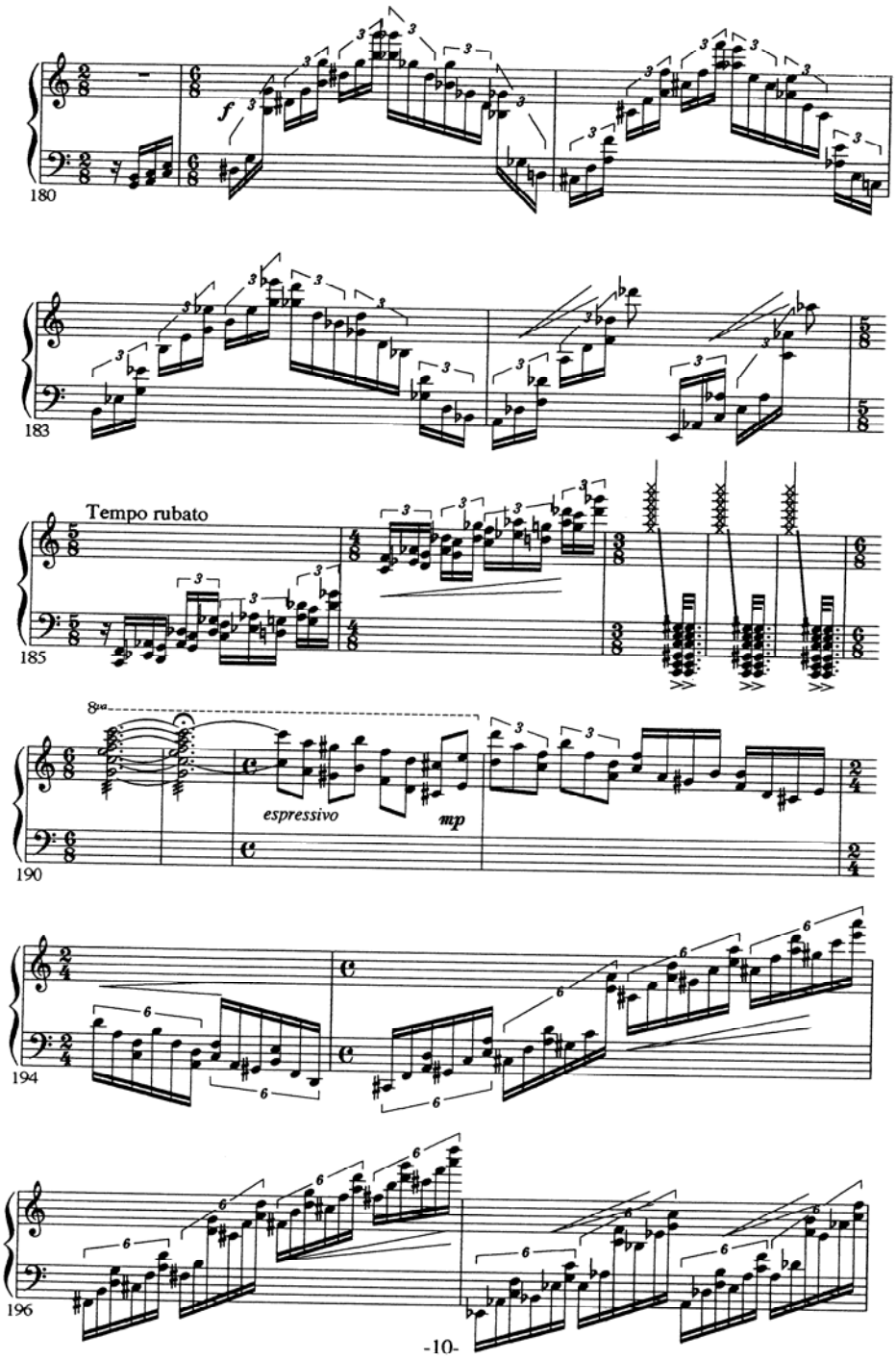
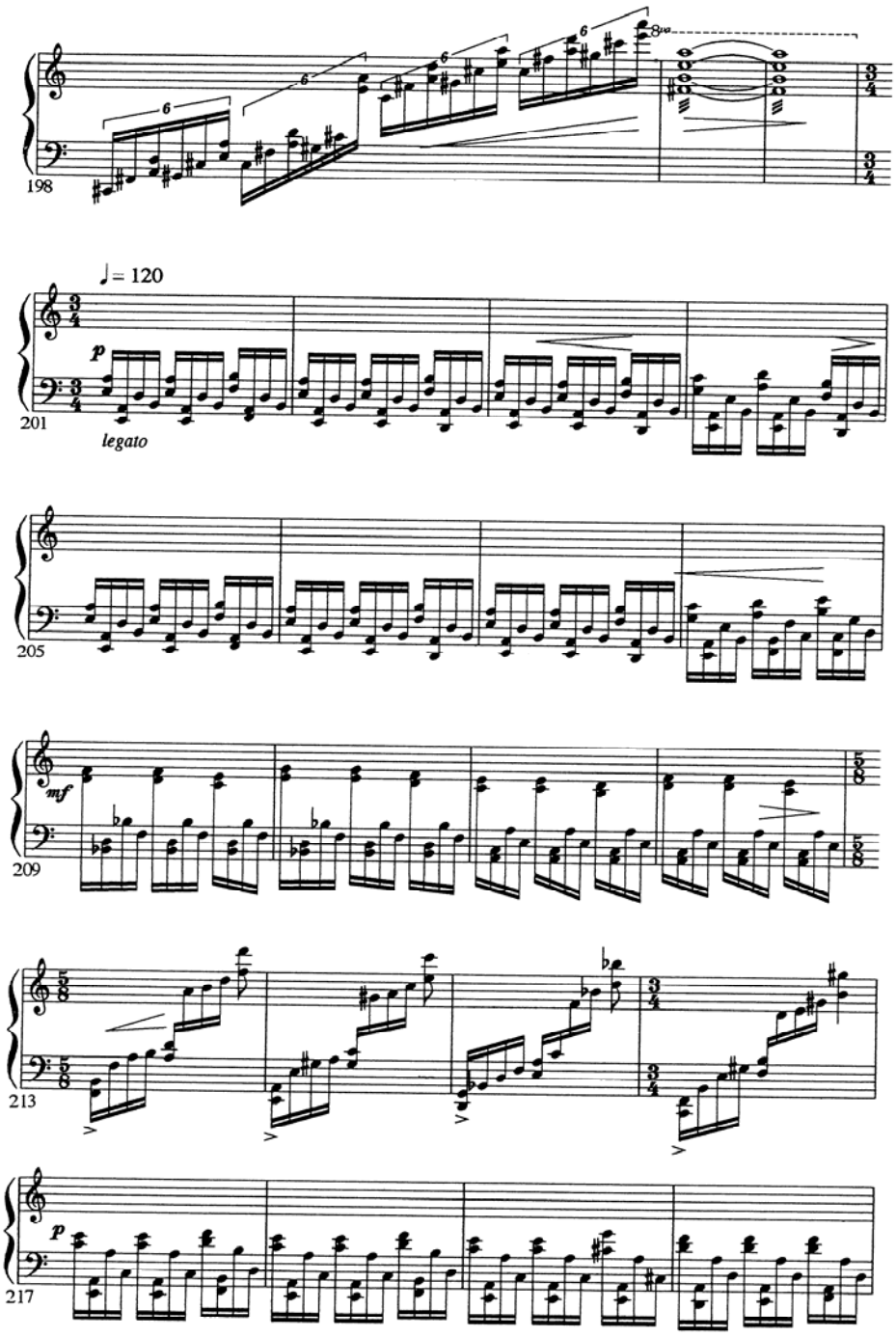

95
99
p
mf
103
f
108
sf
L.H.
L.H.
L.H.
111
L.H.
R.H.
L.H.
R.H.
R.H.
113
L.H.
R.H.
R.H.
L.H.

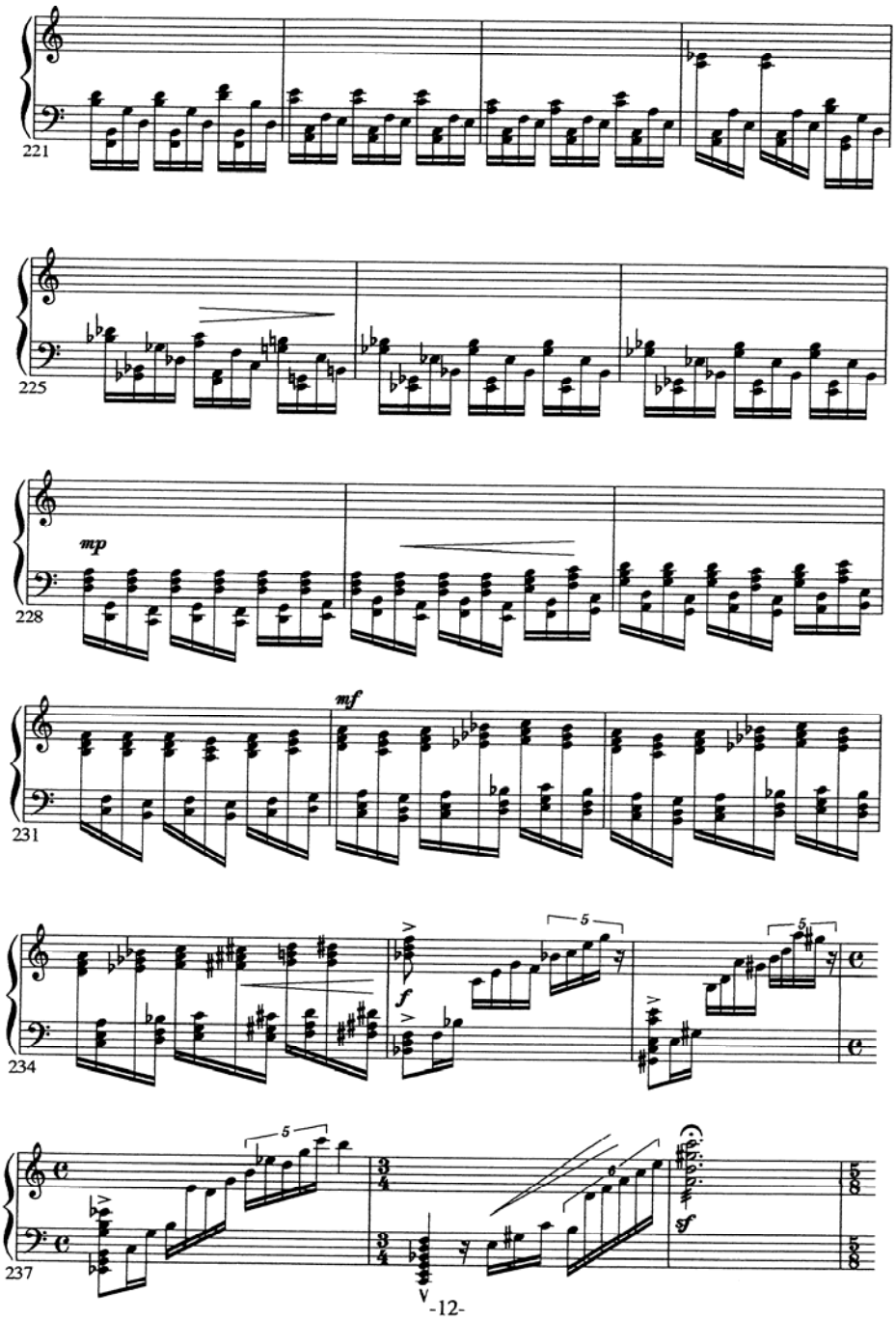

L.H.
115
117
119
mf
122
f
126
129
ff

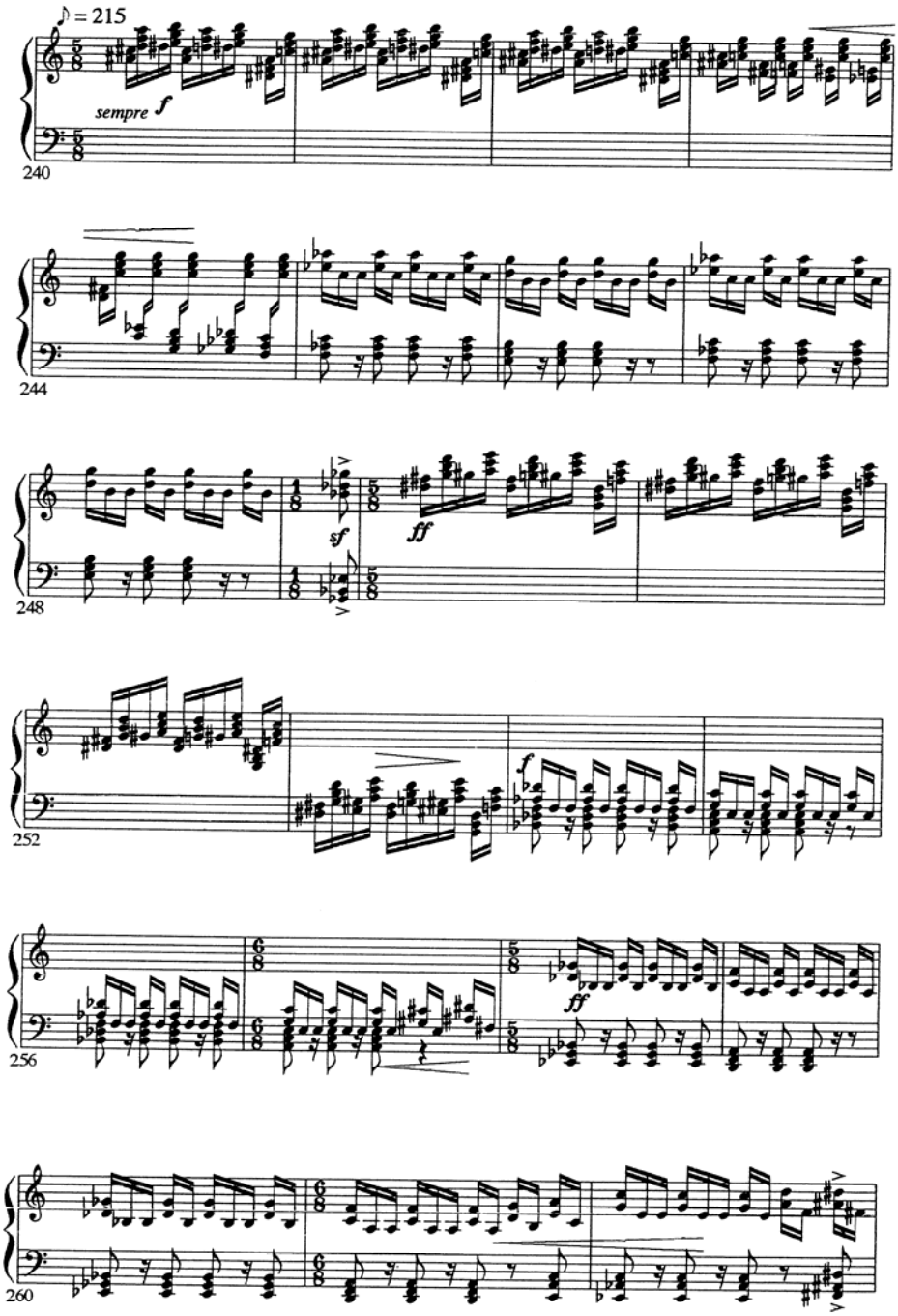

♪ = 120
mp espressivo
135
piu moso
mp
141
mf
p
mf
145
p
mf
149
rit.
fp
153
legato
mf
157

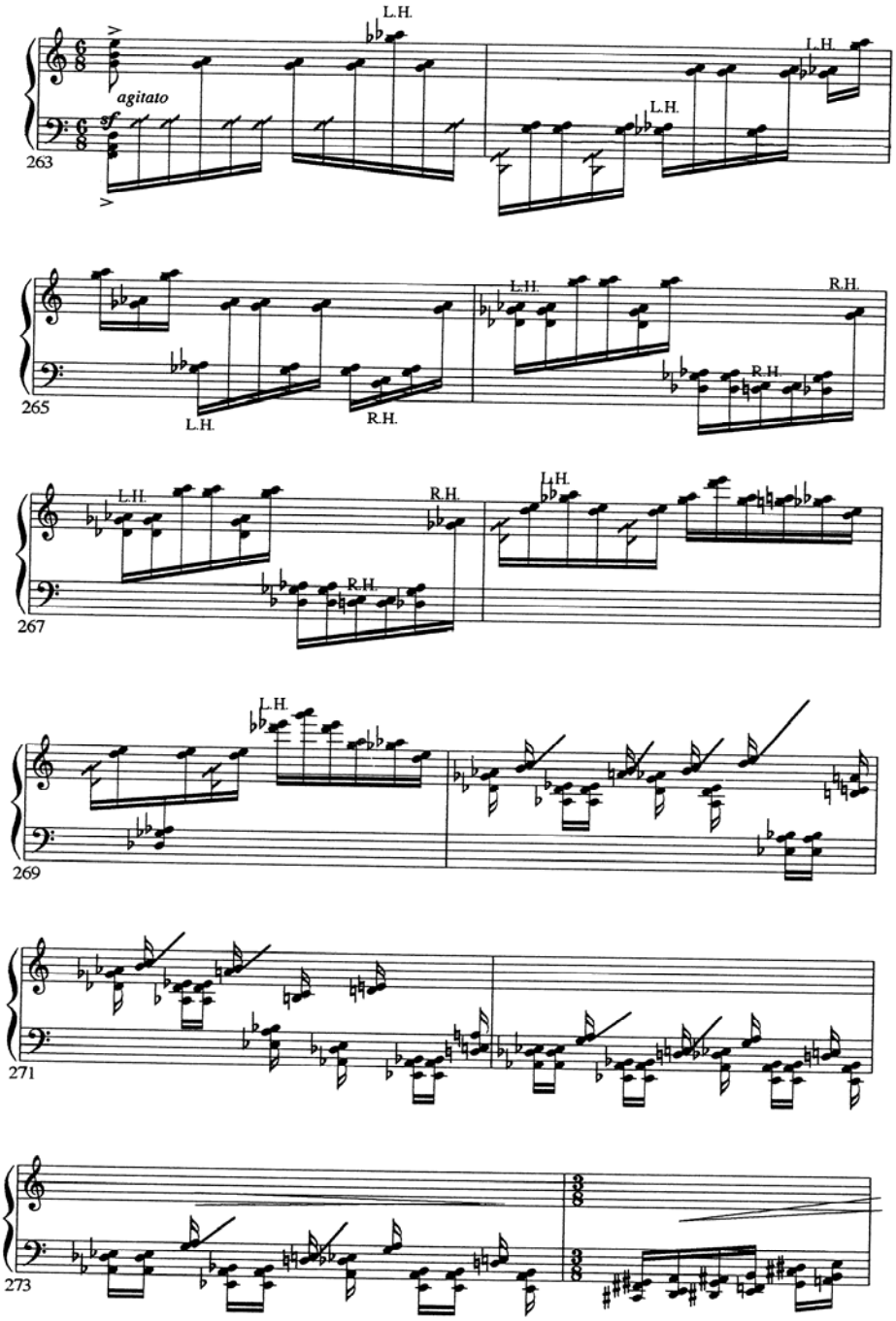

161
f
164
poco a poco dim.
168
p
♪=160
piu f
171
174
177

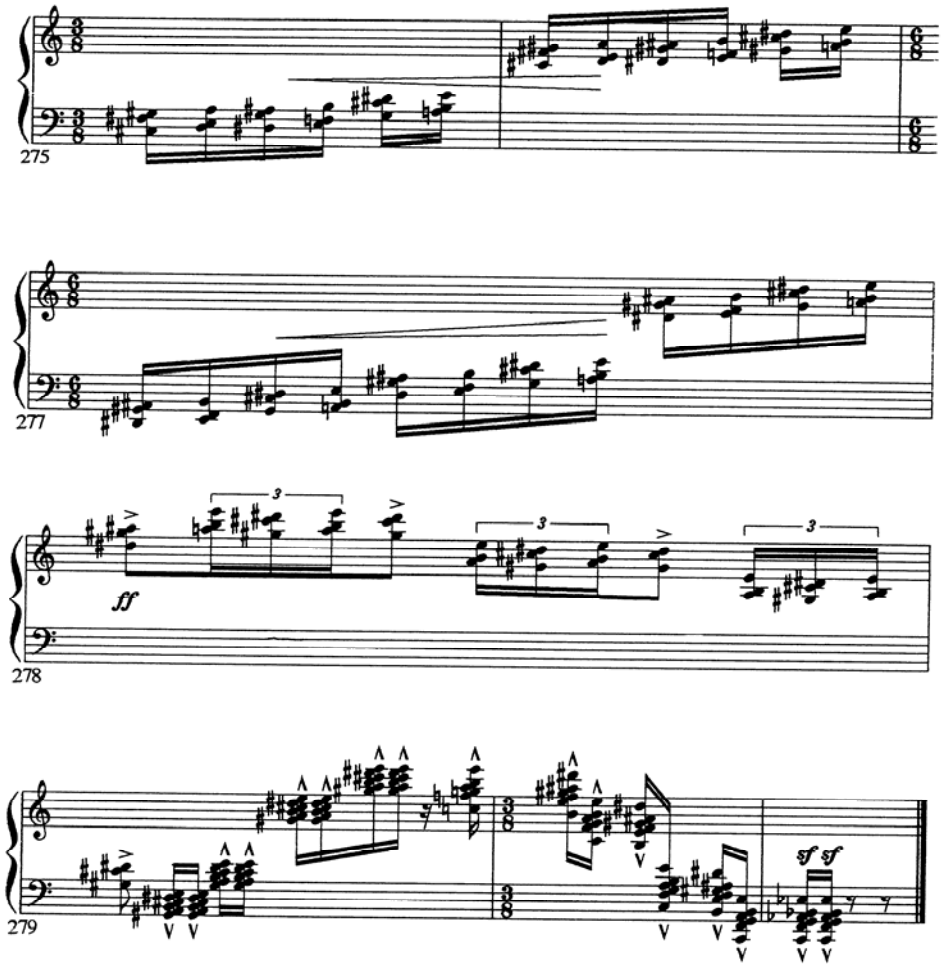

180
f
183
Tempo rubato
185
8va
espressivo
mp
190
194
196


198
♩= 120
p
201
legato
205
mf
209
213
p
217


221
225
mp
228
mf
231
f
234
5
5
5
6
sf
237


♪ = 215
sempre f
240
244
sf
ff
248
f
252
ff
256
260


L.H.
agitato
sf
263
L.H.
L.H.
265
L.H.
R.H.
R.H.
L.H.
267
R.H.
R.H.
L.H.
269
L.H.
271
273


275
277
ff
278
279
sf sf

APPENDIX C

BIOGRAPHY OF WAN-JEN HUANG[85]

Background

One of the talented new-generation composers in Taiwan, Wan-Jen Huang was born in Taichung City in 1970. She has exhibited her fondness and talent for music since she was a child. She studied piano with Prof. Li-Ying Huang and composition with Prof. Tseng, She received both bachelor's and master's degrees with distinction from the National Taiwan Normal University. Presently, she teaches music at Taichung's Stella Matutina Girls' High School. She devotes herself to music composition and has written chamber music works such as *People of the Right Side*, *Greed*, *Chasing*, *Construction*, *Overlap*, among others.

After many years of writing for percussion and working with percussionists such as Richard Jensen, Tzong-Ching Ju, Ya-Wen Lien, Herman Rieken, Jose Vincent, and Pei-Ching Wu, Huang has become versatile with the application of a variety of different percussion tone colors and has challenged the percussionist with innovative musical or technical possibilities for percussion music. She was commissioned by the Ju Percussion Group (JPG) to write *Flame Dance* for marimba solo with six mallets, which was given a world premiere by Pei-Ching Wu at the Taipei's National Concert Hall in 1995. Her percussion works have been played extensively by many percussionists and percussion groups. The percussion quintet *Adventure* commissioned by the JPG was premiered by

[85] Information provided by Wan-jen Huang.

the world renowned Amsterdam Percussion Group in the Taipei International Percussion Convention (TIPC) at Sun Yat-Sen Memorial Hall in 1996. It was well received by percussionists and audiences alike at the festival. In 1999 the same work was expanded as a septet and was performed by the Taipei Percussion. The JPG has also performed the piece at PASIC 2000 to critical acclaim.

Her music attempts to portray the emotions of the human being and the greatness of nature. These elements are evident in works such as *Adventure*. Her refreshing and creative styles as well as delicate composition techniques are quite well received by audiences in Taiwan and abroad.

Compositional Techniques and Concepts

Wan-Jen Huang uses different ideas and methods in approaching composition. This approach brings novelty to her work. Looking back at her 20-year career as a composer, Huang has experienced varied phases and levels of growth.

In her six-year middle school days, Huang studied with Mr. Chin-Yu Lin and immersed herself in composition-related subjects, building a solid foundation for music writing.

During her three-year post-graduate studies, she devoted herself to the research of the 20th century music. By the time Huang earned her master's degree in 1996, her works centered on the style of atonality and inconsonant intervals.

Huang began to include thoughts of serialism in her work after her compositions *Foggy Forrest* and *Snow* in 1997. Starting in 1998 Huang focused her endeavor on an opera, showing her beautiful and unique style of harmonies.

When Huang was composing the chamber works *Dance of Fairies* and *Sound Magic* in 2001, she was very fond of the interval of a third. She used a lot of seventh-chords and fused classical form, harmonies of Romanticism, musical types of Impressionism, special tone colors, and elements of improvisation associated with jazz. Huang has created new musical effects, leaving a distinctive mark on her career.

In 2003, she composed the percussion quartet *Escape the Boundary*. She employed massive instrumentation and looked for additional tone colors and musical effects, making a breakthrough in musical structure.

Huang is entering a natural and unassuming phase in 2004. Getting older and increasingly mature, she pursues down-to-earth, steady and ideal musical frontier. She hopes her works return to purity and delicacy inherent in music.

Critique on Wan-Jen Huang's Music

Wan-Jen Huang's works are characterized by strong personal and diverse styles. Delicate and imaginative, Huang's music is honest and natural, full of human emotions and irrepressible energy.

Huang composed the first marimba solo work, *Flame Dance* for her master's thesis, It was premiered by the well known percussionist Pei-Ching Wu to critical acclaim. Wu found the piece very musical, artistic and creative, opening a gateway to six-mallet marimba solo performances in Taiwan.

Huang's multiple percussion work *Adventure* received its premiere at the 1996 Taipei International Percussion Convention (TIPC). It was performed by the Amsterdam Percussion Group. It was an instant success. The ensemble's artistic director José Vicente

thought the work was inspiring and regarded Huang as a composer with great potential. Keiko Nakamura of Les Percussions de Strasbourg was also impressed by the work's sensitive musicality and quality of speaking for itself.

Music & Hi-Fi magazine characterized the recording of *Adventure* as meticulous and impactful, ideal for sound testing of hi-fi stereo by music lovers. Huang's mentor Chin-Yu Lin, upon listening to her marimba concerto work *Flame Dance*, spoke highly of her ingenuity. The famed pianist Yi-Ju Lai who performed her chamber work *Foggy Forest* praised her work as charming like telling a story.

Former chairwoman of Council for Cultural Affairs and the prominent pianist Yu-Hsiu Chen performed Huang's Taiwanese musical *Hope & Peace* and were impressed by the grace exhibited in the music. Chen immediately commissioned Huang to compose a series of works in commemoration of her deceased husband.

APPENDIX D

EXTENDED MULTIPLE MALLETS REPERTOIRE

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