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The Art Behind the Baroque Violin

A Capstone Project Submitted in Partial Fulfillment of the Requirements of the Renée Crown University Honors Program at Syracuse University

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Abstract

Since the age of three, I have been playing the violin; however, I was uninformed about the history of the violin or how the instrument works in a mechanical sense. Inspired by my love of the music of the 1700s, I chose to study how violins were made, how their physical properties affected performance practice, and how to play Baroque violin—a project that allowed me to combine elements of my two majors, Music History and Cultures and Violin Performance. I narrowed my area of focus to the late Baroque (1700-1730) because renowned violin-maker Antonio Stradivari was considered to be in his prime during those years. During the late Baroque period, the design of the violin significantly changed, and one of the questions I investigated in this paper is who initiated the changes in violin design, the performer or the luthier (violin-maker), a topic I researched during a research trip to Italy in the summer of 2015. I came to the conclusion that though performers and luthiers had a symbiotic relationship, the demands made by virtuosic performers caused the design to develop into its modern form. Because I learned to play the Baroque violin, I used practice-based research to create and analyze the Baroque ornamentation I discuss in my paper. Additionally, my scholarly research informed how I played the instrument, and this influence was most notably heard at my recital.

My Baroque violin recital on February 26, 2016 showcased the dual nature of my Senior Capstone Project—the combination of performance with scholarship. On this recital, I performed Corelli's Violin Sonata No. 9, Op. 5 and Vivaldi's Violin Sonata No. 10, Op. 2. Analysis of this Corelli violin sonata is found in this paper, along with a discussion of the ornaments I performed on the recital

Executive Summary

As a double major in Violin Performance and Music History and Cultures, I was very eager to choose a Capstone topic that combined my interests. Though I have been performing on my violin for nineteen years, I was unaware of the violin's history or how to play the Baroque violin in a historically informed fashion. Consequently, *The Art Behind the Baroque Violin* aims to provide a deep understanding of violin history. Some of my research findings were presented in a Baroque violin recital that demonstrated my knowledge of Baroque violin technique, repertory, and historically informed ornamentation.

Becoming a Crown Scholar contributed greatly to the success of my project. With the funding I was able to conduct field research in Italy; I visited the Museo del Violino (Cremona), Academia Cremonensis (Cremona), Castello Sforzesco: Museum of Musical Instruments (Milan), Accademia Filarmonica di Bologna (Bologna), Museo Internazionale e Biblioteca della Musica di Bologna (Bologna) and interviewed four luthiers (violin-makers). Having the opportunity to go to the luthiers' shops and watch them craft new violins was a crucial to my research because I was able to view how the violin works in a mechanical sense. Instead of reading about the anatomy of the violin, I was able to view the violin's construction while standing next to master violin builders Yael Rosenblum (Cremona), Marco Pedrini (Cremona), Nicola Enrico Antonio Monzino (Milan), and Bruno Stefanini (Bologna).

In Cremona, the supposed birthplace of the violin and home to three important forefathers of the violin (the workshops of Amati, Stradivari, and Guarneri), I visited the Museo del Violino, the location of Stradivari's house; St. Agostino's church, which claims to have the only portrait of Stradivari; the Stradivari memorial with a copy of his gravestone in Piazza Roma; the

Academia Cremonensis, a luthier school specializing in Cremonese instrument construction; and luthiers Yael Rosenblum and Marco Pedrini to conduct field research regarding the violin's Cremonese origins. Visiting the museums in Italy gave me historical context for understanding the violin's development through the centuries. The Museo del Violino focussed on the violin's origins and how the great violin families made violins. Notably, there was an exhibit showcasing the luthier tools that Stradivari once used in his shop. As Academia Cremonensis is a luthier school, I watched luthier students make violins. The Musical Instrument Museum in Castello Sforzesco and the Museo Internazionale e Biblioteca della Musica di Bologna held vast collections of instruments from luthiers between the fifteenth and twentieth centuries. I visited Accademia Filarmonica di Bologna because of Arcangelo Corelli's connection to the institution. Corelli, the composer of the Opus 5 Violin Sonatas which I featured the ninth sonata on my Baroque violin recital, is the recipient of the 1670 Academic Honor given by the Accademia Filarmonica di Bologna. With this newfound knowledge, I returned to Syracuse University in Fall 2015 with a strong foundation to begin writing my Capstone project.

Another vital part of my research funded by my Crown award was private Baroque violin lessons with esteemed New York State Baroque member Dr. Paul Miller. For the past year, I have received numerous lessons from Miller at Cornell University in Ithaca, New York; a music festival in Estes Park, Colorado; and Duquesne University in Pittsburgh, Pennsylvania. These lessons from a Baroque violin specialist allowed me to prepare for my recital in February 2016 on an instrument that I had begun playing only one year ago.

A unique aspect of *The Art Behind the Baroque Violin* is the inclusion of practice-based research as part of my research methodology. Practice-based research is the research method of

using a craft (in my case, learning to play the Baroque violin) to enhance and inform scholarship (my written Capstone project). As a violinist and music historian, I offer a special contribution in my research because I am able to play the music that I have extensively studied, and my research in turn also informs how I perform. For example, learning about the organology of the Baroque violin enhanced my knowledge of how to play the instrument. Additionally, learning how to play the Baroque violin strengthened my writing on the subject because I had the physical experience of playing the instrument and that informed my analysis of the repertory. Being a violinist and music historian is effortlessly woven together in this project through the use of practice-based research.

Completing *The Art Behind the Baroque Violin* has allowed me to study the violin in a more in-depth way than I could have ever imagined. Tracing the violin's development through the eighteenth century has made me a more informed musician. I am now able to better understand the physical experience of playing the violin of the past as well as the modern instrument, an understanding gleaned through a mutually reinforcing combination of historical analysis and practice-based research.

Table of Contents

Abstract	iii
Executive Summary	iv
Preface	
Performance: The Fire that Ignited the Development of the Late Baroque Violin	1
A Brief History of the Cremonese Violin Luthiers and the Move Towards Standardization	ı 2
Relationships among Luthier, Performer, and Composer	10
Techniques Involved with Holding the Instrument	15
Techniques Involved with Playing the Instrument	17
The Expansion of Virtuosity in Eighteenth-Century Italy	20
Modernization of the Violin	24
Concluding Thoughts	
Program Notes for Baroque Violin Recital, Friday February 26, 2016	31
Bibliography	32
Appendices	

Preface

I began playing the violin at age three with the encouragement of my mother, who is a violin teacher and orchestral player, and I have been an active performer ever since. Now, nineteen years later, I have graduated from performing childhood favorites in front of my parents to the complex works of Baroque composers Arcangelo Corelli and Antonio Vivaldi. However, though I have been performing on my violin for many years now, before embarking on my Renée Crown University Honors Program Capstone and Music History and Cultures distinction, I still knew nothing about the history of the violin or how to play the Baroque violin in a historically informed fashion.

The idea to focus on the Baroque period and the development of the violin's history came to me when I sat in on a grant meeting my junior year. I attended an information session for the Crown/ Wise awards in January 2015 with the intention of going to listen for fun. However, by the end of the forty-five minute meeting, I had mapped out my entire Capstone and Distinction project. I realized I had to submit an application for the scholarship, which was due only a week later. I pulled my application materials together and about a month after submission, a congratulatory email awaited me in my inbox naming me a Spring 2015 Crown Scholar.

This scholarship has allowed me to further my research by making it financially feasible to receive Baroque violin lessons in the United State and to travel to Italy. In Italy, I completed field research in Cremona, Milan, and Bologna where I visited four violin luthiers and five violin museums. The trip was extremely informative and gave me an understanding of where the violin originated and its development through history. Cremona claims to be the birthplace of the violin, and three important forefathers of violin, the workshops of Amati, Stradivari, and Guarneri called Cremona home. It was a surreal experience walking down the narrow cobblestone streets of Cremona knowing that with every step I took, such rich violin history surrounded me.

Performance: The Fire that Ignited the Development of the Late Baroque Violin

In my violin case, there rests a photograph of a two-year-old child clutching a violin. Her arms are so small that she cannot properly hold the sixteenth-size violin, though she is blissfully unaware that there is anything wrong with this picture. She grins widely for the camera. I am this child and I evoke this picture from the past because it quite accurately correlates to my journey in discovering the history and mechanics of the violin. As I grew proficient as a violinist, I could manipulate my instrument to produce the sound I desired, but I had no idea how these sounds were produced, nor did I know much about the violin's history beside the absolute basics: there was a Baroque violin that was somehow different and it was tuned lower. I was very much like the little girl in the photo: blissfully ignorant. How could I call myself a knowledgeable violinist if I knew so little about the history of the instrument that I had grown up playing?

I knew there were substantial differences between the late Baroque and modern violin, but I did not know what those differences were, nor did I know why the violin changed over time. Consequently, I aimed to answer the following question in my paper: did developments in violin performance technique spark changes in violin design, or did the changes in violin design encourage the development of more sophisticated violin performance techniques? Additionally, over the past year I learned how to play the Baroque violin to better understand the differences between the violins. I also traveled to Italy to watch as luthiers constructed violins using ancient Cremonese methods and visited museums to better understand the violin's history. Through all these avenues of my research, I have come to the conclusion that the standardization of the late Baroque violin led to the expansion of violin performance technique during that same period,

which forced further design changes in the instrument, establishing the design of the modern violin.

A Brief History of Cremonese Violin Luthiers and the Move Toward Standardization

My decision to focus on Italian Baroque musical traditions stems from Italy's rich engagement with the violin, in particular between the years of 1700 and 1730; it was during those thirty years that Italy's most renowned violin luthiers, composers, and performers lived and worked. The first recorded violin-maker is Cremonese luthier Andrea Amati (before 1501-1577); his 1564 violin is the earliest surviving instrument. In the early sixteenth century, violin specifications in pattern and dimension went unregulated and the instrument only had three strings, as illustrated in paintings of the time period (see Figure 1). Amati is credited with the early standardization of the violin, as his high quality work "established a settled standard" amongst luthiers.¹

¹ John Dilworth, "The violin and bow — origins and development," in *The Cambridge Companion to the Violin*, ed. Robin Stowell (New York: Cambridge University Press, 1992), 10.

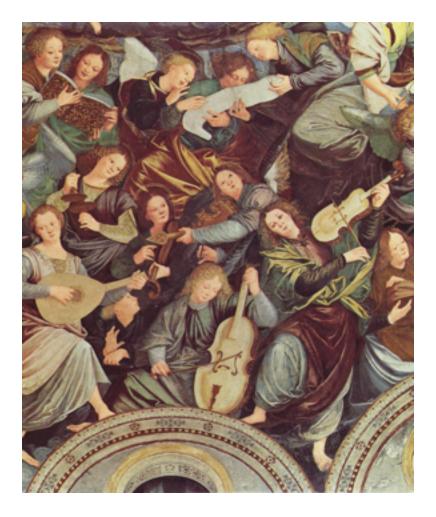


Figure 1. Gaudenzio Ferrari, Angel playing a Violin, cupola of Saronno Cathedral, 1535.

Two significant families based in Cremona, Italy, the Amatis and Guarneris, monopolized the violin market and their innovations were later absorbed by the most famous luthier working in Italy, Stradivari, who became successful by continuing and furthering the work of his predecessors. Nicolo Amati (1596-1684) was the grandson of Andrea, and he was the greatest luthier in the Amati family. He enhanced the instrument's appearance and experimented with the violin body's arches, as well as mentoring and teaching both Antonio Stradivari and Andrea

Guarneri.² Giuseppe 'del Gesù' Guarneri (1698-1744) was the grandson of Andrea Guarneri and is considered the best luthier in the family. Like the Amati family, the Guarneri family had a long lineage of luthiers.³ Stradivari (1644-1705) recognized the high standard of his teacher Nicolo Amati and used his teachings as a point of departure for his own luthier career. Stradivari's golden period of craftsmanship was between 1700 and 1720, and his significant developments to the violin are as follows: he crafted flatter and more powerful arches of the violin body, intentional body thickness variances, regularized the c bout, f holes, and scroll appearance, and varnish color (see Figure 2).⁴ These innovations standardized the late Baroque violin's anatomy and created a richness of sound not previously heard. Thus, the accepted form of the late Baroque instrument was in place by 1710, thanks to the craftsmanship of Antonio Stradivari.⁵

² *Ibid.*, 12.

³ *Ibid.*, 13.

⁴ *Ibid*.

⁵ *Ibid.*, 10.

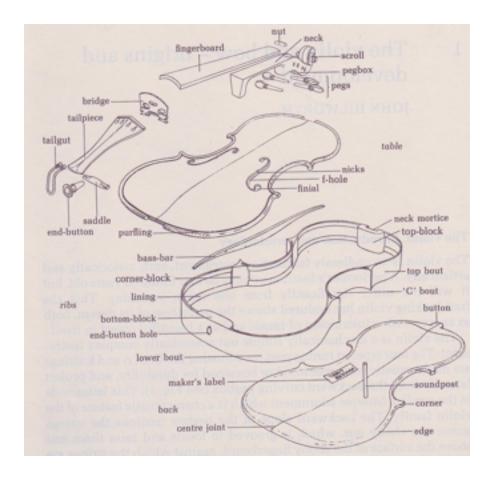


Figure 2. Anatomy of the Baroque Violin, reproduced from Dilworth, "The violin and bow" (1992)

Though roughly four hundred years has passed since the Amatis, Guarneris, and Stradivari worked in the violin-making capital of the world, the significance of these famous luthiers is still felt in present day Cremona. The Museo del Violino plays an important role in generating tourism for this small Italian town. Cremona markets itself towards the musician, as it places a special emphasis on its musical past. Stradivari is the most prominently memorialized luthier, with a statue erected in his honor located in Piazza Antonio Stradivari in addition to a raised grave marking where he originally was laid to rest. Though the luthier quarter in Cremona

laid dormant during the nineteenth-century because it no longer was the center of violinmaking after the death of Stradivari, by the twentieth-century new luthiers travelled to Cremona with the intent to help the historic town regain its musical image.⁶ One would not know that there was once a hiatus in violinmaking, as music's influence is clear as one walks the streets of the luthier district of present-day Cremona.



Figure 3. Picture of Stradivari Statue in Piazza Antonio Stradivari taken by Carolyn Goldstein

The Consortium of Violinmakers "Antonio Stradivari," located in Piazza Antonio Stradivari, showcases the instruments of contemporary Cremonese luthiers who uphold

⁶ Field notes taken by Carolyn Goldstein, Museo del Violino, Cremona, Italy, May 30, 2015.

traditional eighteenth-century luthier practices.⁷ Additionally, the Academia Cremonensis greatly focusses on honoring these methods of construction that are uniquely Cremonese, and example is cutting the f-holes on the after the violin's body is glued together.⁸ Luthier Yael Rosenblum explains that another unique Cremonese trait is in construction. She describes that the Cremonese violin body's shape is determined by a violin-shaped stencil that is traced on wood and then the wood is cut out to form the front and back of the violin, and this is called an inside mold.⁹ Bolognese luthier Bruno Stefanini explains that violins made outside of Cremona (i.e. Bologna, and all of France) uses a square stencil that has the shape of the violin already cut out and the luthier has to merely trace the already established shape. This method is called an outside mold.¹⁰ Violins made with the outside mold are similar in construction, whereas the inside mold allows for more unique violin shapes since the shape of the violin is determined by how the luthier traces the mold.¹¹

The standardized late Baroque violin possessed many unique anatomical qualities. The violin body conceived by Stradivari was about fourteen inches long, and the neck was rounder and broader than modern day instruments. The bridge was lower with a fatter arch that was purposely sloped steeper on the G-string side and more gently on the E-string side to allow for

⁷ "Consorzio Liutai Antonio Stradivari Cremona," Cremona Violins, accessed March 14, 2016, cremonaviolins.com/en/the-consortium/.

⁸ Field notes taken by Carolyn Goldstein, Academia Cremonensis, Cremona, Italy, June 1, 2015.

⁹ Interview with Yael Rosenblum, Baroque and Modern Luthier, Cremona, Italy, June 1, 2015.

¹⁰ Interview with Nicola Enrico Antonio Monzino, Luthier, Milan, Italy, May 31, 2015.

¹¹ *Ibid*.

"the utmost response and sonority." The fingerboard was not parallel to the violin neck, and the violin neck was about two and a half inches shorter than the twenty-first century violin. The bass bar and soundpost were smaller and shorter, and there was no chin rest—a feature that would not be invented until the 1820s by Louis Spohr. 13

There were a great variety of string types in the Baroque period. The late Baroque violin was strung in all gut strings, and the gut G-string was overspun in silver in the 1740s and 1750s. ¹⁴ Overspun metal strings for violins were not a new development in the mid 1700s as they had been "known, and liked, for a short time at the beginning of the Baroque period" in the early 1600s. ¹⁵ Therefore, metal stringing merely fell out of fashion in the early seventieth century until its preferred "softer and lovelier tone" became desired again on the G-string in the mid eighteenth-century. ¹⁶ With the return of the favored metal wound G-string in sound and timbre in compositions, the late Baroque violin became more resonant and had a clearer sounding G-string, which in turn helped improve the instrument's tone. ¹⁷

¹² David D. Boyden, "The Violin and Its Technique in the 18th Century," *The Musical Quarterly* (1950): 12.

¹³ Dilworth, 21.

¹⁴ Boyden, 12-13.

¹⁵ Peter Walls, "Strings," in *Performance Practice Volume II: Music After 1600*, ed. Howard Mayer Brown et al. (New York: W. W. Norton & Company, 1990), 47.

¹⁶ *Ibid*.

¹⁷ *Ibid.*, 48.

Unlike the violin's body and strings, the late Baroque bow was not standardized until the late eighteenth century. ¹⁸ The bow in Italy or France "was either straight or had a convex arch," whereas the bow in Germany was much more varied. ¹⁹ The weight of the bows or the way that they were tightened also varied. Boyden explains it is likely that there were two types of notched bows used in the early eighteenth-century, "some with wedge arrangements for tightening the hair, or bows that were strung at constant tension and were re-haired when they became too slack." ²⁰ Additionally, the screw tightening mechanism that is utilized on the modern bow was uncommon in the late Baroque period. ²¹ Learning how to play with the Baroque bow was not a significant challenge, though its difference in length from the modern bow made me very vigilant about bow distribution (how slow/fast the bow moves across the string on a given note) because I did not want to hit the violin accidentally with the shorter Baroque bow.

The most significant difference between the violins is the system of tuning. Tuning in the twenty-first century recognizes A as 440, and this standardization occurred during the 1930s.

Before then, the tuning of A varied greatly depending on time period and region, being as high as 455 hertz and as low as 435 hertz.²² Not only is the Baroque violin A-string tuned to 415 hertz, but the third and seventh scale degrees are played flatter, in accordance with the tuning system that would have prevailed in the eighteenth century known as mean-tone. This tradition affected

¹⁸ Dilworth, 26.

¹⁹ Boyden, 15.

²⁰ *Ibid*.

²¹ *Ibid*.

²² Interview with Joseph Downing, Professor of MTC 566 Tuning and Temperament at the Setnor School of Music, Syracuse University, Syracuse, NY, December 11, 2015.

my preparation of Corelli's Opus 5 no.9 sonata; it is in the key of A Major, so the notes C-sharp (the third scale degree) and G-sharp (the seventh scale degree) are played a fraction flatter and I had to carefully think about my intonation. The lowering of these scale degrees is a historically informed stylistic choice, however, it changes the effect of the composition upon the listener, especially modern listeners accustomed to equal temperament (the system whereby the octave is evenly divided into twelve equal tones).

Additionally, since the violin is tuned roughly a half step lower and uses gut strings, the instrument is under less pressure and a different type of resonance emits from the instrument compared to the modern violin tuned to A 440 hertz. A fuller overtone series is heard and the mellowness of the sound from the Baroque violin is such a stark change from that of the acoustically brighter modern violin. Because of the slacker tension and warmer sound of the gut strings the Baroque violin is more suited to smaller concert spaces and ensembles—similar to the spaces where it would have originally been played.²³

Relationships among Luthier, Performer, and Composer

Collaboration among luthier, performer, and composer was vital in the late Baroque period, and its influence is shown in how the violin later developed. The performer and luthier must have worked together in some capacity, because the performers needed to purchase their instruments—their violins did not magically arrive at the performer's door in the middle of the night. Renzo Bacchetta confirms that "the violin 'came to assume its modern form not at a

²³ John Spitzer and Neal Zaslaw, *The Birth of the Orchestra: History of an Institution, 1650-1815* (New York: Oxford University Press, 2004), 106.

stroke, but rather through successive modifications arising from close collaboration between musicians, luthiers and physical scientists [those who were interested in physics of acoustics].""²⁴ Indeed, the roles of performer and composer were inseparable during this period. Usually composers could play and performers could compose, and, in a sense, the performer acted as a composer while he was on stage. As David Fuller explains, "a large part of the music of the whole era was sketched rather than fully realized, and the performer had something of the responsibility of a child with a colouring book, to turn these sketches into rounded art-works." The improvisatory nature of this music encouraged virtuosity and this virtuosity was only possible because of the standardization of the Baroque violin.

Indeed, expression and "the ability to 'touch the heart' became a touchstone for true violinistic greatness, especially as musical taste moved into the age of sensibility" in the mid eighteenth-century. Embellishments helped the performer express a desired emotion, which was conveyed by his choice in bowings (up bow versus down bow), vibrato, fingering (when to shift or play open strings), types of ornaments, and tempo (the speed at which the music was played). Consequently, Baroque music was understood "as a living art" that was personally crafted by the performer during the performance. It is rumored that Corelli asked his students

²⁴ Quoted in Carlo Bonetti, Agostino Cavalcabò, and Ugo Gualazzini, *Antonio Stradivari: Reports and Documents* (Cremona: Cremonabooks S.r.l., 1999), 40.

²⁵ David Fuller, "The Performer as Composer," in *Performance Practice Volume II: Music After 1600*, ed. Howard Mayer Brown et al. (New York: W. W. Norton & Company, 1990), 117.

²⁶ Simon McVeigh, "The violinists of the Baroque and Classical periods," in *The Cambridge Companion to the Violin*, ed. Robin Stowell (New York: Cambridge University Press, 1992), 51.

²⁷ Boyden, 35.

²⁸ Fuller, 118.

"Non udite lo parlor? (Do you not hear it speak?)."²⁹ As Judy Tarling observes, "this way of playing which imitates the human voice is based on the principles of oratory. The three main aims of an orator, according to the principal classical sources, were to inform, to delight and to move."³⁰ Therefore, it was the duty of the late Baroque instrumentalist to inform, delight, and move the audience to the best of his abilities while demonstrating instrumental techniques inspired by the human voice and operatic vocal embellishments.

One can understand the relationship between composer and performer in greater detail by considering the *Adagio* movement in Corelli's Violin Sonata No. 9, Op. 5. The notation used by Corelli was purposely skeletal in his original edition published by Pietra Santa, which allowed late Baroque performers to fill in the blanks and demonstrate their skill, and in turn, their virtuosity. As Bruce Haynes argues, the Santa edition may have been purposely left sparse to give the performer the room to fill in the gaps.³¹ As an eighteenth-century violinist, "the ability to improvise would have been a part of any advanced violinist's training, and the Pietra Santa edition as prepared by Corelli offered ideal material for practicing" the importance of embellishment and improvisation.³² Figure 4a is excerpted from the Santa Edition of Opus Five,

²⁹ Judy Tarling, *Baroque String Playing for Ingenious Learners* (St. Albans: Corda Music Publications, 2001), 1.

³⁰ *Ibid*.

³¹ Bruce Haynes, *The End of Early Music: A Period Performer's History of Music for the Twenty-First Century* (New York: Oxford University Press Inc., 2007), 205-207.

³² Peter Allsop, *Arcangelo Corelli: New Orpheus of our Times* (New York: Oxford University Press Inc., 1999), 136.

"the sketch," and Figure 4b is realized by eighteenth-century violinist Matthew Dubourg, which represents the intervention by the virtuosic performer as composer.³³



Figure 4a. Arcangelo Corelli, Violin Sonata in F, Opus 5 no. 9 (Rome: Gasparo Pietra Santa, 1700)



Figure 4b. Transcription with Ornamentation as Realized by Dubourg³⁴

³³ Fuller, 117.

³⁴ Found in "Sonatas for Violin and Basso continuo: Volume 2," edited by Christopher Hogwood and Ryan Mark (2013).



Figure 4c. Transcription with Ornamentation as Realized by Goldstein and Miller (2015)

Figure 4c demonstrates my dual experience as performer and music historian as my music history knowledge of performance practice informed how I realized Corelli's Opus 5 No. 9, Adagio. The realization that I created with the help of my Baroque violin teacher Paul Miller gives another version of how one might ornament the skeletal notation found in the Santa edition. I have confined the largest intervallic leap to a major third (illustrated in figure 4c between F-sharp and D in measure five) instead of a perfect fifth (illustrated in figure 4a between F-sharp and C-sharp in measure one, and F-sharp and B in measure seven). In order to eliminate these larger intervals, I surrounded the Santa edition notes with neighbor tones. For example, measure two to three, I have filled in the perfect fourth between C-sharp and F-sharp by adding a seventh chord (the D) to the third beat of measure two, and then placed the neighbor tone C-sharp between the two Ds. Finally, the E between the D and

³⁵ In my lesson on 23 August 2015, Paul Miller and I collaborated on this realization of the *Adagio* movement in Corelli's Violin Sonata No. 9, Op. 5. I have transcribed our realization into musical notation.

F-sharp is a passing tone, though it is also part of the intended E Major chord (E - G-sharp - B - D) changing the seventh chord (a chord that has three thirds) to a triad (a chord that has two thirds) for the last sixteenth note of beat three. Additionally, the anticipation of the final C in measure eight (the C in measure seven beat three) is present in both figures 4a and 4c. I have also chosen to write out the trill in measure seven to show the virtuosity of our realization.

This realization requires technical mastery of bow speed, dexterity of the fingers, and knowledge of ornamentation (such as trills, neighbor tones, passing tones, and anticipations). The mastery of these techniques allowed for the emergence of the creative and virtuosic performer in the late Baroque era. Additionally, the standardization of the late Baroque violin facilitated these more advanced techniques utilized by the performers because it gave the performer an instrument capable of responding to the performers' subtleties and technical mastery. It is worthy to note that other realizations of Corelli's Sonata are possible; mine is merely one of many possibilities. Though there is about a three hundred year difference between figures 4a and 4c, figure 4c is stylistically rooted in the 1700s because it is comparable to the notated realizations of this piece composed in the eighteenth-century, such as those by Dubourg (figure 4b), Festing, Geminiani, and Tartini to name a few.

Techniques Involved with Holding the Instrument

Though Stradivari standardized the luthier techniques involved in late Baroque violin, the technique associated with holding the instrument and bow was left to the performer's discretion. How to properly position the instrument was a topic of great debate in the early eighteenth-century. The violin could be held in three different ways: 1) on the collarbone or breast, 2) under

the chin right of the tailpiece, and 3) under the chin left of the tailpiece.³⁶ Leopold Mozart addressed this debate in his 1756 treatise, pointing out the difficulties of the first method but praising its "pleasant and relaxed appearance."³⁷ However, Mozart preferred holding the violin under the chin to the right of the tailpiece.³⁸ The final option, left of the tailpiece, is most similar to the modern day violin hold and is the only one that remains in common practice today.³⁹

The options for holding the bow also diminished during the eighteenth-century. In the 1700s, the two common methods of holding the bow were French and Italian. In the French grip, as Boyden describes, "the thumb is placed under the hair, three fingers are on the stick, and the little finger is sometimes braced on the player's side of the stick." However, with the rapid advances in violin technique, the French method of holding the bow became "obsolete after 1750." The Italian method, like the late Baroque method of holding the violin under the chin to the left of the tailpiece, is most similar to the present method of holding the bow. The Italian method requires the performer to hold the bow "by the four fingers and by the thumb, which is between the stick and the hair." Though I am unable to assert that holding the violin under the chin to the left of the tailpiece and holding the bow with an Italian grip was the preferred playing

³⁶ Boyden, 16-17.

³⁷ Peter Walls, "Violin Fingering in the 18th Century," *Early Music* (1984): 303. Translated from Leopold Mozart, *Versuch einer gründlichen Violinschule* (Augsburg, 1756).

³⁸ Boyden, 16.

³⁹ *Ibid.*, 17.

⁴⁰ *Ibid.*, 18.

⁴¹ *Ibid.*, 17.

⁴² Ibid

posture of eighteenth-century violinists, it is noteworthy that these are the accepted forms used by present day violinists.

When playing both the Baroque violin, I use the same chin posture and bow grip as I do on the modern instrument. The main difference in chin postures is that I do not have a chin rest on my Baroque violin, but the location of where I hold it does not change. I did not learn to play the Baroque violin using a French method because the Italian method was used much more in the eighteenth century. I had roughly a year to learn how to play the Baroque violin, and my teacher Paul Miller and I felt it was important for me to spend as much time learning the repertoire of the period, instead of devoting a lot of time to learning a new bow grip that was not widely used.

Techniques Involved with Playing the Instrument

The technical demands made upon late Baroque violinists were plentiful; the performer was expected to be fluent in the various types of left-hand ornamentation, including vibrato, trill, appoggiatura, cadenza, pizzicato, harmonics, and, as suggested by the Corelli example discussed above, well-versed in the art of improvisation. The Baroque music tradition flourished in England, France, Germany, and Italy, and though the point of origin dictated the style in which the music was played, the late Baroque violinist was expected to be proficient in the aforementioned types of ornamentation and improvisation regardless of venue or geographical location. Beyond ornamentation, Baroque right-hand techniques regarding bowing (how one moves the bow across the violin's string), articulation (the sound made by using a particular

⁴³ Gregory Barnett, *Bolognese Instrumental Music, 1660-1710: Spiritual Comfort, Courtly Delight, and Commercial Triumph* (Burlington: Ashgate Publishing Company, 2008), 57.

bowing), and rhythm (how the sound is experienced in time), were ambiguously notated or more commonly left up to the performer's interpretation.

Baroque violinists used shifting positions in the left hand to execute embellishments and to achieve the desired level of virtuosity. This technique is closely linked to the design of the violin because the length of the fingerboard determines how many positions (the location of the left hand in relation to where the fingers touch the fingerboard) violinists can play. The standardized late Baroque violin had eight positions, whereas the modern violin with the lengthened fingerboard (among other differences) has fifteen positions. This is particularly fascinating because the highest note on both instruments is a B an octave apart. The B on the Baroque violin is one octave lower than the B on the modern violin. Therefore, the final length of the modern violin's fingerboard is extended one octave higher than the standardized late Baroque violin's fingerboard and demonstrates another possible octave to showcase further the violin virtuoso. Although the baroque instrument only has eight positions, one sees these pushed to their limits in the Corelli Opus Five No. 9 realizations of Dubourg, for he requires shifting between seventh and first positions (Figures 5, measure 19). As violinists continued experimenting with shifting, they desired to play around the seventh position, which was "the usual limit of the technique of the left hand about 1750 and even later."44

⁴⁴ Boyden, 12.



Figure 5. Transcription with Ornamentation as Realized by Dubourg, Shifting Between Seventh and First Position in Measure 19, Beats 3 to 4, Between F# and A

Though one could play in the upper registers of the violin, the late Baroque performer was advised against doing so because the shifting technique required to play those notes was not recommended. Shifting was considered "the most difficult area" of violin technique, ⁴⁵ so much so that it was encouraged "that all movements which [were] not absolutely necessary should be avoided." Though there was no eighteenth-century treatise dedicated to describing the mechanics of shifting, Baroque composer and violinist Tartini advocated practicing repertoire in second position to strengthen the hand in performing string crossings. ⁴⁷ I experienced first-hand the difficulty of playing string crossings (changing strings while continuously playing) on the Baroque instrument, for it is smaller than its modern counterpart and has a flatter bridge, which felt awkward when playing the extended technique with the bow, even if I used second position

⁴⁵ Walls, "Violin Fingering in the 18th Century," 300.

⁴⁶ *Ibid.*, 305.

⁴⁷ Boyden, 22.

as Tartini advised. The use of second position also extends the range of the violin from A to C (instead of G to B). Leopold Mozart also explained that the best places to shift were "by taking advantage of an open string, at the change of bow, or at repeated notes." Shifting was typically done mainly on the highest string, the E string, using a technique that would be most comfortable to the performer. Also, developing "maximum independence between thumb and fingers" aided performers in shifting.⁴⁹

The Expansion of Virtuosity in Eighteenth-Century Italy

The virtuosity of the late Baroque style was made possible by playing on the late Baroque violin, as innovated by Antonio Stradivari. This standardization allowed for a golden age for celebrated violin luthiers who were able to make this highest level of standardized late Baroque violin. The ability to play on these instruments gave performers the key to technical expansion because they allowed performers to have similar experiences while playing the violin.

Consequently, as violin performance technique advanced as a result of playing on the best (and similar) instruments of this time period, it forced the standardized late Baroque violin to change to accommodate the new demands of the more advanced performer. In summation, Stradivarius's standardized design facilitated more virtuosity, which in turn made violinists desire a different sort of instrument.

⁴⁸ *Ibid*, translated from Leopold Mozart, *Versuch einer gründlichen Violinschule* (Augsburg, 1756).

⁴⁹ Walls, "Strings," 57.

This newfound virtuosity emerged through the realizations that reflected the violinist's individuality and challenged the limits of the Baroque fingerboard (thus necessitating the change to a longer fingerboard) was most commonly found in shifting and is showcased in the Dubourg example in figure 5. Though the Baroque violin fingerboard allowed the performer to play in the seventh and eighth positions, it was very difficult to play that high on the fingerboard due to left hand technique and the shape of the violin neck. Not surprisingly, the performers preferred to stay below the seventh position. Furthermore, as higher positions were desired after 1750, "the fingerboard was gradually lengthened until shortly after 1800 it attained its present length."50 Therefore, as violin shifting technique developed, the need for an extended fingerboard became clear. Late Baroque composers such as Corellli took notice of the performer's vast and expanding technical abilities, and required the performers to play more challenging pieces with a greater range. This virtuosic expansion drove the violin design to change. A further example of expanded technique required of the performers by the composers is the aforementioned string crossing and chords, particularly double and triple stops (two and three note chords played simultaneously).⁵¹

Composers explored many of these advanced techniques and others during the late Baroque era that required new skills from the performers. For example, Corelli's Opus 2 sonatas are full of parallel fifths, which broke the rules for composing good counterpoint in the name of expanded virtuosity. However, it is easy for violinists to play fifths because the four violin strings are tuned in fifths (G-D-A-E), so a performer can either play the open fifths on the open strings or by placing a finger down on both strings created closed fifths. The seventeenth-century Italian

⁵⁰ *Ibid*.

⁵¹ Allsop, 126.

musician Giovanni Paolo Colonna came to Corelli's defense by stating he "could hardly have committed so obvious an error [of composing parallel fifths] without good reason."⁵² Another technique that increased the demands placed upon the performer was expanding the tonal scope (modulation and more challenging harmonies) of the sonata as a whole, and this is especially evident in the second half of the Giga movement in Corelli's Opus 5 no. 9 sonata when it begins with the following modulation: E Major—f-sharp minor—b minor—c-sharp minor—A Major.⁵³ The variance of key progression in a sonata affects the techniques associated with playing the violin by furthering the tonal range, which required increased shifting abilities. Additionally, as performers demonstrated greater facility and shifting positions on the fingerboard, this encouraged composers to expand their tonal palate and explore greater key areas.

As the demands of the music grew and the violinist's abilities increased the standardized late Baroque violin became insufficient, forcing the luthiers of the eighteenth-century to reimagine the design of the violin. Additionally, the need for a bigger sound arose as the number of orchestral personnel grew, and developments in overspun metal strings during the eighteenth century and redesign of the late Baroque violin allowed for greater sound projection. While completing research in Italy, Bologna-based luthier Bruno Stefanini enlightened me on the history of the f-holes' development and gave me the following two charts from MIT News.⁵⁴ The charts represent the development and level of acoustic projection featured in each design from the violin's ancestor from the tenth to the eighteenth century.

⁵² *Ibid.*, 35.

⁵³ *Ibid.*, 129.

⁵⁴ The complete article can be found at: news.mit.edu/2015/violin-acoustic-power-0210.

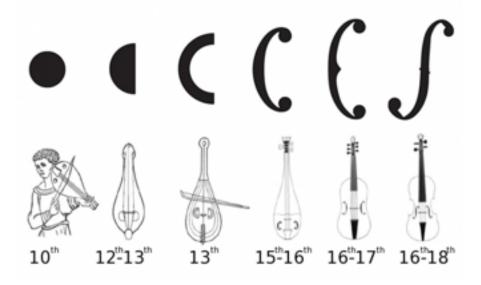


Figure 6a. Chart of F-Hole Development

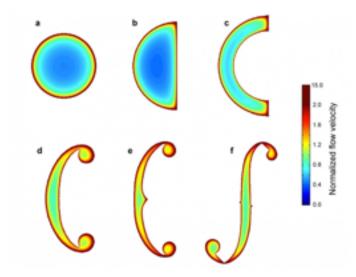


Figure 6b. Visualization of Projection Level Associated with F-Hole Design

Figures 6a and 6b reveal that the luthiers of previous centuries, like eighteenth-century luthiers, thought about the topic of how to improve projection; however, the reworking of the eighteenth-century violin design moved beyond a redesign of the f-hole, for it gave the violin neck and

fingerboard a steeper backward slope, which "made the sound of the violin much more penetrating and enabled soloists to compete with the larger orchestras of the period."55

As early as 1790, the violin design changed in response to the vast and expanding technical demands required of the performers as well as the desire for a larger sound. In Milan the Mantegazza brothers refit many of the late Baroque instruments' necks to bring them up to the new standards of playing, giving them longer fingerboards so performers could more easily play in higher positions. ⁵⁶ With this lengthening, the outline for the modern violin was established. Consequently, thanks to the Mantegazza brothers, there are now "few violins made before that date which retain their original necks, but it should be noted that the original scroll and pegbox were retained during neck replacement." ⁵⁷ With the standardization of the late Baroque violin that Stradivari inspired and the lengthening of the violin neck, the foundation of the modern violin design was established. This transitional violin design is known today as a Classical violin. Clearly, the demands of the late Baroque repertoire, as realized by technically advanced performers, played a role in the eventual emergence of the modern violin design.

Modernization of the Violin

The changes from the standardized Baroque violin to the transitional Classical model to the modern violin of course did not happen immediately, nor was it a direct cause and effect relationship between the advancement of violin techniques and the changing shape of the

⁵⁵ Dilworth, 11.

⁵⁶ *Ibid*.

⁵⁷ *Ibid*.

instrument. It was a "series of empirical steps, rather than doctrine, [that] enabled the violin ... to develop into the definitive forms and [structures] that we know today."58 As we have seen, Stradivari's standardization of the late Baroque violin expanded the performer's technical ability. Had this standardization not occurred, the virtuosic technique would not have developed. Therefore, this relationship was mutually reinforcing. Eventually, these advanced techniques necessitated further changes to the instrument, including the aforementioned replacement and lengthening of the fingerboard by two and a half inches on the Classical instrument in 1790 by the Mantegazza brothers. With the form of the modern violin set in place by the Classical version, the main difference between the instruments is string projection. The Classical violin continued to use gut strings, whereas the modern violin uses metal strings which allows the violin to project better as performance venues became larger.

The angle of the fingerboards between the Baroque and modern instruments was the most significant change. The late Baroque violin's fingerboard was wedge shaped which allowed the violin neck to project "straight out from the body so that its upper edge connects the line of the belly's rim." Figure 7a demonstrates this eighteenth-century wedge fingerboard and neck. The modern violin has the violin neck lengthened, angled and raised where it attaches to the violin belly, thus allowing the fingerboard to remain parallel. Figure 7b shows the modern violin fingerboard and neck.

⁵⁸ Bonetti, 44.

⁵⁹ Walls, "Strings," 45.

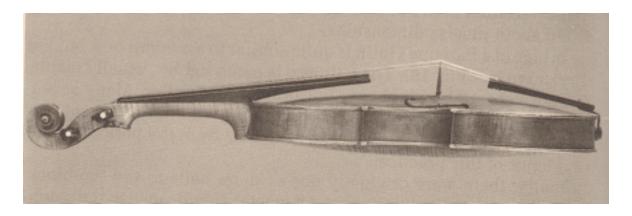


Figure 7a. "The Hilton" Violin, Stradivari, reproduced from Dilworth, "The violin and bow" (1992)

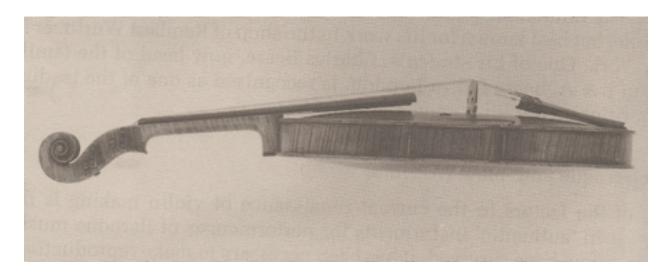


Figure 7b. Modern Violin, Stainer, reproduced from Dilworth, "The violin and bow" (1992)

Different materials were used in the construction of the late Baroque and modern violin.

The late Baroque violin tailpiece was made out of boxwood, which is a lighter weight wood in comparison to the modern's violin tailpiece made of ebony. The typical late Baroque violin's fingerboard was made out of a center spruce core with an ebony veneer on top of the spruce, and

finished with a flamed maple trim, while the modern instrument uses heavier ebony. ⁶⁰ Though this totals three different building materials in comparison to the sole ebony used on the modern violin's fingerboard, the late Baroque fingerboard was still significantly lighter. The weight of these accessories and the reduced weight of the accessories present (compared to the weight of the same accessories on the modern violin) account for the lighter weight of the late Baroque violin. According to Cremonese procedures for construction, the length of the modern fingerboard is 5/6 the length of the vibrating string length of the violin, which means the fingerboards of the standardized late Baroque violin and the modern violin were proportional to one another. ⁶¹ The length of the modern violin's fingerboard is 312mm, and the vibrating string length between the nut and the bridge is 374mm. ⁶² Despite the violin's metamorphosis, the preciseness of construction and attention to detail remained constant.

All of the enhancements made to create the modern violin allowed it to project over the growing number of personnel in orchestras For example, its increased total weight due to using different materials was inspired by the desire for the violin to project. The late Baroque violin is significantly lighter than the modern violin, which is caused by less associated accessories (such as lacking metal strings, chin rest, and E-string fine tuner) and different building materials. Additionally, common accessories found in both instruments were altered when seen in their Baroque variation. These accessories are the bass bar (reduction in Baroque violin), tailpiece (reduction and different building materials in Baroque violin), pegs (reduction in Baroque

⁶⁰ Interview with Bruno Stefanini, Luthier, Bologna, Italy, June 4, 2015.

⁶¹ Amelio Cicuttini, *Violin and Viola: Procedure for the construction following the classic cremonese method of the internal mould* (Cremona: Cremonabooks, 2012), 49.

⁶² *Ibid.*. 21.

violin), soundpost (reduction in Baroque violin), and fingerboard (reduction and different building materials in Baroque violin). In sum, the design of the Baroque was simpler and used fewer materials, which gave the Baroque a quieter sound, a sound that was not capable of projection compared to the modern instrument.

I experienced the differences between performing on a modern and Baroque violin first hand. I played my Senior Violin Recital in December 2015 on my modern violin and three months later in February I performed my recital on the Baroque violin. The differences between the instruments that I have described above caused some difficulty, particularly after I completed my Baroque violin recital and tried to transition back to predominantly playing my modern violin. I realized my tone production had changed greatly due to the differences in pressure used in the bow hand to project. The amount of bow pressure I used while playing my Baroque violin was significantly less than on my modern violin, and because of this difference, my tone production on my modern violin diminished. Luckily, it was easy to regain a fuller tone on my modern violin; I had to merely exert a little more pressure in my bow hand than I was used to after playing Baroque violin. However, I was very intrigued about how playing the Baroque violin affected my technique on the modern instrument. Playing the Baroque violin required an adaption of bow pressure, which I did unconsciously. The bow pressure used to create a rich, beautiful, soaring tone on the modern violin would produce a scratching noise from the Baroque violin and, conversely, using a lighter bow pressure on the modern instrument produced an anemic sound.

Although the modern instrument can play more loudly, I would argue that it is much easier to achieve the desired Baroque sound on a Baroque violin. Acknowledging that the main

difference in tone is due to the difference of tuning and type of strings (especially the E-string), tuning a modern violin and replacing the metal E-string with gut would drastically aid the performer in emulating the Baroque sound while using a modern violin. Tuning and changing the timbre of the E-string are the two most basic steps in making a modern violin emulate Baroque qualities because it lessens the tension of the strings on the violin and makes the E-string blend better into the rest of the violin's overall sound. Additionally, the use of the Baroque bow is extremely important because its lighter weight greatly affects the tone quality produced by the violin. Of course, it is much preferable to play Baroque music using a Baroque violin and bow, but if that is not within means, a retuned violin with a gut E-string paired with a Baroque bow is a reasonable substitute.

Concluding Thoughts

Learning to play the Baroque violin by studying its Italian origins and taking private lessons allowed me the opportunity to conduct practice-based research. The dual nature of my Capstone project lends itself to this method of research to help better explain the performance aspects in my paper. The research I completed for this paper in turn informed how I learned to play this new instrument. When I began my research for this paper, I expected to find a clear-cut answer about whether the luthier or performer ignited the change from Baroque violin to modern violin. After researching this question and learning how to play both instruments, I realize now there is no direct answer; rather the relationship between the performer and luthier is mutually reinforcing. Changes in violin making technique sparked changes in violin performance technique, and similarly changes in violin performance technique sparked changes in violin

making technique. This constant development caused by the luthier and performer relationship influenced the design of the late Baroque violin and ultimately gave way to the final development, the modern violin.

Program Notes for Baroque Violin Recital, Friday February 26, 2016

The performance tonight features Baroque tuning on a period instrument, modern cello with Baroque bow, and harpsichord. In the usual tuning of the time period A was set as 415Hz, which is roughly a half step lower than today's A 440Hz. The major differences between a Baroque violin and a modern violin are that the Baroque violin is strung in lamb gut strings, lacks a chin rest, and has an octave shorter finger board. Additionally, the Baroque violin body, bridge, sound post, and bass bar are smaller in comparison. The Baroque bow is lighter in weight and has a convex arch, whereas a modern bow is heavier in weight and has a concave arch. Throughout both sonatas, I embellish the written music with my own ornaments (notes that are not written on the page) using strategies developed during the Baroque period.

The first half of the recital showcases the music of Arcangelo Corelli (1653-1713), who was an influential violinist and composer of string music at the turn of the eighteenth century. Despite only publishing six collections of works, Corelli was regarded as a master of the "modern" virtuosic Italian playing style and his compositions were popular throughout Europe. The Op. 5 Violin Sonatas were published in Rome in 1700 and were purposely printed in a skeletal form of notation, which encouraged the violinist to embellish the music with skillful ornamentation. Sonata No. 9 from Op. 5 is a four movement work; movements 1, 2, and 4 are composed of an A and B section which are repeated during the performance to form the pattern A A' B B'. The A and B sections are initially played with minimal ornamentation, but during the repeats the performer would have been expected to ornament the lines to provide appropriate variety, an approach that I have adopted this evening. The third movement is a mere eight measures long. I have chosen to heavily ornament this short movement and will play it without repeats.

The second half of the performance this evening features the music of Antonio Vivaldi (1678-1741), a prolific composer and violin virtuosi during the early eighteenth century. During his lifetime, he was most respected as a violinist, though he is most remembered as a composer today. The Op. 2 Violin Sonatas display one of Vivaldi's typical compositional tricks: the use of recurring rhythmic motifs. The repetitive rhythmic pattern of a long note followed by a short note connects the three movements of Sonata No. 10 from Op. 2 together, as each movement has a variation on this pattern. Exaggeration of the long-short rhythmic pattern is easily played with a Baroque bow because the convex arch allows for the clarity of the rhythm to be realized. Unlike Corelli's notation, Vivaldi's notation precisely indicates the desired ornamentation.

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Appendices

Link to Capstone Baroque Violin Recital: drive.google.com/open?id=0B5INJT59TCIFY2lvQmhESFo3MHc

Program of Capstone Baroque Violin Recital

