



*Conservatorium of  
Music*

Techniques in David Popper's  
*Hohe Schule des Violoncello-Spiels, op. 73*

by

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## ABSTRACT

Virtuoso cellist, pedagogue and composer, David Popper was an instrumental figure in the development of cello technique in the late nineteenth and early twentieth centuries. Popper's technical principles and innovations are laid down in his monumental work the *Hohe Schule des Violoncello-Spiels*. Certainly his greatest contribution, these forty immensely challenging and musically-rewarding études are now studied all over the world. A thorough understanding of the many techniques required in these études, as well as effective practice methods, are crucial for a cellist's development of technical skills. These techniques and practice methods have been somewhat overlooked in the available literature. Previous discussions focus on only one or two techniques for each étude, however these études require many more techniques than have been acknowledged. These techniques are common to all members of the violin family and can be applied to any repertoire requiring these techniques.

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All figures are taken from David Popper’s *Hohe Schule des Violoncellspiels*, published in Leipzig by VEB Friedrich Hofmeister (1905).

## CHAPTER 1

### INTRODUCTION AND LITERATURE REVIEW

Virtuoso cellist-composer David Popper (1843-1913) is considered one of the greatest cellists of all time and his abilities for composing music for his instrument are renowned. His most important contribution is certainly the *Hohe Schule des Violoncello-Spiels* (*High School of Cello Playing*), which was predominantly composed between 1895 and 1898. Franz Liszt had appointed Popper Professor of Violoncello and Chamber Music at the Royal Conservatoire in Budapest in 1886.<sup>1</sup> A set of forty musically-pleasing études, this monumental work has played a significant role in the development and implementation of cello techniques.

The emancipation of the cello from its role as purely an accompaniment instrument began in the eighteenth century. This was largely due to a group of cellists who became known as the Dresden School, including Bernhard Romberg (1767-1841), who later became known as the father of the Dresden School, Friedrich Dotzauer (1783-1816), Friedrich Kummer (1797-1879), Julius Goltermann (1825-1876) and David Popper. Dresden was one of the most respected musical centres of the nineteenth century.<sup>2</sup> The Dresden School sought to bring the cello into prominence

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<sup>1</sup> *The New Grove Dictionary of Music and Musicians*, 2<sup>nd</sup> ed., s.v. "Popper, David."

<sup>2</sup> Lev Ginsburg, *History of the Violoncello* (Neptune City, NJ: Paganiniana Publications, 1983), 56.

and was instrumental in the development of cello technique. The main way in which these cellists were able to revolutionise cello technique was through the publication of étude books for cello such as Popper's *Hohe Schule*. The études published by these cellist-composers are the foundation for modern cello pedagogy and are still considered some of the most advanced études for cello. In her master's thesis "The Dresden School of Violoncello in the Nineteenth Century" (2007), Adriana Venturini states: "(the Dresden School) led the crusade to bring the cello into the realm of virtuosity."<sup>3</sup> Student and friend of David Popper, Stephen De'ak, also discusses Popper's innovations in cello playing in his biography *David Popper* (1980):

For many years preceding the publication of the *Hohe Schule des Violoncellspiels*, the technique of the violoncello had been passing through an evolution. Much of the fresh material which expanded the scope of cello technique, and which can be found in his most popular pieces, are also discovered in broadly expanded form in the great études. His technical principles, innovations, and practical applications of the modern cello technique (of the late nineteenth century) were put down in these forty études.<sup>4</sup>

The études contained in Popper's *Hohe Schule* achieve an ideal synthesis of pleasing music and technical challenges, which most other studies composed for cello lack.<sup>5</sup> The renowned cellist Paul Tortelier agrees, writing that "the studies of Popper have different qualities from those of

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<sup>3</sup>Adriana Marie Luther Venturini, "The Dresden School of Violoncello in the Nineteenth Century" (master's thesis, University of Central Florida, 2007), 1.

<sup>4</sup>Stephen De'ak, *David Popper* (Neptune City, NJ: Paganiniana Publications, 1980), 260-261.

<sup>5</sup>De'ak, 260.

Grützmacher; they have charm.”<sup>6</sup> Due to the musical depth and quality of these études they are appropriate for professional performances and auditions, as well as in the practice rooms of aspiring cellists.

Learning the études contained in the *Hohe Schule* represents a tremendous undertaking. They are generally considered the most effective pedagogical works for cello. Cellist and Cello Professor Carter Enyeart discusses the importance of learning the *Hohe Schule* in his journal article “Rediscovering the Popper Études: A Fresh Look and a New Voice” (2012):

Their mastery marks a new plateau in one’s technical accomplishment, characterized by easy and confident access to the entire fingerboard and accurate pitch in any position.<sup>7</sup>

Cellist and composer Richard Slavich supports this point of view in his article “A Player’s Guide to the Popper Études” (2001):

Most cellists regard David Popper’s High School of Cello Playing, Op. 73 a sure path to a secure technique. [The American cellist] Frank Miller considered mastery of them, along with fluency in four-octave scales and arpeggios, sufficient technique for professional cellist status.<sup>8</sup>

This exegesis provides a detailed discussion of seven right-hand techniques and ten left-hand techniques that are explored in the *Hohe Schule*. Each technique is discussed in detail and the études from the *Hohe Schule*

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<sup>6</sup>Paul Tortelier and David Blum, *Paul Tortelier: A Self-Portrait* (London: Butler and Tanner, 1984), 33.

<sup>7</sup>Carter Enyeart, “Rediscovering the Popper Opus 73 Études: A Fresh Look and a New Voice,” *American String Teacher* 62, no.2 (May, 2012): 38.

<sup>8</sup>Richard Slavich, “A Player’s Guide to the Popper Etudes,” The Internet Cello Society, 2006, [www.cello.org/newsletter/articles/popper.htm](http://www.cello.org/newsletter/articles/popper.htm) (accessed March 22nd, 2013).

that employ the technique are listed. One etude from the *Hohe Schule* that prominently features the technique is focused upon, including suggestions of relevant practise methods. Additional techniques that are found in this étude are also listed. Musical examples from the *Hohe Schule* are presented to highlight Popper's employment of each technique.

It is extremely important to be working from an edition of the *Hohe Schule* that presents all of the specific instructions Popper intended. VEB Friedrich Hofmeister published these études in four volumes between 1901 and 1905. A first edition is the ideal score to work from as these contains Popper's instructions in German and offers English and French translations for some of these instructions. Other editions, such as the one published by the International Music Company (1982), have been edited and do not contain all of the information specified by Popper.

In order to have an informed interpretation of Popper's *Hohe Schule* it is important to listen to different recordings to compare the approaches taken by cellists. Two recordings of these études have been released on compact discs. The ideal performance requires a synthesis of these two approaches. Russian virtuoso cellist Dmitri Yablonsky presents all of the *Hohe Schule* over two compact discs (2009), in which the études are played rapidly and with impressive virtuosic skill. However, in her dissertation "Expression in Technical Exercises for the Cello: an Artistic Approach to Teaching and Learning the Caprices of Piatti and Etudes of Popper," Leah Hagel states:

Though many of today's performers consider the most successful versions of Popper's études to be the ones played with the most speed, Popper tended to be much more cautious in his suggestion of tempo. There is only one *Presto* (No. 38) amongst all the studies and another *Allegro vivace* (No. 36). Meanwhile, markings of *sostenuto*, *moderato*, and *grazioso* are much more frequent."<sup>9</sup>

In his review for the *American Record Guide* (2009), David W. Moore argues that although Yablonsky plays the notes accurately he is not attentive to some aspects of musicality presented in the score:

If you're going to play these pieces for an audience, you might consider the dynamics, the spots where Popper suggests that you stop for a fermata or the rests written in the music. As it is, the notes are what you get here, played with virtuosity but not much concern for Popper as a composer.<sup>10</sup>

The recording by Martin Rummel (2004) more accurately follows aspects of musicality, although Moore also states that Rummel's interpretations do not present as much virtuosity as Yablonsky.

The *Cambridge Companion to the Cello* (2006) discusses nineteenth-century virtuosos including David Popper in chapter five as well as technique, style and performing practice to c. 1900 in chapter eleven. This authoritative source has been invaluable in informing my research.

In order to discuss Popper's approach to cello playing it is important to be well informed of nineteenth-century cello technique. Historical treatises

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<sup>9</sup>Leah Hagel, "Expression in Technical Exercises for the Cello: An Artistic Approach to Teaching and Learning the Caprices of Pjatti and Études of Popper" (PhD. diss., University of Kentucky, 2012), 21-22.

<sup>10</sup>David W. Moore, "Popper: High School of Cello Playing," *American Record Guide* 72, no. 3 (May/June, 2009): 134.

such as Hector Berlioz's *Treatise on Instrumentation* (1948) can be used to inform understanding of cello playing in the nineteenth century. In addition, books such as Elizabeth Cowling's *The Cello* (1975), Gerhard Mantel's *Cello Technique* (1975), Valerie Walden's *One Hundred Years of Violoncello: A History of Technique and Performance Practice, 1740-1840* (1998), Lev Ginsburg's *History of Violoncello Art* (1983), Louis Potter's *The Art of Cello Playing* (1980) and Christopher Bunting's *Essay on the Craft of 'Cello-Playing 1: The Right Hand and Essay on the Craft of 'Cello-Playing 2: The Left Hand* (1982) can be used to gain understanding of cello playing techniques in the twentieth century. Robin Stowell's authoritative source *The Cambridge Companion to the Cello* (2006) discusses nineteenth-century virtuosos including David Popper, as well as technique, style and performing practice to *c.* 1900. Simon Fischer's *Basics: 300 Practice Methods for the Violin* (1997) and *Practice: 250 Step-by-Step Practice Methods for the Violin* (2004) contain thorough explanations of violin techniques and practice suggestions, a number of which are relevant to cello playing.

The above works discuss cello technique in general, however a number of more recent articles and theses focus on David Popper's *Hohe Schule*. The aforementioned articles by Slavich and Enyeart discuss the importance and complexity of the *Hohe Schule*. Slavich offers brief suggestions on how to begin tackling these difficult works while Enyeart provides a list of the études in approximate order of difficulty. Theses that discuss pedagogical

aspects in Popper's works include Il-Hee Hwang's "A Synthesis of the Advanced Etudes by Dotzauer, Grutzmacher, and Popper" (2006), Eduardo Carpinteyro's "Pedagogical Aspects in David Popper's Four Cello Concertos" (2007) and So Youn Park's "Effective Practice Methods for David Popper's Virtuoso Pieces and the Relationship Between Selected Pieces and Études" (2007). Adriana Venturini's "The Dresden School of the Violoncello in the Nineteenth Century" (2009) discusses the Dresden School's revolutionary approach to cello playing and provides brief biographies of cellists from the Dresden School, including David Popper. Through conducting a survey of cello teachers across America, Ozan Evrim Tunca's "Most Commonly Used Étude Books by Cello Teachers in American Colleges and Universities" (2003) identifies Popper's *Hohe Schule* as the most commonly used étude book in these institutions in America. Tunca discusses the importance of learning études, provides an introduction to the pedagogical materials currently in use and an analysis of the criteria and rationale used to choose études in which to study.

Clearly, a significant number of resources have informed my study, however there is still plenty of scope for further targeted research. The available literature discusses David Popper's legacy as performer, composer and pedagogue as well as the importance of learning the *Hohe Schule*. Discussions of the *Hohe Schule* argue that each étude focuses on only one or two techniques, and often only present these techniques in lists or tables. This exegesis argues that there is plenty of capacity for further discussion of the techniques required in each étude, of which there are many more than have been acknowledged.

## CHAPTER 2

### RIGHT-HAND TECHNIQUES IN DAVID POPPER'S *HOHE SCHULE DES VIOLONCELLO-SPIELS*

This chapter examines seven right-hand techniques found in Popper's *Hohe Schule des Violoncello-Spiels*: string crossings, détaché, legato, double stops, staccato, slurred staccato and spiccato. Each technique is discussed in detail and the études from the *Hohe Schule* that employ the technique are listed. One étude from the *Hohe Schule* that prominently features the technique is considered, along with suggestions of relevant practice methods. Additional techniques that are found in this étude are also listed. Musical examples from the *Hohe Schule* are presented to highlight Popper's employment of each technique. These techniques belong to all members of the violin family and can be applied to any repertoire requiring these techniques.

A number of advancements in right-hand techniques occurred during the eighteenth and nineteenth centuries and are laid down in Popper's *Hohe Schule*. Walden states: "As playing techniques increased in sophistication, bow strokes additionally developed as a means to display virtuosity."<sup>1</sup> A number of these techniques were standard to all cellists,

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<sup>1</sup>Valerie Walden, *One Hundred Years of Violoncello* (Cambridge: Cambridge University Press, 1998), 146.

while others were developed by particular schools and eventually disseminated.

### **String Crossings**

*Étude Nos. 1, 5, 11, 19* and *25* contain many string crossings with separate bow strokes while *Étude Nos. 2, 3, 4, 7, 8, 12, 31* and *36* contain many string crossings within slurs. These string crossings are often rapid and are required alongside additional challenging right-hand techniques as well as difficult left-hand techniques.

Anticipation and preparation of the correct arm elevation and angle of the bow are of primary importance during string crossings. The right arm, elbow, wrist and hand must all be involved, and it is important that the wrist remains relaxed and flexible. Evenness of execution despite the string crossings is crucial; for string crossings to be smooth the bow should be as close as possible to the string that is about to be played. It is also important that not too much bow is used during string crossings.

Marked *Allegro*, *Étude No. 19* ("*Lohengrin*" Study) in E flat Major is entirely composed of triplets bowed separately and which, given the prescribed tempo, requires particularly rapid string crossings. Composed when Popper was principal cellist of the Vienna Opera (1868-1873), the first bar of this étude is taken from a cello passage in Act III, Scene iii

of Wagner’s opera Lohengrin. Popper states that cellists find this “some-what difficult, especially in the tempo prescribed.”<sup>2</sup> At this point in the opera the orchestral cellists have to repeat a difficult figure for 111 bars. This figure is explored throughout *Étude No. 19*, through the use of chromaticism, changes in register, sequences and repetition. The challenging spiccato bow-stroke is required throughout as well as difficult left-hand techniques such as extensions, shifts and thumb position. Particularly frequent and large string crossings are required between bars sixty-nine and seventy-two (figure 2.1). An effective way of practising these string crossings is to play this section using only the relevant open strings. Isolating the right hand in this way allows the correct bow angle and arm elevation to be learnt without the additional challenges required by the left hand.



Figure 2.1: *Étude No. 19* in E flat Major, bars 69-72

<sup>2</sup>David Popper, *Hohe Schule des Violoncellspiels, Vierzig Étuden, op 73, Heft I* (Leipzig: VEB Friedrich Hofmeister, 1901), 42.

Marked *Andante*, *Étude No. 8* in C Major is entirely composed of legato semiquavers and contains many string crossings. Dynamics and accents are also required as well as difficult left-hand techniques including thumb position and shifts. Throughout bar twelve (figure 2.2), a single note on the D string is followed by three notes on the A string. Here, the bow should remain predominantly on the A string, while keeping the bow as close as possible to the D string. This can easily be practised by looking at the hair of the bow and keeping it so close to the upcoming string that it almost touches it.<sup>3</sup> This bar also contains a crescendo, accents, sequences, an extension and shifts.



Figure 2.2: *Étude No. 8* in C Major, bar 12

## Détaché

Popper employs the détaché bow-stroke in *Étude Nos. 6, 11, 16, 30 and 37*. Although these études all require the détaché stroke they have a range of tempo indications, from *Andante* to *Allegro*.

The most fundamental stroke across all string instruments, détaché is played with separate strokes and with the bow remaining on the string at all times. The main arm movement for this stroke comes from the

<sup>3</sup>Simon Fischer, *Practice: 250 Step-by-Step Practice Methods for the Violin* (London: Peters Edition, 2006), 101.

forearm and it is important that the right shoulder, upper arm and elbow remain relaxed.<sup>4</sup> The bow must change direction smoothly and without any interruption in the sound. Cellist Paul Bazelaire states in his book *Scientific Instruction in the Violoncello* (1960): “the bow pressure of the détaché must be the same before, after, and during the stroke.”<sup>5</sup> The détaché stroke can be played in any part of the bow and different bow lengths can be used depending on the tempo, bow speed, note values and dynamics.<sup>6</sup> A good détaché stroke is the foundation for bow strokes that require faster speed such as spiccato and sautillé.<sup>7</sup>

Détaché has not always been a fundamental technique in cello playing. In fact Romberg, who played an instrumental role in the development of cello technique in the late eighteenth and early nineteenth centuries, said of this stroke:

Introduced in light, easy passages, and is particularly suited to those pieces which are written in a playful style such as rondos, or chamber solos. For music of a higher order it is not so well adapted and should never be used except in quick movements.<sup>8</sup>

Appreciation of the détaché stroke as an important technique in cello playing increased gradually; when Popper began composing the *Hohe Schule* this stroke was as familiar and fundamental as it is today.

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<sup>4</sup>Fischer, 101.

<sup>5</sup>Paul Bazelaire, *Scientific Instruction in Playing the Violoncello*, trans. Hentiette de Constant (Paris: Durand, 1960), 32.

<sup>6</sup>Louis Potter, *The Art of Cello Playing* (Miami: Summy-Birchard, 1980), 54.

<sup>7</sup>Ibid.

<sup>8</sup>Robin Stowell, *Performing Beethoven* (Great Britain: Cambridge University Press, 1994), 143.

Popper's *Étude No. 6* in F Major is entirely composed of semiquavers and requires a détaché stroke throughout. String crossings, accents and dynamics are required in this étude, as well as challenging left-hand techniques including extensions, shifts and thumb position. Concentration on the détaché stroke is particularly important between bars thirty-four and thirty-seven (figure 2.3) due to the challenging left-hand techniques that are required, including shifting and thumb position. Practising with a metronome can help achieve consistent use of the bow while practising in front of a mirror can help cellists maintain a bow angle that is parallel with the bridge. It is also important to play with the bow near the bridge in this section as the notes are in the higher register of the cello and a crescendo leads to a forte in bar thirty-six. As it is marked Allegro this étude can also be used to improve the agility and coordination of both hands.<sup>9</sup> As always, the left hand should lead the right. Poor coordination indicates that the fingers of the left hand are fractionally late, stopping the string only after the bow has moved. The 'overlapping' practice method can be used to dramatically improve coordination, in which the fingers of the left hand stop the string too early, before the bow has finished playing the previous note. The aforementioned practice method of isolating the right hand by playing the relevant open strings is also an effective practice method for this étude. Altering the articulation is another practice method that can be effectively applied throughout this étude. In this method, concentration on the bow-stroke is required, which can dramatically increase the difficulty of the passage. This makes the

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<sup>9</sup>Ozan Evrim Tunca, "Most Commonly Used Étude Books by Cello Teachers in American Colleges and Universities" (PhD diss., Florida State University, 2003), 32.

passage seem easier once the regular bow-stroke is used again. This étude can be practised using different combinations of legato strokes throughout (figures 2.4, 2.5 and 2.6).



Figure 2.3: *Étude No. 6* in F Major, bars 35-36



Figure 2.4: *Étude No. 6* in F Major, bars 35-36, 'articulation practice' example one



Figure 2.5: *Étude No. 6* in F Major, bars 35-36, 'articulation practice' example two



Figure 2.6: *Étude No. 6* in F Major, bars 35-36, 'articulation practice' example three

## Legato

Legato playing is required in thirty-three of the études from the *Hohe Schule*. Études that require legato playing alongside additional bow strokes include: *Étude Nos. 15, 16, 17, 20, 28, 30, 32, 36* and *40* while études requiring legato playing throughout include: *Étude Nos. 2, 3, 4, 7, 8, 9, 10, 12, 13, 20, 21, 22, 23, 24, 26, 28, 29, 31, 33, 34, 35, 36, 38* and *39*.

One of the most significant techniques in string playing, the legato bow stroke should seamlessly create a clean and beautiful sound. To achieve this sound quality smooth bow changes are critical, in which the bow remains on the string at all times and does not stop between bow changes. In legato playing it is especially important that the right shoulder remain relaxed throughout and that the thumb, first and second fingers do not exert pressure on the bow.<sup>10</sup>

Marked *Andante espressivo*, *Étude No. 34* in F Major requires legato playing throughout. The legato stroke is particularly difficult to execute in this étude as it is employed alongside a number of additional demanding techniques. Dynamics, double stops and string crossings are required as well as the challenging left-hand techniques thumb position, shifts and left-hand pizzicato. When practising, it is important to isolate these potential difficulties and work on them individually before combining these

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<sup>10</sup>So Youn Park, "Effective Practice Methods for David Popper's Virtuoso Pieces and the Relationship Between Selected Pieces and Etudes" (PhD diss., Florida State University, 2007), 16.

techniques by playing a short passage of the étude through slowly. Then, both the speed and the length of the passage practised can be increased gradually. The opening four bars (figure 2.7) require dynamics, string crossings, thumb position, frequent shifts and double stops, all alongside a legato bow-stroke. The legato bow-stroke can be cultivated by isolating the right hand; playing only on the relevant open strings. This will give the cellist a chance to focus on smooth bow changes and the creation of a seamless sound quality.



Figure 2.7: *Étude No. 34* in F Major, bars 1-4

## Double Stops

A large number of études from the *Hohe Schule* contain double stops. *Étude Nos. 10, 12, 15, 20, 23, 24, 27, 28, 29, 31, 36* and *39* employ frequent double stops, while *Étude Nos. 13, 17* and *34* employ double stops extensively. *Étude No. 9* is the only étude in the *Hohe Schule* that contains double stops throughout.

When sounding two strings simultaneously correct elevation of both the right arm and the bow must be maintained to create a uniform sound.<sup>11</sup> A strong bass line will help centre the intonation, although it is important

<sup>11</sup>Potter, 90.

that enough weight is placed on the string playing the melody.

*Étude No. 9* in E Flat Major is entirely composed of double stops and presents many additional challenges for both the left and right hands including dynamics, string crossings, legato playing, shifts, thumb position and double stops. In two short passages different rhythms are simultaneously presented across two strings, such as between bars forty-seven and forty-nine (figure 2.8). In addition, this passage requires all of the techniques mentioned above. Due to its complicated nature, such as the use of tenor and treble clefs, isolating the right-hand by playing only on the relevant open strings is a particularly effective practice method for this passage.

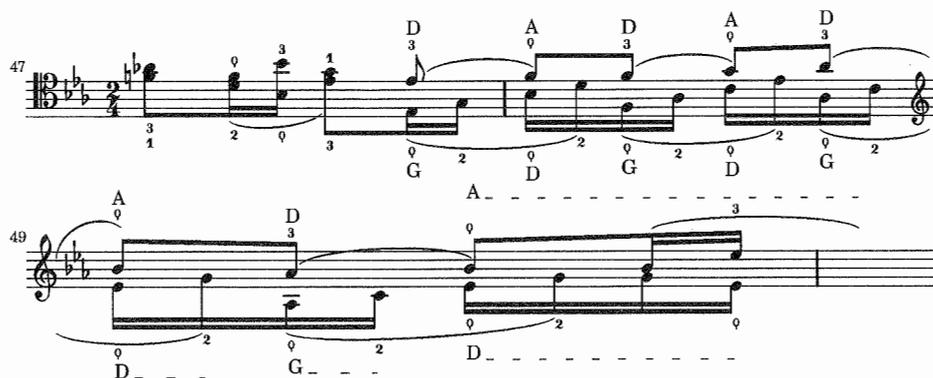


Figure 2.8: *Étude No. 9* in E flat Major, bars 47-49

## Staccato

The staccato bow-stroke is required in *Étude Nos. 11, 15, 16, 19* and *40* from the *Hohe Schule*. In each of these études, the staccato stroke is employed alongside additional strokes including détaché, legato and slurred staccato. This requires the ability to move between different strokes with ease and control.

Italian for ‘detached,’ staccato is indicated by a dot over the note indicating that it is to be held for less than its full value and is thus ‘detached’ from the following note.<sup>12</sup> In string playing, staccato indicates that each note should be played with separate bow strokes with much of the control coming from the fingers of the right hand. So Youn Park advises in her “Effective Practice Methods for David Popper’s Virtuoso Pieces and the Relationship Between Selected Pieces and Etudes” (2007):

The firm pressure applied to the bow by the first finger and thumb should immediately be released. . . In addition, the wrist should be flexible and the arm relaxed.<sup>13</sup>

*Étude No. 15* in G Major contains staccato as well as détaché, legato and slurred staccato. There are also string crossings, double stops, a number of accents and a wide range of dynamics in this étude. Left-hand techniques required include shifts, thumb position, harmonics, left-hand pizzicato, double stops and ornamentation. This étude should first be practised using one stroke throughout, such as détaché or legato. This will help cement the left-hand techniques before additional challenges are

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<sup>12</sup>*Oxford Concise Dictionary of Music*, 5<sup>th</sup> ed., s.v. “Staccato.”

<sup>13</sup>Park, 10.

required in the right hand. Also, isolating the right hand by playing the relevant open strings throughout is an effective practice method for this étude. This can be done using a simple stroke throughout followed by the variety of strokes required. Once this has been practised using open strings, the left and right hands can be combined once again. ‘Accent practice’ can be successfully employed throughout this étude, which is one of the most efficient ways to improve a difficult passage. ‘Accent practice’ can begin at a slow tempo, which should gradually increase until it is played fast as possible. Basic accent patterns are generally considered efficient for most practice purposes, such as an accent played on the first quaver of each beat, accents on the first two quavers, the second two quavers and on alternative quavers (figures 2.10, 2.11 and 2.12).<sup>14</sup>



Figure 2.9: *Étude No. 15* in G Major, bars 62-65



Figure 2.10: *Étude No. 15* in G Major, bars 62-65, ‘accent practice’ example one

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<sup>14</sup>Fischer, 43.



Figure 2.11: *Étude No. 15* in G Major, bars 62-65, ‘accent practice’ example two



Figure 2.12: *Étude No. 15* in G Major, bars 62-65, ‘accent practice’ example three

### Slurred Staccato

Slurred staccato is required extensively in both *Étude No. 14* in D Major and *Étude No. 32* in C Minor.

When a slur accompanies staccato notes, the notes are to be played in the same bow direction, which can be quite challenging. Mantel states: “the virtuoso staccato on one bow is more difficult.”<sup>15</sup> In slurred staccato sufficient bow must be available, which is dependent on the length of the slur and the tempo prescribed. Bow distribution is therefore crucial when playing this stroke. Most string players find slurred staccato easier on an up-bow. There are two approaches for this stroke depending upon the tempo prescribed. Potter states:

<sup>15</sup>Gerhard Mantel, *Cello Technique* (Bloomington: Indiana University Press, 1975), 215.

Unless the speed of the notes is quite fast, the impulse is a lateral movement from the wrist, aided by the fingers, particularly the first (index) finger. The bow is firmly pressed into the string, by the first finger especially, and as the bow-stroke is initiated the pressure is suddenly released. . . . The need for flexible wrist and fingers for an adequate execution of this bowing style is obvious, while the arm travels along with the bow-strokes without stopping.<sup>16</sup>

When a fast tempo is required, rendering the execution described as impossible, Potter advises:

Here the impulse for each note comes from the forearm, by actually tightening the muscles and pushing (or pulling) the bow by a series of short, rapid “nervous” jerks.<sup>17</sup>

The French School began to employ slurred staccato from the turn of the eighteenth century. In particular, Martin Berteau (*c.* 1700-1771) was renowned for his refined bow style and favoured this stroke when teaching his students. Austro-German performers rarely employed slurred staccato until the nineteenth century. Despite its frequent use, players considered it a difficult stroke to execute.

When learning *Études Nos. 14* and *32* a relatively simple stroke such as *détaché* or *legato* should be used until the hand positions and intonation are centred. They can also be practised with the more basic staccato bowing in which the bow moves back and forth. Finally, the extensive slurs can be broken into smaller ones, before gradually decreasing them until only the slurs specified by Popper remain. As the slurs are extensive bow distribution and control is essential. Coordination between the bow

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<sup>16</sup>Potter, 121.

<sup>17</sup>*Ibid.*

and the left-hand is particularly important in these études. As always, the bow should follow the left-hand. The aforementioned ‘overlapping’ practice method can be effectively used when practising these études. Additional requirements in both of these études include string crossings, double stops, shifts and thumb position while *Étude No. 14* also requires artificial harmonics. The opening bars of this étude (figure 2.13) require a legato stroke on a down-bow followed by a slurred staccato stroke on an up-bow. Dynamics, string crossings, shifts and thumb position are also required.

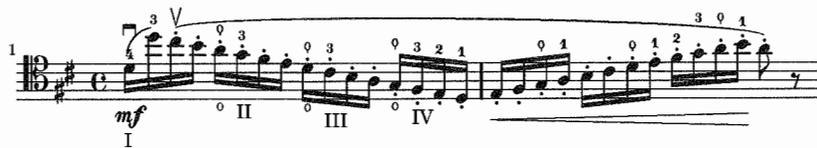


Figure 2.13: *Étude No. 14* in D Major, bars 1-2

## Spiccato

The spiccato bow-stroke is employed in Popper’s *Étude No. 19* in E flat Major (“*Lohengrin*” Study), and *Étude No. 27* in C Major.

Spiccato is Italian for ‘separated’ and is a form of ‘off-the string’ bowing in which the bow is allowed to bounce on the string.<sup>18</sup> There are essentially two types of spiccato, the slower spiccato and the rapid spiccato, which is also known as sautillé. With regard to the slower spiccato Potter states:

<sup>18</sup> *Oxford Concise Dictionary of Music*, 5<sup>th</sup> ed., s.v. “Spiccato.”

... each bounce of the bow is individually controlled and timed by the counter-balancing effect of the little (fourth) and ring (third) fingers against the frog of the bow.<sup>19</sup>

Generally, the most advantageous part of the bow for this stroke is at the balance point, which is about one third of the bow's length away from the frog. To execute this stroke, drop the bow down onto the string with the wrist whilst moving the forearm for the changes in direction. The bow itself naturally makes the rebound due to its spring-like shape and the tension of the bow hair. Therefore, ensure that the right-hand does not lift the bow off the string.<sup>20</sup> A slower and louder spiccato will result in playing closer to the frog, in which the bow will need to be held higher from the strings and correspondingly longer bow-strokes will be required.

In the early nineteenth century, bowings in which the hair leaves the string began appearing in the French School of Violoncello. By the late nineteenth century familiarity with these bowings was expected of every player. The slower spiccato stroke is necessary for the performance of a considerable amount of repertoire, particularly in chamber and orchestral music such as in the *Allegro* movements of works by Haydn and Mozart.

The spiccato bow-stroke is required for every note in *Étude No. 27*, with the exception of the final two bars. Popper offers the performance direc-

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<sup>19</sup>Potter, 145.

<sup>20</sup>Ibid.



## CHAPTER 3

### LEFT-HAND TECHNIQUES IN DAVID POPPER'S *HOHE SCHULE DES VIOLONCELLO-SPIELS*

This chapter examines ten left-hand techniques required in Popper's *Hohe Schule des Violoncello-Spiels*: intonation, extension, shifting, thumb position, vibrato, natural and artificial harmonics, mordents, double-stopped thirds and sixths, double-stopped octaves and left-hand pizzicato. Each technique is discussed in detail and the etudes from the *Hohe Schule* that employ the technique are listed. One etude from the *Hohe Schule* that prominently features the technique is considered, including suggestions of relevant practice methods. Additional techniques that are found in this etude are also listed. Musical examples from the *Hohe Schule* are presented to highlight Popper's employment of each technique.

The etudes in the *Hohe Schule* begin with a relatively simple presentation of the main theme or focus, which is then developed throughout the étude in a variety of ways, such as modulation and sequencing. In each of the etudes from the *Hohe Schule* Popper challenges cellist's to be prepared in every register and position by presenting the main theme or focus at various points on the fingerboard.<sup>1</sup>

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<sup>1</sup>Enyeart, 38.

## Intonation

Each of the études from Popper's *Hohe Schule* are challenging for accurate intonation, largely due to their highly chromatic nature and the challenging left-hand techniques they require. Popper's use of chromaticism, focus on position establishment and idiomatic use of the cello throughout the *Hohe Schule* make these études a tremendously effective resource for securing intonation. Three etudes from the *Hohe Schule* are discussed to highlight Popper's employment of chromaticism, focus on position establishment and idiomatic cello composition.

Marked *Allegro molto moderato*, *Etude No. 21* in A Minor contains considerable chromaticism and requires challenging left-hand techniques including extensions, thumb position, shifts, double stops, ornamentation and vibrato. A particularly chromatic and challenging section occurs between bars forty-nine and fifty-one (figure 3.1). These three bars require extensions, shifts and thumb position alongside a legato bow stroke, including an extensive slur encompassing twenty-two notes.



Figure 3.1: *Étude No. 21* in A Minor, bars 49-51

Popper's fingerings throughout the *Hohe Schule* are based around virtuoso cellist, composer and teacher Jean Louis Duport's system of fingering that was laid down in his monumental work *Essai sur le Doigté du Vi-*

*oloncelle* (1849).<sup>2</sup> An in-depth knowledge of the fingering possibilities within every left-hand position is of primary importance for accurate intonation. Cellist, teacher and writer Claude Kenneson discusses the importance of position establishment in his book *A Cellist's Guide to the New Approach* (1974):

A thorough knowledge of the fingering possibilities is indispensable and will lead to an involuntary physical movement that serves the player's musical intention to great advantage. This knowledge can be gained through a careful study of the intervals that exist in the various positions, and a complete investigation of the methods of combining intervals through in-position playing, extension and shifting.<sup>3</sup>

Popper's focus on position establishment throughout the *Hohe Schule* is more systematic than *étude* books for cello by other cellist-composers such as Dotzauer and Grutzmacher. His extensive use of sequences effectively teach the student to feel and hear the notes in any given position accurately, as the emphasis is on moving from one position to another while playing many, if not all, the notes in each position. *Étude No. 6* in F Major focuses on position establishment throughout and contains many sequences. The sequences between bars eleven and thirteen (figure 3.2), explore five left-hand positions and the notes contained within each position.



Figure 3.2: *Étude No. 6* in F Major, bars 11-13

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<sup>2</sup>Duport.

<sup>3</sup>Kenneson, 38-39.

The keys used in many of the études from the *Hohe Schule* reflect Popper’s idiomatic approach to cello composition. For example, the key that is most frequently employed is C Major, highlighting the lowest note on the cello, the open C string. Accurate intonation increases the cello’s resonance as the open strings vibrate sympathetically when a stopped C, G, D or A is played. The open strings can therefore be used as a reference for tuning stopped notes, either by making the relevant open string vibrate or by playing the relevant open string to check if the stopped note is accurately placed. This practice method is easily applied to all the études from the *Hohe Schule*, particularly throughout *Étude No. 1* in C Major, which consistently employs the keynote, such as during the last three bars (figure 3.3).



Figure 3.3: *Étude No. 1* in C Major, bars 63-65

Kenneson states: “The ability of Popper’s études to so efficiently train the ear and the hands has given them their esteemed status in cello pedagogy for over a century.”<sup>4</sup>

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<sup>4</sup>Kenneson, 38-39.

## Extensions

Extensions are common throughout the *Hohe Schule* due to the highly chromatic nature of these études, however *Étude Nos. 11, 19* and *24* often require this technique particularly often.

An extension involves stretching individual fingers forwards or backwards whilst maintaining an otherwise standard hand position. Implementation of this technique began during the mid eighteenth century.<sup>5</sup> Milly Stanfield discusses how students can practise the extension technique in *The Intermediate Cellist* (1973):

When practising extensions the hand and arm must remain basically relaxed so that the arm-weight and the intensity of the player can still pass freely on to the string through the fingers. At first this will need a conscious effort, but eventually it should become an almost automatic reaction, resembling that of a rubber band released after having been held taught.<sup>6</sup>

*Étude No. 11* contains many extensions, and its use of consistent left-hand positions and rhythmic patterns make it easier to focus on this technique.<sup>7</sup> Three extensions are required in bars five and six (figure 3.4). ‘Rhythm practice,’ one of the simplest and most efficient practice methods, can be applied to this section (figures 3.5 and 3.6). Often simple rhythmic patterns are all that are necessary for most purposes. The speed should be slow at first and gradually built up to the fastest tempo possible. Fischer advises:

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<sup>5</sup>Walden, 121.

<sup>6</sup>Milly B. Stanfield, *The Intermediate Cellist* (London: Oxford University Press, 1973), 23.

<sup>7</sup>Il-Hee Hwang, “A Synthesis of the Advanced Etudes by Dotzauer, Grützmacher, and Popper” (University of Cincinnati, 2006): 25.

Rhythm practice works by setting the mind a series of timing and co-ordination problems to solve. In solving them the mental picture of the passage becomes clearer, and the physical response to each mental command becomes quicker.<sup>8</sup>



Figure 3.4: *Étude No. 11* in F Major, bars 5-6



Figure 3.5: *Étude No. 11* in F Major, bars 5-6, 'rhythm practice' example one



Figure 3.6: *Étude No. 11* in F Major, bars 5-6, 'rhythm practice' example two

## Shifting

All études from the *Hohe Schule* require shifts of varying degrees of difficulty, often alongside double stops, both of which are prevalent throughout *Étude No. 34* in F Major.

Cellists sought to organise shifting methodologies during the late eighteenth and early nineteenth centuries. The key issue was ensuring continuity of phrasing, which Duport achieved through performing shifts from

<sup>8</sup>Fischer, 36.

one finger to another. Shifting methodology was formulated according to different priorities in mind with the advent of musical Romanticism. During this period, shifts were increasingly employed to add colour, expression and virtuoso effect in addition to expanding the range of the instrument. ‘Expressive’ shifting caused controversy among nineteenth century performers. Romberg, Dotzauer and Kummer considered it an emotional enhancement similar to vibrato, with Romberg categorising the technique as an ornament. Cellists who were restrained in their use of ‘expressive’ shifts were criticised for their lack of sentiment while others were accused of being overly sentimental.<sup>9</sup>

Anticipation and preparation of the shift are of primary importance. According to violinist and teacher Kató Havas in her book *A New Approach to Violin Playing* (1961): “when changing from one position to another both the mental and physical preparation are even more exaggerated.”<sup>10</sup> Difficulties arise when too much focus is placed on the spatial distance to be covered in the shift. Kenneson states: “Even the large physical distances encountered on the cello can be made of secondary importance through proper finger preparation.”<sup>11</sup> It is important to shift on the finger that will play the first note after the shift and that this finger is not pressed into the string too forcefully during the shift as this creates unnecessary tension and traction.

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<sup>9</sup>Robin Stowell, *The Cambridge Companion to the Cello* (Cambridge: Cambridge University Press, 2007), 192.

<sup>10</sup>Kató Havas, *A New Approach to Violin Playing* (Vienna: Bosworth & Co., 1964), 38.

<sup>11</sup>Knesson, 75.

*Étude No. 34* requires shifts to most notes throughout, which are almost exclusively double stops. Many of these double-stopped shifts cover large distances on the fingerboard. A useful exercise that can be applied to all shifts is to practise accurate shifting between the two required notes, going both from the lower note to the higher note and vice versa. Through isolating the shift in this way the precise distance to be covered can be learnt before additional aspects of playing are required. When the shifts are double stops as in *Étude No. 34* the left hand can stop the notes on both strings while the bow sounds one string at a time (figures 3.7 and 3.8). In this way each line can be learnt within the correct hand position required for the double stops before the two lines are sounded together.



Figure 3.7: *Étude No. 34* in F Major, bars 1-3, 'isolation of lower line'



Figure 3.8: *Étude No. 34* in F Major, bars 1-3, 'isolation of upper line'

## Thumb Position

Thumb position is required across the forty études, however there are many études that employ this technique in particularly challenging ways.

In the early eighteenth century, while luthiers increased the range of the cello by replacing the highest (G) string with an A string, cellists determined the most practical way to expand their technical repertory; the employment of the thumb as a playing digit.

Thumb position is a fundamental technique in intermediate and advanced cello playing. In thumb position the thumb serves not only as an additional finger able to stop notes but also as a reference point for the rest of the hand.<sup>12</sup> It should therefore remain in position across two strings wherever possible with the upper string across the center of the thumb-nail and the lower string to the right of the thumb's first joint. Kenneson advises:

The use of the thumb must be cultivated, for it offers numerous fingering possibilities and is the key to complete mastery of the left-hand action. It enables the player to use the entire range of the instrument.<sup>13</sup>

An imaginary 'grid' becomes possible when the thumb is employed, in which the lower string contains the first tetrachord and the higher string contains the second tetrachord of all major scales. This allows for the execution of a scale without shifting. The thumb is placed a perfect fourth

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<sup>12</sup>Carpinteyro, 47-49.

<sup>13</sup>Kenneson, 40.



Between the beginning of the eighteenth century and the end of the nineteenth century the popularity of vibrato varied greatly, depending on the time period, region and tastes of both performers and audiences.<sup>14</sup> Early recordings and other sources indicate that vibrato was not employed continuously at the beginning of the twentieth century, however Popper had a revolutionary approach to this technique and taught continuous vibrato to his students at the Royal Conservatoire in Budapest.<sup>15</sup>

The use of vibrato adds colour to the tone and is used to emphasise emotion. In cello playing, vibrato should engage the forearm, wrist, hand and the stopped finger(s). Unlike the violin vibrato, in which the wrist initiates the vibrato movement, in cello vibrato the wrist only acts as part of the entire vibrato 'unit.' Even a slight variation in the extent, speed and width of vibrato results in significant musical expression. Potter states:

To balance the intensity and volume of the tone it is necessary in loud playing to employ a wider vibrato movement than that required for soft playing. The speed of the vibrato is more a matter of personal taste and temperament, within the framework of musical acceptability.<sup>16</sup>

A balance between strength and relaxation is necessary to produce a free, singing tone.

The *Andante* marking in *Étude No. 22* allows vibrato to be employed more easily than in many of the faster études, such as *Étude No. 38* in

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<sup>14</sup>Cambridge, 191.

<sup>15</sup>Bosanquet, 199.

<sup>16</sup>Potter, 108.

D Major, marked *Presto*. *Étude No. 22* (figure 3.10) contains crotchets after lyrical semiquaver passages, which would sound peculiar without vibrato.



Figure 3.10: *Étude No. 22* in G Major, bars 1-2

## Harmonics

Harmonics are explored in *Étude Nos. 7, 18, 24, 28* and *40* from the *Hohe Schule*. Popper suggests the use of the occasional harmonic in additional études. However, these exist only to aid the performer in particularly rapid passages and are not explored in detail.

Harmonics are often used as special effects in string playing. Placing a finger lightly at a node on any string produces ‘natural’ harmonics. Only a light touch is required for natural harmonics as the finger is only dividing the string vibrations. Unlike when producing a fundamental tone, a small deviation in where the finger is placed still allows the harmonic to sound. However, this should be avoided to establish the correct hand position and in case the deviation is too great for the harmonic to sound at all. ‘Artificial’ harmonics result from the same basic principle, however the thumb or a finger is used to stop the string while another finger is simultaneously placed lightly above the stopped note. The most com-

monly used ‘artificial’ harmonics are a perfect fourth above the stopped note and are generally played using the thumb and third finger in a way very similar to octaves. This produces a pitch that is two octaves higher than the note played with the thumb. The thumb defines the intonation of the harmonic and must be placed exactly, while a small deviation in the placement of the third finger will still result in the correct note to sound. Although the interval of a perfect fourth is the customary interval used in artificial harmonics, other intervals can also be employed. Harmonics were first introduced to string playing by the French School in the early eighteenth century, while Austro-German performers and composers rarely employed harmonics until the nineteenth century.

Popper’s *Étude No. 40* in D Major “*A Study in Harmonics*” (figure 3.11) provides an in-depth exploration of harmonics. Marked *Scherzando*, this étude is a study in both natural and artificial harmonics. This étude encompasses the widest range of any of the études in the *Hohe Schule*, ranging from half position to the high extremities of the cello’s range. It also employs particularly diverse rhythms and articulations when compared to other études from the *Hohe Schule*. When practising this étude, stopped notes should be employed throughout to ensure correct hand position and placement of the thumb and fingers before harmonics are employed.

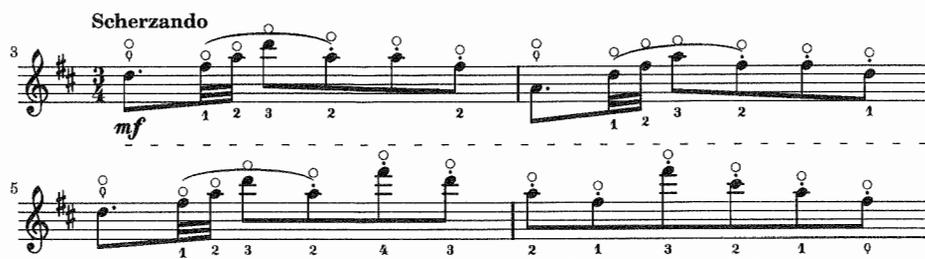


Figure 3.11: *Étude No. 40* in D Major, bars 3-6

## Mordents

Popper focuses intently on mordents throughout *Étude No. 37* in E Major “*Study in Mordents*.” Single mordents are also found in *Étude Nos. 10* in C Minor and *16* in C Major.

During the Baroque period, performers often improvised ornamentation as well as elaborate embellishments. With the exception of trills and in works for solo keyboard, explicit ornament signs were rare until the eighteenth century, when the French signs for mordents that are familiar today became commonplace.<sup>17</sup> Mordents can be altered chromatically through the use of a small accidental sign. The precise speed at which the mordent should be executed is dependent upon the tempo of the piece. Mordents require left hand agility, chiefly between the two fingers of the left hand that play this ornament.

<sup>17</sup> *Oxford Dictionary of Music and Musicians*, 2<sup>nd</sup> ed., vol. 18. s.v. “Mordents.”

Upper mordents appear frequently throughout *Étude No. 37*, with bars twenty-four and twenty-five (figure 3.12) containing a particularly large number of mordents, many of which are altered chromatically. Working on *Étude No. 37* will aid mastery of both mordents and ornaments that require a similar action, such as acciaccaturas, appoggiaturas, grace notes, trills and turns. Grace notes are very briefly required in *Étude No. 15* in G Major and *Étude No. 23* in B Minor.



Figure 3.12: *Étude No. 37* in E Major, “Study in Mordents,” bars 24-25

### Double stops

The double-stop technique is explored in many études from the *Hohe Schule*: *Étude Nos. 9, 10, 13, 15, 17, 20, 23, 24, 27-29, 31, 34, 36* and *39*. *Étude No. 34* in F Major is almost entirely composed of double stops while *Étude No. 9* in E flat Major is exclusively composed of double stops.

Double-stopped thirds and sixths are used extensively in *Étude Nos. 9, 17* and *29*. Thirds and sixths are relatively difficult double-stopped intervals for the cellist. Both major and minor sixths lie in a relatively comfortable

position for the left hand, although the different lengths and angles of each finger demand constant adjustment. The distance that the left hand must cover when playing thirds over the diapason is larger than when playing sixths. In higher positions that require the thumb, the ideal scale in thirds uses the first and third finger for major thirds and the thumb and second finger for minor thirds. This arrangement gives the larger distance to be covered to the thumb and second finger, which are able to cover this distance more naturally.<sup>18</sup> As Popper favoured inversion, he often wrote thirds, repeated them as sixths and vice versa.

*Étude No. 17* in C Minor is almost entirely composed of thirds and sixths and is in ternary form, with both the ‘A’ sections predominantly made up of sixths, while the ‘B’ section (figure 3.13), which modulates to C Major, contains thirds, fifths, sixths and octaves. In the ‘A’ sections the double stops predominantly occur in the neck positions, whilst in the ‘B’ section both the neck positions and the over neck positions are extensively required.



Figure 3.13: *Étude No. 17* in C Minor, bars 11-12

<sup>18</sup>Carpinteyro, 26-27.

## Double-Stopped Octaves

Double-stopped octaves are discussed separately due to the extremely challenging left-hand techniques they employ. Double-stopped octaves are required in *Étude Nos. 9, 12, 13, 20, 23, 27, 31* and *39*.

Double-stopped octaves are one of the most difficult double stops for cellists to play, as they require particularly sensitive tuning within a difficult left hand position. Carpinteyro states:

In an octave, the lower frequency note and the high frequency note share almost all their harmonic series or secondary vibrations. This makes the octave the most difficult interval to play in tune because a small deviation in the tuning interrupts the vibration of both notes. . .<sup>19</sup>

The thumb can be employed with an octave span between the thumb and third finger on adjacent strings. In the lower positions this interval is the largest possible interval that people with small hands can cover, while after ascending into higher positions this distance can become quite close. Carpinteyro advises, “The main issue in executing octaves is the physical distance between the two fingers which changes with every shift.”<sup>20</sup>

In cello playing especially, double-stopped octaves are frequently used for virtuosic display. This was particularly prevalent during the nineteenth century, as well as within the concerto literature. As well as in études from the *Hohe Schule*, Popper included many double-stopped octave passages in his concertos.

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<sup>19</sup>Carpinteyro, 35.

<sup>20</sup>Ibid.

*Étude No. 20* in G Minor contains many examples of both broken and double-stopped octaves. Double-stopped octaves can be effectively learnt through using broken octaves at first, which is particularly helpful to centre the intonation. An additional challenge for the left hand is presented in bars twenty-three and twenty-four (figure 3.14). Here, after the double-stopped octave on the first semiquaver of each beat, the top note is continued alongside three semiquavers on the lower string. It is important that the thumb remain in position throughout this section.



Figure 3.14: *Étude No. 20* in G Minor, bars 23-24

*Étude Nos. 23* in B Minor, *27* in C Major and *39* in D flat Major require chromatic double-stopped scales in octaves. *Étude No. 39* in D flat Major contains some particularly challenging examples of this technique. This étude moves predominantly in semitones throughout and contains extended slurs. Between bars nine and ten (figure 3.15) eighteen double-stopped semiquavers and a double-stopped dotted crotchet are all contained within one length of bow.



Figure 3.15: *Étude No. 39* in D flat Major, bars 9-10

Working on double-stopped octaves increases left hand strength and improves intonation as well as thumb position.

### **Left-Hand Pizzicato**

Left-hand pizzicato here refers only to pizzicato required alongside stopped notes. This is required in *Étude Nos. 15, 17, 31 and 34*.

Left-hand pizzicato can range in difficulty depending on other demands that may be placed on the hand. To ensure left-hand pizzicato notes ring freely, an adaptable left hand is required.

*Étude No. 34* in F Major contains some extremely complex examples of left-hand pizzicato between bars twenty-two and twenty-five (figure 3.16). Here, the left hand must simultaneously cover double stops and left-hand pizzicato. Bar twenty-three is particularly challenging as the first and third fingers must play double stops on the D and A string respectively, while the second finger must reach across the strings to pluck the C string. The second and third fingers are alternated on the second beat of this bar, where the third finger must reach across to pluck the C string. In bar twenty-five the third and fourth fingers must play a double stop on the D and A strings respectively, while the first finger stops a perfect fifth across the C and the D strings which are plucked by the second finger. Four strings are thus required to sound simultaneously which would not be possible without left-hand pizzicato.



Figure 3.16: *Étude No. 34* in F Major, bars 22-25

When working to attain a proficient left-hand technique it is important to keep in mind the reasoning behind this study and the eventual goal. In his article written for *The Strad* (1957), cellist, teacher and writer Maurice Eisenberg discusses the primary functions of the left hand:

The primary function of the left hand in string playing is to produce notes with the utmost purity of intonation, to link together the various registers as smoothly as possible, to enunciate the syllables in each musical phrase, and to supply intensity, vitality and color through the vibrato. The fingers have their percussive qualities and can individualize every note and series of notes.<sup>21</sup>

The études contained in the *Hohe Schule des Violoncello-Spiels* address each of these functions. Slavich states: “The greatest benefit in practicing Popper is, of course, achieving ease, comfort, and, eventually, mastery over the entire scope of the fingerboard.”<sup>22</sup>

<sup>21</sup>Maurice Eisenberg, *Cello Playing of Today*. (London: The Strad, 1957), 11.

<sup>22</sup>Slavich, 2.

## CONCLUSION

This treatise has discussed David Popper's legacy as virtuoso cellist, prolific composer of music for his instrument and innovative pedagogue. The emancipation of the cello from its traditional role as purely an accompaniment instrument and the Dresden School's contribution to the development of cello technique has provided context in which to situate Popper's most significant contribution, his monumental work the *Hohe Schule des Violoncello-Spiels*. While a significant amount of literature discusses Popper's legacy and the importance of learning the *Hohe Schule*, most discussions of the techniques required in these études have been brief and largely presented in lists and tabular form. Many of the discussions state that each étude was composed with only one or two techniques in mind, while this treatise has explored many more techniques than have previously been acknowledged. This treatise has explored various techniques required in the *Hohe Schule* and provided suggestions of relevant practice methods. This study is not intended as an exhaustive list of techniques required in the *Hohe Schule* or a complete list of practice methods. It is an exploration of some of the main techniques explored that can be easily applied to all repertoire requiring these techniques.

To regularly practice from a technical standpoint, such as by breaking difficult passages down into their technical components, practising in rhythms and practising slowly, is an effective and efficient practice

methodology. However, aspects of musicality must not be forgotten. The inherent musicality of the *Hohe Schule* enables cellists to focus on combining these crucial aspects of music making. Popper used his virtuosic technique to serve his art, not to enhance himself, which is described by Park as an ‘ideal virtuosity.’<sup>23</sup>

Popper’s *Hohe Schule* demonstrates how he was able to capture the essential elements of cello playing and lay them out in a way that is both technically challenging and musically-rewarding. Renowned cellist and teacher János Starker (1924-2013) advises:

David Popper wrote many compositions and until today no one has better captured the essential elements in cello playing than he. It has often been said that one cannot truly master the cello without having learned Popper’s “High School of cello playing.”<sup>24</sup>

An interest in Popper’s valuable contribution to cello playing and cello technique has inspired and guided this study. It is hoped that this contribution will stimulate further discussion and encourage cellists to develop their own understanding of cello techniques through a systematic study of the *Hohe Schule des Violoncello-Spiels*.

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<sup>23</sup>Park, 3.

<sup>24</sup>János Starker, preface to *David Popper*, 11.

## BIBLIOGRAPHY

- Bazelaire, Paul. *Scientific Instruction in Playing the Violoncello*. Translated by Hentiette de Constant. Paris: Durand, 1960.
- Bunting, Christopher. *Essay on the Craft of 'Cello-Playing 1: The Right Hand*. Cambridge: Cambridge University Press, 1982.
- Bunting, Christopher. *Essay on the Craft of 'Cello-Playing 2: The Left Hand*. Cambridge: Cambridge University Press, 1982.
- Carpinteyro, Eduardo. "Pedagogical Aspects in David Popper's Four Cello Concertos." PhD. diss., University of Cincinnati, 2007.
- De'ak, Stephen. *David Popper*. Neptune City, NJ: Paganiniana Publications, 1980.
- Duport, Jean-Louis. *Essai sur le Doigté du Violoncelle*. Paris: Imbault, 1806.
- Enyeart, Carter. "Rediscovering the Popper Opus 73 Etudes: A Fresh Look and a New Voice." *American String Teacher* 62, no.2 (May, 2012): 38-40.
- Evgeni, Dmitrov Raychev. "The Virtuoso Cellist-Composers from Luigi Boccherini to David Popper: A Review of Their Lives and Works." PhD diss., Florida State University School of Music, 2003.
- Fischer, Simon. *Basics: 300 Exercises and Practice Routines for the Violin*. London: Peters Edition, 1997.
- Fischer, Simon. *Practice: 250 Step-by-Step Practice Methods for the Violin*. London: Peters Edition, 2006.

- Geeseman, Katherine Ann. "The Rise and Fall of the Cellist-Composer of the Nineteenth Century: A Comprehensive Study of the Life and Works of Georg Goltermann Including a Complete Catalog of his Cello Compositions." PhD diss., Florida State University, 2011.
- Ginsburg, Lev. *History of the Violoncello*. Neptune City, NJ: Paganiniana Publications, 1983.
- Hagel, Leah. "Expression in Technical Exercises for the Cello: An Artistic Approach to Teaching and Learning the Caprices of Piatti and Etudes of Popper." PhD. diss., University of Kentucky, 2012.
- Hwang, Il-Hee. "A Synthesis of the Advanced Etudes by Dotzauer, Grützmacher, and Popper." University of Cincinnati, 2006.
- "Janos Starker: Popper Étude No. 40 (Study in Harmonics) Op. 73." Youtube <http://www.youtube.com/watch?v=HwKn1mgqGEC> (accessed May 15, 2013).
- Kenneson, Claude. *A Cellist's Guide to the New Approach*. New York: Exposition Press, 1974.
- Mantel, Gerhard. *Cello Technique*. Bloomington: Indiana University Press, 1975.
- Moore, David W. "Popper: High School of Cello Playing," *American Record Guide* 72, no. 3 (May/June, 2009): 134.
- Oxford Dictionary of Music and Musicians*. 2<sup>nd</sup> ed., vol. 18. s.v. "Mor-dents."
- Park, So Youn. "Effective Practice Methods for David Popper's Virtuoso Pieces and the Relationship Between Selected Pieces and Etudes." PhD diss., Florida State University, 2007.
- Popper, David. *Hohe Schule des Violoncellspiels, Vierzig Étuden, op. 73, Heft I*. Leipzig: VEB Friedrich Hofmeister, 1905.
- Popper, David. *Hohe Schule des Violoncellspiels, Vierzig Étuden, op. 73, Heft II*. Leipzig: VEB Friedrich Hofmeister, 1905.

- “Popper Project No 40: Joshua Roman plays Étude No. 40 for cello by David Popper.” Youtube. <http://www.youtube.com/watch?v=FU8NzYLQelg> (accessed May 15, 2013).
- Potter, Louis. *The Art of Cello Playing*. Miami: Summy-Birchard, 1980.
- Rummel, Martin. *Complete Etudes for Cello*. CDM56858. Musicaphon. Compact Disc. 2004.
- Sadie, Stanley, ed. *The New Grove Dictionary of Music and Musicians*. 2<sup>nd</sup> ed. Oxford: Oxford University Press, 2001.
- Slavich, Richard. “A Player’s Guide to the Popper Etudes.” Internet Cello Society. 2006. [www.cello.org/newsletter/articles/popper.htm](http://www.cello.org/newsletter/articles/popper.htm) (accessed March 22nd, 2013).
- Stanfield, Milly B. *The Intermediate Cellist*. London: Oxford University Press, 1973.
- Stowell, Robin. *Performing Beethoven*. Cambridge: Cambridge University Press, 1994.
- Stowell, Robin, ed., *The Cambridge Companion to the Cello*. Cambridge: Cambridge University Press, 2007.
- Stutch, Nathan, ed. *40 Studies, High School (“Höhe Schule”) of Cello Playing, Opus 73*. New York: International Music Company, 1982.
- Tortelier, Paul, and David Blum. *Paul Tortelier: A Self-Portrait*. London: Butler and Tanner, 1984.
- Tunca, Ozan Evrim. “Most Commonly Used Étude Books by Cello Teachers in American Colleges and Universities.” PhD diss., Florida State University School of Music, 2003.
- Venturini, Adriana Marie Luther. “The Dresden School of Violoncello in the Nineteenth Century.” Master’s thesis, University of Central Florida, 2007.
- Walden, Valerie. *One Hundred Years of Violoncello*. Cambridge: Cambridge University Press, 1998.

Warner, Wendy. Wendy *Warner Plays Popper & Piatigorsky*. CDR 90000  
111. Cedille. Compact Disc. 2009.

Yablonsky, Dmitry. David Popper High School of Cello Playing (Forty  
Études), Op. 73. DDD 8.557718-19. Naxos. Compact Disc. 2009.