BREAKING THE SOUND BARRIERS: EXTENDED TECHNIQUES AND
NEW TIMBRES FOR THE DEVELOPING VIOLIST

by

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Abstract

There was a drastic shift in the aesthetics of music from the twentieth century, and this placed new performance demands on musicians. These technical and expressive demands often include extended techniques, which are methods for producing novel timbres. This study undertakes an examination of these extended techniques on the viola. It is necessary for the modern violist to be familiar with extended techniques, but they are not part of standard training on the instrument, as the majority of the standard etudes come from the eighteenth and nineteenth centuries and do not address modern technical challenges. Because contemporary pedagogical literature is scarce for the viola and few etudes address extended techniques, six etudes have been commissioned as a practical application for this project. These etudes help to introduce and refine facility with extended techniques for students at an intermediate level.

Extended techniques are often learned when a student is advanced, but they can and should be taught to younger students. The techniques are sometimes thought of as being unusual or challenging, but they are based on fundamental techniques and can contribute to and improve overall technical and musical abilities. This project begins with an introduction and a literature review, followed by the third chapter which provides a context for extended techniques with a brief history of the instrument and its pedagogy. The fourth chapter explores various extended techniques, the fifth chapter discusses the commissioned etudes, and the conclusion reiterates the importance of learning extended techniques.
Lay Summary

Music is the art of sound, and it is an art that is always changing. A change in aesthetics in the music of the twentieth century made new expressive and technical demands on performers, and this music often uses extended techniques, which are unconventional ways of playing an instrument that produce novel timbres. It is essential for the modern violist to be familiar with extended techniques, but they are often not addressed during formative training because the majority of educational materials come from the eighteenth and nineteenth centuries. Extended techniques are useful for students to learn because in addition to expanding a student’s range of technical abilities, the techniques can also improve general facility on the instrument while encouraging imagination and expanding expressive possibilities. This project is an exploration of extended techniques and includes six commissioned etudes that demonstrate how these techniques can be incorporated into any curriculum.
Preface

This dissertation is an original, unpublished, independent work by the author, Sarah Kwok. Six original compositions were contributed by Christopher Gainey, Adam Hill, Glenn James, John Kastelic, Aaron J. Kirschner, and Zach Zubow. These compositions can be found in Appendix A and are included with permission of the composers. Interviews were conducted in accordance with the UBC Behavioural Research Ethics Board, certificate number H14-00157.
Table of Contents

Abstract ........................................................................................................................................ iii
Lay Summary ............................................................................................................................ iv
Preface .......................................................................................................................................... v
Table of Contents ....................................................................................................................... vi
Acknowledgements .................................................................................................................... ix
Chapter 1: Introduction .............................................................................................................. 1
Chapter 2: Literature Review ...................................................................................................... 7
  2.1 History ................................................................................................................................. 8
  2.2 Pedagogy and Etudes ......................................................................................................... 9
  2.3 Towards a New Pedagogy .................................................................................................. 15
Chapter 3: History and Pedagogy ............................................................................................. 20
  3.1 The 16\textsuperscript{th} and 17\textsuperscript{th} Centuries .............................................................. 21
  3.2 The 18\textsuperscript{th} and 19\textsuperscript{th} Centuries .................................................................. 26
    3.2.1 The Instrument ........................................................................................................... 26
    3.2.2 The Bow ..................................................................................................................... 28
  3.3 The 20\textsuperscript{th} Century ............................................................................................... 31
  3.4 Pedagogy ........................................................................................................................... 34
Chapter 4: Extended Techniques ............................................................................................... 40
  4.1 Left Hand Techniques ....................................................................................................... 47
    4.1.1 Left Hand Pizzicato ................................................................................................. 47
    4.1.2 Harmonics ............................................................................................................... 51
Appendix B Composer Biographies ................................................................................. 130

B.1 Christopher Gainey ............................................................................................ 130
B.2 Adam Hill ........................................................................................................... 130
B.3 Glenn James ........................................................................................................ 131
B.4 John Kastelic ..................................................................................................... 131
B.5 Aaron J. Kirschner ............................................................................................ 132
B.6 Zach Zubow ...................................................................................................... 133

Appendix C Interviewee Biographies ........................................................................... 134

C.1 Christophe Desjardins ....................................................................................... 134
C.2 Hank Dutt ........................................................................................................ 135
C.3 Anne Etevenon .................................................................................................. 135
C.4 Ramiro Gallo .................................................................................................... 136
C.5 Garth Knox ....................................................................................................... 136
C.6 Michel Michalakakos ....................................................................................... 138
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To everyone that I interviewed and the composers that contributed new compositions, it is because of your knowledge, creativity, and time that this project exists.

To my friends who supported me tremendously, with very special thanks to Bettina Stumm, whose friendship, experience and encouragement constantly and consistently helped me to keep moving forward, and Heyni Solera, who gave me an extra push when it was needed. To my family, who truly helped me get through this, I can never say thank you enough. And to God, for making all things possible.
Chapter 1: Introduction

Music is an art that constantly transforms itself, and the twentieth century saw many musical concepts expanded, created, explored, deconstructed, or altogether abandoned. Combined with significant advances in technology, this led to compositions that challenge ideas of what music could be. Several schools or movements resulted from this, such as Brutalism, Musique Concrète, Elektronische Musik, Spectralism, and Complexity. Many of these approaches have strikingly different perspectives from those that came before them, and their expressive purposes place new demands on performers. These demands challenge players with expanded harmonic and rhythmic requirements and – most relevant to this document – diverse timbres, often accomplished through the use of extended techniques. These timbres veer far away from those called for in eighteenth and nineteenth century compositions, so players must change their technique in order to properly execute them and produce the desired colours. Although there are new technical demands for the performer, the standard pedagogy that readies the performer for a career has not been adapted to include training on these techniques, leaving the performer unprepared as they grapple with unfamiliar techniques. While extended techniques may seem foreign or unusual, they are based on traditional techniques and are more often than not simply a technique that is pushed to the extreme, or ‘extended’ beyond what is normally required. These extended techniques and the importance of teaching them to students are the focus of this paper.
What exactly is an extended technique? This question can have numerous answers,¹ but the term is most commonly used to refer to “an unconventional technique of playing a musical instrument.”² For the purposes of this paper, I define an extended technique as an instrumental technique that is not part of the traditional manner of playing an instrument (in this specific case, a viola), executed by physical action on the instrument with the purpose of creating a specific timbre. Extended techniques are “non-traditional” hand and/or finger motions or postures that affect the sound produced by the instrument. They do not include elements of harmony and rhythm because while different tonalities and complicated rhythms require certain kinds of knowledge, they do not require new physical skills. For example, microtones are not extended techniques because the process of playing a microtone is the same process required to play any note, as the adjustments necessary to play a microtone are identical to those necessary to play with good intonation. It is a matter of knowing where the note should be “pitch-wise” and then producing that note, rather than changing the manner in which that note is played. For rhythm, constantly shifting meters or complicated note groupings do not affect the technique on an instrument; it is only the moment and duration for which the technique is used which changes. This definition also indicates that external objects are excluded from being extended techniques. For example, using a prepared piano is not an extended technique, because it is the piano itself which is altered, not the technique used to play it. Similarly, amplification is not an extended

¹ Ramiro Gallo remarked that extended techniques are a matter of timbre, Michel Michalakakos and Christophe Desjardins said that they come from an evolution of instrumental technique and the desire to always be pushing boundaries, and Anne Etévenon answered that extended techniques mean freedom, in the sense that there are more opportunities for personal expression. From interviews with Ramiro Gallo on June 28, 2014; Michel Michalakakos on May 1, 2014; Christophe Desjardins on June 19, 2014; and Anne Etévenon on June 3, 2014.

² Reiko Ishii, “The Development of Extended Piano Techniques in Twentieth-Century American Music” (DMA diss., Florida State University, 2005), 1, ProQuest (304996511).
technique: although it affects the timbre of the resulting sound, the change is due to an external source, rather than something done by the performer. This definition also excludes actions such as whistling or singing while playing because they do not involve the instrument and therefore are not instrumental techniques. Note that while I indicate these techniques as “non-traditional,” the majority of them are not actually new, and likely have existed for as long as the instrument has. The growing focus on instrumental timbre during the twentieth century meant that the use of these techniques became more prevalent. Despite this, viola pedagogy has not kept up with the demands of certain styles of contemporary music, resulting in a disconnect between what is taught in the studio, and what might be demanded in contemporary repertoire.

Extended techniques affect timbre, and timbre is both “tone colour” and the sound quality that differentiates one type of instrument or voice from another.³ It is directly related to the spectral components of a sound in terms of the frequencies present and the manner in which they appear. It has always been a key element of music, but during the twentieth century there was an increasing focus on using it as a compositional element. In the two and a half centuries prior, sometimes known as the Common Practice Period (CPP), much of the music sought to have a beauty and evenness of tone, and it was during this time that the fundamentals of string playing were established. However, composers in the twentieth century started experimenting with timbre, agreeing that it was now of primary importance.⁴ The painter Wassily Kandinsky believed that “color makes a more insidious attack on the emotions than form” and in a parallel


manner composers have applied this belief to timbre. Charles Libove stated that “sound cannot be indiscriminately applied, like a specific colour of paint, to everything that has notes. It must ‘bespeak’ the feeling.” This new interest in timbre meant that performers were asked to produce new sounds. Composers were well-versed in traditional instrumental and vocal timbres, but wished to expand the available timbral resources in order to explore new musical emotions, structures, and forms. By working with performers in exploring non-traditional performance methods (for both instrumental and vocal music) composers were able to develop and use new sonic resources. These non-traditional performance methods often entail extended techniques – they require the performer to go beyond or extend their foundational technique in order to create the desired timbres.

This is not a new approach or attitude, as artists are always pushing limits and extended techniques are a part of that – they take a technique and push it beyond its boundaries. If viewed as a continuum, the traditional technique would be in the centre and as it is pushed to either extreme it ‘extends’ its boundaries and becomes an extended technique. For example, the viola is normally played with the bow hair making contact with the string, but what if the bow was turned in the hand, to an extreme extent? The stick would then make contact with the string, and playing in such a way would be using the technique of col legno. Another example would be changing the contact point where the bow usually touches the string. The contact point is usually midway between the bridge and fingerboard but ‘extending’ this and moving towards the fingerboard or towards the bridge would first lead the player to play sul tasto or sul ponticello,

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5 Ibid., ix.

and then – pushing the concept of contact point further – would result in playing beyond the bridge (sub ponticello), on the tailpiece, on the tuning pegs, or even on the outer edges of the body of the instrument.

It is essential for the modern violist to be familiar with these techniques. The viola does not have the same tradition that the violin does, for it was not until the twentieth century that it was recognized as a solo instrument. Because of their different timbres, sound is one of the key factors in what differentiates the violin from the viola, so it is especially important for the violist to know how to manipulate and control the instrument’s sound. Experimenting with different ways of playing the instrument is easier during formative years, when technique is still malleable, than it is later on when a violist’s technique is already established. Very little solo viola repertoire exists in the Baroque, Classical, and Romantic eras, but a great deal of music was written for the viola starting in the twentieth century. As such, it is focal repertoire for the instrument, and is music with which the violist should be comfortable, whether or not it requires extended techniques. The inspiration for this project comes from my own experiences with extended techniques, as they initially baffled me. For students, mastering these techniques encourages them to be more creative, versatile, and aware, and some techniques can even be taught right from the very moment that the student first picks up the instrument.\(^7\)

This project examines extended techniques in detail, including their history, usage, and pedagogy. I intend to demonstrate ways in which they can be incorporated into learning with the help of six commissioned etudes, which contribute to a pedagogical literature that is lacking in works addressing extended techniques. The second chapter is a literature review, and the third

\(^7\) For example, Michel Michalakakos suggests that students can be taught col legno when first learning to hold the bow. From an interview on May 1, 2014.
chapter examines how standard technique developed on string instruments, and briefly examines the history of its pedagogy. The fourth chapter focusses specifically on extended techniques, delving into matters of usage, execution, and pedagogy, and the fifth chapter discusses the extended technique etudes that were commissioned for this project. The document concludes with a summary and an examination of the benefits of learning extended techniques and the importance of being open to new music.
Chapter 2: Literature Review

As mentioned in the introduction, this project came about when I realized that my training was lacking with regard to certain techniques that occur in contemporary music. My experiences are not unique, as a similar frustration over lack of knowledge and familiarity with these techniques has led a number of others to address this topic as well. Many have recognized and written that there is a need for a pedagogy better adapted to the demands of contemporary compositions to better prepare students to play a variety of musical styles. Literature about this topic written with the modern performer in mind tends to focus on aspects of harmony and rhythm, and extended techniques are not given much attention. Additionally, the majority of authors state that extended techniques should be taught to advanced and college-level students. However, it is possible to teach them to younger students to great benefit. Within such pedagogies it is also rare to have extended techniques examined in terms of how they relate to timbre.

The research consulted for this project can be separated into three broad categories: 1) literature tracing the history of the violin and viola; 2) literature about pedagogy and etudes; and 3) literature concerning extended techniques and/or the need for a more current pedagogy. It should be noted that the majority of the literature concerns the violin as not much has been written specifically about the viola, but the viola’s history parallels that of the violin and it developed in a similar manner.

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8 For example, see dissertations by Kenneth Sarch, Minor Wetzel, Molly Gebrian, and Emily Jensenius.
2.1 History

In order to better understand extended techniques and how they create timbres outside of what is traditional or expected of the instrument, it is necessary to establish what is considered to be traditional. The development of the instruments in the string family gives insights into the relationships between technique, pedagogy, timbre, and the function of music. There are many books that chronicle the history of the violin and viola and the following were reviewed for this project: Maurice Riley’s *History of the Viola*; David Boyden’s *The History of Violin from its Origins to 1761*; *The Early Violin and Viola*, Violin Technique and Performance Practice in the Late Eighteenth and Early Nineteenth Centuries, and *The Cambridge Companion to the Violin* by Robin Stowell; Sheila Nelson’s *The Violin and Viola*; and *The Amadeus Book of the Violin* by Walter Kolneder. Research has also been conducted on more specific aspects of the development of the violin: the development of the bow and bowing technique in the eighteenth and nineteenth centuries were explored in dissertations by Pepina Dell’Olio and Dallin Richard Hansen, with the former concentrating on the construction of the bow and the latter examining

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off-the-string bowing.\textsuperscript{16} \textsuperscript{17} Domagoj Ivanović looked at the history of virtuosity on the violin and how this related to the development of the instrument and technique.\textsuperscript{18} An annotated bibliography of viola source materials is available in a dissertation by Christine Ann Johnson.\textsuperscript{19}

2.2 Pedagogy and Etudes

Pedagogy is a crucial part of the history and evolution of any instrument, and etudes are a fundamental part of pedagogy as they provide a practical application for solidifying pedagogical ideas. Until a canon of etudes and exercises was established in the eighteenth century, teachers composed their own materials or used repertoire as study material. The higher technical standards of modern players are partly due to the wealth of technical pedagogical compositions.\textsuperscript{20}

Early treatises on the violin and viola included: \textit{The Art of Playing on the Violin} (1751) by Francesco Geminiani;\textsuperscript{21} \textit{A Treatise on the Fundamental Principles of Violin Playing} (1756) by Leopold Mozart;\textsuperscript{22} L’abbé le fils \textit{Principes du Violon} (1761);\textsuperscript{23} and Michel Corrette’s \textit{L’Art de se

\textsuperscript{16} Pepina Dell’Olio, “Violin Bow Construction and its Influence on Bowing Technique in the Eighteenth and Nineteenth Centuries” (DMA diss., Florida State University, 2009).

\textsuperscript{17} Dallin Richard Hansen “The Bouncing Bow: A Historical Examination of “Off-the-string” Violin Bowing, 1751-1834” (DMA diss., Arizona State University, 2009), ProQuest (304827946).

\textsuperscript{18} Domagoj Ivanović, “Development of Violin Virtuosity from the Baroque Period to the Modern Era” (DMA diss., University of Miami, 2006), ProQuest (305304051).


Perfectionner dans le Violon (1782). The Méthode de Violon (1803) by Pierre Baillot, Rudolphe Kreutzer, and Pierre Rode was the first complete method for the instrument and other notable nineteenth century treatises included Louis Spohr’s Violinschule (1832) and another treatise by Pierre Baillot, The Art of the Violin (1834). The twentieth century also saw a wealth of teaching approaches, with the most influential being The Art of Violin Playing (1924) by Carl Flesch; Violin playing as I teach it (1960) by Leopold Auer; A New Approach to Violin Playing (1961) by Kato Havas; Principles of Violin Playing and Teaching (1962) by Ivan Galamian; Nurtured by Love (1969) by Shinichi Suzuki; and The Teaching of Action in String Playing (1974) by Paul Rolland. There are also numerous books that are more focused on a particular aspect in string playing, such as Sol Babitz’s Principles of Extensions in Violin Fingering (1947); Robert Jacoby’s Violin Technique: A Practical Analysis for Performers

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24 Corrette, Michel, L’Art de se Perfectionner dans le Violon (Genève: Minkoff Reprint, 1972).
25 Pierre Marie François de Sales Baillot, Pierre Rode, and Rodolphe Kreutzer, Méthode de Violon (Genève: Minkoff Reprint, 1974).
The viola did not have a separate pedagogy from the violin until the end of the nineteenth century, when a viola class was established in 1894 at the Paris Conservatoire. The creation of this class is investigated in a dissertation by Peter Neubert. Since then, pedagogical works specifically for the viola include Robert Dolejši’s Modern Viola Technique (1939) and The Viola: Complete Guide for Teachers and Students (1972) by Henry Barrett.

There are many different ways to learn to play the viola/violin, and the methods vary on a number of issues. Research comparing pedagogues can be found in the dissertations of Hsuan Lee, Gwendolyn Masin, Marianne Perkins, and Theodore Schlosberg. These look at how

40 Peter Neubert, “The Development of Viola Instruction at the Paris Conservatoire During the Nineteenth Century and the Evolution of an Idiomatic Style of Writing for the Viola as Seen Through the Music of the Viola Concours, 1896-1918” (DMA diss., University of Kentucky, 2004), ProQuest (305177163).
to approach violin/viola pedagogy from the very beginning in order to set up a student for
technical success, using concepts from various pedagogues. However, they have found that
because of the vastly different approaches, it is not possible to come up with a unified pedagogy
that encompasses all of the different schools of thought. There are also dissertations that employ
the concepts of these pedagogues in order to fix a particular problem: Matson Topper was
concerned with the bow hold and motion of the right hand and Kirk Moss examined exercises
pertaining to sound production, with the aim of discovering what could be adapted for a high
school string class to promote a higher level of music-making. The exercises worked on right
hand flexibility, a focused tone, and variations in bow speed.

Although it requires a slightly different technique, the viola continues to rely heavily on
violin pedagogy. The differences in technique between the two instruments are explored in a
dissertation by Sophie Parker, who conducted a survey covering the topics of switching from
violin to viola, technique, pedagogy, repertoire and etudes, and mentors. Aaron Au also
researched the issue, with his writing concentrating on the logistics of transitioning from the
violin to the viola. His project was fueled by a realization that most violists are not fully aware
of the sound potential of the instrument and Au’s work is meant to help remedy that. He also

47 Matson Alan Topper, “Correcting the Right Hand Bow Position for the Student Violinist and Violist” (DM diss., The Florida State University, 2002), ProQuest (305572907).
49 Sophie Elizabeth Parker, “A Survey of Viola Teachers’ Perceptions of Viola Pedagogy” (DMA diss., University of Houston, 2014), ProQuest (1647387763).
50 Aaron Jonathan Au, “From Violin to Viola: A Discovery in Sound and Technique” (DMA diss., University of Alberta, 2007), ProQuest (304793872).
points out that pedagogy on the viola is not as fully developed as it is on the violin. There are also viola pedagogues who have been influential but have not published any methods, such as Heidi Castleman, Robert Vernon, and Karen Tuttle, whose influence on modern viola playing is explored by Matthew Dane. Laurens Burns’ dissertation compares Tuttle’s pedagogy with that of Paul Rolland. Lionel Tertis arranged the violin studies by Otakar Ševčik and numerous solo and chamber works in addition to two biographical books, Cinderella No More (1953) and My Viola and I (1991). William Primrose wrote The Art and Practice of Scale Playing on the Viola (1954), Technique is Memory: A method for violin and viola players based on finger patterns (1960), and Walk on the North Side: Memoirs of a Violist (1978) in addition to arranging and editing various solo and chamber works and Bartolomeo Campagnoli’s 41 Caprices.

Pedagogy is usually grounded in etudes, the purpose of which are to help a student gain technical facility within a musical context, and etudes reflect the particular musical and tonal practices of the time. Violin etudes that are often used include those by Federigo Fiorillo (1790), Rodolphe Kreutzer (1799), Pierre Gaviniès (~1800), Pierre Rode (1813), Pietro Rovelli (1820/22), Niccolò Paganini (1820), Jacques Féréol Mazas (1843), Jakob Dont (1849), Henri

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51 Matthew Dane, “Coordinated Effort: A Study of Karen Tuttle’s Influence on Modern Viola Teaching” (DMA diss., Rice University, 2002), ProQuest (276344483).
Wieniawski (1854), Charles Dancla (~1870), Otakar Ševčik (1881/95/1904/5), Eugène Sauzay (1889), and Henry Schradieck (~1900). Many of these are borrowed and transcribed for use on the viola, and etudes written specifically for the viola include those by Franz Anton Hoffmeister (c.1800), Bartolomeo Campagnoli (1805), and Antonio Bartolomeo Bruni (1805). Examining these etudes reveals what was deemed important to learn on the instrument at that time, and there are several dissertations that discuss these etudes, especially in regard to their usefulness on the viola. Nicholas Jeffery looked at how the etudes by Paganini can help develop technical facility on the viola, and Barbara Beechey and Ulisses Da Silva wrote guides to finding suitable etudes for common technical problems. Melissa Castledine examined the value and benefits of etudes for technical development, and Steven Kruse examined the evolution of the viola and the pedagogical materials available for players from 1780-1860.

These dissertations concentrate mostly on etudes written in the 18th and 19th centuries, and the etudes themselves are concerned with building facility in the left hand. Challenges in the right hand include smooth bow changes, various strokes and articulations, and string crossings; all of these contribute to the search for an “endless bow” and an even tone, but do not allow the player to explore much in the way of tone production or timbre. However, the authors did note

62 Steven Lewis Kruse, “The Viola School of Technique: Etudes and Methods Written Between 1780 and 1860” (DMA diss., Ball State University, 1985), Proquest (303387189).
that studies written for the viola place more emphasis on tone development and unusual fingerings and positions than those written for the violin; studies for the violin tend to be more technical while those for the viola are more concerned with tone and the quality of music. Many contemporary etudes and treatises are occupied with the left hand and new finger patterns required by music during and after the twentieth century, but in continuing to ignore the demands that timbral production places on the right hand they are simply a continuation of the etudes that were written a century before. A truly contemporary pedagogy would include challenges and solutions for exploring timbre through the use of extended techniques.

2.3 Towards a New Pedagogy

Gardner Read’s *Contemporary Instrumental Techniques*\(^6^3\) and *The Contemporary Violin: Extended Performance Techniques*\(^6^4\) by Patricia and Allen Strange both catalogue numerous extended techniques with examples from repertoire, demonstrating how these techniques are now an integral part of modern music. Additionally, Molly Gebrian examined what is necessary to prepare violists for the challenges of twentieth-century music.\(^6^6\) It is rare to find contemporary violin etudes transcribed for the viola, but there are several collections for the viola that include extended techniques. Anne Etevenon’s *Harold et moi* is a book of four pedagogical pieces,

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\(^6^3\) Read, *Contemporary Instrumental Techniques*.


\(^6^6\) Molly Adams Gebrian, “Rethinking Viola Pedagogy: Preparing Violists for the Challenges of Twentieth-Century Music” (DMA diss., Rice University, 2012), ProQuest (1468462583).
meant for introducing beginner students to contemporary music, and Garth Knox’s well-known *Viola Spaces* has eight etudes, with each etude focusing on a single extended technique.

*Contemporary Etudes and Solos for the Viola* has six works by different twentieth-century composers and *Pro Musica Nova: Studies for Playing Contemporary Music for Viola* consists of excerpts from the works of eleven different composers. Emily Jensenius has written an annotated bibliography of contemporary viola works.

There is general consensus that the twentieth-century viola etude literature is sparse, and that contemporary etudes do not benefit from the recognition that comes with a long history of use in the way that the standard etude books of the eighteenth and nineteenth centuries do. In comparison with previous centuries, few etudes have been written in the twentieth century. This may be because of the reluctance of contemporary composers to write in this genre and the dependence by violinists and teachers on study material from the past. Walter Kolneder stated that “Much remains to be done in adapting the teaching of violin technique to the requirements

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of twentieth-century music. The “Kreutzer etudes” for our time have yet to be written!”

However, this opinion is not universal and Michael Buckles argues in his dissertation that it is not a lack of etudes that is the problem, but a lack of recognition of the etudes that exist. He uses Samuel Adler’s Meadowmount etudes, Freeman Studies by John Cage, Studies for Violinists by Paul Hindemith, Rhythmic Studies by Bohuslav Martinů, and Ten Preludes by Eugène Ysaÿe as examples. However, the only one of these that explores different timbres is Cage’s work, and Cage made the music as difficult as he could so that it could only be played by an advanced performer who is probably already familiar with the idioms of contemporary music.

Brenda Van der Merwe also wrote about contemporary works that could serve pedagogical purposes, but like Buckles, has chosen advanced works which are difficult for those not familiar with new music. Aaron Farrell points performers towards studies that will help them to prepare for twentieth century compositions by creating a partial catalogue of etudes related to this repertoire, but most of his focus is on the workings of the left hand.

The lack of appropriate etudes has been recognized as a problem and a number of scholars and performers have tried to remedy this with new etudes. In 1958, Willard Walters was the first to look at what was required by the performer of contemporary music with his dissertation “Technical Problems in Modern Violin Music as Found in Selected Concertos, with

76 Buckles, “A Structured Content Analysis.”
77 Ibid., 13.
Related Original Exercises and Études\textsuperscript{80} which included etudes, although these still placed a lot of attention on the left hand. This was followed in 1962 with a thesis by Charles Ashley,\textsuperscript{81} who noted that a number of the challenges that he faced with twentieth century music were due not to the difficult nature of the music but to the fact that the music seemed so foreign in comparison to what he had learned in his fundamental training.\textsuperscript{82} His project contains ten exercises and five caprices. However, Ashley believes that the only new major technical problems for the violin in modern music come from pitch. He states that there are four attributes of musical sound, and that timbre is just a function of the instrument.\textsuperscript{83} So again, it is mostly technicalities with the left hand that are being addressed. Chika Robertson wrote a detailed guide to many contemporary techniques, complete with exercises, but it is written for the advanced pupil or young professional because it is believed that they will benefit the most from learning the techniques.\textsuperscript{84} Minor Wetzel looked at the musical and technical gap that exists between the viola etudes and repertoire, noting that the former is insufficient to prepare for the latter.\textsuperscript{85} This is highlighted using Bartok's viola concerto as an example and he suggests practical ways to approach the concerto. He also commissioned three etudes to tackle specific techniques required in the

\textsuperscript{80} Willard Gibson Walters, “Technical Problems in Modern Violin Music as Found in Selected Concertos, with Related Original Exercises and Études” (PhD diss., State University of Iowa, 1958), ProQuest (301898554).

\textsuperscript{81} Charles Norman Ashley, “The Composition of Fundamental Exercises for Violin in Representative Idioms of the Twentieth Century” (MA Thesis, Ball State Teachers College, 1962).

\textsuperscript{82} Ibid., 2.

\textsuperscript{83} Ibid., 7. In addition to pitch and timbre, the other two attributes are duration, which is a function of the time that the string vibrates, and amplitude, a function of the speed and pressure of the bow.


\textsuperscript{85} Minor Lewis Wetzel, “A Better Bartok – Dilemmas and Solutions in Performing Bartok's Viola Concerto” (DMA diss., University of California Los Angeles, 2010), ProQuest (251096365).
concerto that traditional etudes do not address. While Bartok's sound world is complex, much of this does not include extended techniques, and these etudes are at the same level of difficulty as the concerto, so an advanced level of technique would already be required to play them. There is still a need for etudes who teach contemporary music to those that do not already know how to play contemporary music, and the music and its demands need to be more accessible. It is for this reason that this project commissioned six new etudes by Christopher Gainey, Adam Hill, Glenn James, John Kastelic, Aaron J. Kirschner, and Zach Zubow. These works help to fill out the sparse pedagogical literature, and compositions that help with the transition between first position and an advanced level are needed and important.  

In addition to the aforementioned literature, research also included interviews with musicians who are fully immersed in modern music and its idioms. Hour-long interviews were done either live or via Skype, and each of those interviewed is well known for his or her excellence in performance skills, knowledge of pedagogy, and familiarity with extended techniques. Interviews were conducted with Christophe Desjardins, Hank Dutt, Anne Etevenon, Ramiro Gallo, Garth Knox, and Michel Michalakakos.  

87 Interviews took place between May 2014 and February 2016.
Chapter 3: History and Pedagogy

In order to better understand extended techniques and why they are considered to be unconventional, it is necessary to take a brief look into the traditions of the instrument. All instruments have idiomatic characteristics in terms of how they sound, and one of the definitions of timbre is that it is what distinguishes the quality of tone of one instrument from another (i.e. a flute from a clarinet). Timbre is part of an instrument’s identity, and the timbre of an instrument alone can be salient enough to convey emotion. The way that an instrument sounds, and any expectations of how it should sound, comes from a myriad of factors, including the composer, the performer, and the instrument maker, all of whom have developed and contributed to the evolution of music in their own way. The roles of the three are deeply intertwined as “what the composer, the violinist, and the violin maker did as individuals depended on the efforts, capabilities, and demands of each other,” and there have been changes to compositions, playing techniques, and existing instruments for every type and period of music. Boyden points out that “what the violin sounded like at any given time is a function of the character of the violin, bow, and bow pressure as influencing the strings’ response.”

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88 Campbell, “Timbre (i).”
89 Julia C. Hailstone, Rohani Omar, Susie M. D. Henley, Chris Frost, Michael G. Kenward, and Jason D. Warren, “It’s not what you play, it’s how you play it: Timbre affects perception of emotion in music,” The Quarterly Journal of Experimental Psychology 62, no. 11 (2009): 2141-55, https://doi.org/10.1080/17470210902765957. This study found that “timbre (instrument identity) independently affects the perception of emotions in music after controlling for other acoustic, cognitive, and performance factors” (pp. 2141-2). For example, a melody is less likely to be judged as “happy” if it is played by a violin, and similar results were found for “sad” for the synthesizer and “angry” for the trumpet (p. 2149).
and technique of the same time.”

This chapter traces the development of the string family and its pedagogy in order to provide a context for extended techniques. It should be noted that much of the history that follows belongs to the violin, but as the viola’s shape and function are modelled after those of the violin, the traditions are similar for the two instruments.

3.1 The 16th and 17th Centuries

Instruments played with a bow appeared around 900 C.E. but it was not until about 1530 C.E. that the string family was born, with the violin, viola and cello all emerging at the same time. The development of an instrument’s individual technique can be heavily influenced by its contemporaneous compositions, for better or worse, and for the violin it was the latter as the string family was slow to develop a technique due to a dearth of instrument-specific music. The human voice has had a strong impact on the development of music and vocal music prevailed in the sixteenth century, so the main role of the violin at the time was to support vocal lines. Music was not written for specific instruments; instead, vocal parts were distributed and parts were played by whichever instrument had the appropriate range. As a result of the music being vocal in nature and a lack of opportunity for instruments to act independently, the instruments failed to develop any idiomatic techniques.

95 Ibid., 2.
The violin found a more gainful role in the world of dance, as its ability to articulate clearly and its penetrating tone were well suited to rhythmic dance music. Dance music used the instrument idiomatically, but the violin had very little autonomy as it still functioned as an accessory to vocal and dance music. However, its inclusion in ensembles for dance strengthened its popularity, which was much needed as the instrument and its players were not held in high regard at the time. Expressiveness came from articulations and inflections of the bow stroke, and players held the bow with the ‘French’ hold for dance music, in which the thumb was placed on the outside of the hair, sometimes with the littlest (pinky) finger behind the bow. The bow hair was fixed on bows before 1700 C.E. so this thumb position allowed the player to manipulate the hair as needed in the music, which often was light and airy in character. Bows were short in length, resulting in short bow strokes, and phrases were shaped to match the breathing of singers and to emulate the tone of the voice.

Bowing has an intimate relationship with expression, and because of this certain bowings thrive at certain times while others become obsolete. Although it was highly effective for the execution of articulated bowings to mark the precise and well-defined rhythms of dance music, the French hold was not suitable for all music as it did not allow the player to have much nuance.

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96 Ibid., 3.
97 Ibid., 22. Idiomatic to the violin in this sense refers to the melodies, figurations, and special effects that are fitting to the violin and not easily sung or played by other instruments; in other cases, ‘idiomatic’ can refer to tone, timbre, and volume.
98 Ibid, 51.
100 Corinne Alvergnat, L’Alto Depuis Son Origine (Lyon: Editions Bellier, 2002), 72.
102 Ibid., 400.
with the bow. While this hold continued to prevail in France until 1725, it was abandoned in Italy around the middle of the seventeenth century. The seventeenth century saw many developments in instrumental music, most notably the sonata, and many of these developments were closely associated with the violin. It was in these sonatas and similar forms that the violin began to find its own voice as the Italians uncovered its potential by exploring its idioms and writing virtuosic music. The more technically demanding sonatas of the Italians required subtle and varied bow strokes, and this resulted in the development of a different bow hold. This hold had the thumb between the hair and the stick, similar to modern-day grips, and the bow used was longer in length than those used for dance music. Information about bows in the seventeenth and early eighteenth century is somewhat vague, but the design of the bow at the time made it difficult to control and new demands were placed upon the bow as the violin and its technique continued to evolve. While the longer Italian bow took precedence over the shorter French bows in the early-mid eighteenth century, there continued to be much experimentation with bow shape. Bows in this century varied in design, quality, and playing properties, and Minor Wetzel has likened their use to golf clubs in that “you selected one based on the particular style of music that you were playing.” It was at this time that Giuseppe

103 Ibid., 71.
104 Ibid., 153.
105 Ibid., 98.
106 Ibid., 53.
Tartini made the distinction between cantabile and allegro bowings – no separation and somewhat detached, respectively – and many of the major innovations in bow design were courtesy of musicians, not craftsmen.113 Arcangelo Corelli, Giuseppe Tartini, Giovanni Battista Viotti and Wilhelm Cramer – all celebrated virtuosi114 – had significant impacts on the designs of bows, affecting the functionality of the frog and changing the length and shape of the stick and tip.115 Each bow required a slightly different technique so various playing styles emerged, and the bows that were not able to produce sounds that fit the musical aesthetics of the time fell into disuse. For example, long bows in the eighteenth century that were fluted on the upper two thirds of the stick may have been aesthetically pleasing visually, but they were quickly abandoned as the fluting disturbed the sound quality and balance of the bow.116 Another example is the “Viotti” bow, which was short-lived because the performance style of the late eighteenth century changed and the bow did not suit the music’s needs.117

Expressiveness continued to be manifested in articulations that varied depending on the musical needs, including the length of the note, tempo, and character, and expression could change depending on the bow speed, pressure, and point of contact.118 Because the hair of the bows had more ‘give’ due to a greater distance from the stick, there was a natural springiness to

114 Spohr, Louis Spohr’s Grand Violin School, 8.
117 Ibid., 18. Dell’Olio also notes that the late twentieth century saw a re-appearance of the design of these bows, spurred on by the interest in period instruments and historically informed performance practice.
the bow\textsuperscript{119} and the fundamental bow stroke was non-legato, with a soft attack and natural decay.\textsuperscript{120} Nuances in bowing created crescendos, diminuendos, and \textit{messa di voce},\textsuperscript{121} which is a single sustained note with a small crescendo and decrescendo.\textsuperscript{122} Originating from vocal music, \textit{messa di voce} matched the natural characteristics of the bow and allowed the player to avoid the harshness that was caused by using pressure at the beginning of the stroke.\textsuperscript{123} Tartini noted that this skill is the most difficult to develop but also the most essential to playing well on the violin.\textsuperscript{124} Tartini and Mozart both stressed the importance of bowing as an essential factor for expressing musical ideas:\textsuperscript{125} in Tartini’s \textit{Letter to the student Signora Lombardini}, written in 1779, he suggested that the student concentrate her efforts on mastering the use of the bow in order to best be able to express the music\textsuperscript{126} and Mozart noted that bowings can contribute to conveying different moods and emotions.\textsuperscript{127}

Tone was also of great importance, and continued to be modelled on the voice. Geminani remarked that “The Art of playing the violin consists in giving that Instrument a Tone that shall in a manner rival the most perfect human voice and in executing every piece with Exactness,

\begin{footnotesize}
\begin{enumerate}
\item Dell'Olio, “Violin Bow Construction,” 29.
\item Hansen, “The Bouncing Bow,” 12.
\item Stowell, “Technique and performing practice,” 138.
\item Barbara Seagrave and Joel Berman, \textit{The A.S.T.A. Dictionary of Bowing Terms}, 2\textsuperscript{nd} ed. (Urbana Ill.: American String Teachers Association, 1976), 30.
\item Giuseppe Tartini, \textit{A Letter from the Late Signor Tartini to Signora Maddalena Lombardini, (now Signora Sirmen.) Published as an important lesson to performers on the violin}, trans. Dr. Burney (New York: Johnson Reprint Corporation, 1967), 13.
\item Tartini, \textit{A Letter}, 11.
\item Mozart, \textit{Treatise}, 114.
\end{enumerate}
\end{footnotesize}
Propriety and Delicacy according to the true Intention of Musick.”¹²⁸ Mozart’s instructions often addressed technique in regards to how it would affect tone: “The pupil must not play first on the finger-board and then near the bridge, or with a crooked bow, but must at all times remain on a part of the string not too far from the bridge, and there seek to draw a good tone from the violin.”¹²⁹ He also noted that “By diligent practice of the division of the stroke one becomes dextrous in the control of the bow, and through control one achieves purity of tone.”¹³⁰ He remarked further on tone, saying “Everyone who understands even a little of the art of singing, knows that an even tone is indispensable. For to whom would it give pleasure if a singer when singing low or high, sang now from the throat, now from the nose or through the teeth and so on, or even at times sang falsetto?”¹³¹

3.2 The 18th and 19th Centuries

3.2.1 The Instrument

The seventeenth and eighteenth centuries were a transformative time for the violin, and by the nineteenth century it had risen from a humble companion to a “dominant force in Western musical culture.”¹³² The years between 1760-1840 were an especially critical period as these years saw extensive changes to the instrument, the ‘advent’ of the Tourte bow, an increase in

¹²⁹ Mozart, Treatise, 60.
¹³⁰ Ibid., 99.
¹³¹ Ibid., 100-1.
public concerts and music publishing, a systemized approach to music in newly established conservatories, and a rise in popularity of the touring virtuoso, with Niccolò Paganini being the most notable.\textsuperscript{133} Although the voice continued to have considerable influence, the violin was also shaping musical style “to the extent that singers in the early eighteenth century were expected to be able to rival the figurations of violin music.”\textsuperscript{134} As the instrument was changing, luthiers were working with several goals in mind: to maximize the acoustic potential of the instrument; to achieve an aesthetically pleasing design; and to make an instrument that could be played with ease.\textsuperscript{135} The form of the violin as we know it was in place by 1710, mostly due to Antonio Stradivari’s work,\textsuperscript{136} although the instrument continued to evolve in the eighteenth and nineteenth centuries. There were further modifications to the bass bar, bridge, neck, and fingerboard to increase tension and resonance, and changes to the neck and fingerboard that made it easier to access higher positions.\textsuperscript{137} As a result of these developments, compositions became more virtuosic and the G string and high notes on the E string were explored.\textsuperscript{138} Prior to these changes, the G string was scarcely used, possibly because the gut G string did not give a clear response.\textsuperscript{139} Tone is affected by the strings, and they were originally made from strands of twisted sheep gut which made them stiff and unresponsive. Around 1560, ‘rope-twist’ strings which were more flexible and improved the clarity of the G and D strings came into use, and a

\begin{flushleft}
\textsuperscript{133} Stowell, \textit{Violin Technique}, ix.

\textsuperscript{134} McVeigh, “The Violinists,” 46.

\textsuperscript{135} Wetzel, “A Better Bartok,” 10.

\textsuperscript{136} Dilworth, “The violin and bow,” 10.

\textsuperscript{137} Wetzel, “A Better Bartok,” 12.


\textsuperscript{139} Boyden, \textit{The History of Violin Playing}, 70.
\end{flushleft}
century later ‘overspun’ strings made the G string thinner and more flexible, eventually replacing the twisted gut strings. Combined with the change in the angle of the neck and fingerboard, which increased the tension on the instrument, the sound of the violin became much more penetrating.  

3.2.2 The Bow

Instrumental technique changed dramatically when the ‘Tourte’ bow was established. François Tourte (1747-1835) made bows of unsurpassed quality and his ingenuity brought together numerous features to create the ideal bow design. Artists in the mid-eighteenth century strove to imitate the singing qualities of the human voice, and a bow that would accomplish this needed to have elasticity, springiness, and lightness. Guided by the help of musicians, Tourte perfected the bow between 1780-1790 by refining the shape of the tip, increasing the amount of hair (from 80-100 to 150-200), altering the concave camber to improve balance, and adding a moveable frog with a ferrule that kept the hair in a uniform ribbon and metal inlays that balanced out the heavier tip. The hair of earlier bows varied in its distance from the stick, being much closer at the tip than at the frog, and this resulted in a lighter head and a lower balance point. The hair was also in a circular shape before the use of the ferrule, so only certain strokes were playable. After Tourte’s innovations, a new vocabulary of bow strokes

\[140\] Dilworth, “The violin and bow,” 11.

\[141\] Ibid., 26.

\[142\] Dell’Olio, “Violin Bow Construction,” 19.


\[144\] Dell’Olio, “Violin Bow Construction,” 22.
emerged. His bow design made it possible to have an attack at the beginning of the stroke, which was a contrast to the earlier practice that “Every tone, even the strongest attack, has a small, even if barely audible, softness at the beginning of the stroke…this same softness must be heard also at the end of each stroke” written about by L. Mozart. Accents and bouncing strokes, such as sforzandos, fouetté, martelé, spiccatos, sautillé, flying staccato, ricochet, and other thrown bowings were now easily attained. The higher tension of the bow also meant that it could produce a stronger tone, and in contrast to the musical ideals that preceded it, it was now possible to have an even tone from frog to tip, up and down bows that were identical in volume, and smooth inaudible bow changes. This led to the “seamless” ideal that became popular in the late nineteenth century and has permeated technique to become a fixture of string playing. This change in aesthetic preferences altered the basic stroke, and the emphasis in string playing moved away from articulated strokes, subtle nuances, and delayed attacks to a sonorous and cantabile style. The singing quality that violinists strove for was attainable with this bow, and long slurs were used to make the bowing as legato as possible. Expression extended over the whole phrase while the practice of creating a swell in the middle of the stroke was deplored. Phrasing was likened to punctuation and nuances shifted to address the peaks and contours of a phrase, highlighting elements such as dissonances, ornaments, chromatic notes, and cadences.

145 Mozart, Treatise, 97.
146 Jackson, Performance Practice, 50.
147 Dell’Olio, “Violin Bow Construction,” 22.
148 Ibid., 65.
149 Stowell, “Technique and performance practice,” 137.
151 Stowell, “Technique and performance practice,” 139.
The bow and the violin have essentially remained the same since these changes became standard, and a drastic change in tone also came about due to the switch from the use of gut strings to synthetic strings, which could project better than their predecessors.\(^{152}\)

In the nineteenth century, the voice continued to be seen as the most perfect instrument and instrumentalists continued to try to emulate the characteristics of singers.\(^{153}\) As composers sought to create rich sonorities, they turned to the unique tone of the viola and more importance was given to the middle and lower sonorities, which provided a luscious sound in symphonic music. More complicated parts were written with full dark tones and rich resonance in mind, but the small alto violas of the time were unable to produce these timbres. With the composers as the driving force, the violist saw improvements in both technique and the instrument.\(^{154}\) The aim of music in the eighteenth century was to express specific human emotions through elements of the music, such as tempo, meter, rhythm, dynamic variations, harmony, melody and tonality, but this shifted in the nineteenth century to human factors and Baillot, Rode, and Kreutzer cited sound-quality, movement, style, taste, genius of execution, and precision as the means of expression.\(^{155}\) Technique was further advanced by Niccolò Paganini (1782-1840), who astonished audiences and musicians alike with his technical prowess and unprecedented high level of skill. He pushed the boundaries of what was possible on the instrument and inspired more creative compositions. Although he did not invent any of the advanced techniques that he used, they were developed

\(^{152}\) Dilworth, “The violin and bow,” 21.
\(^{155}\) Stowell, “Technique and performance practice,” 140.
extensively in his hands. Techniques that had fallen into disuse were incorporated into his playing in a way that made the violin seem like a different instrument and his playing was characterized by the use of harmonics, *pizzicato* in both hands, *scordatura*, and playing only on the G string.\(^{156}\) Techniques such as *sul ponticello* and *sul tasto* were also used at this time, but were considered to be special effects.\(^{157}\)

### 3.3 The 20th Century

The twentieth century saw another change in the aesthetics of music and many composers turned away from elements such as melody, harmony, meter, and form to focus on other musical aspects such as timbre and dynamics,\(^{158}\) first as an element of expression and then as a compositional device.\(^{159}\) Expressive means change over time, sometimes radically,\(^{160}\) and compositions could be interested in sound alone, with the objective of a piece sometimes being simply to shock or surprise with an unexpected sound.\(^{161}\) No longer necessarily concerned with expression or emotion,\(^{162}\) numerous musical styles emerged, and the previous obsession with an

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\(^{157}\) Dell’Olio, “Violin Bow Construction,” 71. Note that Galeazzi regarded these as extreme violin techniques.

\(^{158}\) Ishii, “The Development of Extended Piano Techniques,” 7.

\(^{159}\) Kallie Rogers, “Wil Offermans: The Pedagogy of a Contemporary Flutist-Composer” (DMA diss., Florida State University, 2015), 6, ProQuest (1692083228).

\(^{160}\) Milsom, “Expressiveness in Historical Perspective,” 94.


‘endless bow’ and an even tone\textsuperscript{163} no longer fit into genres such as the avant-garde and pointillism. As the expression changed, so did the techniques. Past changes in technique were spurred along by developments in the instrument and how to best work with the evolving instrument set-ups, but as the perfect form of the instrument and bow had already been established\textsuperscript{164} it was the techniques themselves that became more radical in exploring timbre. Standards of beauty in music had also changed, so extended techniques were able to explore territories that had previously seemed out of bounds, inappropriate, or inaccessible.\textsuperscript{165} Much time had been spent figuring out how the violin could sound, and what followed was an exploration into how else it could sound.

However, experimenting with different timbres is not a venture exclusive to the twentieth century, as it has occurred in violin music throughout much of the instrument’s history. For example, Carlo Farina’s \textit{Capriccio Stravagante} (1627) required the player to execute \textit{col legno, sul ponticello,} and \textit{glissando} in order to depict barking dogs, yowling cats, and crowing cocks.\textsuperscript{166} The violin’s ability to sound like other instruments has also been explored. In \textit{L’Arte du Violon}, Baillot dedicated a chapter entitled “Timbre and Character of the Four Strings of the Violin” to educating students on how each string on the violin can be given the character of a different

\textsuperscript{163} Boyden, \textit{The History of Violin Playing}, 71.

\textsuperscript{164} It should be noted that while the violin and cello have been standardized in terms of size, no such standardization exists for the viola, or the double bass. Numerous luthiers have experimented with the shape of the viola in order to increase its resonance, but none have made their way into the general public.


\textsuperscript{166} Boyden, \textit{The History of Violin Playing}, 131-2.
instrument. The “clear and silvery” E string can produce timbres comparable to the piccolo;\(^{167}\) the “sweet and penetrating” A string, similar in likeness to a woman’s voice, can also resemble the flute, oboe, and bagpipes;\(^{168}\) the D string is “noble and velvety” and can imitate the flute,\(^{169}\) and the G string is the foundation of the instrument and “gives resilience and life to everything else” and can create the timbre of the horn and trumpet.\(^{170}\) This has continued to the present day and expanded to non-Western instruments, and is a novel way of increasing the versatility of the instrument.\(^{171}\)

Much like the various models of the instrument and bow, techniques need to fit in with the aesthetic of the time in order to gain any sort of longevity of use. Extended techniques may seem to be outside the realm of traditional violin technique, but techniques such as *col legno* and *sul ponticello* can be considered idiomatic to the members of the string family and have a history of appearing in violin music. However, because extended techniques often produce timbres that do not fit with the beautiful tones and clear articulations normally associated with and expected of the violin, they are considered to be unconventional. For example, when Paganini mesmerized audiences with harmonics and left hand *pizzicato*, this was in part because they had

\(^{167}\) Baillot, *The Art of the Violin*, 244.

\(^{168}\) Ibid., 246.

\(^{169}\) Ibid., 249.

\(^{170}\) Ibid., 244-53.

\(^{171}\) For example, the Kronos Quartet experiments with ways to imitate various instruments from around the world. They have also launched Fifty for the Future: The Kronos Learning Repertoire, a project that will commission 50 new works for string quartet with the purpose of training students in contemporary approaches. More information can be found at http://kronosquartet.org/fifty-for-the-future. From an interview with Hank Dutt on February 28, 2016.
characteristics that were ‘extra-violinistic’, meaning that they made the violin sound like an instrument other than the violin.\textsuperscript{172}

There were developments in the music that stayed close to the past traditions as well. Eugène Ysaÿe (1858-1931) ushered in a new way of string playing and his sound, characterized by “sensuous beauty, coloristic finesse, and dramatic contrasts”,\textsuperscript{173} and created a new ideal much like Paganini had done a century prior. He wrote six solo sonatas (1924), inspired by Bach's sonatas from two centuries before, which were a springboard for violin technique in the twentieth century and organically incorporated harmonics, \textit{glissandi}, and left hand \textit{pizzicato} in addition to complex stoppings and arpeggations.\textsuperscript{174} By the end of the twentieth century the average player across the world had a high level of general technical standards\textsuperscript{175} and musicians now must have great versatility, being required to play various styles and genres spanning hundreds of years, each requiring its own techniques and stylistic nuances.

\section*{3.4 Pedagogy}

Technique will continue to improve as players build on the knowledge of those that preceded them. Pedagogy reflects the musical style and values of the time, and different times have necessitated different types of teaching. John Kella states that the history of pedagogy for

\begin{footnotesize}
\begin{enumerate}
\item\textsuperscript{174} Robertson, “Twentieth-Century Violin Technique: Volume I,” 15.
\item\textsuperscript{175} Wen, “The Twentieth Century,” 89.
\end{enumerate}
\end{footnotesize}
the violin and viola can be divided into three broad periods: 1) the period of romance from 1520-1750; 2) the period of precision from 1750-1900; and 3) the period of generalization from 1900-present.\textsuperscript{177}

The first period includes the origin and development of the violin family, and the main characteristic of this time was a fascination with the design and variety of the instruments made by master craftsmen such as Amati, the Guarneri family, Stradivari, and Guadagnini.\textsuperscript{178} The treatises of this time were intended for an audience of amateurs who were making music for their own personal enjoyment, and did not go into much detail about how to play the violin. At the time, written instructions were contrary to the oral traditions of teaching, and details about technique were considered to be priceless secrets that could not be written down and printed.\textsuperscript{179}

The second period was a time of virtuosity and precision, where the major treatises focused on developing technique and virtuosic performance to reach the level of skill that Paganini had achieved. The first significant treatise was Francesco Geminiani’s \textit{The Art of Playing on the Violin} (1751) followed soon after by the influential, comprehensive, and detailed treatise by Leopold Mozart in 1756. Johann Joachim Quantz’s treatise on the flute (1752) and a letter by Tartini (1760) contained significant advice, and the rest of the century also included literature by L’abbé le fils (1761), Galeazzi (1791 and 1796), and Campagnoli (1797?). Driven by a need due to the changes in the violin and the use of the Tourte bow,\textsuperscript{180} new instructional

\textsuperscript{177} John Jake Kella, “The Development and Qualitative Evaluation of a Comprehensive Music Curriculum for Viola, with an Historical Survey of Violin and Viola Instructional Literature from the 16\textsuperscript{th} Through the 20\textsuperscript{th} Centuries, Including a Review of the Teaching Concepts of William Lincer” (PhD diss., New York University, 1983), 2-3, ProQuest (303309300).

\textsuperscript{178} Ibid., 2.

\textsuperscript{179} Boyden, \textit{The History of Violin Playing}, 244.

materials emerged that addressed the expanded vocabulary of bow strokes. The method by Baillot, Rode, and Kreutzer (1803) was the standard text for at least 30 years, and Baillot published another method in 1834 that addressed any gaps in his previous treatise. Nineteenth century writers also addressed more fully the importance of bow speed, pressure, and contact point as it relates to expression and other important methods include those by Spohr (1832), Habeneck (c. 1835) and de Bériot (1858).

We are now in the third period, marked by efforts to combine various national and international approaches while incorporating educational and biomechanical theories to create comprehensive methods of music education. While the treatises of the eighteenth and nineteenth centuries contained rules in regards to playing, the twentieth century saw a shift towards pedagogy in terms of various concepts as an amalgamation of different schools of thought. Important pedagogues of the twentieth century include Carl Flesch, Ivan Galamian, Leopold Auer, Kato Havas, Shinichi Suzuki, and Paul Rolland. Carl Flesch’s (1873-1944) *The Art of Violin Playing* (1939) is a “monument in the history of the violin treatise,” a thorough method that details the acquisition of technique in the left hand and the bow arm as well as analysing problems and presenting solutions that may impede progress. There are three interrelated elements to the work: technique in general, applied technique, and artistic realization, and Flesch believed that technique had to come before artistry, as the former could

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182 Stowell, *Violin Technique*, 137.


184 Nelson, *The Violin and Viola*, 199.
be learned but the latter required innate ability.\textsuperscript{185} Ivan Galamian (1903-1981) had a similarly analytical approach in his \textit{Principles of Violin Playing and Teaching} (1962) although he did not see violin playing as a set of rules, but rather as a group of general principles that could be both broad and specific because of their flexibility.\textsuperscript{186} He believed that students should have mental control over their physical movements and recognized that learning is an individual process wherein each person has their own idiosyncratic abilities and limitations, so there is no universal pedagogy that works for all students.\textsuperscript{187} Like Flesch, Galamian presents corrective solutions for poor habits that may be a result of faulty practice and his treatise is particularly valuable in this regard.\textsuperscript{188} Leopold Auer’s (1845-1930) treatise from 1921, \textit{Violin Playing as I Teach It}, notes that the details of playing the violin have been recorded but the importance of mental work and preparation have not been addressed in detail. He encouraged students to find their own answers to technical problems\textsuperscript{189} and inspired his pupils to reach their maximum potential and expression on the instrument, stressing interpretation only after technique, musical intuition, and good taste.\textsuperscript{190} Kato Havas’s (b. 1920) \textit{A New Approach To Violin Playing} (1961) was concerned not with imparting knowledge but with eliminating the physical and mental obstacles that prevent relaxed control and co-ordination needed for the full force of musical imagination.\textsuperscript{191} Her focus

\textsuperscript{185} Stowell, “The Pedagogical Literature,” 228.

\textsuperscript{186} Galamian, \textit{Principles of Violin}, 1.

\textsuperscript{187} Lee, “Towards a Dynamic Pedagogy,” 12.

\textsuperscript{188} Ibid., 13.

\textsuperscript{189} Ivanović, “Development of Violin Virtuosity,” 47.

\textsuperscript{190} Stowell, “The Pedagogical Literature,” 228.

\textsuperscript{191} Ibid., 229.
was on maintaining a natural and physically balanced position,\textsuperscript{192} and she stressed that an effortless and beautiful tone should be the main goal of all violinists, an aspiration of all that was possessed by only a few.\textsuperscript{193} Shinichi Suzuki (1898-1998) developed a method that was aimed at young children, believing that everyone was born with a natural ability to learn and that artistic appreciation could be cultivated at the same time as technical development in the formative years. The three parts of his method were listening, tonalisation, and playing,\textsuperscript{194} and he believed that music could be learned by immersion, similar to the way that language is acquired.\textsuperscript{195} Paul Rolland (1911-1978) helped found the American String Teachers Association (ASTA) and \textit{The Teaching of Action in String Playing: Violin and Viola} (1986), which included a series of videotapes, shifted the emphasis from the teaching of notes and tunes to the teaching of basic concepts and ideas, focusing on “correct position, free movement, and healthy tone production.”\textsuperscript{196} Also intended for the beginner student, rhythmic foundations and the physical motions of playing the instrument are analyzed in order to help students establish natural postures and movements.\textsuperscript{197}

Teaching an instrument can be a highly subjective pursuit, so it is not surprising that there is a wide array of approaches in all of the aforementioned methods and treatises. They can differ in the number of rules or concepts, the amount of detail, the focus on the physical aspects versus the mental processes, the age and level of the student, beliefs about innate musical abilities, as

\begin{itemize}
  \item \textsuperscript{192} Lee, “Towards a Dynamic Pedagogy,” 15-16.
  \item \textsuperscript{193} Havas, \textit{A New Approach}, 4.
  \item \textsuperscript{194} Stowell, “The Pedagogical Literature,” 229.
  \item \textsuperscript{195} Lee, “Towards a Dynamic Pedagogy,” 13.
  \item \textsuperscript{196} Rolland, \textit{The Teaching of Action}, 4.
  \item \textsuperscript{197} Lee, “Towards a Dynamic Pedagogy,” 15.
\end{itemize}
well as influences from past teachers, cultures, and historical periods and geography, but all are concerned with improving technique and expression. The production of tone is often a primary concern, and as extended techniques alter timbre they can be a part of any teaching method.

Pedagogy evolves to match musical needs, but the appearance of new technical demands in the twentieth century has not been addressed in the teaching literature. The teaching methods moved forward with a multiplicity of approaches, but remained rooted in eighteenth and nineteenth century materials or techniques. Extended techniques did not fit with the expressive means of music in the past, but they are now part of the vocabulary of contemporary music, which means that they must be taught and learned. However, because they are based on fundamental techniques, which will be discussed in the next chapter, they do not necessarily require a new methodology, and it is possible to integrate them into existing pedagogical methods.
Chapter 4: Extended Techniques

Why is it important to learn extended techniques? This is a question asked by many student musicians within the standard conservatory model of training, and there are several answers. It has already been mentioned that contemporary music often makes use of these techniques, so any musician who expects to have the versatility to play many different genres and styles of music should be familiar with them. It is a common problem to feel overwhelmed by the demands of modern works, and a sense of unpreparedness and unfamiliarity for the technical challenges in contemporary music has been the impetus behind much research regarding this problem. However, some students will never reach an advanced enough level to come across such works, and in that case, is it still worthwhile for such students to learn extended techniques? I believe it is, because extended techniques can be beneficial in many ways beyond the familiarity and facility with the techniques themselves.

As extended techniques directly affect timbre, learning and experimenting with them can expose students to new timbres that they may not have otherwise realized were possible on the instrument. Timbre is one of the primary parameters of expressivity in music and is integral to interpreting music. It carries cues about emotional expression, and aspects of it can be

198 A few examples include dissertations by Ashley, Sarch, Gebrian, Jensenius, Wetzel, Farrell, and Tischhauser.
199 Clarke, “Expressive Performance,”101. The other parameters are pitch, timing, dynamics, and articulation.
related to specific emotions such as sadness, anger, fear and disgust.\textsuperscript{202} Timbre can also aid in evoking the sounds of various images, or sometimes just be sound for its own sake.\textsuperscript{203} It is also essential for recognizing and differentiating between various genres of music,\textsuperscript{204} and changes in timbre can communicate musical structures, ideas, and personality.\textsuperscript{205} Paul O. Steg stated that “tone quality, in a sense, is the signature of the artist”\textsuperscript{206} and since timbre is one of the main differences between the violin and viola, it must be developed to its fullest extent on the viola, lest it just be seen as the “boring cousin of the violin.”\textsuperscript{207} Extended techniques expose students to a multiplicity of sounds, and perhaps somewhere within these sound they can find their own individual voice.

Extended techniques can also assist in improving overall technique on an instrument. It should be noted that the term ‘technique’ can be ambiguous as it is used interchangeably to refer to both specific and general skills. Technique in the general sense is the foundation for musical expression, and good technique is efficient, versatile, allows for relaxation, and provides confidence.\textsuperscript{208} Technique and musicality often develop simultaneously, and problems with

\begin{itemize}
\item Holmes, “An Exploration of Musical Communication,” 315.
\item Wu, “Musical Timbre and Emotion,” 928.
\item Holmes, “An Exploration of Musical Communication,” 301.
\item Parker, “A Survey of Viola Teachers’ Perceptions,” 156.
\item Jacoby, \textit{Violin Technique}, 8-9.
\end{itemize}
musical expression can sometimes be attributed to technical or mechanical difficulties. It may seem odd that making “unusual noises” can improve ability on an instrument, but these techniques, which often seem to be the “wrong” way to play, can be useful in learning how to play “right.” They may seem inappropriate because many of the techniques are contrary to what is usually taught, either because they do not fit with established technique or because the resulting sound does not fit with the aesthetics of music being taught. For example, in order to create an even tone it is normal for the bow to be drawn straight across a string at a contact point near or at halfway between the bridge and fingerboard, and much practice goes into keeping the bow from travelling haphazardly. However, a contemporary composition may ask the performer to play with the bow at an angle or to move it in a circular direction, and this, in addition to different contact points, can create sounds that are scratchy or harsh. Because extended techniques approach sound production differently and demand that a standard technique be pushed to its limits, they are able to indirectly improve both general and specific techniques through contrast and comparison. Expanding the boundaries of what students can achieve on an instrument leads to the discovery and better understanding of the student’s and the instrument’s potential.

The past hundred years have expanded the boundaries of “acceptable” sound production. Changing tastes can dictate what is acceptable and that which at one time was considered to be in bad taste may be celebrated in another. For example, glissandi were regularly

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209 Amy Cutler, “Rodolphe Kreutzer’s Forty-Two Studies or Caprices for the Violin: Detailed Analyses According to Ivan Galamian’s Philosophies of Violin Playing” (DM diss., Northwestern University, 2003), 23, ProQuest (305316639).

210 From an interview with Garth Knox on July 8, 2014.

211 Clarke, “Expressive Performance,” 108
employed by Paganini for both showmanship and to aid in technical matters, but were used to such excess in the nineteenth century to shape melody and emphasize structure that succeeding generations reacted strongly against them\textsuperscript{212} and they quickly fell out of fashion. Carl Flesch wrote of the \textit{glissando}\textsuperscript{213} that “when too frequently used, or used in wrong places, it produces an effect of artificial pathos, insincerity and weariness. Indeed, it may even, when successively applied, call forth in the listener an insupportable physical disgust”\textsuperscript{214} but \textit{glissandi} came back into use in the music of composers such as Debussy, Ravel, Szymanowski, Enesco, and Bartok\textsuperscript{215} and are now heard as being a standard performance and compositional technique.\textsuperscript{216}

Extended techniques can also inspire students to explore and be more imaginative and creative in their music making. Timbre can begin as a product of the imagination\textsuperscript{217} before being translated through the instrument, and extended techniques can inspire performers and composers to think about different ways to produce sound. Bruno Giuranna specifically stressed the importance of thinking in terms of sound:

“This is all about how we use our imagination when we play. Sound production is not only a physical activity, about touching the string with the bow and using friction to produce a sound. It goes beyond the acoustic, beyond aesthetics – there is something magic in it … Finding one’s own sound is an important milestone for any instrumentalist. If we’re not making a sound that is right for the music, we need to work harder on that sound in our imagination.”\textsuperscript{218}

\textsuperscript{212}Stowell, “Technique and performance practice,” 127-8.
\textsuperscript{213}Note that Flesch’s terminology differs slightly as he used \textit{portamento} to describe what is now called \textit{glissando}.
\textsuperscript{214}Flesch, \textit{The Art of Violin Playing}, 35.
\textsuperscript{216}Robertson, “Twentieth-Century Violin Technique: Volume II,” 4.
\textsuperscript{217}Holmes, “An Exploration of Musical Communication,” 311.
\textsuperscript{218}Bruno Giuranna, “Tone Production: How to Develop Your Sound by Pushing the Boundaries of Your Bowing Technique,” \textit{Strad} 126, no. 1499 (March 2015): 76.
For example, what would a student do if asked to imitate a train? What could be done on the instrument that sounds like a train whistle or the sound of wheels on a track? Does a train whistle have a flute-like sound that requires the bow to be played over the fingerboard, or does it have a reedy sound that would see the bow placed closer to the bridge? Will the clicking of the wheels need a scratchy sound, perhaps with the help of more bow pressure? It would require some experimentation with different techniques to see what works best, and a solution is more easily reached when a student has a larger knowledge base of timbres and techniques from which to draw.

These techniques can and should be taught to children so that they can become ingrained into the language of music as they are first learning it. Young students are full of imagination and creativity, and the novelty of making unconventional sounds can encourage them to try out different techniques. Timbre is one of the first elements in music that children are able to differentiate, and it is such a salient feature of music and language that even young babies are able to distinguish and remember timbres. Learning about timbre can provide a foundation for learning about music, and the concepts that young children are able to acquire about timbre include the identification of instruments or voices by their characteristic sound and understanding that these instruments and voices can be used in different ways to change their tone colours. Distinct timbres between a melody and its accompaniment aid children in

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220 Holmes, “An Exploration of Musical Communication,” 302

detecting changes in harmony\textsuperscript{222} and it seems that skills regarding timbre are typically developed for most students by the first grade, whereas skills concerning rhythm, melodic pitch patterns, and harmony develop by fifth grade, between fifth and seventh grade, and seventh grade or later, respectively.\textsuperscript{223} Because of this, it may be beneficial for students to learn about timbres at an early age.\textsuperscript{224} Exploring timbre could also help in teaching musical expressivity to younger students; they may not be able to understand how a melody can be expressive, but they could understand the difference between an angry sound and a sad sound. Children who explore how different sounds are made are also better at making discriminating decisions about what they hear, and this can provide a valuable introduction to the timbres of contemporary music.\textsuperscript{225}

Extended techniques may seem to be difficult or complicated, but they are less daunting if approached as extensions of fundamental techniques. As Gardner Read points out,

“Many so-called ‘new’ instrumental devices have developed from well-established techniques; they are extensions of, or refinements of, procedures long considered part of a composer’s repertory of expressive devices. The newness, then, is not one of kind but of degree, a further and more extensive development of basic effects found in scores from the late nineteenth century to the present day.”\textsuperscript{226}

This applies to all instruments; for example, flute techniques such as bamboo tones, wind tones, and circular breathing, which are thought to be modern techniques, are actually antique.

\textsuperscript{222} Costa-Giomi, “Effect of Timbre,” 11.


\textsuperscript{224} Ibid., 194.


\textsuperscript{226} Read, Contemporary Instrumental Techniques, 3.
techniques, with some being used for thousands of years on “primitive” flutes. In order to improve in all of their performance techniques, students must understand what skills they need to know as well as how to approach those techniques. If extended techniques can be related to the techniques that they already know, then the techniques are more accessible and easier to understand and implement.

Extended techniques can be executed by either hand, and this chapter discusses a few of the most common and frequently used techniques. This is not meant to be a comprehensive examination of all extended techniques; there are already books that extensively list existing techniques and the constant invention and refinement of techniques means that no publication could truly be complete.

There are three components that contribute to tone production with the bow on the instrument: bow speed, bow pressure, and point of contact. This can be generalized as motions in the three dimensions: laterally (parallel to the bridge), vertically, and horizontally, respectively. Movements in the left hand can also be categorized in the same manner, corresponding to the fingers moving from string to string, moving vertically, and moving along the length of the fingerboard. This approach of generalizing components and motion is pedagogically useful, for if techniques can be broken down into their components, it is easier to analyze them and relate new techniques to familiar motions. Actions in the three dimensions are interrelated, and a change in one dimension usually necessitates an adjustment in at least one of the others. For example, a change in bow pressure requires a corresponding change in bow speed, and a faster bow speed

Rogers, “Wil Offermans,” 2.
See Gardner, Strange.
requires the contact point to be closer to the fingerboard. However, once it is understood how these factors work together to change tone quality, they can be manipulated to produce novel timbral changes.

4.1 Left Hand Techniques

Although the right hand has most of the responsibility for the production of sound, the left hand can still have a role in determining timbre. Because the left hand must hold the instrument and the fingers cannot stray too far from the string, many of the motions remain the same but the degrees to which they are used change. The actions can be exaggerated for various extended techniques, or the motions can work in combination with other actions. And while left hand pizzicato, harmonics, and glissandi in their basic forms are considered standard, they are now being altered or combined with other techniques to vary their resulting timbres.

4.1.1 Left Hand Pizzicato

It may be surprising to find pizzicato listed as an extended technique. It is common to pluck the string with the right hand, and is sometimes the first thing that is taught when learning the viola, but it is not traditionally executed by the left hand. Left hand pizzicato is created by the motion of the fingers moving from side to side, and is not as resonant as pizzicato of the right hand. Plucking a string may be one of the oldest variants of sound, as it is thought by some that all stringed instruments were plucked before the bow was introduced circa 900. Pizzicato was

\[230\] Stowell, Violin Technique, 137.
most likely used in the violin family from almost the beginning of its existence, as plucked instruments such as lutes and guitars were common at the time and violinists may have plucked their strings in imitation of them as a special device.\textsuperscript{232} As right-hand \textit{pizzicato} became standard in the seventeenth century,\textsuperscript{233} players found that they could also pluck with their left-hand. Thomas Ford’s \textit{Musicke of Sundrie Kindes} from 1607 includes a left hand \textit{pizzicato} on open strings with the direction to “Thumpe them with the first and second finger of the left hand according to the direction of the pricks.”\textsuperscript{234} Left-hand \textit{pizzicato} also appears in Claudio Monteverdi’s 1624 opera, \textit{Il combattimento de Tancredi e Clarinda}.\textsuperscript{235} It developed further when the second sonata, opus 4 (~1740), of the possibly French violinist de Tremais (~1728-1751) asked that all four open strings be plucked in alternation with single and slurred bowed notes.\textsuperscript{236} Although it appeared in the music, there was no mention of it in any of the methods at the time.\textsuperscript{237} Towards the end of the eighteenth century, the technique had been popularized by violinists such as Nicolò Mestrino, Václav Pichl and Anton Stamitz, and it was enjoyed by audiences in various countries.\textsuperscript{238} Stamitz used it often in the Sonatas he composed from 1776-1782 and, similar to de Tremais, he alternated individual plucked notes with bowed slurs in the Rondo from his third Sonata, which gives the effect of two instruments playing together.\textsuperscript{239}

\textsuperscript{232} Boyden, \textit{The History of Violin Playing}, 84.
\textsuperscript{233} Ibid., 172.
\textsuperscript{234} Thomas Ford, \textit{Musicke of Sundrie Kindes} (New York: Performers’ Facsimiles, 1998), 42.
\textsuperscript{236} Wilczkowski, “Heinrich Wilhelm Ernst,” 13.
\textsuperscript{237} David D. Boyden, “The Violin and its Technique in the 18\textsuperscript{th} Century,” \textit{The Musical Quarterly} 36, no. 1 (Jan 1950): 27.
\textsuperscript{238} Wilczkowski, “Heinrich Wilhelm Ernst,” 1.
\textsuperscript{239} Ibid., 13.
Stamitz also advanced the technique by expanding it beyond open strings, plucking with the left hand finger that was already on the string. Friedrich Wilhelm Rust (1739-1796) keenly used the technique, alternating it with bowed double stops in his second Solo Sonata from 1795. Rust also established the notation for left-hand *pizzicato* when he used “+” to denote the technique in his second solo Sonata (1795?). Prior to this, it was notated as “p” and “o”. Left hand *pizzicato* also appears in the methods of Bartolomeo Campagnoli and Michel Woldemar in 1797 and 1798, respectively. After this time, left hand *pizzicato* was briefly absent but was brought back into the spotlight in the nineteenth century by Paganini. Paganini sensationalized the technique, which he used to great extent in three-part harmony as well as playing a melody with left hand *pizzicato* while providing the accompaniment with the bow. The technique was further developed by Heinrich Wilhelm Ernst (1812-1865) who expanded Paganini’s developments and also used *pizzicato* in the left hand to accompany a bowed melody. After Ernst, the virtuoso style was replaced by a deep, expressive style and left hand *pizzicato* ceased to be explored further.

Left hand *pizzicato* did not fit well with the notion of beautiful tone production, and Carl Flesch wrote that left-hand *pizzicato* “has only a very limited right to existence” because of its

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240 Ibid., 14.
241 Ibid., 13-14.
242 Ibid., 16
243 Ibid., 1.
244 Ibid., 20-1.
245 Ibid., 26.
246 Ibid., 55.
“thin and ragged” sound.\textsuperscript{247} However, once musical aesthetics turned to the exploration of tone colour and unusual sonorities, various forms of \textit{pizzicato} came back into music.\textsuperscript{248} Variations in \textit{pizzicato} include: the manner in which the instrument is plucked – for example, it can be strummed or gently brushed; a change in the object that plucks the string – this could be a fingernail or some sort of plectrum; and combining the \textit{pizzicato} with something such as glissando, harmonics, a different contact point, or simultaneously using the bow. The player can also be asked to hold the instrument on its side and strum it similar to a guitar or mandolin.\textsuperscript{249} Although this is unconventional in that it is not how the instrument is normally held, it is not a new technique for it was suggested by Louis Spohr that the violinist do this for long \textit{pizzicato} passages.\textsuperscript{250}

Training students with left hand \textit{pizzicato} can help with general technique as it builds some of the underused muscles in the left hand. Training in finger action is often focused on the action of dropping the fingers onto the fingerboard, but concentrating on the release of the fingers can develop the often neglected extensor muscle, and building this muscle can improve the stamina and strength of the hand and fingers.\textsuperscript{251} Lightly plucking the string when the fingers are lifted off the fingerboard also helps to produce a clearer articulation. It can also be useful for a performer to be able to execute left hand \textit{pizzicato} as a way of aiding quick transitions between \textit{pizzicato} and \textit{arco} without leaving out any notes.

\textsuperscript{247} Flesch, \textit{The Art of Violin Playing}, 49.
\textsuperscript{248} Read, \textit{Contemporary Instrumental Techniques}, 220.
\textsuperscript{249} Ibid., 220.
\textsuperscript{250} Spohr, \textit{Louis Spohr’s Grand Violin School}, 154.
4.1.2 Harmonics

Harmonics operate in the realm of vertical motion in the fingers of the left hand. Although natural and artificial harmonics are considered to be standard elements in string playing, they are rarely approached systematically, and knowledge about harmonics is often lacking\textsuperscript{252} or confusing.\textsuperscript{253} Carl Flesch wrote that harmonics "ought to be mastered by any violinist who aspires to a complete technique"\textsuperscript{254} but opinions on harmonics have not always been so favourable. While they appear in Carlo Farina’s \textit{Capriccio Stravagante} (1627), only natural harmonics were used on the violin before 1750.\textsuperscript{255} They were not common at this time, and Leopold Mozart found they had an ‘inferior’ tone quality\textsuperscript{256} and rejected them unless the piece was entirely in harmonics.\textsuperscript{257} The first work to use harmonics extensively was \textit{Les Sons Harmoniques} (1738) by Jean-Joseph Cassanéa de Mondonville.\textsuperscript{258} In the introduction to \textit{Les Sons Harmoniques}, Mondonville states that the violin should use harmonics as they have proved to be successful on other instruments. Technique is discussed, and Mondonville categorizes

\begin{itemize}
  \item Strange, \textit{The Contemporary Violin}, 113.
  \item Flesch, \textit{The Art of Violin Playing}, 32.
  \item Boyden, \textit{The History of Violin Playing}, 444.
  \item Stowell, “Technique and performing practice,” 132.
  \item Boyden, \textit{The History of Violin Playing}, 375.
\end{itemize}
harmonics as an *agrément*, similar to trills and articulations. L’Abbé le fils explains natural and artificial harmonics in his *Principes du Violon* (1761) and includes a chart on the notes, several scales, and a minuet entirely in harmonics. It was not until they were developed by virtuosi such as Jakob Scheller and Paganini did harmonics gain popularity, and Paganini’s innovations with this technique included double stopped artificial harmonics, chromatic slides and various trills in harmonics, and pseudo-harmonic effects.

Natural and artificial harmonics can be used to change tone colour, provide alternate fingerings, and extend an instrument’s range. Natural harmonics have a “purer” sound than their artificial counterparts but both have a penetrating tone and can be manipulated to produce various timbres. A harmonic can have different timbres depending upon the string on which it is played, and there can be several articulated nodes for the same resultant. There are also several ways to play artificial harmonics; the fourth harmonic, which has a resultant two octaves above the stopped note, is the most common but it is also possible to play artificial harmonics a minor third, a major third, a perfect fourth, a perfect fifth, and a major sixth above a note.

259 Ibid., 1-3.
261 Stowell, “Technique and performing practice,” 132.
262 Strange, *The Contemporary Violin*, 140.
265 The term for the spot on the string that is stopped.
266 Kenneth L. Sarch, “The Twentieth Century Violin: A Treatise on Contemporary Violin Technique” (DMA diss., Boston University, 1982), 145, ProQuest (303267884). The resultant is the sounding pitch that is the result of the harmonic.
267 Ibid., 150.
approaches to harmonics include the éffleure and the half-harmonic. The éffleure is executed by depressing the string slightly more than is required by a harmonic but not as much as a normal stopped note; since the string is prevented from vibrating freely the resulting sound is ‘dead’ and ‘muffled.’ The half-harmonic occurs when the finger touches the string with the amount of pressure normally used for a harmonic at spot that is not a harmonic node. The half harmonic can also be brought about by having the fourth finger press on a harmonic node more firmly than it normally would for a harmonic: both result in a “flutey” sound, similar to that of sul tastò and a natural harmonic.

Harmonics are possible because of the presence of the overtone series in stretched strings, and the undertone series can also be used in conjunction with harmonic techniques. If a harmonic is played with overpressure in the bow and a slower bow speed (which is the method used to produce undertones) it will sound as an octave below the expected resultant, and overpressure alone will add a noise band to the harmonic. The discovery of microtonal harmonics has also expanded the pitch possibilities of harmonics. It should be noted that the specific pitch of a harmonic is not always a concern, as composers sometimes ask for the “highest harmonic possible.” In such instances, the goal is the strained timbre resulting from the production of a stratospheric pitch.

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268 Strange, *The Contemporary Violin*, 70.
270 Read, *Contemporary Instrumental Techniques*, 56.
271 Ibid., 59.
273 For examples of subharmonics, see videos by Mari Kimura at www.marikimura.com.
Harmonics require a sensitivity of touch in the left hand. With normal playing, a hard, glassy tone will result from strong pressure, and less pressure will produce a more mellow timbre. Articulation will be affected by the height from which the fingertips are dropped, with clarity increasing as the height of the fingers increases.\textsuperscript{275} Small changes in the weight of the fingers are needed to change from solid notes to the various harmonics depending on the string and hand position,\textsuperscript{276} and learning to control this demands an understanding of how much pressure is needed for each. There are also bowing considerations when playing harmonics, with bow pressure, bow speed, and contact point all having an effect on the timbre. A change in bow weight may be required depending on the string used\textsuperscript{277} and because the contact point matches the resultant and not the note that is stopped, the bow must be closer to the bridge in order for the harmonic to sound clearly. Additionally the bow contact point may change for each harmonic,\textsuperscript{278} but can also be moved closer to the left hand to amplify the higher partials.\textsuperscript{279} Harmonics are also useful in difficult passages as substitute fingerings\textsuperscript{280} and in helping to develop reliable pitching skills.\textsuperscript{281}

\ \textsuperscript{275} Eales, “The Fundamentals of Violin Playing,” 104.
\textsuperscript{277} Ibid., 7.
\textsuperscript{278} Sarch, “The Twentieth Century Violin,” 148.
\textsuperscript{279} Strange, The Contemporary Violin, 126.
\textsuperscript{280} Zukofsky, “Aspects of Contemporary Technique,” 145.
\textsuperscript{281} Robertson, “Twentieth-Century Violin Technique: Volume I,” 59.
4.1.3 Glissando

Horizontal movement along the length of the fingerboard is pushed to its extremes in the motions of the *glissando*. Actions in this direction are varied, ranging from small motions for minor adjustments to intonation to a larger motion for vibrato, and an even greater motion which, when sounded, produces a *glissando*. Because string instruments are able to transition seamlessly from one note to the next chromatically, *glissando* is one of their most idiomatic sounds. Until partway through the twentieth century, the terms *glissando* and *portamento* were used somewhat interchangeably to refer to perceptible slides. Today, in different instrumental families, *glissandi* can refer to quantized changes of pitch, such as played by pianos, harps, xylophones, marimbas, and so on, while *portamenti* are continuous changes of pitch which can be performed by trombones, lipped on trumpets and clarinets, or controlled with pitch benders on synthesizers. For the purposes of this document *glissandi* and *portamenti* will be used interchangeably to denote a continuous, unquantized change of pitch, but the manner of the change is determined by which of the terms is used, as discussed below.

*Glissandi* first appeared in Carlo Farina’s *Capriccio Stravagante* (1627) and although they were not that common, players would indulge in *portamenti* in the eighteenth century, with examples given in the treatises of Leopold Mozart and L’Abbé le fils (although Geminiani did not approve of the device). Louis Spohr also noted that one of the violin’s advantages was its ability to slide from one tone to another, which helped it to imitate the human voice.

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Glissandi were then widely used by Paganini but fell out of fashion after his time, and the device came into its own on string instruments when Bartok used it as a primary device in his compositions.285

Traditionally, a *glissando* involves one finger moving quickly; slow *glissandi* were not common because the purpose of a *glissando* was to embellish pitches. The *glissando* was delayed so that only the last portion of the slide was heard at the end of the gesture, but contemporary composers now ask for the *glissando* to be heard for the entire duration of the note and the delayed slide is referred to as a *portamento*.286 Variations of glissandi include changing the finger pressure (for a *glissando effleuré*); changes in the length and speed of the *glissando*; performing the *glissando* with something other than the finger, such as a different part of the hand (a flat hand or a fingernail) or an external object; combining it with different bowings (or *col legno* or *pizzicato*); combining it with artificial harmonics to produce the “seagull” effect; or creating the *glissando* by turning the pegs of the instrument.287 Glissandi are sometimes notated without a specific ending pitch, just the direction to play to the “highest possible notes”; similar to the occurrence of this direction in harmonics, it is not a matter of pitch but rather a matter of timbre and gesture.

While *glissandi* do not present much in the way of a technical challenge – Robert Jacoby stated that “A high degree of skill is required to play cleanly, but hardly any to slide from note to note”288 – they can be beneficial to smoothing out the actions of shifting. A common problem

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288 Jacoby, *Violin Technique*, 46.
with shifting is that students try to shift with the finger instead of the hand or arm.\textsuperscript{289} It is difficult to move just the hand when executing a \textit{glissando} because of the necessary increased finger pressure, so its motion can help students to simplify their movements when moving along the fingerboard for a shift. Paul Rolland has a shifting exercise that is a combination of harmonics and \textit{glissando}: called “The Ghosts” on the upper string and “The Flute” on the lower string, the student slides the third finger back and forth from the end of the fingerboard to first position, touching the string lightly to bring out the natural harmonics. This helps with long shifts and encourages free movements that are initiated in the upper arm.\textsuperscript{290}

\subsection{4.2 Right Hand Techniques}

The bow is the “essential means of expression”\textsuperscript{291} as it is responsible for the production of sound; music is shaped by the activity of the bow. As Leopold Mozart wrote:

\begin{quote}
“The bowing gives life to the notes; … it produces a now modest, now an impertinent, now a serious or playful tone; now coaxing, or grave and sublime; which we are able to rouse in the hearers the aforesaid emotions.”\textsuperscript{292}
\end{quote}

Bow speed, bow pressure, and contact point are the basic considerations of bowing. Each component affects timbre in a different way: the speed of the bow will change openness and resonance of the sound and the pressure of the bow will determine the darkness and density of the sound.\textsuperscript{293} Speed and pressure are also the main factors in the volume of the tone, but it is the

\begin{itemize}
\item \textsuperscript{289} Barrett, \textit{The Viola}, 70.
\item \textsuperscript{290} Rolland, \textit{The Teaching of Action}, 132.
\item \textsuperscript{291} Boyden, \textit{The History of Violin Playing}, 400.
\item \textsuperscript{292} Mozart, \textit{Treatise}, 114.
\item \textsuperscript{293} Simon Fischer, \textit{Basics: 300 Exercises and Practice Routines for the Violin} (London: Peters, 1997), 48.
\end{itemize}
contact point and its variations that account for the expressive nuances of timbre possible on string instruments.\textsuperscript{294} Most of the attention in teaching has been focused on becoming more proficient in matters of speed and pressure, with the emphasis on adjustments needed to maintain a beautiful, even, and consistent tone. Changes in speed and pressure are also learned through the acquisition of various articulations. Extended techniques in the right hand may seem wilder than those in the left, but again Gardner Read points out that they “all have direct antecedents in past practice. The “newness” is more a question of degree than of substance, as there are, after all, only so many ways in which a bow can be held by the hand, moved with the arm, and pressed against the string.”\textsuperscript{295}

\subsection{Speed}

Various bow speeds are integral to playing a string instrument, as any change in dynamic or rhythm will necessitate an adjustment in bow speed. It is also an inherent part of bow division, a fundamental skill that is taught throughout the development of technique. One extreme of bow speed is bowing very quickly, and one possible result of a rapidly moving bow is the tremolo. \textit{Tremolo} in modern times refers to very small, separate, and unaccentuated bow strokes, either measured or unmeasured, but the term has been used in the past to refer to repeated notes in one bow as well as left-hand vibrato.\textsuperscript{296} It is possible for tremolo to be a timbral or a rhythmic event. Transient noise bursts are present at the beginning of each bow stroke – this is the sound of the

\begin{footnotes}
\footnote{Stowell, \textit{Violin Technique}, 143.}
\footnote{Read, \textit{Contemporary Instrumental Techniques}, 206.}
\footnote{Seagrave, \textit{The A.S.T.A. Dictionary}, 51-2.}
\end{footnotes}
friction between the bow hair and the string. With a fast, regular tremolo these transients blend together, and the resulting timbre is characterized by an additional noise band. If the tremolo is slower and irregular, there is no blend of the transients and instead the tremolo becomes a series of rhythmic articulations. Because this device fits well with descriptive music and bowed string instruments, it has likely been in use since the beginning of the violin’s history. For example, it is found in Biago Marini’s *Affetti musicali* (1617), Monteverdi’s *Il combattimento di Tancredi e Clorinda* (1624), and Farina’s *Capriccio stravagante* (1627).

Tremolo is a standard technique on the viola, and the use of the tremolo has been expanded by combining it with techniques in both hands, such as glissando, harmonics, and different contact points. A tight and non-rhythmicized bow-tremolo has also become a prevalent technique. Tremolo can be useful to technique by practicing a fast, light tremolo at the tip of the bow using only the index finger and the thumb to hold the bow to establish a feeling of looseness in the hand.

### 4.2.2 Pressure

Subtleties of pressure and arm weight are learned as a student navigates the use of the entire length of the bow. While modern bows are able to produce an even tone from frog to tip, 

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300 Sarch, “The Twentieth Century Violin,” 32.
manipulations must still be made as the bow is naturally heavier at different points along the stick and small changes in weight on the string are necessary for a tone to be consistent for along the whole bow. Sound is produced by the bow when the hair ‘catches’ the string and pulls it back and forth. If there is not enough contact with the string, the bow will skate over the string and the sound will be ‘ghostly.’ If there is too much pressure there will be a noise component and the pitch of the string will be flattened,\(^{303}\) as overpressure restricts the movement of a string from side to side, producing a torn, scraped sound.\(^ {304}\) Since a ‘pure’ tone cannot be achieved with too much pressure, it is something that has been discouraged in western classical music. However, it gained popularity in the mid-1970’s as an effective technique for producing a sound that is unexpected for string instruments.\(^ {305}\)

Overpressure is a technique that would normally be deemed “wrong,” as William Primrose pointed out that “pressure and viola playing are immiscible. While I would advance the opinion that pressure is not the best device for tone production on the violin, the violinist may get away with it in that his instrument responds more readily than does ours. Ours has to be wooed and won and resents manhandling and outrage.”\(^ {306}\) However, overpressure can still be helpful in the matter of tone production. In the way that consciously contracting a muscle helps with understanding how to release it, using an extreme amount of pressure can help students understand the limits of the bow on the instrument so that they are better able to control and


\(^{304}\) Fischer, *Basics*, 36.

\(^{305}\) Strange, *The Contemporary Violin*, 17.

minimize pressure when it is not needed. It also creates an awareness of how pressure can be manipulated to suit the desired timbre.

4.2.3 Contact Point

Contact point is the place where the bow meets the string, and it is the focus in pedagogical works when tone is addressed. The most commonly recommended exercise is to divide up the space between the fingerboard and bridge into 5 “lanes” and then practice different durations of notes with varying speeds and pressures to find what works best in each lane. The goal of this exercise is to “[make] the string vibrate freely by finding the best balances of speed and weight at each distance from the bridge.” The middle three lanes are where most playing happens, and the edges of the two outermost “lanes” are where sul tasto and sul ponticello are found. These techniques of playing on the fingerboard and on the bridge, respectively, are standards in string playing, and the twentieth century has seen them explored to a greater extent with the concept of contact point extended past the area between the fingerboard and the bridge.

Documentation about sul ponticello and sul tasto in history is very sparse: a treatise on the viol and the lute, Regola Rubertino (1542-3) by Sylvestro di Ganassi, noted that tone was related to bowing and should determine the distance that the bow was placed from the bridge. “Sad” effects could be created by playing near the fingerboard and stronger and harsher sounds necessitated the bow to be placed near the bridge, although it was not sul tasto and sul ponticello bowing in the modern sense. Sul ponticello was first used by Carlo Farina in Capriccio

Stravagante (1627) but then did not appear again in violin music until the time of Luigi Boccherini (1743-1805).\textsuperscript{309} Eighteenth century writers provided very basic descriptions of contact point, such as L’abbé le fils’ instructions that the bow must be drawn straight and guided over the sound holes of the violin.\textsuperscript{310} Leopold Mozart emphasized the importance of searching out the spot where to tone is richest, saying that “you must know how to seek carefully on each [violin] for that spot where the strings can be brought, with purity of tone, into gentle or rapid vibration in the melodious manner demanded by the Cantilena of the piece about to be played.”\textsuperscript{311} He also instructs players to play farther from the bridge on the two lower strings due to their thickness, as any force on them would produce a rough tone.\textsuperscript{312} Sul ponticello was rare, although Haydn includes it in the second movement of his Symphony no. 97 in C (1792) and it is mentioned, along with sul tasto, in Michel Woldemar’s treatise and Pierre Baillot’s \textit{L’Art du Violon}. In addition to directions that the placement of the bow should be changed according to the amount of sound desired,\textsuperscript{313} Baillot says that sul tasto can have a “whistling and nasal [quality]” and is suitable for certain contrasts, while moving the bow away from the bridge can create a round and mellow tone.\textsuperscript{314} Notable pieces which use sul ponticello include Hector Berlioz’s \textit{Harold in Italy} and \textit{Symphonie Fantastique} as well as Richard Wagner’s \textit{Tristan und
Isolde and the string quartets of Bartók. \(^{315}\) Sul tasto and sul ponticello were used as effects, but were not seen as a part of the regular tonal palette of string instruments. Because rough and harsh tones were to be minimized and full tones to be emphasized, these contact points were not welcome in string playing. Carl Flesch thought that sul ponticello “should be rejected from a purely tonal standpoint, since its object is to produce a scratchy, impure vibratory picture mingled with distinctly audible, irregular over-tones.”\(^ {316}\) He found sul tasto to be less objectionable, and said it was “An effect well-nigh unknown, yet uncommonly charming, may at times be secured in order to produce a marked impression of distance.”\(^ {317}\) However, as the aesthetics of music and opinions on sound have changed, Kenneth Sarch points out that:

“The concept of a violin tone is being expanded to include sounds that were once entirely forbidden. What we once considered the “ugly” side of our violin tone is today being cultivated and integrated into our tonal palette, just as the “dark” sides of our personalities are being brought out and integrated into our whole self in psychological terms. What is beautiful after all is often a matter of opinion and cultural acceptance.”\(^ {318}\)

Various timbres can come out with changes in contact point, and even minute differences in placement can result in a large timbral change. Sul tasto sounds can range from airy and soft to thin and nasal, and because there is not much resistance to the bow when played over the fingerboard, the tone can be gentle but also weak. \(^ {319}\) Alterations to the sound can also be achieved by drawing the bow in different manners. There are also degrees to playing sul

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\(^{316}\) Flesch, The Art of Violin Playing, 100.

\(^{317}\) Ibid., 100.

\(^{318}\) Sarch, “The Twentieth Century Violin,” 27.

\(^{319}\) Kolneder, The Amadeus Book, 18.
ponticello and often it is not indicated how close the bow should be to the bridge. Close to the bridge the string has more tension and offers more resistance to the bow since the string cannot vibrate as freely. A wide variety of timbres can result from playing sul ponticello, “ranging from a slight colouration of the pitch to a complete elimination of the fundamental that produces a clangorous, almost non-descript timbre.”320 If the bow is close to but not on the bridge, the fundamental pitch will be heard and the tone will be louder but also somewhat nasal, brittle, and grating. As the bow approaches the bridge, the higher partials become more prominent and the sound will become harsh and scratchy.321 Sul ponticello can also be applied to various articulations and manners of generation to create varied timbres: any of the bounced bow techniques work well, as does overpressure, and when played with tremolo “its use in soundtracks to heighten the tension of a scene has become a cliché.”322 Modern composers have expanded the concept of contact point to include other areas of the instrument, such as the peg box and underneath the strings.323 It is also possible to play sub ponticello, on the area of string between the bridge and the tailpiece. The resulting timbre is a magnification of the glassy edge found in sul ponticello, and because the string length is so small in this area it is not possible to obtain a precise pitch, only a squeaking sound.324 As with the other techniques, sub ponticello can be combined with different elements to produce new results. For example, bow pressure can

320 Strange, The Contemporary Violin, 3.
322 Strange, The Contemporary Violin, 6.
323 For more details on bowing possibilities, see Strange, The Contemporary Violin, 44-8.
324 Read, Contemporary Instrumental Techniques, 215.
be used to generate various colours – higher pitches are produced when a light bow is used, and heavy bow pressure will produce lower pitches on the same string.\(^{325}\)

Experimenting with different contact points can also teach students about bow pressure and speed, as successful bowing will come from a balanced relationship between these factors. Simon Fischer has three principles of tone production: “1) closer to the bridge, more weight; 2) the higher the fingers play up the string (the shorter the string), the nearer the bow plays to the bridge; 3) the shorter the string, the less pressure it can take from the bow.”\(^{326}\) By finding the exact speed and pressure that works best with each of the contact points, students become more conscious of the individual elements as well as how they work together. Once this is understood, these rules can be broken to experiment with more colours. Differences in tone colour are also much more obvious when different speeds are being used in *sul ponticello* and *sul tasto*. These techniques can help students to hear and feel when their bow speed is unsteady, as it is a common problem for players to use too much bow at the start of the stroke and then run out of bow towards the end.\(^{327}\) Working on contact points can also help students to draw a straight bow. It can be difficult to play a straight bow stroke because actions in straight lines do not come naturally to the human body and the movement of the arm,\(^{328}\) but playing *sul ponticello* can give a clear visual cue to which students can compare their bow placement, and any deviation will cause the bow to fly either towards the fingerboard or over the bridge.

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328 Ibid., 51.
Ivan Galamian noted that there are two types of tone production: one that relies on speed and uses little pressure with the bow farther away from the bridge, and one that relies on pressure with a slow speed and a contact point close to the bridge. The former has a light, loose character with a delicate colour and the latter has a dense and concentrated sound with a brighter tone. He stated that many will stick to one of the two types, and in doing so they “limit severely the expressive scope of their playing,” so it is advised to not only master the two types but also learn to mix them in order to have a wide range of timbres and characters. The contact point is also affected by the string thickness and the position of the left hand, with thinner strings and higher left hand positions needing to have a contact point closer to the bridge. This means that even if the speed and pressure remain constant in the bow, the contact point must still move with every string or position change. Proficiency on the instrument requires the ability to find the right contact point at any given moment, so players must first know how to find the appropriate contact point and then move or maintain it as necessary. However, the most important skill of tone production is the ability to listen: Louis Spohr stated that “The Scholar will be better guided by his ear, when he feels the want of a fine tone, in using the proper bowing necessary to produce it, than by any theory.” Ivan Galamian went on to say that “A player whose ear is not keen or not alert enough to guide him to the best sounding point, or whose bow technique does not allow him to follow his ear, will, of course, never achieve satisfactory tone production.”

329 Ibid., 62.
The range of sounds possible on the viola has also been expanded by the use of percussive devices. When used on instruments that are normally considered to be lyrical, these extended techniques can be varied in production and sonically intriguing, and they have become popular in contemporary compositions. There are two methods of producing percussive sounds: strike the strings, or strike the instrument.\textsuperscript{333} Both can be accomplished in various manners and with various objects; the method and force of the attack can be modified and can be carried out by parts of either hand or an item that will not damage the instrument.\textsuperscript{334} The most common percussive device is \textit{col legno}, which first appeared in 1605. However, it was rarely used and only became commonplace in compositional practices in the early part of the twentieth century, where it found a role in both orchestral and chamber music, such as in the quartets of Schoenberg, Berg, and Webern.\textsuperscript{335}

There is a perception that extended techniques are more difficult than regular techniques, but this is not necessarily the case, as they are just extensions of existing techniques, or aspects of technique that have not been fully explored. The difficulty often comes from putting everything together, especially when this includes unfamiliar notation and diverse musical concepts. Extended techniques are also often required in quick succession and Zukofsky noted that “what distinguishes this century’s usage, and creates the problem for us, is how brief the durations are between changes from one type of right-arm use to another.”\textsuperscript{336} Switching between techniques makes the process more complicated, although that can be one of the things that

\textsuperscript{333} Read, \textit{Contemporary Instrumental Techniques}, 86.

\textsuperscript{334} For example, different areas of the string and the instrument can be struck and different parts of the bow, such as the metal screw, can be used to strike the strings.

\textsuperscript{335} Read, \textit{Contemporary Instrumental Techniques}, 87.

\textsuperscript{336} Zukofsky, “Aspects of Contemporary Technique,” 144.
makes a piece so appealing.\textsuperscript{337} Separately, most techniques are very simple, and the challenge comes from having to do many of them at the same time.\textsuperscript{339}

While most of the fundamental techniques for viola have been standardized, there are many extended techniques that can be played in different ways successfully.\textsuperscript{340} Experimenting with different ways of playing can be effective in discovering different timbres, and expanding their technical abilities means that students are more versatile in performing on the instrument. Technique can then be adapted to fit the demands of the music, and a deeper understanding of the components of these techniques makes new demands easier to tackle. As well, knowledge of the different effects that come from the motions and their various combinations with both hands means that endless possibilities of timbre can be created, allowing musical expression to be more fully realized.

\begin{thebibliography}{99}
\item Gasser, \textit{Pro Musica Nova}, 3.
\item Fischer, \textit{Basics}, vi.
\end{thebibliography}
Chapter 5: Etudes

Etudes are an effective tool for learning and have had a place in string teaching for over two centuries. When instructional materials about the violin first emerged at the end of the seventeenth century they were more descriptive than demonstrative and musical examples were rarely included. As the violin became more popular, the treatises became more detailed and began to include musical works, first short dance pieces and then longer pieces that dealt with a particular technical difficulty. This expanded to page-long etudes by the middle of the eighteenth century, and books of violin etudes were being published by the end of the century. An explosive interest in music-making in the late eighteenth and nineteenth centuries resulted in a plethora of instructional materials appearing for the amateur and young professional, and the etudes that emerged at this time were also in part a response to the new set-up of the violin and the use of the Tourte bow. The methods for teaching and playing the violin and viola changed significantly over the next half a century, and it was during this time that most of the etude books that are considered standards were written. This was considered to be the “golden” age of violin instruction and established techniques that are still used today. Because they address the technical in a musical setting, etudes attend simultaneously to various skills for both precise

341 Information was rudimentary, covering topics such as the physical aspects of the instrument, tuning, the layout of the fingerboard, and how to hold the bow.
and generalized learning.347 They are the means by which pedagogical ideas can be tested and solidified, and play an important role in helping students to navigate through technical challenges of playing an instrument.

Violists have almost always used violin etudes that were transcribed, first out of necessity due to a lack of viola etudes and now because of choice and tradition.348 Although there must be an awareness that the technique differs in several regards – such as fingering, finger pressure, and tone production – between the two instruments, using violin etudes ensures that the level of technique for the violist matches that of the violinist. Many violists will have used them to build their technical foundation, especially if they started out on violin and worked through the etudes in their original form before switching to viola. While the standard etudes are still a cornerstone for the foundation of technique, a variety of new technical demands have emerged in the past century and these etudes do not cover the entire range of what is expected of players today. As such, there is a gap between what is required and what is available for pedagogical materials.349

There is a need for more resources that are technically challenging and viola-specific,350 especially in regards to extended techniques, and the etudes written for this project take a step towards filling this deficit. While exercises could be used to introduce students to the techniques, such as a scale with sul ponticello bowing or isolated harmonics, the techniques are better understood in a musical context, especially a contemporary one. Etudes are also more effective

347 Ibid., 33.
349 Robertson, “Twentieth-Century Violin Technique: Volume II,” 4. It should also be noted that this is not a problem that is exclusive to string players, as this concern has been addressed in dissertations for other instruments, such as bassoon, flute, and saxophone. See dissertations by Patterson, Pietersen, and Murphy, respectively.
and produce better results when they are musically rewarding.\textsuperscript{351} When Charles Ashley included original caprices with his dissertation, he wrote:

“If young violinists are to ever understand and appreciate the newer musical idioms, they must have some music to play which is at once representative of the times, and within their technical capabilities. Since most twentieth century music is quite difficult and is not technically possible for beginning students, these caprices and, it is hoped, many more like them will furnish the bridge to span the gap of their inadequate experience and understanding of modern music.”\textsuperscript{352}

These etudes are meant to help close this gap and prepare students for the technical demands of contemporary music. They were written specifically for violists of an intermediate level, so students should already have a grasp on the basic fundamentals of playing the viola in both hands and be on their way to learning more complicated aspects of playing, including navigating multiple elements simultaneously. The etudes represent an array of styles and techniques, and will help students to have a better understanding of extended techniques and how they can be an integral part of music.

5.1 \textit{Cup of Tea} by Adam Hill

Active involvement is essential to learning,\textsuperscript{353} and students play an active role in the realization of Adam Hill's \textit{Cup of Tea},\textsuperscript{354} an aleatory work in which some of the compositional choices are left to the performer. It is a playful etude that incorporates harmonics, \textit{glissando}, and \textit{col legno}, and the majority of the melodic line is left to the performer to determine. Sets of

\textsuperscript{351} Cutler, “Rodolphe Kreutzer’s Forty-Two Studies,” 26.
\textsuperscript{352} Ashley, “The Composition of Fundamental Exercises,” 48.
\textsuperscript{354} See Appendix A.1 for music.
pitches are to be improvised over given rhythms, and the non-tonal pitch collections provide an introduction to improvisation with enough boundaries to allow students to experiment without becoming overwhelmed. Improvisation has long been a part of music: it was common during the Baroque era, where performers were expected to improvise accompaniments, melodic solos, counterpoint, variations, and ornaments. In the Classical era, performers had less freedom to improvise with the exception of the cadenza in a concerto, and this decreased further as improvisation no longer had a place in western classical music from the nineteenth century until the middle of the twentieth century. Improvisation can help foster a deeper understanding of a musical style, because it requires concepts of that style to be internalized. It is not a random spur-of-the-moment act; instead, it stems from a history within a particular culture, and participating and contributing to this can give students more insight into the music. Improvisation is more of a process than a method; it is an exploration by the student that encourages “risk-taking, reflexivity, spontaneity, exploration, and play,” qualities that are important for the performance of many types of music. “The experience of improvisation can enable students to unlock undiscovered aspects of their musical selves;” as much as extended techniques encourage imagination and exploration and boundary pushing, improvisation does this to a much greater extent. Students can prepare the improvisations ahead of time, and should experiment to discover what seems most appealing to them, as there is no right or wrong way to organize the

357 Ibid., 44.
pitches. Participation in the creation of the final form of the composition also provides a sense of responsibility and ownership.

Extended techniques in this etude serve as structural points, marking the ends of pitch collections and phrases. Harmonics, *glissandi*, and *col legno* are used almost as punctuation, their timbres contrasting with the rhythmic staccato notes that precede them. Harmonics and *glissandi* are held for longer durations which highlight their timbres, and the *col legno* with muted strings show a different side of the rhythmic in the work, with the effect varying depending on how the strings are muted. The use of the extended techniques demonstrate how they fit into the language of this music, not necessarily as a focus but still holding an important role overall.

### 5.2 Bone Dry Holler by Christopher Gainey

Another piece that students put together is *Bone Dry Holler: a two-handed puzzle etude for four strings attached to medium-sized bits of wood (i.e., Viola solo)* by Christopher Gainey.\(^{359}\)

It is also aleatoric music and has mobile form, wherein the player has the freedom to change the order of the written material.\(^{360}\) The puzzle pieces have been provided by the composer, but the performer must be the one to put them together and decide the final form of the work. The piece has an overall form that will be familiar to students, the “scherzo” and “trio”, and there are four possible outcomes for the form. This depends on whether the piece is played in its entirety or if parts are left out, and the trio consists of six “chunks” of music which Gainey calls “modules,”

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\(^{359}\) See Appendix A.2 for music.

whose order is also variable. The various possibilities of form are fully explained, along with notes about the techniques and notation, in an introduction to the piece. The duration of the piece can be between approximately 2-6 minutes depending on the choices of the performer.

The scherzo uses hocket technique between the two hands, which both play pizzicato to create a steady sixteenth-note pulse. A few variations are added to this – the left hand is occasionally asked to play a glissando or strum a double stop, and the return of the scherzo has arco alternating with the left hand pizzicato. Because the string length that vibrates differs for the two hands when executing pizzicato, the pizzicato in each hand does not produce the same sound but it also is not expected to in this etude. Differences in the sounds helps to differentiate between the hands, and unexpected noises that may occur in the process, which Gainey calls “artifacts,” are welcomed as an inherent part of the piece. For the glissando, the student must have enough finger weight for the entire duration of the glissando in order to have it be heard, as lifting the finger early will stop the string vibrations, thereby stopping the sound. Because the bow is not helping with the sound production, motions must be exaggerated and efficient to help with projection, and a microphone can be used to aid in this matter. It is also essential that there is no tension or clenching in the left hand because a tense hand will restrict the motion needed to play the pizzicato.

The four distinct “modules” of the trio continue to use pizzicato in the left hand but now challenge the player by combining them with harmonics or col legno battuto. The harmonics are also combined with left hand tremolo but only require pizzicato when the harmonic is being held, and the col legno battuto is a continuation of the hocket between the two hands. While increasing the student’s versatility in techniques, the trio works on the same skills required for the scherzo: finger independence, rhythm, and strength in the left hand; independence and co-ordination
between the hands; and reading non-conventional notation. This etude is best practiced slowly at first to co-ordinate the hands and figure out what fingering works best, depending on finger strength.

### 5.3 *Syllogism* by Aaron J. Kirschner

A technique can be strengthened through repetition and study from different perspectives, and Aaron J. Kirschner’s *Syllogism*\(^{361}\) is an exploration of harmonics in different forms, combined with various other techniques. Both natural and artificial harmonics are called for, the latter being produced as part of a left hand *tremolo* as well as harmonic double stops. There are various ways to produce the same harmonic pitch, and this is demonstrated by the use of different fingerings in succession for the same sounding pitch. The effect is somewhat mind-boggling, as the fingers move to a different spot and the bow moves to a different string but the ear hears the same pitch for both notes. Each note has a slightly different timbre, however, so it opens both the eyes and the ears to different possibilities in playing harmonics. The harmonics vary in duration throughout the etude so pure silvery tones can be relished on the longer notes while the notes sparkle when short.

The harmonics are also combined with other techniques: a quasi *glissando*, *sul ponticello*, *sul tasto*, and *bariolage* are called for alongside the harmonics, expanding the range of timbres within the work. The bow cannot be complacent in this work, as there are sudden and drastic dynamic changes, and bow pressure must constantly be varied depending on the situation. Directions like ‘agressivo’ call for a stronger force, while the harmonics combined with non-

\(^{361}\) See Appendix A.3 for music.
harmonics in a double stop must have different amounts of pressure on each string in order for both notes to sound equally. The piece has a sense of order with its precise rhythmic concerns, but it is also unmeasured, which creates a sense of freedom and long lines.

Although students may initially be intimidated by the notation and two systems, the additional system that shows the sounding pitches is a helpful guide. Because the harmonics are sometimes very close together, students should be aware of the desired sounding pitches or a lot of wrong notes may be played. A further challenge is added with the microtonal harmonics, and harmonics can be deceiving because of their nature of producing a different pitch than what would be expected when stopping a note. Students should listen carefully when practicing, and Castledine points out that “Etudes assist in training the kinesthetic sense in addition to the development of the aural sense. We teach the hands and fingers where to go, but our ears are the ultimate judge of success.”

5.4  Blue Étude by John Kastelic

Blue Étude by John Kastelic\textsuperscript{363} is a study of three percussive effects that students may not have seen before, as these techniques are not common in the traditions of Western classical music. However, effects such as these are gaining popularity, and “possibly no avant-garde string technique is more varied in production or more intriguing sonically than the concept – currently high in favor – of the bowed strings as percussion rather than lyric instruments.”\textsuperscript{364} Modern

\textsuperscript{362} Castledine, “Etudes and Viola Pedagogy,” 22.
\textsuperscript{363} See Appendix A.4 for music.
\textsuperscript{364} Read, \textit{Contemporary Instrumental Techniques}, 86.
music has opened itself up to the traditions of other musical cultures, and it is not uncommon to find influences of bluegrass, fiddling, jazz, tango, etc. in contemporary compositions.

This etude focuses on the chop, the slap, and the tap. The chop involves a fast downward motion where the string is struck by the bow close to the frog, akin to the swing of an axe bearing down on a piece of wood. Its name alone indicates its percussive nature and metallic sound, and because it is a quick motion done with the fingers and wrist, these joints must remain flexible for the chop to work. Having stiffness in either area will cause the bow to instead thud down on the string, and the desired effect will not be achieved. The slap similarly suggests an immediate and forceful contact with the instrument, and while the chop is sharper and more knife-like, the slap indicates contact over a greater surface area. This can help students to understand how finger action begins at the knuckle, and can aid in a quicker finger action as it cannot be done slowly if it is to be effective. Fingers must drop quickly and decisively, and clean left hand articulation comes from speed, not force. The tap has the roundest sound of the three but requires the same amount of energy to execute. Similar to the slap, it helps with finger action and speed in the left hand, and students can experiment to find the spot on the instrument that is the most resonant. Although the techniques may be unfamiliar, the actions needed to play them may not be; the wrist motion for the chop is similar to that of hitting a drum with a drumstick, and the motion of the left hand techniques can be replicated by impatiently tapping a table. This etude will help technically with strength and speed in both hands as well as a better understanding of how to create rhythmic elements on the instrument. It will also help with

365 Havas, A New Approach, 29. Havas refers to this as the base joint and notes that the cause of the movement is the base joint, and the contact between the fingertip and the string is the effect of the movement.

tension, which is often the biggest problem for violists,\(^{367}\) as the techniques are difficult to play if the hand is gripping the instrument or the bow.

This work has a rock vibe throughout, and the steady groove supports and emphasizes the percussive effects. Each technique is presented with its own musical material and the chop and slap are more percussive and rhythmic, while the tap is used in a more melodic and lyrical section. The music from the slap section returns, now with all three techniques incorporated, and the performer is tasked with the challenge of switching between the effects while maintaining the groove. This is more of an issue of co-ordination than difficulty of the techniques, so it should be practiced slowly at first as the student gets used to playing the techniques in succession.

### 5.5 15 Tides by Zach Zubow

Although an etude is a pedagogical work, that does not exclude it from being a piece of music, one that can tell a story or capture an image. In Zach Zubow’s *15 tides*,\(^{368}\) the viola is asked to imitate a scene found in nature. More specifically, this etude evokes the movement of crashing waves, moving in quickly before a sudden calm sets in as the water moves back out. This movement is reflected in the rhythm, and enhanced with the use of variations in contact point and bow pressure. As the water surges forward with notes that become faster and increasingly more frantic, it reaches a breaking point when the wave crashes with the onset of overpressure in the bow. The water then recedes and calm returns as the bow transitions back to *ordinario* on a long held note.

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\(^{367}\) Parker, “A Survey of Viola Teachers’ Perceptions,” 106.

\(^{368}\) See Appendix A.5 for music.
All of the extended techniques in this movement involve the bow arm, and different timbres are produced with varying contact points and amounts of pressure. These changes in tone and texture are meant to stand out and vary in length from over a single note to over several bars. The grittiness of overpressure and sul ponticello are contrasted with the thin sound of sul tasto before an expressive melodic section.

The techniques often begin in ordinario or transition to it, and this movement trains the player to move back and forth between different contact points with ease. The ability to change the point of contact is the first technique necessary for acquiring skill with contact points, and Galamian suggests a few exercises for this. The first is to glide the bow both away from and towards the bridge, and once this is mastered, to practice transferring between contact points by varying the speed on either a long note or with fast strokes. It is also recommended that exercises with contact point be practiced with changing dynamics. This etude encapsulates these exercises by changing the contact point while varying the bow speed and dynamics, so students are able to refine their skills with contact points while playing a musically interesting work.

5.6 From Here to Where by Glenn James

Glenn James' From Here to Where is the story of a journey, and the range of musical ideas that this etude moves through expresses itself though contrasting and sometimes seemingly contradictory emotions. The emotions all fit into the broader categories of love, joy, anger, fear, and so on.

370 See Appendix A.6 for music.
and sorrow but are very specific as to how each section is to be expressed. Having precise instructions gives the performer a more definite idea of the composer’s intentions, but it also means that these intentions must be deciphered and translated physically on the instrument. Students may not have thought about what it means to sound timid and tender at the same time, or exactly how to convey that something is tragic. It is often advised to not sound anxious while playing, so students may feel like this is going against what they were taught (or perhaps it will feel very natural!). Timbre is integral to the interpretation of this piece, as the sound quality of bravery is not the same as that of timidness, and there are technical ways to make them sound different. For example, there are sections where changing the contact point would not work – it would not make sense to play sul tasto or sul ponticello for 'brave' as it should sound resonant and that would be best executed over the f-holes, and while 'timid and tender' would normally suggest a sul tasto bowing, the addition of the harmonics means that the bow must be placed closer to the bridge for the harmonics to sound. However, there are a few sections where changing the contact point of the bow would be appropriate in order to find the right colour to match the emotion. For example, 'suspicious and playful' and 'anxious' would benefit from playing closer to the bridge for a slightly grittier sound, and a 'growl' could be achieved with the help of sul ponticello. A ‘growl’ could also be achieved with overpressure, a slower bow speed, or a change in vibrato. It requires imagination on the part of the performer, because regardless of how detailed directions may be there is no way to notate timbre in music. David Boyden points out that “What cannot be indicated in the music is the variety, beauty, or volume of tone of the

371 These are the five basic emotions in music according to Karen Tuttle – see Appendix 1 of Dane, p. 62. Tragic would fall under the sorrow emotion; suspicious under anger; playful under joy; anxious and timid under fear; and brave and tender under love.
violin, its timbre in general, or the varieties of tone colours through its different registers…unlike the idiom of melodies and figurations, these tonal characteristics are not recognizable in written or printed form, since they cannot be notated in score.”

Harmonics, glissando, and sul ponticello appear in the etude, but they are not features of the piece. Rather, they are woven into the musical language as elements that enhance a part of the story. Sandwiched between ‘tragic’ and ‘growl’ in the ‘timid and tender’ section, they seem shy compared to what surrounds them. Despite being ‘extended’ they do not stand out as being unusual, but rather seem fitting to the character of that particular section. Throughout the etude it is tasked to the student to examine what it means to be expressive in music; it is not just a beautiful sound that they are to attain, but a diverse range of tone colours that they are actively creating in order to tell a story through their instrument.

5.7 Suggested Order for Learning

These studies vary in terms of approach, techniques, and level of difficulty, and they can be used alongside the standard etudes. The following is a suggestion about the order that the studies could be learned as each study has elements that could inform the next, although this may change depending on an individual’s abilities, limits, and musical goals. This order slowly introduces the extended techniques, as the first two etudes use the techniques sparingly as a part of the musical language. The next two etudes have extended techniques integrated to a greater extent and the last two etudes fully explore an extended technique. Students should begin with Cup of Tea by Adam Hill. Because the techniques used are fairly common and straightforward,

this etude serves as a good introduction to extended techniques. In addition to capturing interest with the improvisation, students can experiment with different timbres with the *col legno*, as various effects can be produced depending on how much the strings are muted and the contact point of the wood with the string. The muting can also remove any semblance of pitch depending on where the fingers are placed along the fingerboard and the amount of pressure used. This would be followed by Glenn James’ *From Here to Where*. The extended techniques in this etude are also common and students can explore different bow speeds, pressures, and contact points to determine what types of sounds are produced and hear how they can be used to convey different emotions. Some students may find it particularly satisfying learning how to make the instrument ‘growl’.

Variations in bow actions are then more fully explored in Zach Zubow’s *15 Tides*. Bow pressure and contact point as well as the transitions between them are pushed to greater extremes, and paired with a constantly shifting rhythm, result in an expanded range of motion in the bow arm. John Kastelic’s *Blue Etude* would be learned next to continue with the exploration of effects executed with the bow, in addition to the effects created with the left hand. The left hand and right hand effects are kept separate and the form of the etude allows students to have enough practice with each effect to feel comfortable before they are played in quick succession, which requires the student to have a fair amount of coordination between their two hands.

Coordination is further developed in the remaining two etudes, which are more complicated as they often require extended techniques in both hands at the same time and use more complex notation. Christopher Gainey’s *Bone Dry Holler* requires the performer to steadily and consistently alternate between actions in both hands, so to avoid frustration there should be some security in the motions of both before the etude is played. Aaron J. Kirschner’s *Syllogism* is
the last etude in this proposed syllabus because it is the most involved in combining techniques. It requires quite a bit of awareness of and precision in finger pressure and finger placement as well as simultaneously navigating subtleties in the bow that are needed to make the harmonics sound. Each technique on its own is accessible, but the student must be prepared to combine the techniques and change them at a quick rate. Moving through the etudes in this order will help students gain a comprehensive understanding of numerous extended techniques and their timbres, resulting in expanded abilities on the instrument and a greater openness to potential, both technically and musically. Developing an understanding of these techniques and timbres helps to respond more fully to all music, and this understanding must come through experiencing the concepts in a meaningful way,\textsuperscript{373} which these etudes can provide.

\textsuperscript{373} McDonald, \textit{Musical Growth and Development}, 80.
Chapter 6: Conclusion

This document has explored how and why extended techniques are considered to be “extended” and looked at different ways in which they can be incorporated into teaching methods, supplemented by studies which demonstrate how this can be accomplished. This project was not meant to be a method, but rather an invitation to explore the potentials of the instrument and implement them into existing teaching methods where possible. This research hopes to encourage teachers and students to embrace extended techniques and perhaps it will inspire more people to compose pedagogical works with a focus on timbre and these techniques.

It is important that the present-day violist know these techniques, as they are now an established part of the language of contemporary music. The techniques should be learned and mastered, but their benefits are not limited to the techniques themselves as they can serve to complement technique as a whole on the instrument and give students a more complete picture of what is needed to play the viola in modern times. Studying these techniques, especially in a contemporary context, also exposes students to music outside of the common practice period. How will students know how to play these sounds if they have not ever heard them? It is important to develop a performer’s ability to explore, if the performer is to come up with new sounds. The performer also needs to have some sort of idea about the end result when using these techniques. Extended techniques are essentially limitless as long as they fit within the boundaries of what is physically possible\(^{374}\) so one can always be searching for novel sounds and new ways of playing. There are, of course, some techniques that have reached their limits – the example

\(^{374}\) Michel Michelakakos remarked that the only limit to extended techniques is that which damages the instrument, although not everyone considers this to be a limitation.
given in the introduction of turning the angle of the bow until the wood touches the string, the technique of *col legno*, cannot go any further since turning the bow more would return the bow to its original position where the hair makes contact with the string. But new discoveries are still possible, and combinations of techniques can produce new and novel outcomes. Extended techniques allow for a different approach to getting to know the capabilities of the instrument and the performer, and make students search for and listen to timbres.\textsuperscript{375} There is a freedom in extended techniques in contemporary music, because experimenting with timbres is more fun and less risky with this type of repertoire than on a piece by a CPP composer, such as Bach. There are traditional expectations of how Bach should sound, but more options are present in contemporary compositions, and this can be a source of motivation for students.\textsuperscript{376}

Unfortunately, timbre is not always a consideration for string players. Although general technical levels of the average player are uniformly high internationally, the concentration on left hand facility has come at the expense of nuances with the bow, and many players lack variety in their sound production.\textsuperscript{378} The recording process developed at the same time as the ‘Golden Age’ of violinists, and while this preserved the performances of well-known performers,\textsuperscript{379} it has had an effect on musical expression. Eric Wen notes:

\begin{quote}
\end{quote}

\begin{footnotes}
\begin{enumerate}
\item From an interview with Garth Knox on July 8, 2014.
\item From an interview with Anne Etevenon on June 3, 2014.
\item Wen, “The Twentieth Century,” 89.
\item Ibid., 86.
\end{enumerate}
\end{footnotes}
“By the 1970s the ‘perfectionism’ and ‘sonic fidelity’ of recordings had irrevocably affected violin playing. The aesthetic transformation of violin playing before and after the second World War can be likened to the replacement of flickering gas lamps by even electrical light; the individual and sometimes wayward approach had now been replaced by one of consistent but occasionally charmless accuracy.”

Accuracy in interpreting the score has become more important than expression of individual personality, but personality could become more apparent through sound. As Charles Libove points out:

“The very sound that one makes on the instrument is, in a basic sense, the person – it’s a very penetrating analysis of the human being. I know that sounds terrible, even frightening…but that’s my belief. The great artists can always be recognized. You cannot mistake Heifetz when you hear that sound. The ability to recognize who is playing is a very telling aspect of violin artistry; it is harder to distinguish between performers today. There must also be an enormous welding of the quality, the texture of sound with the spirit of the music itself. This is another important aspect of playing that has been a bit neglected since the great era of Kreisler and Heifetz.”

Personality can be expressed through timbre, so it should be of great concern in musical performance.

Fundamental technique is often mastered before extended techniques are learned, and branding these techniques as ‘extended’ can indicate that they are unusual challenging. But what if a beginner could learn these techniques and have them be part of the regular technique of the instrument, thereby enlarging their ideas of possibilities on the instrument from the very start? Instead of limiting the way that one learns an instrument and stating that everything outside of that view is extended, why not instead give students a more expanded view about different ways

380 Ibid., 90.
381 Ibid., 90.
to play the instrument? It has been my experience that students of all ages love to make different sounds on their instruments and sometimes discover these techniques on their own (without knowing what they are doing or that it is acceptable to do so). Exploring different timbres not only helps to sustain interest, it also opens up a sound world that the student may not have realized was possible on a stringed instrument. Consciously learning to control sound means that specific timbres can be chosen,\textsuperscript{383} and understanding how an instrument works leads to better use of it.\textsuperscript{384} Extended techniques can be sonic interpretations of the imagination, encouraging students to find ways to express themselves through the instrument. Karen Tuttle points out that violinists often feel divorced from their instruments and long to find the spontaneity and fluidity that they had when they were young. She says this of a first experience with the instrument:

“A youngster, a potential artist, picks up an instrument for the first time. Spontaneously, he will treat it as a wonderful new toy. He will pluck and scrape, feel the hair of the bow, turn the pegs, smell the wood, put his fingers on the “f” holes. He has made his first contact with the instrument and it has been fun!”\textsuperscript{385}

Recently, I was teaching a student, an eleven-year-old boy, and we were working on turning the bow so that the hair would lay flat against the string because his tendency is to play with the bow at an angle so that only a few hairs make contact with the string. He was goofing around by twirling the bow in his hand and he suddenly realized that doing so made an interesting sound, spontaneously coming up with a ‘new’ extended technique.\textsuperscript{386} I had been telling him for several weeks to turn the bow to have the hair flat and he had not been very interested in the concept, but

\footnotesize{\textsuperscript{383} From an interview with Garth Knox on July 8, 2014.  
\textsuperscript{384} From an interview with Garth Knox on February 12, 2016.  
\textsuperscript{386} David Gillham pointed out to me that this technique is actually called roulé, and it was a stroke taught by Lucien Capet in which the bow rocks back and forth as a sort of “bow vibrato”.
}
his attention was suddenly held by this happy accident of discovering that turning the stick could make a different sound. This impromptu learning and the sheer joy of discovery helped him to understand how he could have control over the angle of the hair and the subtleties in sound produced by small alterations in technique. Spontaneity and an inquisitive nature are fostered by extended techniques, and it can be a joy to discover a ‘new’ technique, even if it is just new to you.

While it is possible to figure out extended techniques independently, it can be difficult especially after years of emphasis that certain ways of playing are incorrect, so this thesis is for those of us who need assistance. New techniques arise when existing techniques are not sufficiently able to express what needs to be said musically, and experimenting with techniques can help to find solutions to problems with expression. Exploration leads to discovery, and students must be willing to delve into the unknown to reach their potential since growth happens when risks are taken. If students never leave the confines of tradition, choosing to always ‘play it safe’ instead of extending themselves to find their limits, they will never discover of what they are truly capable.

Galamian remarked that “The teacher must always bear in mind that the highest goal should be for him to make the student self-sufficient.” Teachers have done their job well when they become unnecessary after equipping a student with all the skills and resources needed to be independent in preparing and performing works. Introducing these techniques to students is a

\[388\] From an interview with Ramiro Gallo on June 28, 2014.
\[390\] Ibid., 22.
\[391\] Galamian, Principles of Violin, 8.
step in that direction, as exploring ways to play the instrument that go beyond common period practices better prepares them for when they come across new musical demands or concepts in contemporary repertoire. If a student can find value in these techniques, understanding how they are a means of expression in music, then it may also lead to an increased appreciation and understanding of contemporary compositions. Ideally, a performer is knowledgeable enough so that when presented with new requests, they have a store of techniques and timbres from which they can produce a solution, or at least know how to try out different possibilities in order to figure out what is needed. It is useful to learn to play an instrument from many different angles, sometimes literally, and understand how variations, both small and extreme, in technique can result in different sonic outcomes. Then, without hesitation, we can dive into more challenging and diverse music and more fully find ways to express ourselves through music.
Bibliography


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Appendices

Appendix A  Etudes
A.1  *Cup of Tea* by Adam Hill

Included with permission of the composer.
Cup of Tea
for Sarah Kwok

Adam Hill

\( \text{\textcopyright 2015 Adam Hill} \)
A.2   *Bone Dry Holler* by Christopher Gainey

Included with permission of the composer.
Bone Dry Holler
  a two-handed puzzle etude
  for four strings
  attached to medium-sized bits of wood
  (i.e., Viola solo)

2015

variable duration
(most likely between 2 to 6 minutes long)

Christopher Gainey (b. 1981)
Preface:

The physical demands associated with instrumental technique are often amplified when combined with the cognitive challenges of unusual or idiosyncratic musical contexts. If, to take things one step further, unconventional techniques are used within a singularly unorthodox work, then one is likely to be preoccupied with, if not intimidated by, the rather amorphous concept of "extended" technique. One imagines that a characterization of some techniques as "extensions" of standard instrumental practice may have arisen from a conception of certain techniques in relation to progenitors that are either less difficult or more idiomatic—a conception that may be particularly useful as a pedagogical guide. If, for example, one is in the process of internalizing the skills needed to play an instrument with an amount of proficiency equal to the demands of a particular repertoire, then it is wise to establish a set of basic techniques as a beachhead before beginning to explore the expressive range of the instrument.

An attempt to use "extension" as a guideline in musical situations, however, tends to raise more questions than it answers. How, for example, does one determine that a given technique is extended? Extended from where, and to what degree? To my mind, questions such as these are a bit too tree-focused to be entirely valid as much more than practical concerns that guide composers, theorists, and (in the sense that "extended" techniques are unusual or unexpected) audiences towards a more intimate understanding of the physicality of an instrument. Confounding the issue even further, one's perception of the affect of “extended” techniques is likely to be shaped by one's own familiarity, or lack thereof, with a given instrument. I am reminded of the pained expression on the faces of certain electric guitarists who, at a particularly tense moment, will reach a fermata point and, in seeming Herculean defiance of the envelope of a plucked string's sound, will steadily maintain a single pitch or chord for an unrealistically long time. This bit of pantomime is certainly exciting—the mark of a seasoned performer playing to his/her audience—but one's wonder is likely to be attenuated if one has ever encountered a device known as a "sustain pedal."

It seems to me that a pained expression—an embodiment of effort that expresses a musical function—is an essential element in the communication of the affect of "extended" techniques. Although the example I have cited is geared towards an audience unlikely to ever be aware of music like Bone Dry Holler (a statement that I make only in recognition of the regretful aesthetic divide between "pop" and "art" music—a mostly semantic distinction demeaning to both), it serves to highlight some of the assumptions that I have personally encountered when discussing "extended" techniques with people (musically experienced and otherwise) who are interested in such things. These assumptions may be boiled down to three statements that are, unfortunately, accepted as truth by some: "extended" techniques are 1) inherently more difficult, 2) almost exclusively used to produce isolated special effects, and 3) are primarily the purview of an elite class of "new music" specialists.

Bone Dry Holler, an etude that could be considered something of a contemporary music primer, has been designed as a challenge to these assumptions with the hope that it is also entertaining to both play and hear. I cannot speak with any confidence to the latter condition. If it is not met, then the former is, alas, musically invalid and I have failed to achieve my stated goals. If you are taking the time to read this rather self-indulgently verbose preface, however, I will (unsafely) assume that you find the music pleasing in some way and I invite you to consider the ways in which Bone Dry Holler might be seen to challenge the three "assumptions" identified above. Which is the more difficult aspect of Bone Dry Holler: the specific techniques or the unusual relationship between the hands? Although some of the techniques featured in Bone Dry Holler could be considered unusual "sound effects" in isolation, the prevalence of these effects elevates them to a level of greater structural significance. Furthermore, the score may appear, to some, to be of the type associated with some "elite" contemporary music, especially due to its idiosyncratic notation. The origins of Bone Dry Holler (as reflected by the title), however, are anything but "high brow." I play the banjo—an instrument often dismissed as "folk" or "old-timey" even when played with astonishing skill (kudos Bela Fleck, Ritchie Stearns, and the venerable Tony Trischka, among others)—and I would hope that anyone undertaking a performance of Bone Dry Holler would resist the temptation to, aesthetically speaking, take the music too seriously. In other words: make noise and share the fun.
Performance notes:

General Guidelines:

• *Bone Dry Holler*, as stated in the subtitle, is a puzzle—a fact reflected not only in the layout of the score but also in the variety of choices that face anyone preparing a version of the work for performance. In short, all the pieces are there, but some assembly is required.

• Throughout *Bone Dry Holler*, the right and left hand are notated on separate staves. The logic behind this division is not always clear, however, and some of the ambiguities related to this notational choice are discussed in more detail below.

• Little, if any, attempt should be made to alter the natural acoustic tendencies of certain techniques. For example, it is expected—and, more importantly, aesthetically appropriate—that left hand and right hand pizzicati should sound noticeably, if not strikingly, different. Furthermore, "artifacts" (unexpected sounds that are not directly accounted for by the notation) should be embraced as an essential part of the music unless there is an idiomatic—and, more importantly, musically interesting—way to correct for them. For example, the sound of the harmonics in the third module of the "Trio"—the "pitched" elements of which are often less prominent than is reflected by the notation—will necessarily contain a significant amount of "hiss" as the bow hair scrapes the strings.

• Some of the techniques featured in *Bone Dry Holler* are, admittedly, rather quiet. It is entirely appropriate—should either the acoustics of a particular venue or personal taste make it desirable—to use amplification. I would add, however, that a microphone tastefully positioned so as to produce the most "natural sound" is, in my opinion, preferable to the use of a contact microphone (a.k.a., "piezo" or "pickup") attached to the instrument. Should this issue arise, however, I happily defer to your judgment.

• Dynamics, as you are likely to notice immediately, are not indicated in the score. There are three reasons for this apparently glaring omission. First, the relative loudness of certain techniques may differ based on both the strengths of different performers and the acoustic qualities of their equipment (i.e., instrument, strings, etc.). Second, the version of the piece that makes it to performance is, I hope, a highly personal interpretation based on a set of choices about the form of the piece (more about this below). I would rather that you choose dynamics that support the dramatic shape of the form that results from how you choose to assemble the puzzle. Finally, in a consideration of only indirect significance, omitting dynamics—or, more appropriately, leaving the dynamics up to you—is one way to avoid notational clutter in an already visually busy score.

More specific issues:

Right and Left Hand:

In his "How to Play the Five-String Banjo," Pete Seeger shares a story that highlights an important contrast between different conceptions of left-hand technique with regard to plucked string, and bowed string instruments. It seems that when Mr. Seeger explained the common (at least to plucked-string instrumentalists) techniques of "hammer-on" and "pull-off" to his step-mother, her eyes brightened with the recognition of a technique she knew only as "left hand pizzicato." The story is especially interesting given the fact that Mr. Seeger's step-mother is Ruth Crawford Seeger—an example of the type of aesthetic/stylistic intersection of which I am especially fond.
Although my well-worn copy of Mr. Seeger's book did not survive my last move and my memory of the pertinent details is probably, at least partially, inaccurate, my purpose in mentioning it here is to introduce various aspects of left hand pizzicato in *Bone Dry Holler* which, not surprisingly, have been adapted from bits of plucked-string left hand technique. Should my brief descriptions here prove inadequate, and/or having gotten a firm hold on the basics, you would like more detailed advice on how to get the most musically appealing sound from similar, if not virtually identical, techniques, then I enthusiastically refer you to Aaron Shearer's *Learning the Classic Guitar Part I* (pp. 96-98). Mr. Shearer's careful and detailed prose devoted to this issue is, to my knowledge, the most efficient (and, with regard to purely musical concerns, the most complete) account of the physical procedures at the heart of techniques that, assuming the legends are true, Ruth Crawford Seeger would have recognized as left-hand-pizzicato.

Thankfully, the right hand techniques in *Bone Dry Holler* (with and without the bow) are, in my experience, almost universally recognized as conventional. However, in the hope that any confusion may be avoided, both right and left hand techniques have been included in Table 1—six situations, briefly explained, that constitute a quick-reference summary of the most prevalent left and right hand techniques in *Bone Dry Holler*. In essence, Table 1 may be considered a set of basic guidelines for adapting a plan of left hand fingering that suits (if not enhances) a nuanced interpretation of *Bone Dry Holler's* more ineffable qualities.
Table 1: A summary of left and right hand techniques in *Bone Dry Holler*

<table>
<thead>
<tr>
<th>Situation</th>
<th>Left Hand</th>
<th>Right Hand</th>
</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>- pluck 1st string with any free finger</td>
<td>- normal pizz.</td>
</tr>
</tbody>
</table>
| b)        | - finger B4 on 1st string.  
- pluck 1st string anywhere above B4* with any free finger  
- "pull-off" B4, plucking during release  
*possibly, but not necessarily, at the location of the parenthesized pitch* | - strike strings with wood of bow |
| c)        | - "strum"* with any free finger from low to high  
*since all l.h. pizz. double stops in *Bone Dry Holler* are played this way, the "strum arrow" is only included in the score for the first two | - normal pizz.  
- begin slide (i.e., gliss., if you prefer) |
| d)        | - pluck as in a)  
- "hammer on" with any free finger at C#5 on the 1st string to sound the pitch | - end slide  
- articulate destination pitch (pizz. again) |
| e)        | - pluck as in a) | - arco (continue into next pitch as slur indicates)  
- begin slide |
| f)        | - "strum"  
- "hammer-on"  
- "pull-off" | - end slide  
- cut destination pitch short, but do not rearticulate |
Harmonics:
The third module of the "Trio" is almost entirely made-up of harmonics. Since the notation of harmonics (at least in the style used in Bone Dry Holler) prioritizes the location of the left hand fingers over a representation of the sounding pitch, the "right hand" (lower) staff is entirely devoted to showing the sounding pitch of the harmonics, notated in the (to some) standard fashion, on the "left hand" (upper) staff. "Angled" fermatas have been used instead of the usual rounded fermatas as a symbol that indicates a brief, rather than relatively protracted, extension of the sound/gesture in question. Thick horizontal lines are used to show the continuation of a certain harmonic, and thin slanted lines indicate a harmonic glissando (i.e., slide fingers along the strings, without pressing down) between the first and second fermata point.

Rhythm and Meter:
Since the sixteenth note pulses in Bone Dry Holler are grouped in a way that is somewhat unpredictable, it is not quite appropriate to think of the rhythms in the context of identifiable meters. However, dashed barlines and beams have been carefully placed to reflect not only an embedded structural pattern, but also a loose metrical logic (manifested in performance, according to your taste, as a deeper pattern of subtle metrical accents) that may help you cognitively organize the constant stream of twos and threes. Regardless of the extent to which you foreground this metrical interpretation in performance, the sixteenth note pulse stream should be as steady as possible.

Form:
- This piece is, in a broad adaption of a classical (as in the era, not the elitist label) tradition, a "Scherzo and Trio"—two somewhat independent pieces that are formally intertwined. You have four choices, listed below in order of preference, concerning how to realize all or part of this structure. The "A" section of the Scherzo is the first page of the score, the "B" section of the Scherzo is the second page of the score, the "Trio" is the third page of the score, and the coda (a.k.a. the Scherzo's A1) is the last page of the score.
  1. Play as notated: A-B—Trio [D.S.]—2nd 1/2 of B (r.h. arco), coda and end
  2. Play just the Scherzo (r.h. arco and/or pizz.)
  3. Play as a "true"(ish) Scherzo and Trio: Scherzo A(A)-B-A1 (r.h. pizz.)—Trio [D.C.]—Scherzo A-B-A1 and end (r.h. arco)
  4. Play just the Trio (it might be difficult to make this sound like a "complete" piece on its own, but you're welcome to try).
- Repeats: "1x" = repeat once; "0-1x" = repeat once or don't repeat; "0-2x" = repeat once, twice, or don't repeat; "nx" - repeat as many times as you like
- The "Trio" (the 6 "chunks" of music on the third page of the score will be referred to as "modules")
  ○ Entry module: Continue from the second page of the score into the first module on the third page. Repeat the latter portion as many times as is necessary to pick up the bow and set up the slightly more relaxed affect of the Trio. When you are ready, proceed to the first of the Trio's modules.
  ○ "Wormholes," "Jumps," and Repeats: At the end of each of the Trio's modules, you are presented with three alternatives:
    - Proceed through the "wormhole" of lines connecting diagonally adjacent modules. Keep in mind that you can "bounce" off of the repeat sign at the end of the 2nd and 4th modules of the Trio, bypass their beginning repeats, and proceed through their "wormholes" in reverse until you reach the diagonally adjacent module. This is purely a conceptual "motion" (i.e., you do not have to play any of the music backwards)
    - "Jump" to either the first (D.C.) or second (D.S.) module of the Trio.
    - Repeat (no more than once) the module you have just played.
o Although you are asked to not repeat more than once, this type of limitation is not stipulated with regard to the other two choices. However, you may choose to extend this limitation to the other choices if you wish (i.e., if you have just “jumped,” don’t “jump” again right away).

o Exit module: When you have played each module of the Trio at least once, you have a fourth choice about what to do at the end of a module. You may, if you feel that the “Trio” has gone on long enough, jump to the “exit” module at the bottom of the page. Repeat this as many times as is necessary to clear the air and set up the slightly more energetic affect of the Scherzo. When you are ready, proceed in accordance with your choice concerning the overall form of Bone Dry Holler.

o In the interest of convenience and clarity, I have included an abstract graphic representation of possible “paths” through the Trio on the next page.
This piece has been written for, and is dedicated to, Sarah Kwok.

Special thanks to Ray Chester, Manuel Barrueco, Bruno Amato, Paul Mathews, David Gompper, John Roeder, Hope Grietzer and Kristin Gainey.

For more information, please visit www.christophergainey.com.
for Sarah

Bone Dry Holler

a two-handed puzzle étude for

four strings attached to medium-sized bits of wood

Christopher Gaines (2015)

"Scherzo"

Vibrant (Play this music as fast as you are confidently able to maintain a steady sixteenth-note pulse, but please no slower than \( \frac{\text{q}}{\text{e}} = 92 \).)

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A.3  *Syllogism* by Aaron J. Kirschner

Included with permission of the composer.\textsuperscript{392}

\textsuperscript{392} Please report any public performances of this work to ASCAP.
A.4  *Blue Étude* by John Kastelic

Included with permission of the composer.
Blue Étude
for Sarah Kwok

John Kastelic

The x noteheads indicate a chop. This is originally a bluegrass fiddle technique. This technique is best demonstrated visually -- there are many informative videos online. Essentially, the bow is "chopped" against the string at the extreme frog and is allowed to stick where it hits, creating a semi-pitched percussive sound. It is always followed by an up bow.

The block symbol indicates a fingerboard slap. Any free left hand fingers are slapped sharply against the strings and fingerboard. This technique is best used after open strings or first fingers, as the 2nd and 3rd fingers together produce the most powerful slap sound.

The slash notehead indicates a body tap. Slide your left hand up to about 4th position and tap a finger against the top of the viola, at the shoulder. The 3rd finger produces the strongest sound.

Groovy \( \frac{3}{4} = 100-120 \)
A.5 15 Tides by Zach Zubow

Included with permission of the composer.
15 Tides

Zach Zubow

2015

Solo Viola

Notes
s.p. = sul ponticello
s.t. = sul tasto
\(\rightarrow\) = transition to and from performance indication

Examples:

<table>
<thead>
<tr>
<th><img src="image1.png" alt="Example 1" /></th>
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<tbody>
<tr>
<td>ord. (\rightarrow) ord.</td>
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with pressure toward ordinario back toward with pressure

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<thead>
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<th><img src="image2.png" alt="Example 2" /></th>
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<tbody>
<tr>
<td>ord. (\rightarrow) s.p. (\rightarrow) ord.</td>
</tr>
</tbody>
</table>

with pressure toward ordinario toward sul ponticello toward ordinario
A.6 *From Here to Where* by Glenn James

Included with permission of the composer.
Appendix B  Composer Biographies

B.1  Christopher Gainey

Christopher Gainey (b.1981) balances creative and academic pursuits that are complementary components of his eclectic approach to the study of music. He composes for a wide range of performers, engages with the ideas of his colleagues through academic research, and performs regularly on guitar and banjo in music of any style that catches his ear. In preparation for this lifestyle, he earned master of music degrees in composition, guitar, and music theory pedagogy from Peabody Conservatory and a Ph. D. in composition from the University of Iowa. Until 2011, he taught music theory and composition at Grinnell College and the University of Iowa, and he is currently a Ph. D. candidate in music theory at the University of British Columbia. The focus of his research is the role of timbre in twenty-first century music.

B.2  Adam Hill

Adam Hill is a Canadian composer and bassist. A recipient of awards and grants from the Canada Council for the Arts, Prairie Wind & Silver Sage/Grasslands National Park, SCI/ASCAP, the Helene Wurlitzer Foundation, and Wildacres, he has been commissioned by the Whatcom Symphony Orchestra, the Erato Ensemble, the Vancouver Chinese Music Ensemble, the Central Oregon Symphony, and the Singers' Club of Cleveland. Adam holds degrees from the University of British Columbia, Western Washington University, and Whitman College and has taught at Quest University and Western Washington University. More information can be found at adamhillmusic.com.
B.3 Glenn James

Glenn James is a songwriter, composer, and pianist. His music has been performed by Tapestry Opera, Digital Prowess, The Sneak Peek Orchestra, TorQ, and junctQín. He is currently writing his first solo album and lives in Vancouver with his wife and two beagles.

B.4 John Kastelic

John Kastelic is a Vancouver-based composer, arranger, songwriter, and multi-instrumentalist. He holds B.Mus degrees in composition and music scholarship from the University of British Columbia, where he studied composition with Keith Hamel and Giorgio Magnanensi and viola with David Harding.

As a composer and arranger, John has done work for concert, theatre, and recording. His orchestral composition, *Below a Cloud*, was read by the VSO in the 2011 Jean Coulthard Reading Session. His chamber piece, *From the Crazy Place Outbroken*, written for Vancouver-based ensemble Standing Wave, won audience's choice in the Vancouver Pro Musica Sonic Boom Festival in 2010. He has gained a reputation for lush, effective arrangements, particularly for strings.

As a violist and violinist, John has earned an excellent reputation as a talented and captivating performer in a wide variety of styles. In the classical world, he performs regularly as violist with The Black Dog String Quartet and with orchestras across the province. He is Principal Viola with the Vancouver-based Plastic Acid Orchestra. He has acted as Concert Master with the Prince George Symphony Orchestra and as Principal Viola with the Kamloops Symphony Orchestra. John plays with numerous bands ranging from rock, to fiddle, to
experimental improv. With his brother, Tony Kastelic, he leads the viola folk rock band, Salt Thief.

B.5 Aaron J. Kirschner

Aaron J. Kirschner is a composer, theorist, clarinetist, and conductor based in Salt Lake City, Utah. His music has been presented throughout the United States, Italy, Finland, Canada, by members of the JACK Quartet, the Utah Symphony | Utah Opera, the Des Moines Symphony, and the American Modern Ensemble, among others. He has won numerous awards and commissions, and in August of 2014 was Artist-in-Residence at the Arteles Creative Center in Haukijärvi, Finland.

Dr. Kirschner’s theoretical research has been presented throughout the country, including at the 2014 Society for Music Theory annual meeting. Building from his dissertation, his primary research focuses on empirical modeling of impulse structures in the music of the New Complexity. To this end, his research formalizes a definition and four-dimensional model of sub-meter as an entity independent of traditional notions of rhythm and meter. In addition to his work on rhythm and meter, Dr. Kirschner has extensively explored hyper-transformational theories of late twentieth and twenty-first century American and British modernism.

As a performer, Dr. Kirschner is a strong advocate for new music and appears regularly as a clarinetist, bass clarinetist, and conductor. Since making his soloist debut in 2010 with the Boston New Music Initiative, he has premiered dozens of new works throughout the country.
B.6  Zach Zubow

Dr. Zach Zubow is Assistant Professor of Music at Queens and teaches music theory and composition. His compositions have been performed throughout the United States, Europe, and Asia. Recently, Dr. Zubow’s composition for percussion and interactive electronics was accepted to the International Computer Music Conference in Athens, Greece. His music has been performed on numerous conferences and festivals including SEAMUS, SCI, Iowa Composers Forum, Electronic Music Midwest, College Music Society, Five Colleges New Music Festival, and many other events throughout the world. As well as composing, Dr. Zubow is an active music theorist, recently publishing an article about György Ligeti’s “Fanfares” from Études for Piano (Book 1).

Dr. Zubow is very passionate about teaching. His goals are to teach a well-rounded musician in any expertise through active listening and engaged study. Since receiving his Ph.D. from the University of Iowa in 2012, Dr. Zubow has taught at Grinnell College, Cornell College, Coe College, and Kirkwood Community College.
Appendix C Interviewee Biographies

C.1 Christophe Desjardins

Violist Christophe Desjardins is willingly and passionately involved in two complimentary spheres: creation, for which he is an interpreter much sought after by international standing composers, and having the repertoire of his instrument opened to the widest range of audience.

As a soloist, he has premiered works by Berio, Boulez, Boesmans, Jarrell, Fedele, Nunes, Manoury, Pesson, Levinas, Harvey, Widmann, Stroppa, Cresta, Sebastiani and Rihm. He plays as a soloist with such orchestras as the Concertgebouw of Amsterdam, the NDR, WDR and SWR Sinfonie Orchestern, the Orchestra of the Toscanini Foundation, the National Orchestra of Lyon, the Portuguese Symphonic Orchestra and many other ensembles and orchestras throughout Europe. After his solo appearance with the Théâtre de la Monnaie of Brussels, he became a member of the Ensemble InterContemporain.

His discography includes Diadèmes by Marc-André Dalbavie, under the direction of Pierre Boulez, Surfing by Philippe Boesmans, Assonance IV and …some leaves II… by Michael Jarrell, Les Lettres enlacées II by Michaël Levinas and Sequenza VI by Luciano Berio, recorded for Deutsche Grammophon. His CD Voix d’Alto (Viola voices), dedicated to the performance of Luciano Berio and Morton Feldman’s works, was published in January, 2005, with the label Aeon; it has since received the most prestigious acclaim from the French press: Diapason d’Or, 4F from Télérama, Choc du Monde de la Musique.
In order to make music be discovered and perceived in a different way, he has created productions involving other arts (poetry, dance, video…): *Once upon a time the viola, Viola/Multiples, Four Fragments for Harold, Violist songs…*

Christophe Desjardins plays a viola by Francesco Goffriller made in Venice around 1720. He teaches at the Hochschule für Musik Detmold (Germany) and at the CNSM in Lyon.

**C.2 Hank Dutt**

A longtime member of the legendary Kronos Quartet, Hank Dutt is one of the most recognized violists among soloists and ensemble performers. He has performed around the world with the Quartet for decades, having a hand in creating a special breed of repertoire and style unique to the classical music world.

**C.3 Anne Etevenon**

After having been part of the Jean François Paillard chamber orchestra (1979/1982), Anne Etevenon became passionate about teaching viola. She created several classes of viola at Nevers and at Paris VIII before taking a position at the Nantes Conservatory where she has been since 1988. While searching for small educational pieces to introduce young students to contemporary writing, she had fun writing some, which Frédéric Lainé asked her to publish after coming to a jury in Nantes. They are now done at Billaudot editions in Paris!
C.4 Ramiro Gallo

Born in Santa Fe, he began his musical career at an early age, performing Argentine popular music with his parents and brothers, while pursuing his classical training. He has played in symphony and chamber orchestras in Argentina and abroad, as well as various popular music groups as a violinist and arranger. He completed his violin studies with the maestro, Ljerko Spiller. He was a founder member of the Orquesta Escuela de Tango, conducted by the maestro, Emilio Balcarce, after performing in it as violin soloist and assistant conductor between 2000 and 2008. Between 1997 and 2005 he was part of the group El Arranque as first violin, arranger and musical director. In 2000 he founded the Ramiro Gallo Quintet, whose repertoire consists of his own compositions. The group has recorded five CDs to date and has performed in the leading concert halls of Argentina, South America, US and Asia. In 2008 he formed the Orquesta Arquetípica, with whom he performs works of his own composition. Recorded in 2009, their first disc, Arte popular. Also a composer works of chamber and symphonic works, he devotes much of his time to teaching tango violin, arranging and composing.

C.5 Garth Knox

Garth Knox was born in Ireland and spent his childhood in Scotland. Being the youngest of four children who all played string instruments, he was encouraged to take up the viola and quickly decided to make this his career. He studied with Frederic Riddle at the Royal College of Music in London where he won several prizes for viola and for chamber music. Thereafter he played with most of the leading groups in London in a mixture of all repertoires, from baroque to contemporary music.
In 1983 he was invited by Pierre Boulez to become a member of the Ensemble InterContemporain in Paris, which involved regular solo playing, including concertos directed by Pierre Boulez, and chamber music, touring widely and playing in international festivals.

In 1990 Garth Knox joined the Arditti String Quartet, which led him to play in all the major concert halls of the world, working closely with and giving first performances of pieces by most of today’s leading composers including Ligeti, Kurtag, Berio, Xenakis, Lachenmann, Cage, Feldman and Stockhausen (the famous “Helicopter Quartet”).

Since leaving the quartet in 1998 to concentrate on his solo career, he has given premieres by Ligeti, Schnittke, George Benjamin and many others, including pieces which were especially written for him by composers like Henze, Haas, Saariaho, James Dillon. He also collaborates regularly in theatre and dance projects, and has written and performed a one-man show for children.

He has recently become a pioneer of the viola d’amore, exploring its possibilities in new music, with and without electronics, and is in the process of creating a new repertoire for this instrument.

Garth Knox now lives in Paris, where he enjoys a full time solo career, giving recitals, concertos and chamber music concerts all over Europe, the USA and Japan. He is also an active composer, and his «Viola Spaces», the first phase of an on-going series of concert studies for strings (published in 2010 by Schott) combines ground-breaking innovation in string technique with joyous pleasure in the act of music making. The pieces have been adopted and performed by young string players all over the world. Garth Knox is Visiting Professor of viola at the Royal Academy of Music in London.
C.6 Michel Michalakakos

After having started viola with his father Christos Michalakakos then Colette Lequien and Luigi Alberto Bianchi, Michel Michalakakos studied chamber music with Joseph Calvet and won the first viola prize at the National Conservatory of Music in Paris in 1977 and, in 1978, his teaching CA.

Member of l’Orchestre national de France from 1979 to 1984, he joined the Trio à cordes de Paris in 1981 in which he played for 12 years in France and abroad, while making recordings and contributing to the creation of many twentieth century works.

Now invited as a soloist by many French and foreign orchestras, he regularly gives recitals of sonatas, notably with pianist Martine Gangepain, which whom he recorded C. Kochelin’s Sonata for Viola and Piano, and continues his career as a chamber musician in several chamber music ensembles. Open to all kinds of music, he also participates in tango, jazz, gypsy music and traditional music concerts in addition to his work as a pedagogue, teaching viola and chamber music in France and abroad. Appointed professor at the Conservatoire national supérieur de Musique de Paris in 1991, he also teaches, since 1990, at the Conservatoire national de région of Boulogne-Billancourt.