

The Issue of Size:
A Glimpse into the History of the Violoncello Piccolo

by

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Abstract

The aim of this research is to find out whether, how and why the size, tuning and the number of strings of the cello in the 17th and 18th centuries varied. There are multiple reasons to believe that the instrument we now recognize as a cello has not always been as clearly defined as now. There are written theoretical sources, original survived instruments, iconographical sources and cello music that support the hypothesis that smaller-sized cellos – *violoncelli piccoli* – were commonly used among string players of Europe in the Baroque era. The musical examples in this paper are based on my own experience as a cellist and viol player. The research is historically informed (HIP) and theoretically based on treatises concerning instruments from the 17th and the 18th centuries as well as articles by colleagues around the world. In the first part of this paper I will concentrate on the history of the cello, possible reasons for its varying dimensions and how the size of the cello affects playing it. Because this article is quite cello-specific, I have included a chapter concerning technical vocabulary in order to make my text more understandable also for those who are not acquainted with string instruments. In applying these findings to the music written for the *piccolo*, the second part of the article focuses on the music of Johann Sebastian Bach, namely cantatas with *obbligato piccolo* part, Cello Suite No. 6 in D Major, and Luigi Boccherini's cello sonatas. The key questions are the following: first, is there a relevant organological difference among the instruments Bach used for performance of these compositions? Second, what precisely was Bach's violoncello, and how does the '*piccolo*' modifier relate to it? Finally, do range, use, and specific clefs clearly enough suggest one instrument over another, when no specifications appear in the score?

Table of contents

Introduction.....	4
1. The early history of the cello.....	5
1.2 What is <i>violoncello</i> ?.....	6
1.3 Strings and sizes of the cellos.....	9
1.4 Playing positions in the early days.....	13
2. Technical matters of fingerings on the cello.....	16
2.1 Thumb-position on the cello.....	17
3. Johann Sebastian Bach and the <i>violoncello piccolo</i>	17
3.1 The sixth suite for solo cello BWV 1012.....	18
3.2 <i>Violoncello piccolo</i> in Bach's cantatas.....	19
4. Boccherini as a composer of cello music.....	21
4.1 Thumb-position in Boccherini's cello sonatas.....	21
4.2 Five-string cello in Boccherini's sonatas.....	23
5. The standardization of the cello in the 18th century.....	26
Conclusion.....	27
Bibliography.....	28
List of figures.....	29
Video links.....	30
Musical examples.....	30

Introduction

The *violoncello piccolo* has been excluded from our music making over the past two hundred years. Also, our knowledge about this type of cello is scant. Nowadays it is often seen as an instrument of its own that was used during the Baroque era. But when we look more deeply into the history of the cello, it seems that the cello was everything else than a standardized instrument during the 17th century. The aim of this research project is to shed light on the development of the cello, to find out what was generally understood and recognized in the 17th and 18th centuries as a “*violoncello*”, and to prove that certain aspects and characteristics, like the size, playing position, number of strings and tuning, could vary.

The research topic was inspired by music written for the cello by Luigi Boccherini (1743-1805) and Johann Sebastian Bach (1685-1750) and is based on some of their pieces as well as on historical texts. The idea to write about the *violoncello piccolo* was also inspired by my own work as a musician and specifically as a cellist specializing in early music. At the Sibelius Academy, I had access to cellos of different sizes and tunings, namely three: a modern standard Baroque cello with four strings tuned in fifths; a bigger cello tuned in C-G-d-g; a smaller-sized cello with five strings, which is not small enough to be played *da spalla* (played vertically like the violin). The reason for this topic was my curiosity about the five-string cello and many sonatas by Boccherini which did not seem comfortable to play neither on the four- or five-string cello I had in use. One instrument was obviously lacking an extra higher string, on the other the positions were so much lower that the stretches in the left hand became too strenuous. Hence, I started to question how the size of the cello mattered and whether the sonatas fit better for a cello even smaller than the five-string instrument I had. Another issue of concern was that the five-string cello went out of date which is why most cellists nowadays either do not know about its existence or deny its use. The sixth suite for solo cello (BWV 1012) by Bach is one of the only pieces commonly accepted to be played on the five-string cello. However, apart from this suite Bach also used the *violoncello piccolo* in a number of his cantatas.

The historically informed performance practice (HIP) movement has been active in Europe and North-America for about seventy years now, which resulted in numerous researches. It's only natural that, as in all fields, older research projects are sometimes out of date. It seems to me that historically informed performance practice is more highly recognized in the music circles, than it has ever been. There are more professional early musicians specializing in all kinds different instruments than in previous decades. And there is an increasing number of high-level performers all over Europe, who play instruments that were not so commonly used or easily accessible in past decades. For example cellos that vary in dimensions and tunings. There are many discussion going on about these issues in the Baroque cello society. This can bring many exciting changes to *basso continuo* as well as solo cello playing in the HIP society.

1.1 The Early History of the Cello

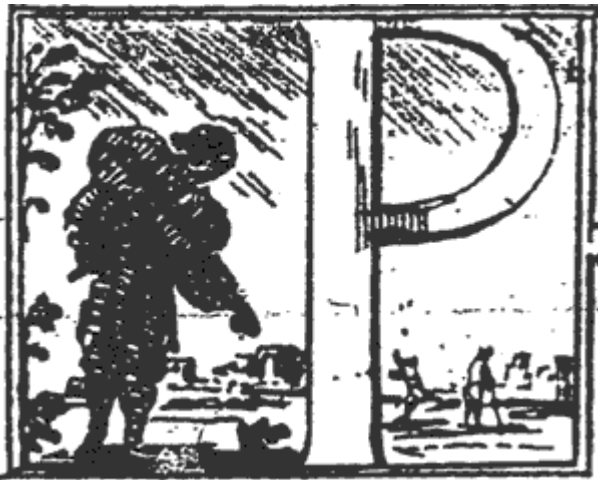


Fig. 1: A large violin played *da spalla*. Giuseppe Torelli, Concerto per Camera a Violino, e Violoncello, Op. IV (Bologna c.1687-92), from the violoncello part book.

The instrument we now call a cello was apparently developed during the first decades of the 16th century. The earliest evidence of its existence is found in the treatises of Martin Agricola (1529), Hans Gerle (1532), Giovanni Maria Lanfranco (1533), and Philibert Jambe de Fer (1556). No written parts for the bass violin from the 16th century survive, but from iconographical and written indications one can assume that the instrument was used exclusively in popular contexts, such as processions and dance music for weddings, village parties and fairs, in contrast to the more noble instruments of the viola da gamba family (Vanscheeuwijck, 1996).

In the early days of the violoncello, approximately until 1750, there was nothing systematic and organized in terms of the cello's size, tuning, playing position and name. The instrument had indeed many names: *violoncino*, *basse de violon*, *violone*, *violonzino*, *basso da braccio* and *bassetto viola*. Generally, all these names suggest to a bass instrument of the violin family. The late eighteenth century fashion of standardization has led to what we now think what the cello is. We have a very clear image of the cello – that is, how it looks, how it's played, tuned and its number of strings. In the 17th and earlier in the 18th century, they most likely did not even necessarily think about the *violoncello* and the *viola da spalla* or *violoncello piccolo* as different instruments. Johann Mattheson wrote:

The excellent *Violoncello*, the *Bassa Viola*, and the *Viola di Spalla* are small bass violins in comparison to the larger ones with five or also six strings, upon which one can play all manner of rapid things, variations, and ornaments with less effort than on the larger machines. Particularly, the *Viola di Spalla*, or Shoulder Viola produces a great effect when accompanying because it cuts through strongly and can express the notes clearly. A bass [line] cannot be brought out more distinctly and clearly than on this instrument. It is attached with a strap to the chest and at the same time it is thrown on the right shoulder, and that way there is nothing that can impede or prevent its resonance. (*Das Neu-eröffnete Orchester*, 1713, 305)

This paragraph seems to shed light on the history of the cello in different ways than we are used to. It allows us to imagine that people did not think of the *violoncello*, tenor violin or viola, or the *viola da spalla* as different instruments. Also not depending on the number of strings, the playing position and the bow-grip. Each of these instruments was a bass violin.

The instruments were then strung with pure gut strings, which meant that in order to make them sound not too muddy, the instruments needed quite a big corpus. Marin Mersenne writes in *Harmonie Universelle* (1635, 243) that the tuning for *basse de violon* was B-flat-F-c-g. There is also early cello music from Bologna that requires the earlier tuning. A cello like that was often held between the thighs supported on the floor or a chair. Smaller bass instruments were sometimes supported by a strap over the shoulder. This allowed to play them standing. Brent Wissick writes: “The *violoncello da spalla* may have had its origins as a procession cello reinforcing vocal bass lines in sacred music. It may also have been useful for entertainments, dance ensembles, and other chamber music where mobility was required” (2006). This kind of playing position requires support from the left hand which makes position changes rather impossible. Also, iconographic material reveals that the *violoncello* was then sometimes held more like a *viola da braccio*, and violin players served also as *violoncello* players (it’s obviously much easier for a violinist to adapt to a cello where there is the top E-string). When holding a cello quite like a violin, it’s clearly impossible to reach the low C string with the left hand.

Until the middle of the 18th century, all the theoretical guides for playing the cello suggest the same fingerings for the cello as for the violin (0-1-2-3). This could work with smaller cellos especially when held *da spalla*. Since it was normal for a seventeenth-century musician to be capable of playing many instruments, it is easier to imagine a violin player taking a small bass violin and playing it *da spalla*, or *viola da gamba* players taking the smaller cello with the high e string which also made things easier for amateurs. Nevertheless, most likely professional cellists used much more chromatic fingerings and played the cello *da gamba*.

1.2 What is a *Violoncello*?

The earliest methods of cello playing were published in the first half of the 18th century. The first method *Methode, théorique et pratique pour Apprendre en peu de tems le Violoncelle dans sa perfection* (1741) already introduces the cello in a form recognizable to us. A cello which is played *da gamba*, strung with four strings tuned C-G-d-a, played using chromatic fingering and an overhand bow-grip. This description is in line with our idea of what we recognize as a cello. Numerous twentieth-century scholars such as Ulrich Dürner, Charles Sanford Terry and Francis William Galpin have tried to categorize names like *violoncello*, *violoncello piccolo*, tenor violin, *viola pomposa* and *viola da spalla* into different instruments according to their size, number and tuning of strings. I will compare this situation of multiple names with the situation of the pitch height in the 17th century. Pitch height is an agreement among musicians that earlier varied in countries, cities and churches according to the local practice. Different pitch heights co-existed in one church, and when musicians with instruments in different pitches played together, they were transposing. As there were many different pitch heights in use, there were also many different names which all referred to a bass violin of some sort. It is crucial to understand that the instrument name didn’t indicate how it was played, but determined its musical ambit and role.



Fig. 2: Gerrit van Honthorst: Theft of the Amulet (detail), c.1625. A relatively small cello with five strings played with an underhand bow grip. Galleria Borghese, Rome.

The term *violoncello* was, not surprisingly, mentioned for the first time in Italy in a printed version of Giulio Cesare Arresti's *Sonate a 2 & a Tre con la parte del violoncello a beneplacito*, op. 4 in Venice in 1665. Nevertheless, multiple names still appeared later which indicated a larger bass instrument of the violin family: *violincello*, *violoncino*, *basse de violon*, *violonzino*, *bassa viola*, *bassel*, *bassette*, *violone*. All these names suggest that the instrument is a small *violone*. In German *bassette/bassetchen* means a small bass. This could be a matter of size distinction compared to the big bass violin.

Here are some examples from sources about the cello:

- In 1705, Sébastien de Brossard wrote in his *Dictionnaire de musique*:
 “It is our *Quinte de Violin*, or a *Petite Basse de Violon* with five or six strings.”

- In 1708, Johann Gottfried Walther wrote in his *Praecepta der musikalischen Compositionen*: “The Violoncello is an Italian bass instrument, not dissimilar to that other Bass Instrument, the *viola da gamba*, it is held almost like a violin, namely it is sometimes held up and grasped around the neck with the left hand. It is tuned like a viola.”
- In 1713, Johann Mattheson wrote in *Das Neu-eröffnete Orchester*: “The excellent Violoncello, the Bass Viola, and the *Viola di Spalla* are small bass violins in comparison with the larger ones, with five or also six strings, upon which one can play all manner of rapid things, variations, and ornaments with less effort than on larger machines.”
- In 1732, Johann Gottfried Walther wrote in his *Musikalisches Lexicon* a new entry for the Violoncello, this time where the definition is almost word for word the same as Mattheson’s!
- In 1740, James Grassineau wrote in his *Musical Dictionary* published in Gent: “*Violoncello*, of the Italians, is properly what we call the Bass Violin with four Strings, sometimes even five or six, but those are not that common, the first being more used among us.”
- In 1756, Leopold Mozart wrote in his *Gründliche Violin schule* about the violin family and describes the seventh type as: “The *Bassel* or *Bassete*, which one, after the Italian *Violoncello*, calls the *Violoncell*. Formerly this had five strings, but now only has four. It is customary to play the bass on this instrument, and although some are larger, others smaller, they differ but little from each other excepting in the strength of their tone, according to the fashion of their stringing... Nowadays the violoncello is also held between the legs.”

It’s surprising that many of them mention the cello to *sometimes* have five to six strings!

The descriptions of Johann Gottfried Walther and Leopold Mozart mention that the way the instrument was held could vary. The fact that many of them wrote that the cello sometimes has five-six strings is intriguing, especially the number six. A cello strung with five strings fits our preconception but six hardly does. Probably six strings were more uncommon as a solution, since there isn’t music for a cello with six strings and no written sources about its tuning.

The term *Violoncello piccolo* is first found in the cantatas of Johann Sebastian Bach, namely in his second annual cantata cycle composed between October 1724 and May 1725. Later, the term appears in a 1762 catalogue by J.G.I. Breitkopf in which forty-one compositions for *violoncello piccolo*, *ô violoncello da braccia* are listed. A third source is a *Concerto in C major* for *violoncello piccolo* by Giovanni Battista Sammartini, and the last source is a Cöthen musical instrument inventory of 1773 which lists *Ein Violon Cello Piculo mit 5 Seiten* von J. C. Hoffmann 1731 and *Ein Violon Cello Pic. Mit 4 Seiten* von J. H. Ruppert 1724.

1.3 Strings and Dimensions of Various Cellos.

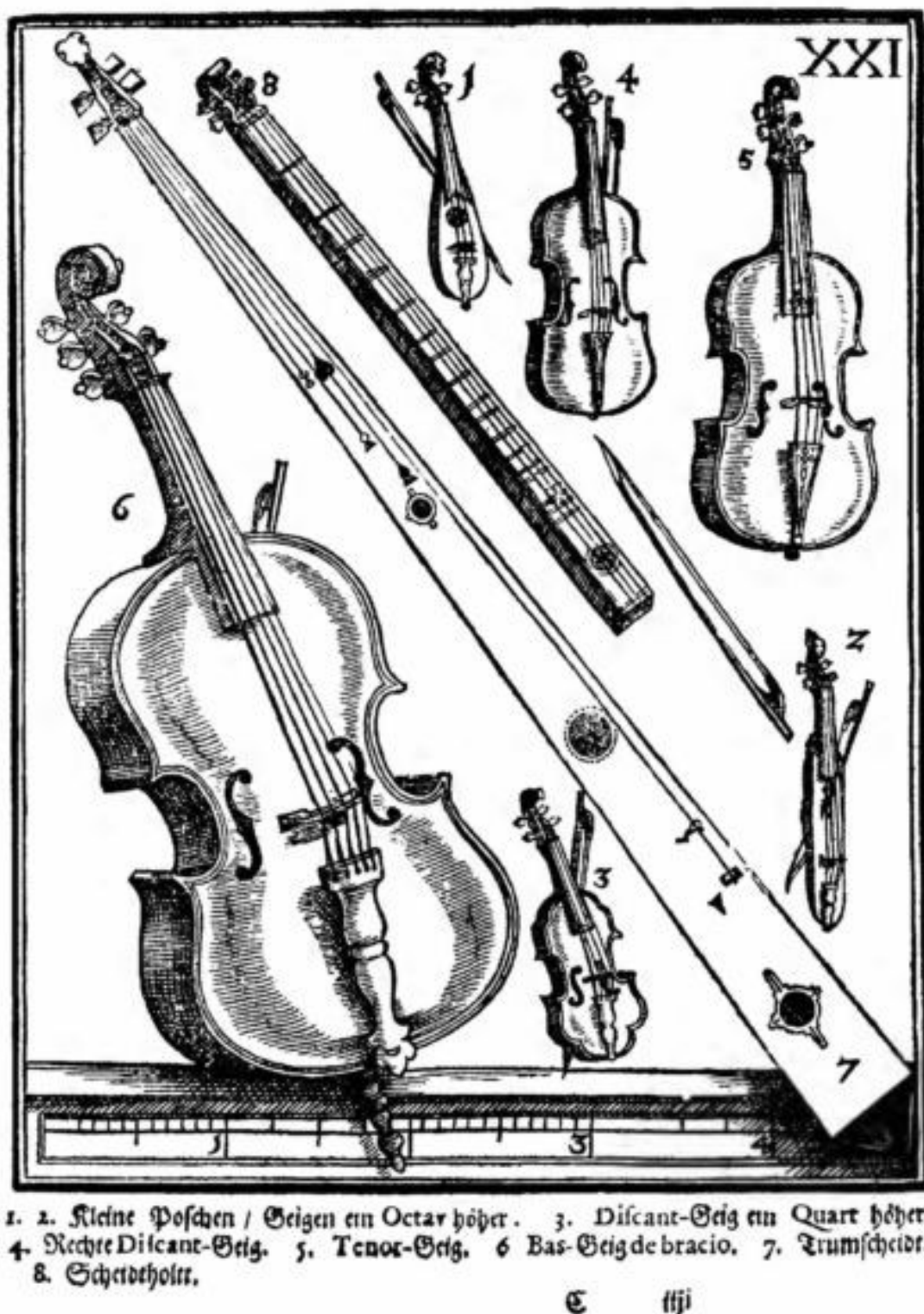


Fig. 3: The table of violins from Michael Praetorius *Syntagma Musicum, de organographia*, 293.

The table of violins in *Syntagma Musicum* gives us eight instruments from which six we could recognize as some sort of violins. The first two are the small so-called ‘pocket’ violins. The third is

a fourth higher Discant-violin. The fourth is a violin that probably fits our standards. The fifth is the Tenor-violin and the sixth is a *Bass-violin da braccio*. I don't know if seven and eight were also played with the bow and I will not discuss these instruments in this article. The one that intrigues me here is number 6 – *Bass-violin da braccio* with five strings and with something that is reminiscent of an endpin. Words like 'endpin' and *da braccio* do not fit together because they refer to a totally different playing position. Anyway, the table shows the variety of sizes of the violin instruments available in the early 17th century.

Earlier books about instruments written by Marin Mersenne and Michael Praetorius do not discuss about cello in any great detail because it was still not used as a solo instrument and because it was not independent from the violin as we do not separate bass, tenor and treble viols. But it seems only natural that smaller-sized cellos coexisted together with the larger cellos and served as a solo instrument with four or five strings. The 18th-century cellos, often called *violone*, were in fact often much bigger than the instruments that were used late and are still today. The thick lower gut strings need a big body in order to sound. Later on, in the eighteenth century and onwards, the cellos were cut smaller probably for ergonomic reasons and the more challenging repertoire. However, big cellos have a pleasantly deep and full sound that of double basses, so they are good tools for playing the bass. Bass violins, where the strings were tuned B-flat-F-c-g, had to be bigger in order to give proper support for the lower strings to sound. Nevertheless, with the pure gut lower strings it is more difficult to get a good sound-quality, even if the instruments have a huge corpus.



Fig. 4: Jan Miense Molenaer: Musical Company, c.1630, Staatliche Museen, Berlin. An example of a huge cello.

The string length for a ‘normal-sized’ 18th century cello is 690 mm, like for example the ‘Davidov-model (1712) by Antonio Stradivarius, which is probably the most successful cello model. There is also a bigger model that was made by Stradivarius in 1701 where the string length is 710 mm. It is only a centimeter longer, but it does make a difference for the cellist: the whole instrument is larger, which makes it more difficult to hold; the bridge is wider and due to that the strings are further away from each other; the hand needs to stretch more to reach the pitch. The cello sounds amazing, deep, full bodied and rich. It is nevertheless good to keep in mind that a big cello is more tiring for the left hand and that people tended to be shorter in those times. These issues make technically more virtuoso music very challenging to play. That is why smaller cellos with shorter string length were used for solo repertoire. There is an original five-string model made by the brothers Antonio and Girolamo Amati with a string length of 650 mm. The *violoncello piccolo*, which means ‘small cello’, is indeed smaller. There are also four-string models that are small. For example, English violin maker Barack Norman made a cello with a string length of 600 mm and with a back length of 632 mm: this size is more like that of a bass viol. It is unclear though in which tuning the cello could have been.

The invention of silver-wound gut strings appeared in Bologna in the 1660s, an ingenious invention for all the low string instruments. Wounding guts with silver or copper allowed for thinner strings which definitely improved the sound qualities of the large cello. The new, silver-wound gut strings meant that the gut itself, wounded with metal, was thinner. Therefore, it became possible to have the same low pitch height with a thinner string. This new fashion of string manufacture led to distinctively cleaner and reliable pitch for the bass register. This turn allowed composers to push the boundaries of the instrument. This relates to the fact that in Bologna in the 1680s and 1690s first music for cello solo was written by pioneers like Domenico Gabrielli, Guiseppe Maria Jacchini, Giovanni Battista Antonii, Antonio and Giovanni Bononcini.

Gabrielli’s seven ricercars [...] tend to linger on middle strings, which is comfortable and familiar from continuo playing, before trying outer strings. Excursions to high positions on the top string are brief. Players proud of their new covered bottom strings, however, could now show them off with even more rapid notes and wide skips than the old violone players had used. The new cellos were, after all, somewhat smaller than the earlier bass violins. (Wissick, 2006)

The cello music of Gabrielli and Jacchini is written for a cello tuned C-G-d-g and definitely for a cello held *da gamba*. There are some chords (bar 1 Ex. 1) and double stops which would not be possible in our standard C-G-d-a tuning and most likely it wasn’t a standard in 17th century Bologna for big cellos.



Ex. 1: Domenico Gabrielli, Ricercar 6, mm. 67–71.



Fig. 5: The ‘special cellos’ of the Early Music Department of the Sibelius Academy’s: a five-string cello after the model of Antonio and Girolamo Amati next to the big cello which is actually a “smaller” big cello. The big cello sounds wonderful in the low register and Bolognese tuning C-G-d-g, but is very exhausting for the left hand because the strings and each half step are further apart. Therefore, the hand needs to stretch much more. Photo: Randvere

Unfortunately, not too many surviving instruments confirm the existence of various sizes of bass violins. The HIP research concerning the different sizes of bass violins and not separating them as different instruments are relatively new (Wissick 2006, Vanscheeuwijk 2008, 2010). The old small bass violins that came in various “odd” sizes were not counted as cellos but perhaps more as altos or were classified as *viola pomposa*, *viola da spalla*. Maybe they were even thought to be cellos for children. A great number of instruments was also cut and modified according to the fashion and standards of later period and to fit better for the hands. Many large cellos were cut smaller and tenor-sized instruments were cut to alto size. This happened mostly because of the technically increasingly demanding repertoire for the cello. The tenor voice (*quinta parta*) disappeared from the 18th century score, while the alto got more of an independent role in the ensemble. There is a huge number of old instruments that are in a modern setting.

1.4 Playing Position in the Early Days

About the *violoncello*, *bassa viola* and *viola da spalla*. We will throw all three of them in the same broth, since all three are small bass violins on which one can do all sorts of fast things, passages, and variations, etc. with much less effort than on the big *violone* (Johann Philipp Eisel, 1738).

The subject of the violoncello in the 17th and 18th centuries is more complicated than it seems. The cellos varied in size and the number of strings, but were nevertheless referred to as ‘cello’. Even the playing position was not really standardized. The cello has not always been played in a sitting position. There is a lot of iconographic material where the cellist is indeed standing and holding the instrument on the shoulder like a viola; the cello is on a stool or chair, or strapped around the neck. The latter was used possibly in a more practical purposes such as marching. When the cello is on a stool, it is challenging for the cellist to change left-hand positions, because in order to keep the instrument stable, the support from the left hand thumb behind the neck of the instrument is required. This limits the range of notes playable as well the acoustics, when the vibration of the corpus is stopped from the bottom of the instrument. Although among pop and rock musicians nowadays it seems to be very common to play the cello while standing, it limits technical virtuosity when compared to the seated position. Of course, it is a matter of practice. The cello has had a standard tuning, size and playing position now for over two hundred years, which makes it very challenging for contemporary cellists to play in any other way. A seventeenth-century cellist could probably adapt to all these differences with greater ease. But we must consider that the virtuosity in 17th-century music was much more natural and should be comfortable to play on the instrument.



Fig. 6: Jean Dieu – une homme de qualité, musée Carnavalet, Paris; Fig. 7: David Teniers – a self portrait (detail), Staatliche Museen, Berlin. Examples of a playing position where the instrument is on a chair on a stool.

The position more exciting for me is where the instrument is held on the shoulder (or rather on the chest), played *da spalla*. There are many preserved tenor violas from the 17th century that are so big that if played *da braccio* like the violin, the left arm would be straight or could not reach the fingerboard at all. In this case it is more likely that the instrument was taken onto the chest with a strap behind the neck of the player. There is not necessarily a reason to think that the smaller cellos were played only in this manner. The playing position possibly varied from one city and player to the next. The violone-and viol-players more likely held the instrument with their legs, while violin players could have preferred to put it on the shoulder. In the seventeenth century, what we nowadays refer to as *violoncello* was not so universal then and did not necessarily imply that it was only played *da gamba*. We can imagine that it was much easier for violinists to take a small bass violin and play it *da spalla*. Bartolomeo Bismantova wrote a chapter in *Compendio Musicale* about the *Violoncello da spalla* and no other chapter where the name *violoncello* is used. He writes that the tuning is D-G-d-a and suggest the diatonic violin fingering.



Ex. 2: Bartolomeo Bismantova, Fingering for *Violoncello da spalla*, *Compendio Musicale* 1677.

This type of fingering is very hard on the big cello held *da gamba*, even impossible I would say. Then again it makes perfectly sense on the *violoncello da spalla*. One cellist from Bologna, namely Antonio Bononcini, wrote markedly a different music than his colleagues Gabrielli and Jacchini. His earlier music has qualities that are much more violin-like; the cello part is mostly on the high strings, uses fast bow repetitions, suspended double stops and chord voicings with an open fifth above.



Ex. 3: Antonio Bononcini, Sonata 2/2, mm. 30–1.

When the instrument is held on the chest, contrary to the seated position, the nearest strings for the bow hand are the upper strings. The double stops shown in example 3 would require a thumb (unless the cellist has very long fingers) if played on a bigger cello, and thumb technique was not used by seventeenth-century cellists who wrote music for the bigger cello. These double-stops are very playable on an instrument held like the violin. For a contemporary cellist it would be very uncomfortable to learn to play the *violoncello da spalla*, because we are not expected to switch between instruments anymore. However, I feel that it would open up a lot about how the music could have sounded then. Until the middle of the 18th century, all the theoretical guides for playing the cello suggest the same fingerings for the cello as for the violin (0-1-2-3). This could work with smaller cellos especially when held *da spalla*. Since it was normal for a 17th century musician to be capable of playing many instruments, it is easier to imagine a violin player taking a small bass violin and playing it *da spalla*; or a viol player taking the smaller cello with the high e-string, which

also made things easier for amateurs. Nevertheless, most likely professional cellists used much more chromatic fingerings and played the cello vertically. Antonio Vandini (1690–1778) was one of the most famous cello *virtuosi* of his time, active as a cellist under Antonio Vivaldi (1678–1741) at the Venetian *Ospedale della Pietà* in 1720–21 and later joined the *Capella Musicale* of the *Basilica del Santo Padua*. The cello sonatas of Vandini are written mostly in a high register and stay comfortably in the neck positions on some smaller cello with an e-string



Fig. 8: A caricature of Antonio Vandini by Pier leono Ghezzi, with an underhand bow-grip (Fossombrone, Bibliotheca Civica Passionei and Vatican City, Ottob. Lat.3118, f162r).



FIG. 35. VANDINI.

Fig. 9: A portrait of A. Vandini. Plate from Van der Straeten's History of the Violoncello.

The cello music of Vandini is similar to that of Arcangelo Corelli, who's violin sonatas are demanding, while the hand stays in the more comfortable lower positions. In the neck positions it is easier for the left hand to execute but the sonatas are still still very effective as showpieces. Vandini's sonata in A minor IAV 1 uses the all the strings of the cello. Lower and middle strings are represented quite a lot, which is not always the case with *violoncello piccolo* repertoire. The second movement *Allegro* is a good example about more instrument-based virtuosity that sounds brilliant on a five-string cello.



Ex. 4: Vandini's sonata in A minor IAV 1 bars (16)-25.

In bar 20 there is the ‘octave higher’ mark. The music is in the first and second octave, which is high for the 4-string cello. Arpeggiating a chord in this manner appears mostly in violin music, where, because of its size, it sounds more difficult than the actual execution is. On a contemporary standard baroque cello, this figure is everything else than easy and comfortable.

Vandini was referred to as a *suonatore di viola, di violoto, or di violoncello*. The smaller cello could have been used for performing solo compositions. On the other hand, he may have used the larger cello when his role was to accompany in an ensemble.

Agnes Kory (1994) wrote about the so-called ‘tenor violin’ – a cello with a small body (like a contemporary child-size instrument) strung possibly with four strings and tuned like a violin, but octave lower, played between the knees that was used for the more soloistic parts. She writes that Boccherini for example, composed for the tenor violin, because in many of his sonatas there is not a single note on the C-string; and sometimes some of the notes on the C-string are claimed to be mistakes, which I find to be a bit strange. Even if the *basso continuo* is doubling the notes played on the C-string, it doesn’t make sense to think they are mistakes in the solo-part, because it would be in some cases just in the middle of a phrase or a passage. I’m more fond of the idea that there wasn’t a distinction between the ‘tenor violin’ and ‘*violoncello piccolo*’ and ‘*viola da spalla*’, but that they were all small-sized bass violins either with four or five strings, tuned in fifths or a combination of fifths and fourths. The usual tunings for small cellos were G-d-a-d¹ or e¹, C-G-d-a-d¹/e¹, or D-G-d-a-d¹.

2. Technical Matters of Fingerings on the Cello

The first methods of cello playing were written in the 18th century by Michel Corrette (published in 1741) and Salvatore Lanzetti (published possibly in 1770, or earlier in the 1750s). There, as in many following methods later in the 18th and 19th century, it is noticeable, how much the fingerings of scales differ. Not only there are many different variations, but they also differ from the way, how cellists play nowadays. One of the main odd very often suggested fingerings in old methods are the fingerings of the of the violin – 0-1-2-3. The cello is obviously bigger than the violin and that fingering is ergonomically very poor and feels impossible in neck positions. Cellists play 0-1-2/3-4 (2/3 means depending on the place of the semitone). But perhaps solo music was played on smaller instruments where the violin fingerings were possible.

Contemporary cellists are trained with very systemized fingerings, that have been the standard for slightly more than a century for now. Of course for string instruments there are variable ways to execute one scale (for example four octaves): over four strings, then one can start ascending towards the bridge with the fingers also earlier, playing the scale just over three, two or even one string (then rather 3 that 4 octaves); unlike keyboard and some wind-instruments where one note has a one and only fixed position on the instrument. This of course means that a cellist can vary the fingerings according to the demands of the chosen piece. Nevertheless, the fingerings follow a certain logic that is thought in a standard way all over the world now. The fingerings are as ergonomic as possible and they reflect the contemporary fashion, meaning that *portamenti* and *glissandi*, for example, are avoided, and a very clean performance is required.

On a string, a note can be played with any finger and depending on the chosen finger, the hand is in a certain *position*, as it is called in the technique of string-instruments. The first position lies on the neck, when the index finger stops the string on the first full-tone after the open-string. The

following positions develop, when the hand ascends by a semitone. On the cello and double-bass it is not possible to leave the thumb of the left hand behind the neck, if the hand needs to play in high positions on the fingerboard as it is on the violin and viola. Since the strings of the lower instruments are also thicker and higher, more support is required to stop them. That is why on (usually) higher positions the thumb is placed on the strings in a way that it stops two strings while the hand lies on the strings with the full arm weight. This technique is called the thumb-position. In the methods of Corrette and Lanzetti the thumb is presented, which means that cellists in the 18th century started using the thumb. In the music written for the cello in the 17th century and the beginning of the 18th century it is not needed, because the music usually does not go that high and when does, it could be played with a cello with five strings, or four tuned G-d-a-e¹.

2.1 Thumb-position on the Cello

The thumb-position is a technique on a cello (and on the double-bass) in which the whole hand is put on top of the strings with the thumb placed across and perpendicular to them, functioning as a moveable nut in relation to the other fingers. This creates a stable open-string kind of platform (which does not mean that it is easy!) for the rest of the fingers, when playing higher up on the fingerboard, and allows to play the music by crossing the strings without position. This of course depends on the musical material written. Often it happens in the music written by a 18th century-cellists of the that the virtuosity is meant to be quite natural on the instrument; when moving forward in time, the music written during the 19th century till today, the virtuosity became more complex and challenging due to the fashion of style and due to the fact that musicians started to be independent from the service of the court and/or the church.

The cello came to use in the late 16th century Italy, but it served a long time in the role of a bass instrument. With the invention of the metal-wound gut strings, the sound of the cello became more bright and clear. With the use of smaller-sized cellos the cello started to find its voice as a solo instrument. This means that the use of higher positions increased to a more soloistic and violin-like sound. It took a while before the fingering-technique became systemized. In fact, the default fingerings used on the cello nowadays became a standard in the end of the nineteenth century. The earlier suggested diatonic fingerings for the cello are possible only on a very small cello. The music of 18th century cellists like Luigi Boccherini (1743–1805) and Salvatore Lanzetti (1710–1780) seem often to suit naturally when played using the thumb in lower positions, which is also very tiring and sometimes requires an impossible stretch. Supposedly, the cellos used for solo-playing, which needed similar finger agility as on the violin, were smaller.

3. J.S.Bach and the Violoncello Piccolo

What kind of instrument Bach might have meant when prescribing either *violoncello* or *violoncello piccolo* in his suites and cantatas? The words *discordable* and *a cinque cordes* for the sixth suite in Anna Magdalena Bach's manuscript for the cello suites refer to tuning and number of strings, not organological issues. *Discordable* for the tuning C-G-d-g for the suite in c minor No. 5 BWV 1011 and *a cinq cordes* for the suite in D Major No. 6 BWV 1012. In the lists of instruments in his cantatas Johann Sebastian has used words *violoncello* and *violoncello piccolo* - the term is found only in his music and exclusively in the period between October 1724 and May 1725, his second annual cantata cycle. One could ask what kind of size the *piccolo* refers to, how much smaller the cello was? How relevant is the organological difference between these instruments Bach used for the performance of his cantatas? There are not yet a satisfactory solution to address these questions. And I am not going to do any better either.

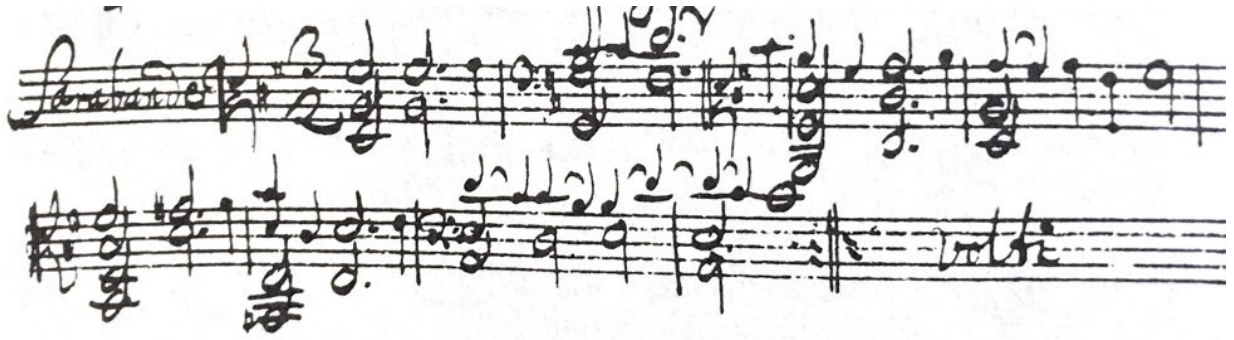
3.1 The Sixth Suite for Solo Cello BWV 1012

The most famous piece written for the violoncello piccolo most likely is the suite for solo cello No. 6 by Johann Sebastian Bach. The suite seems often to be also the only information about the five-string cello, that many cellists know. Some people claim that Bach invented the 5-string cello, or the *Viola Pomposa*, as it is assumed in some articles (Wolff, 414, Badiarov, 2007, 121-145), but Bach never used that term. However, it is true that Bach indeed commission a *violoncello piccolo* from Johann Christian Hoffmann in 1731. The inventory estate catalog lists eight harpsichords, one pedal harpsichord, two lute claviers, one spinet, two violins, a *piccolo* violin, three violas, a *Bassetchen*, two cellos, a viol and a lute. (Christoph Wolff, Johann Sebastian Bach – The Learned Musician, 2000, 411)

In the five first suites for violoncello solo there are more string-crossings than in most 19th century virtuoso cello music. The suites stay in neck positions and all the four strings are used quite equally – meaning that the low strings are used frequently. The sixth suite is an exceptional one: it ascends to heaven in its heights, and it is technically the most demanding suite. In the suite the instrument is used in a manner that is found more in violin music. The suite is very often played on the four-string cello, although it demands great virtuosity from the player when played on four strings; the music is often in high registers, which means that the thumb-position is needed. Many chords are extremely uncomfortable, and the musical expression seems more like a technical study and much too heavy for a Baroque dance suite.

The suite is obviously meant for five strings. Not just because of the indication, but because Bach uses the whole ambit of the instrument – there are notes on the C-string, although only a few, while the main focus is still on the bright high e-string. Bach's music for solo string-instruments is often full of chords and double-stops, and the suite No. 6 for solo cello is no exception. It is rich from chords and in a matter of fact uses chords, double-stops and high fast passages even much more than in the previous suites. Big chords over three or four strings on a cello are very awkward to play in the positions after the neck has ended. The top e-string solves this problem.

Even with five strings the piece is still demanding as Bach always is. In the *Prélude* bars 73-75 go a bit above the register, where the cello is still playable without using the thumb. There is cello music written in the 18th century first half that go higher already. But keeping in mind, that this kind of issue does not come up in any of the previous Bach cello suites makes it special. It could be argued if the instrument Bach was keeping in mind for this suite was the *violoncello da spalla* or just a small cello, no matter how it is held. The *Sarabande* is especially enriched with chords and double stops what makes it challenging to play without disturbing the melody line.



Ex. 5: *Sarabande* BWV 1012 first half.

For example the chord in bar 6 is not possible to play without changing position when breaking the chord. I have experienced this when playing the piece on the five-string cello. The string length of the cello I used was 650 mm but it was not possible to play the chord without changing position in between. Perhaps with even a smaller cello the chord could work, but that would nevertheless be the ultimate width for a hand on the fingerboard. This does not have to mean that Bach necessarily had the *violoncello da spalla* in mind, the treble viol is small but still held *da gamba* so playing position should not matter so much here. But the size of the instrument does. Neither of the previous five suites for cello solo ascend that high and use so fast melismatic passages – the suite No. 6 is closer to violin music. Could we interpret the collection of six suites - as Bach often did in his need for perfection and comprehensiveness in some of his other collections, such as *Das Wohltemperirte Clavier*, the *Orgel-Büchlein* or the various sacred cantata annual cycles – as six pieces composed for various smallish bass violins? In that case, Suite No. 5 would be a good candidate for the largest instrument in the group (and definitely with four strings), Suites Nos. 1 and 2 for a slightly smaller type, Nos. 3 and 4 for a yet smaller instrument given some large hand extensions and Suite no. 6 for the smallest of all, but certainly with five strings. Also, Suites Nos. 1, 2 and 5 could be played *da gamba*, and possibly, but not necessarily, Nos. 3, 4 and 6 could be performed *da spalla*.

3.2 *Violoncello piccolo* in Bach's Cantatas

In the manuscript of the cello suites by Anna Magdalena Bach *6 Suites a Violoncello Solo senza Basso* BWV 1007-1012, there is an elegant indication written as a headline before the *Prelude a cinque corde* with the tuning of strings added. Johann Sebastian Bach writes in his manuscripts for some of his cantatas *violoncello piccolo solo*, he is the first to use this term *violoncello piccolo*. By studying the music of those solos it is clear that they work well, if the cello has an e-string. This allows us to guess that the *violoncello à cinque corde* and *violoncello piccolo* can be the same instruments. Bach has used *violoncello piccolo* in many of his cantatas: BWV 6 *Bleib bei uns, denn es will Abend erden*, BWV 41 *Jesu, nun sei gepreiset*, BWV 53 *Schlage doch, gewünschte Stunde*, BWV 49 *Ich gehe und suche mit Verlangen*, BWV 68 *Also hat Gott die Welt geliebt*, BWV 115 *Mache dich, mein Geist bereit*, BWV 159 *Sehet, wir gehn hinauf gen Jerus*, BWV 175 *Er rufet seinen Schafen mit Name*, BWV 180 *Schmücke dich, o liebe Seele*, BWV 183 *Sie werden euch in den Bann tun*. The cantata *Mein herze schwimmt in Blut* BWV 199 chorale movement is also sometimes performed on a *violoncello piccolo*, but in the manuscript it says "Chorale for Viola obbligato". The cantata *Nur jedem das Seine* BWV 163 includes an aria two *obligato* cellos plus *continuo* in a range E-g¹. This duet stands out with its complexity and virtuosity. Written in F4 clef this fits to the range of the cello that is standard for us, not to the small cello. In his manuscripts of the cantatas, where he has written the instrumentation, there is written among other instruments also *violoncello piccolo*. Only the cantatas BWV 6, 49, 85, 180 and 183 can be played on a four-string

instrument tuned an octave below the violin whereas others like BWV 41, 68, 115, 175 are in the range of the tuning C-G-d-a-e¹. The *piccolo* solo-part is written in a treble or alto clef (sometimes the range goes to the bass clef also) and there is always a basso continuo accompanying it. And *basso continuo* for Bach did not mean cello doubling some chordal instrument by default. In cantatas where there are arias with a cello solo, it is the same part as the *continuo*, meaning that there is no distribution between cello and the continuo therefore it is a solo of the *continuo* group. It shows that the piccolo cello was higher and smaller and served the purpose of a solo instrument. Also the *violoncello piccolo* doesn't have any separate part in *tutti* movements with the whole orchestra, there are only solos written for it. Of course there are numerous pieces by Bach where there might be some instrument needed for one aria only. In this case that the cellist playing the solos and the *continuo* cellist can not be the same musician. Or, only if the *continuo* group also has a double-bass, for example, or if it is played just with the keyboards. The musician playing the *piccolo* can take part of the tutti orchestra either in the bass group, or because the music is often in C3 clef, play the alto. Bach has indeed pointed out that the *violoncello piccolo* is something different from the *continuo* instrument and not merely the cello that is in our mind. The violinist who plays the solo holding the cello *da spalla*, as the solo sometimes appears in the booklet of the first violin in a treble clef. I am convinced that it was not relevant for Bach if the instrument was held vertically or *da spalla*.



Ex. 6: Beginning of the tenor aria *Woferne du den edlen Frieden* from the cantata "*Jesu, nun sei gepreiset*" BWV 41

This particular solo for example is written in treble clef and has big leaps and passages more suitable for a smaller cello. The use of treble clef here is interesting, because even when it is played on *violoncello da spalla*, the actual pitch of the strings is still the same as the bigger cellos. Therefore the solo will sound an octave lower than what it looks like in the written score. The use of the treble clef for cello music was common in the late classical and early romantic era. Composers like Jean-Louis Duport (1749–1819), Jean-Baptiste Bréval (1753–1823) and Helene Liebmann (1795–1869), for example, wrote their cello pieces in treble clef. Yet, the actual pitch is meant to sound an octave lower. This phenomenon does not significantly appear earlier in the 18th century. Cellists like Salvatore Lanzetti and Luigi Boccherini used the clefs of the actual sounding pitch, meaning when there's a treble clef in some sections, it is a high position. The arias with the *piccolo*

solo by Bach that are written in the treble clef but are played on the cello will actually sound an octave lower. Then they fit (with the e-string included) naturally to the neck positions.

4. Boccherini as a Composer of Cello Music

Luigi Boccherini has left us with a rich collection of cello sonatas. He is certainly one of the most celebrated cellist of all times and very often he is considered to be among the firsts who started to use the thumb in the cello left hand technique. His cello sonatas are demanding because they go to higher registers and can be quite uncomfortable to play. When played on a four-string cello the thumb has to often suddenly jump to some high register. When performed successfully this is by all means impressive, but seems too laborious for the light and pleasant musical expression that Boccherini's music very often requires. The contradiction of the light and elegant rhetorical expression and difficult technical execution is for me one of the most obvious reason to play these sonatas on the five-string cello, so the music would just sound more natural. Nevertheless the fifth string does not necessarily facilitate everything. It does not exclude the use of the thumb which sometimes appears in the lower positions which then require a bigger stretch for the hand. For string instruments, similar to the overtones, the physical distance between semitones goes narrower when one advances towards the bridge, therefore lower positions are wider than the higher ones. What kind of an instrument would be a satisfactory solution to perform these sonatas? Would a cello with five-strings be enough to solve the technical struggle, or the size should also be taken into consideration and if, then how much smaller?

4.1 Thumb-position in Boccherini's Cello Sonatas

When the issue of Boccherini's thumb-position is discussed, it is sometimes thought to be connected with the change of clef. So when the clef changes, it refers to the thumb-position. The ordinarily used clefs for cello are the F-clef on the fourth line (the bass), the C-clef on the fourth line (the tenor) and the G-clef on the second line (the treble). The C-clef on the first or third line is seldom used. Could the clef be an indicator to the use of instrument for the performance of the compositions?

Ex. 7: A-Major sonata G13 first movement bars 11-20. Notice the soprano clef coming in the end of bar 12.

In various sonatas by Boccherini the alto clef does appear. Those bars are very often challenging to execute on the four-string cello. Of course by practicing one can master them, but it is strangely difficult when observing Boccherini's style. The overtones, or as they are named in the string players vocabulary the *flageolets*, appear on a string in the same order as the overtone scale. The *flageolet* is a light flute sound that is accomplished by touching the string with finger but not pressing it down. The *flageolets* are categorized 'natural' and 'artificial'. In Baroque and Classical music no artificial *flageolets* are used, so I will not discuss it in this article. If we take the a-string for example, the first natural *flageolet* (which is the same pitch than when it is pressed down with the finger) is the fifth "e" that lies exactly where the neck starts, and the next one is fourth higher the "a". Those places on the fingerboard are somehow the most natural and used to place the thumb on the string. With the appearance of the alto clef, the thumb has to often suddenly jump to a position that is somewhere in between or higher than the above mentioned positions. And when there is a *bariolage* (a technique, where the bow, going up and down changes the string with each bow stroke back and forward) where there is the first octave "e" sustained, it is clear evidence, that the open e-string is needed. Thus, the clefs like C3 and C1 are clear indicators of a somewhat smaller cello, either with five or four strings (then without the C-string) depending specifically if there are some notes written to be played on the C-string. Boccherini definitely played the cello vertically. The cello on the painting made in the 1760s is rather large and with four strings, unfortunately there isn't iconographical material available about any smaller type of cello Boccherini owned. A cello with five strings or with four tuned an octave lower from the violin is anyway smaller.



Fig. 10: *Luigi Boccherini*, oil on canvas, Italian school, 1764–67; in the National Gallery of Victoria, Melbourne.

4.2 Five-string Cello in Boccherini's sonatas

As mentioned above, just having the open e-string does not necessarily facilitate the practical execution. When studying Boccherini's music just on paper, everything seems to fit nicely with the e-string. Phrases, where the pitch range is A – e¹ seems to be comfortable and natural, the left hand does not need to climb very much more up than the 5th position with the thumb (5th position is fifth up from the open string). But the problem appears when one tries to actually play the music on the *violoncello piccolo*. Although the hand stays lower on the instrument, the notes lie wider away from each other than when closer to the bridge, which makes it, when the hand is in the thumb-position, very uncomfortable and unnatural to the hand. One starts to ponder again whether smaller and more suitable cellos were used. Agnes Kory's article on the Tenor Violin (1994) describes a small-sized cello with the tuning G-d-a-e¹. This excludes the possibility of notes on the C-string. In the London edition of the six sonatas by Boccherini four sonatas out of six have at least one note on the C-string and it is hard to call them simply mistakes, since they are not doubled by the bass and/or they belong to a string-crossing passage. For example sonata in A Major G4 third movement bars 52-65 – a string-crossing chord-passage, where the D and E-major chords hit the low D and E on the C-string; it is the lowest place and as well the only bars where the C-string is needed. The bass is a

third higher from the solo-part in those moments. In the same movement bars 17-40 are written in the soprano clef and the whole section could be played in one position with the thumb lying (with the open e-string) on b-e over the two upper strings (e-a). Of course it is also possible to play on the four-string cello on the 10th position (that is the first one after the octave-harmonics on a string), but considering the style and technical virtuosity of the era, string-instruments were used in a more natural way (open strings, natural harmonics). The cello where this music would suit perfectly, is a small five-string instrument. Although there is not a picture where Boccherini would hold such a small cello, it is a fact that in his property inventory of 26th April 1787 he describes his two cellos as *un Violon de Estayer* and *un Violon Chico* (a small cello) (Kory, 2005). We don't know though how much smaller was the latter than the first.

The sonata A Major G4 first movement first phrase (bars 1-4) would flow very beautifully on the e-string. The musical gesture there is very opened, kind and pleasant and the rhetorical aspect of this music would work well if the execution would be more natural, easy-going and pleasant to play. It gets a bit problematic, though, in the bars 7-13 where the musical material is written in the alto-clef. It would be exhausting for the hand to play if one needs to stay in more or less one position, which is again the 5th position, because this requires this requires the hand to stretch quite a lot – the fingers need to be quite opened in order to reach the 4th finger, which would be the most flowing fingering (as constant position change would be too audible and out of context in this music).

SONATA
VI

Adagio

Ex. 8: A-Major sonata G4.

The same problem appears in the second movement, where there is a lot of material in higher

register. That seems theoretically easier to play on the e- and a-string on the lower positions, but practically is very tiring for the left hand. Again the same issue in the E-flat Major sonata G10 first movement beginning, where in the very first bars the thumb should lie on the half-position, which is the widest position on the cello.



Ex. 9: E-flat Major sonata G10 first movement beginning



Figures 11 and 12. Fig. 11 shows the left hand in a position, where the beginning of the sonata G10 would be played on the four-string cello. This is playable. Fig. 12 is done on the same cello, but from the half-position, from where it would be played on a five-string cello. Photo: Randvere

Although multiple different fingerings are possible, one needs to give a thought on the gestural aspects of this phrase, and in the light and pleasant music of Luigi Boccherini musically the most suitable fingerings often are the ones in which the hand stays in one position for a phrase. The gestural embedded in the passages of his music is often very flowing like the wind - while the thumb stays over two strings and makes an up and down one octave scale passage technically very natural, this creates a nice airy effect (for ex.7 bar 10). In passages like these, which appear very

often in Boccherini's cello sonatas, it's almost always necessary to stretch the little finger because the passage exceeds one octave, usually by one note. This can be very painful for cellists with a very little 4th finger, I happen to be one of them. When practicing Boccherini's music, I always thought that Boccherini must have had very long fingers and especially a long little finger, because otherwise he would not have used this effect so often. I had been playing the sonatas on a 'normal' four-string cello, in higher positions though, where the semitones lie closer to each other, nevertheless it was very uncomfortable. It is not only the issue of the number of strings, although a higher top-string is needed in most cases, but more of the size of the cello. In these cases, a smaller-sized cello with five strings would just seem the most natural tool to avoid anything that makes the music sound heavy and laborious.

5. The standardization of the cello in the 18th century

Standardizing the cello, as well probably other instruments, began in the second half of the 18th century. When comparing the music of Baroque and Classicism one of the biggest differences is that the Baroque music is about different national styles which are clearly distinguishable. In the first half of the 18th century composers started to move towards a unified taste, *le goût reunis*, which they reached approximately in the beginning of the era of Classicism, the middle of the 18th century. In Classicism, national styles were not an essential part of European music, although the era witnessed probably the very first nationalistic movement in the history of Europe – the French revolution in 1789. Although the major redesigning of instruments happened in the 19th century, the general fashion of universal music style could have not affected the settings of instruments already in the second half of the 18th century. Johann Joachim Quantz wrote in 1752:

Those who not only accompany on the violoncello, but also play solos on it, would do well to have two special instruments, one for solos, the other for *ripieno* parts in large ensembles. The latter must be large, and must be equipped with thicker strings than the former. If a small instrument with thin strings were employed for both types of parts, the accompaniment in a large ensemble would have no effect whatsoever.

Accordingly in the middle of the century, cellos still came in different sizes for different roles. But what could have been the reasons for totally obliterate the small cello from all music making for the following 250 years? When I have played the five-string cello I have always thought why they left such a wonderful instrument, it is a pleasure to play on that. It is more comfortable for the left hand and the e-string makes everything more brilliant. Presumably with the progress of the symphony orchestra, the larger cellos were needed more. Nevertheless, the use of the cello as a solo instrument increased as well as the technical virtuosity. The cello, an instrument from the 16th century Italy, started building up its fame in the 18th century in France that had earlier been a land of the viol. A major part of cello schools and books about technical studies of the 18th century second half come from French cellists/pedagogues/composers like the ones by brothers Jean-Louis and Jean-Pierre Dupont and Jean-Baptiste Bréval who developed the technique on the four-string C-G-d-a tuning cello and hence helped to choose and establish, what was to become the standard for the conservatory. The Paris conservatory was established in 1795, at the dawn of a new period in music and all other arts, science, politics and social values. This topic deserves an essay of its own.

Conclusion

What does the knowledge about the contradictory history of the cello mean from the perspective of a HIP cellist of the 21st century? Contemporary cellists are so trained to play in the whole range of the fingerboard on the cello and are capable of playing all this crazily demanding music written by 19th and 20th century composers, who definitely had not the *violoncello piccolo* in their mind. Do we actually need to take up the using *violoncello piccolo* in all kind of different playing positions and tunings anymore? I as a Baroque cellist and a viol player think that this would open up a whole new perspective to Baroque music. These instruments would make performing of all this music so much easier and without feeling guilty or shameful. On the contrary, it should be taken as a great advantage. A contemporary musician is changing also. More and more we see musicians who are not just players of one instrument but multi-instrumentalists. Musicians who are also being actors, singers, producers, composers. The ability to adjust to different styles, clefs, tunings, pitch heights, number of strings and even playing positions comes definitely as an advantage in a society where there is a big number of freelancers. Not to mention that it is, at least for me, extremely interesting and exciting to expand my skills. And not just interesting for the sake of expanding my skills, but in the sense of understanding the music and the history more profoundly.

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List of figures

Figure 1 – Giuseppe Torelli c.1687-92, Concerto per Camera a Violino, e Violoncello, Op.IV Bologna. Morches, 2013

Figure 2 – Gerrit van Honthorst c.1625. Theft of the Amulet (detail), Galleria Borghese, Rome. <http://www.greatbassviol.com/iconography.html>

Figure 3 – Praetorius, Michael 1619. *Syntagma Musicum, de organographia*. Trans. Johannes Richter. Kassel: Bärenreiter. 293

Figure 4 – Jan Miense Molenaer c.1630. Musical Company. Staatliche Museen, Berlin. <http://www.greatbassviol.com/iconography.html>

Figure 6 - Jean Dieu. Une homme de qualité. Musée Carnavalet, Paris. <http://www.greatbassviol.com/iconography.html>

Figure 7 – David Teniers. A self portrait (detail). Staatliche Museen, Berlin. <http://www.greatbassviol.com/iconography.html>

Figure 78– Ghezzi, Pier Leone. A caricature of Antonio Vandini. Fossombrone, Bibliotheca Civica Passionei and Vatican City. <http://www.greatbassviol.com/iconography.html>

Figure 9 – Van der Straeten. A portrait of A. Vandini. <http://www.greatbassviol.com/iconography.html>

Figure 10 – Italian school 1764-67. *Luigi Boccherini*, oil on canvas. National Gallery of Victoria, Melbourne. <https://www.britannica.com/biography/Luigi-Boccherini>

Video-links

Sigiswald Kuijken introduces the Violoncello da Spalla. The Orchestra of Enlightenment. 2014.
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Sergey Malov on Bach Cello Suite No. 6 in D Major (instrument) BWV 1012. 2018. The Netherlands Bach Society. <https://www.youtube.com/watch?v=26qvQQcteE>

Musical examples

Example 1 – Gabrielli, Domenico [1689] Ricercare 7. Wissick, 2006

Example 2 – Bismantova, Bartolomeo [1677] *Compendio Musicale*. Wissick, 2006

Example 3 – Bononcini, Antonio. Sonata 2/2. Wissick, 2006

Example 4 – Vandini, Antonio ca 1730-50. Sonata in A minor IAV 1. Manuscript. IMSLP

Example 5 – Bach, Johann Sebastian 1950, 2000. 6 suites for violoncello solo. Anna Magdalena Bach's manuscript facsimile. Ernst Reinhardt, GmbH & Co KG, Verlag, München

Example 6 – Bach, Johann Sebastian 1725. *Jesu, nun sei gepreiset* BWV 41. Holograph manuscript. IMSLP

Examples 7, 8 and 9 – Boccherini, Luigi 1772. Six sonatas for the violoncello. London: J.Bland. IMSLP