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Abstract


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The purpose of this dissertation is to examine the developments of the violin bow and the Tourte bow’s significant impact on bowing technique, focusing on Beethoven’s Fifth Violin Sonata. An informative history of Beethoven’s significant three periods of composition will be touched upon. Following, the research will focus on the developments of the bow and will conclude with a discussion on the performance practice.
of violin bow playing before and after the evolution of the Tourte bow, with Beethoven’s Violin Sonata No. 5 in mind.

The Sonata for Piano and Violin No. 5 in F Major (1800–1801), marks the end of his early compositional period which dates from 1770 to about 1802, and is a select example of how Beethoven exploits the increased sustaining capabilities and bowing techniques of the newly improved late 18th century Tourte bow. Earlier composers such as Mozart made lasting influences on his works regarding the traditional structure and balance of the sonata model, and his Sonata No. 5 is among the pioneers in which Beethoven attempts to extend the current limits of composition and performance.

The underlying reasons for the vast change from the old bow to the new Tourte model went hand in hand with the changing ideals of style, musical taste, and expression. This interaction is clearly evident in the history of the bow, particularly, in the 18th century. The longer bow, camber of the stick, and wider ribbon of hair undoubtedly produced a fuller, more powerful and sustained tone promoting the growing importance on the even-ness of sound. Also, a quicker response in the initial stroke essential to producing the extensive range of recently
encountered bowing technique, varying from the bouncing of the bow to
sforzando, legato, detaché effects, among others, were now achievable and
could be employed in Beethoven's works. The bows pre-dated to that of
the Tourte had constituted a loss in freedom in tempo, dynamic detail,
phrasing, nuances, accents, articulation, and tonal pallet in contrast to the
modern model. Hence, the Tourte bow opened new horizons in matters of
technicality and therefore was representative of the quintessential
advancement that helped engineer the expressivity in Beethoven’s music.

Keywords: Beethoven, Ludwig van, Tourte, Violin, Sonata, Op. 24

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Introduction

The purpose of this dissertation is to examine the developments of the violin bow and the Tourte bow’s impact on bowing compositional aspects thereafter. The focus will be on Beethoven’s Violin Sonata No. 5, Op. 24.

We will anticipate an informative account that puts Beethoven's Fifth Violin Sonata into the context of its time by examining his timeline of compositional development. Transition to the Tourte bow illuminates the sonata’s significance, due to performance practices that arose from the new model in the light of the late 18th and early 19th centuries.

Beethoven’s works are characteristically divided into three distinct periods: Early, Middle, and Late. Chapter one will discuss his significant three periods of composition, in tandem with how his life coincided with a period of transition in the development of the bow. An overview of Beethoven's Fifth Violin Sonata will also be provided. Chapter two is devoted to the developments of the Tourte bow that emerged in the late 18th century (c.1780–1790), which profoundly influenced Beethoven's compositions with regards to bowing technique exploited in his violin
sonatas. It will present an in-depth analysis of the history of the bow, as well as a list of various bow strokes in relation to technical, stylistic, and expressive aspects, that blossomed in the period after the fruition of the Tourte bow. The research will conclude with proceedings to take Beethoven’s Violin Sonata No. 5, and demonstrate specific examples of technical advances in bowing techniques that came with the developments of the Tourte-model.
II. History and Background

Ludwig van Beethoven’s Three Periods

Beethoven is a central figure in musical history, setting the finishing touches to the Classical Period and pioneering the transition to the beginnings of the Romantic Period. Early in his career, his life as a concert pianist was forced to come to an end due to his increasing deafness. Accordingly, his personal eccentricities and unpredictability only intensified as the years carried on, as further complications surrounding political as well as economic issues, family troubles, and unrequited relationships arose. Difficulties such as these significantly impacted the general development of his musical voice and expression. His music is marked by the bold, unpredictable and unfamiliar, in line with his unconventional character.

Beethoven’s biography consists of a general three-period structure, in which each reflects and exhibits major stylistic evolutions and turning points that unfold during his lifetime. The three periods are as follows: The Early Bonn, Viennese Period which spanned from 1782 to 1802, (or from his birth in 1770 to about 1802), the Middle Period (1803-1814), and
the Late Period (1814–1827)\(^1\) in which his most mature and complex works are derived.

Beethoven’s Early Period marks his commencing of efforts to emulate and master the predominant Viennese classical language of Haydn and Mozart, with emphasis on clarity of form and symmetry within the prevailing classical tastes of the time. A series of pieces that included the piano sonatas, early string quartets, sonatas, and his first symphonies, can be seen throughout this period. It was during this time the bow underwent momentous developments, ultimately issuing to the advent of the modern bow by Francois Tourte in c.1780. Beethoven’s acquaintances with fellow violinist colleagues such as Viotti and Kreutzer led to his keen interest and knowledge of the Tourte bow. His Sonata for Piano and Violin No. 5 mark the exploration and appliance of technical potentialities made capable by this new innovation.

His Middle Period is marked by a growing realization of his increasing deafness. Characterized also as his “heroic” period, this period marks his movement away from Haydn and Mozart, to develop his

distinctive individual style. He starts anew and abandons the traditional for the more progressive, as he achieves a new level of drama and emotional depth.

The Late Period conveys an introspective, highly evolved, progressive, and unorthodox style, where he sought to combine the baroque ideas of Handel and Bach in tandem with the musical ideas of early Haydn and Mozart. This proved more difficult to comprehend for performers and listeners alike. There is a noticeable decline in musical output, possibly due to his declining health and unstable mental state. The music produced during this period is marked with pure originality, depth and complexity, with an increasingly serious and intimate nature that was a direct consequence of the emotional events that surrounded his life. Growing and eventually, complete deafness, depression, political repression, and the departure of friends and patrons led to an ever increasing isolation and withdrawal from society. His expression of struggle and triumph is musically depicted by an ever more intense, concentrated, and challenging output of music.
The Sonata for Piano and Violin No. 5 in F Major (1800–1801), by Beethoven demonstrates his early period of chamber music, illustrating his characteristic musical expressivity and dynamism within the restraints of the Classical style. The music proceeds in a different direction as an exploration of new technique is provided by the emergence of the Tourte bow, which can be seen in the long, smooth melodies of the violin.

This work was written during his Early Period and was dedicated to his Viennese patron, Count Moritz von Fries. Also known as the “Spring,” this nickname was not imparted by the composer himself. Nonetheless, the title is effective in conveying the carefree atmosphere of spring in the overall character of the work, especially through its lyrical themes and variations.

In this sonata, Beethoven lets go of formal social conventions of the 18th century classical piano melody–plus–violin accompaniment sonata and boldly presents for the first time the primary theme in the violin, while continuously involving the violin and piano in intensive collaboration throughout the work. Another formal distinction is that in addition to the
established three-movement outline of the sonata, Beethoven added a transitory brief Scherzo and Trio movement. This movement, spontaneous in nature and featuring lighthearted rhythmicality, expands the work into a four-movement form.

In the first movement, the main melody is cast as a promising ideal, with delicate and simple lines. Despite the sweet, lyrical melodies that serve as the main themes, following this pleasant scenery is a more rhythmic and dynamic temperament, portraying Beethoven’s more aggressive nature with frequentated *sforzando* markings. The rest of the work is continued in a similar manner, alternating between sweet lyricism and stormy temperament. Beethoven’s characteristic qualities are musically depicted in dramatic bursts of unexpected moments, through usage of capricious moods, agitation and restlessness, dynamic variation and rhythmicality, which all join to capture the spirit of his temperament.
III. The Tourte-model

The Evolution

Together with Ludwig van Beethoven’s enormous impact on music, coinciding with this flow in history was the pivotal emergence of the newly arrived Tourte bow. The development of the bow was influential in the overall course of nineteenth century violin repertoire and on, as there proved a significant shift in bowing performance practice. This new model provided an inspiration for and further helped shape Beethoven’s violin compositions. He has served as an impetus, to say the least, for many of his subsequent contemporaries, who, in turn, have reflected the increasing demands on the violinist as the role of the violin drastically changed throughout the periods that followed. Beethoven revolutionized the compositional style by utilizing the advancements of the bow by Francois Tourte in the late 18th century. The Tourte model is universally used today, and its history and evolution of the bow comprises of decades of contributions.

It is of vital importance to comprehend the developments of the violin bow itself, in order to better understand and relate the effects of the
Tourte bow. This bow affected the overall style, articulation, phrasing, and expression that guided the aesthetics of nineteenth-century music. According to Leopold Mozart and C.P.E. Bach, the older bowing methods consisted of putting stress on the first note of slurs and releasing it on the last. In contrast, Beethoven’s long slurs generally proposed the smooth and sustained bowing style favored in the nineteenth century due to the influence of the newly introduced Tourte bow.

We will relate the evolution of bow construction to its influence on the bow technique of the eighteenth and nineteenth centuries. In the history of the bow’s development, a standardized bow design did not exist, but rather a diverse assortment of bows of various shapes and sizes that were used for different musical and performance styles and enabled specific techniques in the right hand. The baroque short French bows were used for playing dance music, which required only short and clear articulate musical phrasing. On the contrary, the longer Italian baroque bow, which later supplanted the earlier French baroque bows, was suitable for sonata works in which longer musical phrases were fundamental. The bow was standardized in c.1780 and has since remained unchanged. The

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key modifications on the bow, such as the crucial change from the convex stick to the concave, realized the emergence of a new and wider range of bow strokes. This made matters of improving playing technique possible, thus providing more diverse ways of expression. Producing and executing a variety of bow strokes, with considerable respect to matters of dynamic shadings and nuance, tone production, sound, expression, and various tonal palettes were constantly explored throughout this period. Gradually, in transitioning to the Romantic period, there emerged a desire for the instrument to imitate the human singing voice, thus the modern Tourte bow enabled production of expressive sustained musical phrases.

In reviewing and analyzing the bow’s chronological developments before and up until the event of Tourte’s standardized model design, we will begin by examining the key bows in stages vital to understanding the transitional developments in a historical viewpoint.

The comprehensive account of the evolutionary advancements of the bow starting with music scholar and theorists—Mersenne (1620) and Kircher (1640), followed by violinists—Castrovillari (1660), Bassani (1680), Corelli (1700), Tartini (1740), Cramer (1770), and finally, Viotti (1790), exemplify the sequence of bows. This represented the
considerable variation and critical development in the elevation and reconstruction of the head, size, length, weight, width of hair, frog and its mechanism for tightening the bow— from the inflexible to increasing elasticity of the stick, and finally, the overall camber and shape of the bow. Of these types, the following four types of bows, from about 1700 to 1800, serve as the main developmental points leading to the finalized form, in which each are named in relation to the violinists with whose style of performance they were linked to: The short ‘Corelli’ bow, long ‘Tartini,’ transitional ‘Cramer,’ and the modern Tourte ‘Viotti’ bows. It is said that by 1798 the Tourte bow had become almost exclusively adopted.\(^3\)

The following provides a general overview of measurements from earlier bows that date from c.1700 – c.1780\(^4\):

- Length: 70.5cm - 73.9cm
- Hair length: 60.1cm - 64.2cm
- Band hair width: approx. 6mm
- Weight: 47g–58g

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Figure 1: Developments of violin bow construction
1. Short ‘Corelli’ bow

Figure 2: ‘pike-head’

Figure 3: Short ‘Corelli’ ‘pike-head’ bow, snakewood stick, clip-in frog, c.1685, length 58.4cm

The ‘Corelli’ featured either a straight or slightly convex stick with a ‘pike-head,’ and generally a ‘clip-in’ fixed frog mechanism. The ‘pike-head’ presented a fine tapered point and low-profile shape, with hardly a separation between the hair and stick at the head.

This model generally serves to represent the early 18th century Italian ‘sonata’ bow. It is light in nature, with a narrow band of hair that is

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more yielding, with a lower balance point. The baroque bow’s weight was concentrated closer to the frog due to its lighter head. As a result, the upper part of the bow produced less command and a natural diminuendo of the sound nearing the tip.

The hair was attached at the point of the stick, where it was inserted through a mortise hole in which they were knotted, curled and secured with a wooden wedge, which tightened the hair.

The bow hair in the seventeenth and eighteenth centuries featured ‘clip-in’ frogs which can be seen in most bows until about 1720, which presented hair that was directly put through a removable frog that was placed into a dent of the stick, kept in place by hair tension.

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7 Ibid., 12.
Figure 4: Head and mortise plug
Figure 5: Clip-in frog attachment
Because an adjusting screw mechanism did not yet exist, adjusting of the hair tension was done in various ways, such as placing a piece of paper or other material into the hole between the hair and the frog. In the seventeenth century, one of the first means of hair tension adjustments was the *cremaillere* mechanism.\(^9\) *Cremaillere* featured an iron clasp and indented hooks at the frog, in which the hair tension was adjusted by cranking the frog back and forward.\(^10\) This concept was the start of the advancement of the mechanical hair adjustment function of the frog.

![Figure 6: Cremaillere frog attachment](image)

Beginning in about the second half the eighteenth and early nineteenth centuries, the modern screw and eyelet mechanism was developed.

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\(^10\) Ibid.
As the bows were lengthened, more hair was used, increasing the bow’s facilitation in producing lyrical fluidity. Accordingly, the modern closed channel screw frog was developed using a screw and eyelet mechanism.

Dating from about 1740, this type of bow mechanism featured hair that was inserted and placed in the mortise hole (a cavity cut into the wood in which the hair fits in) in the hair channel of the frog itself, rather than the stick. Although this new innovation came about, even around the year 1760, frog mechanisms coexisted as some of the newly constructed long and transitional/classical bows still contained the clip-in-frog.

In mid-eighteenth century, the amount of hair used increased to eight millimeters in width. In the period between 1750 and 1775, the screw mechanism progressively started to officially take the place of the clip-in mechanism.
Figure 7: Parts of the bow

Figure 8: Screw-mechanism—screw and nut gave tension to the hair
Figure 9: Early 18th century bow frogs: Clip-in frog

Figure 10: Late 18th century bow frogs: Open-channel screw-frog; Modern closed channel screw-frog
2. Long ‘Tartini’ Bow

The ‘Tartini’ bow featured a straight, and longer stick. The tip of the bow was slightly modified with the elevation of the low or slightly convex ‘pike-head’, into the ‘swan–bill’ head, in order to allow adequate separation of the hair and the stick at the head and in general. The frog construction contained a screw mechanism. The bow can be seen as an extension and advancement of the former features and playing capabilities of the ‘Corelli’ model.

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12 Ibid., 292.
13 Ibid.
Since makers of the 18\textsuperscript{th} century aimed to make light bows while retaining their strength simultaneously, the bows of the period were generally light in nature. Snakewood was the wood primarily used for earlier baroque bows.

The two models discussed above are appropriate to the style of Corelli, Vivaldi, Tartini, among others in the early part of the 18\textsuperscript{th} century.\textsuperscript{14}

\section*{3. Transitional ‘Cramer’ bow}

\begin{figure}[h]
\centering
\includegraphics[width=0.6\textwidth]{battle_axe_head.png}
\caption{‘Battle-axe’ head: mirrored peak in front and back}
\end{figure}

The long ‘Tartini’ bow prevailed until the end of the 18th century, overlapping with yet another point of departure for developments towards the transitional ‘Cramer’ bow beginning toward the middle of the 18th century. Associated with violinist Wilhelm Cramer (1745–1799), the ‘Cramer’ bow exhibits early 18th century bow’s features while pointing toward a definitive step towards the Tourte model, and introduced the first concave bow curvature. The overall construction of the bow involved a move a slight inward curvature, done by heating the stick. This method of heating the stick preserved the natural elasticity of the wood and helped to add spring and resistance in the bow.16 The concave shaping also affected the initial response of the stroke as it touched the strings, in that an immediate response was more apparent. This was because there was less ‘give’ to the hair when tightened and performed. The ‘Cramer’ displayed a light and natural articulation, characteristic of the previous

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baroque bows, while also being capable of the strong, articulated attacks possible with the Tourte bow. It featured an even further raised ‘battle-axe’ head, which featured a mirrored peak in front and back, creating a larger separation between the stick and hair at the tip of the bow. This distinctive feature can also be seen in the shape of the frog. Its ‘open’ frog did not yet have a ferrule or slide covering the hair’s lower side, hence, ‘open’.\(^{17}\) Wider hair channels than that of previous models is apparent, although still narrower than the Tourte. The screw mechanism became a standard procedure, and the move to pernambuco wood is more absolute. Snakewood and ironwood diminish in use, although the latter was used in the transitional period between the baroque and modern periods of Tourte. Variances in aspects of design, characteristics, and measurements are still observed.

This transitional ‘Cramer’ model is ideal for performing the music of Haydn, Mozart, and their contemporaries, as the bouncing gallant style stroke dominated the Classical period.\(^{18}\)

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\(^{17}\) Ibid., 422.
\(^{18}\) Ibid., 416.
Figure 15: 'Cramer' 'battle-axe' head and frog

Figure 16: 'Battle-axe' (variant form)
4. Tourte ‘Viotti’ bow

Tourte took to standardizing the bow with the following measurements in c.1780:

- Length: approx. 74–75 centimeters
- Hair length: approx. 65 centimeters
- Band hair width: approx. 11mm
- Weight: approx. 56

The use of pernambuco was also standardized as the ideal source of wood because it provided the ultimate combination of lightness, strength, and elasticity.

- It is said that Giovanni Battista Viotti (1755–1824), Italian violinist and composer in Paris, worked in collaboration with Tourte and helped the

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progressive developments of the model, dating from the end of the 18th century to the beginnings of the 19th century.\textsuperscript{22}

The profile of the head was steadily modified to match the changing concave camber of the stick, as to prevent the hair at the tip from contacting the stick when pressure was applied. This resulted in its finalized late eighteenth-century 'hatchet-head' form, with only a peak in the front. This change generated a more responsive sound in the upper part of the bow, in contrast to the lack of responsiveness due to the hair and stick being situated too close together at the tip of the bow. More wood was used for the head, which in turn was balanced out by a heavier frog. Consequently, the bows produced equal strength at the tip and at the frog.\textsuperscript{23} The use of the development of the ferrule and slide to discipline the hair into an evenly spread flat ribbon instead of the uneven clustering of the hair, also became a regulated matter.\textsuperscript{24} A screw inserted in the nut was used to moderate the hair tension. All of these advancements in the bow enabled new forms of expression, intensity, power, bowing technique, and articulation.

\textsuperscript{22} Ibid.
\textsuperscript{23} Ibid.
This ‘Viotti’ bow is appropriate for performing late Haydn, Mozart, Viotti, Beethoven, and other 19th century repertoire and on.\textsuperscript{25}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{modern_hatchet_head_peak_front}
\caption{Modern 'hatchet' head: peak in the front only}
\end{figure}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{tourte_bow}
\caption{Tourte bow}
\end{figure}

\textsuperscript{25} Ibid., 206.
Figure 20: Development of the curvature of the stick

Figure 21: Early baroque bow, little distance between stick of bow and hair at tip

Figure 22: Late baroque 'sonata' bow

Figure 23: Ultimate comparison—17th century French 'dance' bow, and modern Tourte bow
Bow Strokes: Post-Tourte

During the late eighteenth and early nineteenth centuries, a number of significant bowing strokes developed throughout periods of improvements in the bow, namely, the detaché, martelé, staccato, sautille, and spiccato, among others. These bow strokes stressed the expressive style, strong deep tones, broad and articulated accented strokes in contrast with the older aesthetics of gallant style springing bow strokes, which stressed subtle nuances, lightness and clarity.

The same terms denoting bow strokes also had different meanings depending on the period, creating an entirely different effect on the same music. Bowing up until the 18th century consisted mostly of legato or detaché bow strokes. In the 17th century, detaché meant literally that—detached. The stroke was achieved by playing the notes separately with natural and light articulation due to the construction of the bow, between successions of notes. Although the term still to this day denotes for the passage or groups of notes to be played in a detached manner, after the advent of the Tourte bow, detaché became to signify a smooth bow stroke due to the possibility provided by the new model in making inaudible bow changes. The term staccato also is approached differently when related
to modern bowing practice. During the 18th century, the staccato stroke involved a natural shortening of the note, which was made apparent by lifting the bow at the end of each stroke in the lower half of the bow. This was due to the lighter weight of the bow in contrast to the heavier modern counterpart.

The following bow strokes are illustrative of bowings that were made possible by the Tourte bow:

**Detaché**

This bow stroke is performed in a long, even, seamless manner, and denotes a smooth, separate bow stroke on the string. It is the most basic stroke, as well as the most exploited prior to the developments of the bow.

With the earlier bows, the natural detaché stroke would be executed in a non-legato manner. They present a soft initial tone at the beginning of each stroke, with a full sound formulating nearing the middle of the stroke with slight application of the first finger pressure. This delicate

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bowing effect called the *messa di voce*, a style used especially during the Baroque period, involved starting softly with a gradual crescendo towards the middle, and a diminuendo, again, ending softly at the end of the bow stroke. The natural diminuendo on nearing the tip of the bow was also due to the tightly stretched feature, as well as the slight inflections and natural lift between successions of notes. This resulted in emphasis on every bow change, which demonstrates the distinguishing factors in bow stroke between the modern *legato* bowing of the period following the Tourte model and the early eighteenth century *legato* bowing.

On the contrary, in using the modern bow to achieve this soft initial stroke, one must play with ease, involving less tension to achieve a natural initial tone, without a noticeable full-sounding attack. The bow, also, is able to produce a sustaining quality of sound with equal dynamic throughout the entirety of the stroke, due to a more even balance point in the bow.

**Legato**

It is said that the lack of slurs found in music prior to that of the Tourte bow was due to the limited abilities of the earlier bows. With the Tourte bow, the *legato* approach was utilized increasingly, exploiting the
sustaining singing aesthetics of the 19th century, as the ability to produce long musical phrases with seamless bow changes became achievable. This bow stroke is applied to notes that are linked by slurs. The use of slurs increased, as well as the number of notes slurred.

**Chords**

Chords were often executed in an arpeggiated manner during the baroque period, due to the curvature of the stick. In the nineteenth century and on, diverse bowings could be applied to producing chords, with the possibility of playing several notes simultaneously. The manner of breaking the chords gradually took place of the arpeggiating of chords, in preference of a more richer and sonorous sound quality in the 19th century.

**Staccato**

The *staccato*, literally meaning a “detached” or “separated” bowing, was the natural stroke of the lower half of earlier bows pre-dated to Tourte. Up until the emergence of the modern bow in the late eighteenth century, the *staccato* and *spiccato* bow strokes were essentially the same bow stroke, as *staccato* as an on-the-string slurred stroke did not exist during that period. However, beginning from the late 18th century or early
19th century, the term came to mean a sequence of fast successive separated *martelé* strokes\(^{27}\) in the same bow stroke. This stroke, namely, and most often executed as the slurred “up-bow” *staccato*, is marked with a slur and dots. The eighteenth-century *staccato* had a more obvious break between the notes than when performed in a modern style, due to the lightness of the pre-Tourte bow, it was natural to make a “lift” after each stroke. This articulation was achieved by raising the bow off the string between the separated notes, and signified a light, leisurely, articulated stroke with natural inflections of rests. This demonstrates a considerable contrast with the controlled and crisp on-the-string modern *staccato*.

**Spiccato**

This term can be seen as synonymous for *staccato* or *sautillé*. It is executed as a short bouncing off the string stroke. You can change the speed of the *spiccato* based on where the bow is placed. Faster *spiccato* is achieved when placed in the upper half the bow, and slower in the lower half of the bow. The speed can be varied by the height of the bounce.

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\(^{27}\) Violin Technique and Performance in the late Eighteenth and Nineteenth centuries
Robin Stowell
In contrast with the baroque bow, in which the strong, lifted stroke at the frog are less natural,\(^28\) the Tourte bow was able to achieve a stroke in which the hair only slightly leaves the string between notes because of the elasticity and taut hair provided by the Tourte bow.

**Sautillé**

*Sautillé* presents a natural rapid bouncing of light detached strokes played in the middle of the bow. This bow stroke is started on the string and is faster and less percussive sounding than *spiccato*. It is marked in the music by dots or arrow-headed strokes.

**Ricochét, flying staccato/spiccato**

This is literally a “thrown on the string” bow stroke and is accomplished in the upper half of the bow, and is left to rebound and bounce off the string several times. It is most commonly executed as a down-bow. As in other *staccato* strokes, the dots denoted with the slur identify this stroke.

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Collé

Collé is executed in the lower half of the bow. The bow is placed on the string before the attack. It is then pressed sharply on to the string and lifted off rapidly with a clean and crisp articulation.

Martelé, Sforzando effect

Martelé is a hammered on-the-string stroke that is performed with an immediate sharp attack at the start of the note, followed by a sharp release of pressure at the end of each stroke. When using the pre-Tourte bow, it was impossible to maintain constant pressure of the hair throughout the entirety of the stroke. The baroque bow’s head was also too light, making it difficult to execute the incisive biting and percussive attack managed between the middle to upper part of the bow, especially with an up-bow. The following is a description by Rudolphe Kreutzer in his 1796 publication of ‘42 Etudes’:

“This bow-stroke should be performed at the tip, and should be firmly articulated. It serves to contrast with sustained melodies, and is of great effect when used appropriately. One should use stronger pressure on the notes taken with up-bow, since these are naturally more difficult to emphasize than those with down-bow.”

It is typically notated in the music by dots or arrow-headed strokes.
Saccade

Saccade attacks the second of two slurred notes by executing a sharp energetic accent. This bowing provides irregularity and contrast as it combines the use of *sforzandos* within notes.

Fouetté

The *fouetté* is a “whipping” bow stroke, where an up-bow is thrown forcefully on the string from the air. This is done close to the tip of the bow. Fouette is indicated by accents and dots over or below the notes.

Down and Up-bows

Given that the up-bow was capable of producing the same strong sound as the down-bow with the Tourte bow, the use of the up-bow strokes increased. This change facilitated in going beyond the traditional down-bow rule, which required down-notes to be played on stressed notes.

Tremolo

The tremolo is produced by reiterating small separated strokes in a very rapid manner, with little bow at the point.
Portato

Portato is a ‘dragged’ type of expressive bow stroke that consists of using even, delicate pressure to produce re-articulated or pulsating notes, which are connected with a single stroke. Portato was standardized later in the 19th century and is indicated by lines under a slur.
IV. Sonata for Piano and Violin No. 5, Op. 24

New Bowing Techniques Applied/Differences between the Baroque and Tourte bows

Beethoven’s knowledge of the longer, stronger and more elastic Tourte bow of the last decade of the 18th century seemingly came naturally, as at the time he was surrounded by direct correspondences with his violinist colleagues. In line with Beethoven’s awareness and curiosity in the new developments of the Tourte bow, he took to experimenting with the possibilities of the new bowing technique that was made possible by the new model. The bow had become widely recognized in Paris, the Paris Conservatoire and the musicians associated with the school and methods of performance practice. Of particular importance was Giovanni Battista Viotti, along with others of the school, who were strong advocates of the Tourte bow and the new style of bowing technique that came with, as well as of Beethoven’s music.

In addition to other new bow strokes made available by the Tourte
model, the principal display of techniques exploited by Beethoven are the *martelè* stroke, in which each note is executed with sharp and firm articulation; increased use of singing *legato* passages, full projection of tone, sustaining of notes, sudden changes in dynamic, the use of *sforzandos*, and his extensive use of forceful, marked, rhythmic patterns. These techniques find application in Beethoven’s musical ideas in his Sonata No. 5.

The work is in 4 movements:

I. Allegro

II. Adagio molto espressivo

III. Scherzo. Allegro molto – Trio

IV. Rondo. Allegro ma non troppo
I. Allegro

This work’s emphasis on fully sustained, long *legato* phrases can be seen throughout the entirety of this sonata. This passage with the baroque bow would be executed in an entirely different manner. When using the long modern Tourte model with the wider ribbon of hair, the theme is achieved in one long melodic phrase. However, with the older baroque bow this is not as easily attained because as the bow reaches the point, the sound will naturally diminuendo. As a result, the phrasing of this passage would be of a considerably different nature.
This slurred *crescendo* passage with a baroque bow is less likely to achieve the desired effect, not to mention the smooth sustaining sound the slur intended. The shorter length may not afford the passage to be completed in one bow. All the more so, if separated into two bows, when reaching the tip of the down-bow the sound will naturally decrease in volume, thus preventing the intended *crescendo*.

![Figure 3: Sforzando, fouetté](image)

The Tourte model, with its sustaining abilities, enables the *fortissimo* to be carried out dutifully with its full sustaining projection of tone. In contrast, with the usage of the baroque model, this *fortissimo* note would naturally decrease in sound towards nearing the tip. The *sforzando* fouetté that follows with an up-bow would not be possible due to the lack of power afforded at the tip of the bow, as well as the down-bow *sforzando* that follows.
Again, in order for the *sforzando* notes presented here to produce the intended power and sustaining quality, the Tourte bow would be essential. The *martelé* strokes played in the upper part of the bow that follows, would be an unattainable task with the baroque bow due to the limited amount of weight at the tip.

This *spiccatò* passage is less natural and trickier to control with the baroque bow as there is a reduced amount of elasticity provided in the stick. The *sforzando* that follows, also, would not be able to be executed.
into the desired stark and articulated manner, as would be possible with the Tourte model.

![Figure 6](image)

The gradual emphasis of sustaining tone required of the *rinforzando* and sudden change in color to *piano* written here, again, would almost be impossible with the baroque bow due to its natural diminishing of sound towards the tip of the bow.

![Figure 6: Collé](image)

In order to correctly achieve the *collé*, the bow is pressed and placed on the string before lifting the quick *martellé*-like stroke in a sharp pinch.
The effect should be that of a clean and crisp ‘clicking’ articulation, which is difficult to regulate with the nature of the baroque bow.

This bow stroke with the baroque model would sound a more light and bouncing character with its natural lifting articulation of the bow, than the short on-the-string staccato that should separate itself from successive notes, and forte martelé that follows after the sforzando.

The fouetté requires the modern Tourte bow that has relatively more weight than the baroque bow at the tip to carry out the solid “whipping”
up-bow stroke convincingly at the initial sounding point. The baroque bow would not be fitting because of its slack response at the beginning of the stroke due to its noticeably lighter head.

For the above passage, the Tourte bow would be a prerequisite in order to execute this bow stroke. This is because complete control is required in order to achieve the contrasting effect of the sudden dynamic change.

With the baroque-model, the *sforzando* indicated here would not be able to be executed in as sharp and firm an articulated manner compared to its
modern counterpart. The produced effect would sound more rounded out at a *fortepiano*, at most. Also, playing on three different strings simultaneously successfully with the powerful projection vital to the *sforzando* indicated, requires the inward camber and broader width of hair provided by the Tourte.

II. *Adagio molto espressivo*

![Figure 11](image)

This slurred bowing would naturally diminuendo as it reaches the tip of the baroque bow and would not be properly expressed as one phrase. The clinging nature of the Tourte bow is obligatory in order to perform this long drawn-out sustainable *cantabile* stroke from one end of the bow to the other.
This is a rare passage where using the baroque would suffice. With the baroque bow, it is easiest to concentrate the sound in the middle of the bow, which is what is asked here.

In accordance with modern standards, this passage is not played in a short staccato manner, but with a more detached, longer stroke. With the baroque-model, this passage would also sound very natural, as there is a natural lift of the bow after each succession of notes played. The crescendo, however, would be better delivered with the Tourte-model.
This type of slur that contains many notes is rarely found before the advent of the Tourte. The sustaining character and abrupt change to piano, which requires considerable control of the bow especially with the noted crescendo, is a problematic task to achieve with the baroque bow.

III. Scherzo. Allegro molto – Trio
Although achievable with the baroque bow, because of the original character of the bow, the bow bounces higher therefore making the bouncing stroke harder to control. With the Tourte bow, the amount of control the bow enables helps keep the bow in check.

![Figure 16](image)

The *crescendo* indicated here is virtually impossible with the baroque model. As explained above, there is a lack of control the characteristic springiness of the baroque bow provides, and therefore the *crescendo* needed to achieve this passage in full effectiveness is not granted. The better-balanced Tourte bow is a better option for clearer articulation and increased volume. The sudden change in dynamic to *piano* proves especially problematic.
The same fundamental issue applies to this passage. The last two *forte* notes also require a stark contrast to the rest of the playful and light character.

V. Rondo. Allegro ma non troppo

Although performed down-bow, the initial *sforzando* attack needed at the end of the slurred *staccato* notes and the beginning of the next set of up-bow *staccato* notes is difficult to achieve with the baroque model.
In this passage, the dots notated are played with a light *martelé* stroke at the upper half of the bow. Thus, it presents a challenge for the baroque bow.

This *spiccato* passage is carried out for quite an extensively long time. The short, choppy character the baroque bow demonstrates, thus, causes a lack of control needed to execute this passage properly and effectively.
At the end of the previous section, follows this passage. The *forte* marked on the two quarter notes on ‘A’ is carried out in a *martelé* bow stroke. This stroke is facilitated by the Tourte bow, and the sustaining qualities needed for the notes that follow prefer the Tourte bow to the baroque.

This long *forte* strong *spiccato* passage in the lower half of the bow would be executed in a more concise manner with the Tourte model, as it provides much more adequate control of the bow.
This is another instance where the up-­‐bow sforzando fouetté would cause another predicament with the baroque bow.

In all matters of the bow, due to the decisive differences in designing of the bows, the properties and playing capacities of the earlier bows were better suited to playing music for which they were designed, and vice versa.

From the Romantic period on and with the music we play today, the Tourte model seems fitting. The modern bow is more responsive because of the inward camber of the stick, which created more spring while also producing resistance. A more substantial amount of hair is used in the Tourte bow. As a result, tilting of the bow is possible in the modern bow, and in turn, different dynamic colors within a single bow stroke are
achievable. Bowing strokes such as rapid shifts from *spiccato* to *legato* is also made possible with the Tourte model. In contrast, the music played in the period of Bach up until the period of early Haydn and Mozart, the baroque and the transitional bows are preferable and more suitable to its time. Since the music is of a light and transparent character, and because the music was originally composed with the earlier bows in mind, it facilitated in executing the naturally articulated strokes and inflections unique to the baroque bow and style. The early bows were capable of producing light, clear, unaccented *non-legato* strokes, as well as clear arpeggiated chords and double stops with profound clarity because of its characteristically yielding hair. To play Bach with the modern bow would prove difficult, just as much as performing Beethoven in line with the modern style with a baroque bow would not seem practical.
Conclusion

Beethoven’s works shape the core of the classical, and also what can be seen as the beginning of romantic repertoire. His influence centering on every aspect of music, from style and technique, to the very conceptions of music, has left a considerable effect on history of Western music. Aside from the innovations and advances in composition and music, Beethoven has achieved a reshaping of the classical sonata, through centering importance in the developmental section of works, expanding on diverse musical material and motifs. Also of Beethoven’s innovations, the ability to effectively establish a juxtaposition of different keys, as well as his emphasis on striking rhythmic figures, and overall liberal mindset on the use of counterpoint and expansion of the harmonic realm, were what distinguished his works. All of these aspects brought new depth and intensity of emotion that was praised and emulated by later romantic composers.

Beethoven’s Violin Sonata No. 5 marks the commencing of exploration in violin bow potentialities pertaining to technique. As a result of the modern bow achieved by Francois Tourte, there was seemingly a growing interest in the technical capacities of the bow. The newly
constructed model allowed for a more comprehensive variety of fundamental bow strokes, broadening the scope of virtuosity in bow articulation, control, dynamic freedom, powerful sonorities, and musical expressivity. The degree of articulation and expression of a note or notes could be varied appropriate to the passage and character of the music. The regulation of bow speed, point of contact and pressure used was also a desirable mechanism affordable with the new model. The freedom to distribute finger pressure evenly throughout the bow, to maintain a constant width of hair, lightness of bow, as well as superior elasticity of the bow, thus, resulted in Beethoven’s exploitation in technical advances in the performance practices of the bow desirable of his character, which required agility and sudden variances in mood. This was to be the point of departure for an ever expanding and developing execution of newly developed technique. If it were not for the development of the Tourte model, these exhibitions of growing flexibility and greater force would have been all but a promising ideal.
Bibliography


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