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TECHNICAL EXERCISES FOR DOUBLE BASS:
A study of selected methods and their effect on the development
of performance technique.

Monika Kwiatkowska

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Author: Monika Kwiatkowska

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Supervisor: Maria Bania

Examiner: Joel Speerstra

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ABSTRACT

In the twentieth century the double bass performance technique was highly developed. The contemporary double bassists usually must reconcile multiple roles: be highly specialized soloists, symphonic, opera or chamber orchestra musicians and sometimes also as teachers. To meet the requirements of an extensive repertoire musicians have to be versatile and well educated.

This work is based on research about technical exercises and method books used by double bassists to develop their technique. The thesis includes a list of available and commonly used books and exercises together with information about them and their composers. Some technical problems in double bass playing are also discussed, and there is also a short overview of double bass history.

In the practical part of the thesis the author worked on selected method books and exercises and made an evaluation of their effect on playing on double bass, particularly with regard to two double bass concertos: the *Concerto in D* by Carl Ditters von Dittersdorf and the *Concerto in B* by Giovanni Bottesini.

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Preface

Improving technical skills is one of the most important point in playing on any instrument. The main aim of the following thesis is to make a survey of technical exercises commonly used among double bassists and to investigate the effects of using a selection of those exercises to improve my left-hand technique as a double bassist.

I started to become interested in influences of technical exercises on performance technique after meeting foreign double bass teachers and students. Currently I'm a student of the master's programme in orchestra performance in double bass specialization in Sweden, but earlier, during my studies in Poland (10 years of studying double bass performance) I have observed that it is not very common among students and teachers to use pure technical exercises in everyday routine to improve performance technique there. Practicing is based on technical problems included in particular musical works. The situation is different here, in Sweden, where students use method books, and scales, as well as intonation and bow excercises in their practicing.

At this point my interest to explore this issue from an international perspective appeared. I decided to investigate if there were a lot of differences between countries, schools and teachers, if they were using different methods and exercises for double bass depending on the tradition or because of globalization everyone was using the same. Nowadays it is exceedingly easy to find information on these kinds of topics. First of all, through the Internet we can establish contacts with musicians from all over the world, second, because we are studying and working with people from different countries and backgrounds. I don't know any study which describes available books of etudes and methods for double bass. My purpose is therefore also to create a tool that can help students and teachers in practicing planning.

The main questions are: which technical exercises and method books are used by an international environment of double bassists? Which technical exercises have helped me to overcome technical problems in the *Concerto in D for Double Bass* by Carl Ditters von Dittersdorf and the *Concerto in B for Double Bass* by Giovanni Bottesini?

In the following thesis I don't discuss techniques used in jazz.

To find out what double bassists are using in their daily practicing I created a questionnaire and sent it through the Internet to an international environment of double bass classical musicians. The thesis is also based on information that I have found in books, journals and Internet. Moreover I have made an experiment which is the practical part of the thesis. I've chosen two etudes (or caprices) and a method book and practiced them for two months. After every period I have recorded

the first movement of the classical concerto by Carl Ditters von Dittersdorf and the first movement of the romantic concerto by Giovanni Bottesini. After one year I compared my recordings and found out which exercises were the best for me to overcome certain technical problems. Moreover, I gathered information of the composer, and looked into whether the etudes were composed especially for double bass, what form they have, what technical problems they address, and if the author put advices for practicing them etc.

The thesis is divided in two main parts: theoretical and artistic/practical. In the first part the reader can find chapters about the development of double bass technique, results of the aforementioned survey and my own research of technical exercises with an extensive list of methods books, etudes and scales. The second is an artistic practical part of the thesis that contains my own experiment which shows the effect of the exercises on my left-hand technique in the double bass concertos by Dittersdorf and Bottesini. The last chapter is for my comments and reflections on these studies. Recordings of the concertos are available for readers.

1. Development of double bass technique

1. 1. History of double bass – short overview

The double bass is the largest and lowest-pitched bowed string instrument in regular use. Nowadays the most popular is four-stringed double bass tuned E' A' D G. Five-stringed instruments with additional bottom string B' or C or four-stringed with an extension to C are also popular in orchestras. For solo repertoire “solo tuning” is used. The most common is F#' B' E A – the so-called “D” tuning or whole step scordatura. The reason for using it is a brighter, clear sound and brilliant effect that helps the double bass to stand out in the musical texture. The original eighteenth century intention of double bass solo scordatura was to compensate the use of special, thin gut strings. Thick gut strings produced a heavy sound but are difficult to start and inaccurate in intonation. Thin gut strings suffered from a weak tone and tended to flap against the fingerboard. Now modern, steel solo and orchestra strings are equally tight and according to some players solo tuning isn't necessary.¹



Figure 1: Giovanni Bottesini with three-string Testore double bass in 1865, source: wikipedia.org.

¹ Paul Brun, *A New History of the Double Bass* (France: Paul Brun Productions, 2000), 167-169.

The fingerboard is usually 105 cm, but variations from 100 to 110 cm are not uncommon. In the modern era, two types of bass bows are in use: the French bow is held similar to the violin bow with the palm downward and the German bow which has a deeper frog is held underhand. Because of its complex history, double bass is the least uniform and standardized instrument from the string family.

The evolution of the double bass has taken several hundred years. The history of the double bass is unique because it has its origins not only from violin family but also from the viol (viola da gamba) family.² Predecessors of modern known double bass were instruments called violone. The Italian term violone (large viola), which has fallen out of common usage, gave rise to the word violoncello. In the course of history many bass and double bass instruments were described as violones. In the sixteenth century they were used as the bass of the gamba family. Their shapes and tuning was changing, depending on place where were built and used. The earliest known illustration of a double bass type instrument is from 1516.³ Violones were tuning in 4ths or using combinations of 3rds and 4ths (ex. G' C F A d g). In sixteenth century, five- and six-stringed instruments were common. Their sound was lighter than modern known double bass.⁴



Figure 2: Giovanni Paolo Maggini bass viol from 1597, source: <http://www.hovkapellet.com>.

² Michael Fuller, *Instrument: Double Bass*. Accessed April 26, 2016.

[Video file]. Retrieved from http://www.philharmonia.co.uk/explore/instruments/double_bass.

³ *The New Grove Dictionary of Music and Musicians* 2nd ed., s.v. "Double bass."

⁴ There is more information about terminology at: Paul Brun. "Terminology," in *A New History of the Double Bass* (France: Paul Brun Productions, 2000), 23-35.



Figure 3: Viola da gamba, ca. 1600, London, source: <http://www.metmuseum.org>.



Figure 4: Giovanni Paolo Maggini violone, early seventeenth century, source: <http://www.baroqueinstruments.com>.

Later in the sixteenth and seventeenth century basses were converted from their original forms into three- and four-string instruments. Researchers claim that bass-type instruments were tuned in 40-50 different ways. Viola da gamba has flat backs, sloped shoulders, c holes and five to seven strings. The presence of frets, and underhand bow grip. All members of the viol family are played upright between the legs.

Evolution/changes of the size of the orchestra in the eighteenth century affected the need to create an instrument with lower and louder sound. However in Italy it was common to use a three-string bass in orchestra playing tuned A'-D-G or G'-D-G. Finally in the eighteenth and nineteenth centuries double bass started to be used as an solo instrument. In the eighteenth century the well known Dittersdorf *Concerto* was composed. In the middle of the eighteenth century most double basses in Italy and England were made with three strings and were in use until the end of the nineteenth century. The three-stringed double bass had a more powerful sound, a clearer, harder and more assertive timbre. On the other hand its range in the lower register was smaller.⁵ But still in other parts of Europe tunings and number of strings was diverse. In France and Germany double basses with five strings were in use. Repertoire from that period including the virtuoso pieces from the Viennese school, is now played on modern instruments with different tuning than originally written for, so there are many more technical problems with performing some works, because it isn't comfortable for tuning E' A' D G. Double bass nineteenth century virtuoso Giovanni Bottesini used a three-stringed bass. From the beginning of the twentieth century four-stringed double basses were in general use. It has a bit weaker sound than the three-stringed, but in modern orchestra number of instruments increased. New low-pitched wind instruments are now support for double basses. As aforementioned, to perform the twentieth century works five-stringed double bass have become necessary. It's unfortunately hard to build a good sounding five-string double bass, so the solution can be four-strings with an extension to C.

There are two kinds of double bass bows: German (underhand) and French (overhand). Up until the eighteenth century, two different bow holds were used on all string family instrument. Generally all small instrument held on shoulder was bowed palm-down and all bigger instruments underhand. In the second half of the seventeenth century Italian bass players started to hold bows palm-down and through the years this idea spread in all Europe. Later, cellists switched to palm-down holds and many double bassists did the same. But still in the present day the world is divided. In some countries is more common to use German bow (Germany, Austria, Poland) and in others French bow (France, Italy, Great Britain). The significant moment was held in 1827 when Paris Conservatoire Committee was convened to decide which type of bow is going to be used in French orchestras.⁶ They officially adopted a French bow system. Later in the same

⁵ "Double Bass History," Vienna Symphonic Library, accessed April 26, 2016, https://www.vsl.co.at/en/Double_bass/History.

⁶ Brun, *A New History of the Double Bass*, 132-133.

Year a new class of double bass in Paris Conservatoire was held and since then students started to use French bow (called the “Parisian bow”).⁷

The German-style bow looks different from other string instruments bows and is the older of the two designs alluding to the viol instrument family. The frog is taller and the player holds it with the palm angled upwards. The thumb and index finger apply power to generate the desired sound. The little finger supports the frog from underneath, while the ring finger and middle finger rest in the space between the hair and the stick.⁸ I play the German bow.

The French bow is held overhand and looks like a big cello bow. It is held with the palm facing toward the bass. The thumb rests on the shaft of the bow, next to the frog while the other fingers drape on the other side of the bow.⁹

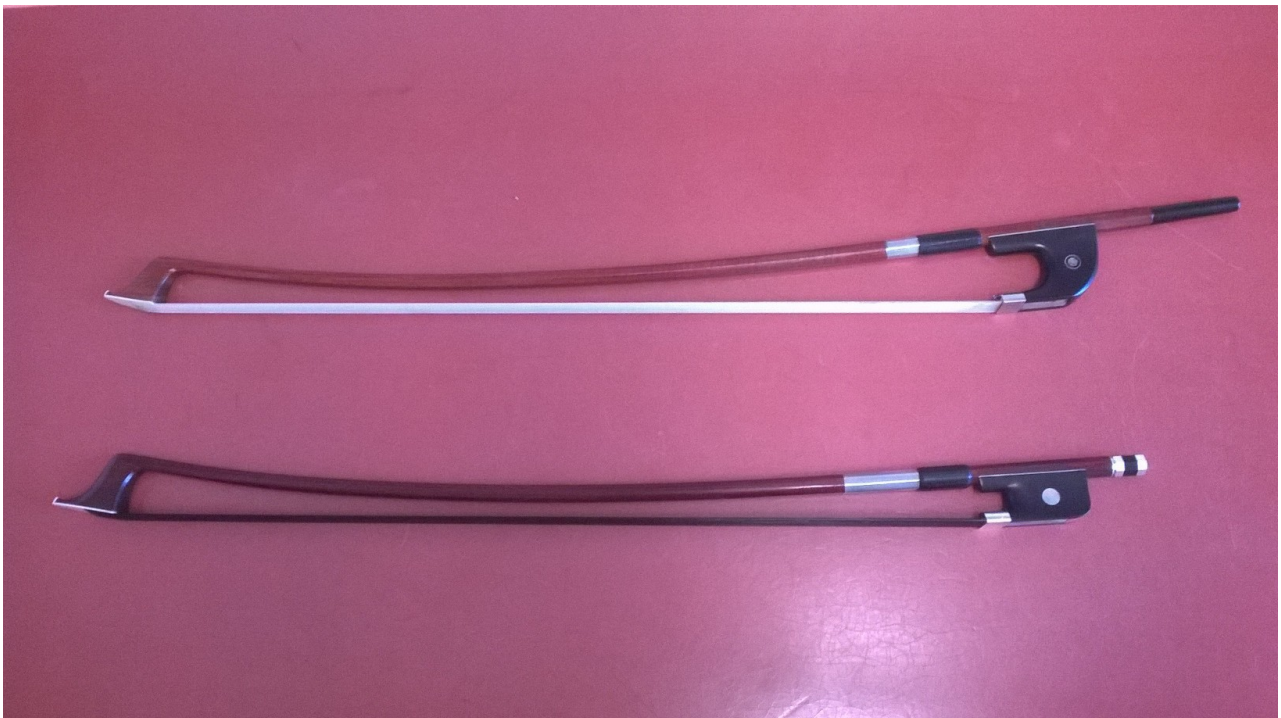


Figure 5: A German bow made by W.E. Dörfler (above) and a French bow made by Roger Zabinski.

⁷ Brun, *A New History of the Double Bass*, 190-200.

⁸ *Wikipedia*, s.v. “Double Bass German Bow,” last modified April 10, 2016, https://en.wikipedia.org/wiki/Double_bass#German_bow.

⁹ “The Double Bass: a viola-cello? The saga of actual evolutions,” Thierry Barbé, accessed April 26, 2016, http://www.thierrybarbe-contrebasse.com/?page_id=13.



Figure 6: I present the way of holding a German bow.



Figure 7: My friend Gregory Vartian-Foss presents the way of holding a French bow.

In this thesis I don't discuss technical exercises for right hand, but of course all of method books, and etudes contain technical studies for bow as changing strings, articulations, dynamic.

1. 2. Double bass technique – short overview

Classical double bass performances can be categorized into three main types: solo, in a chamber ensemble and in an orchestra (symphonic or opera). Doubtless there are a lot of differences but also similarities in the technique which is used in them. To be a versatile musician an excellent performance technique is necessary.

Double bass technique is still in progress. Contemporary music repertoire forces musicians to find new ways of producing sound and effects. But also well known repertoire is still a big challenge for players. Permanent developing of technique is highly desirable.

From my personal experience I have to admit that solo performance and playing as a part of a bigger group is slightly different. First of all as a soloist there is a bigger field for ones own interpretation in articulation, dynamic, tempo etc. In my opinion in an orchestra sound of double bass section should be more unified. In the same time our own feelings for example about dynamic can be wrong on the background of a whole orchestra. In symphonic and opera repertoire there are solistic parts for double bass but mostly the double bass section functions in the background supporting harmonies, creating rhythms and adding rich tone to the overall orchestral mix.¹⁰

Ludwig van Beethoven was the first composer who used double bass in a more original and complex way in the orchestra. Before him the double bass had been invaluable in providing a solid bass line, but was seldom given any individuality in sound. For example in Beethoven's Symphony No 3, 5 and Symphony No 9 the bass section sounds more virtuosic.¹¹ In the following figures all of new ways of use the double bass are visible. Fast, rhythmical runs as a base for the whole string section require perfect control of articulation in the right hand and proficiency in the left hand. Whereas in the Symphony No 5, Allegro very good control of the changing strings-bow is required. The excerpt is also very hard because of dynamic in pp.

10 Michael Fuller, *Instrument: Double Bass*. Accessed April 26, 2016.

[Video file]. Retrieved from http://www.philharmonia.co.uk/explore/instruments/double_bass.

11 "The Double Bass," New Zealand Symphony Orchestra, accessed April 26, 2016, https://www.nzso.co.nz/wp-content/uploads/2011/10/NZSO_MfS_Instr_DoubleBass.pdf.

SCHERZO
Allegro vivace ($\text{♩} = 116$)

Vc. *pp sempre e staccato*

Bässe *pp sempre staccato*

sempre pp

sempre pp

pp

cresc. ff *sf*

sf sf sf *tr* *n* *f sf* *sf* *sf* *tr B*

Figure 8: L. Van Beethoven - Symphony No 3 Scherzo Allegro vivace, b. 1-127. Source: Ludvig van Beethoven, Symphony No3, Leipzig: Breitkopf & Härtel, 1863.

Allegro $\text{♩} = 96$

unis. *pp* *poco rit.* *a tempo* *pp* *sf*

poco rit. *a tempo* *f* *Corni*

sf *sf* *dimin. pp* *pp* *poco rit.* *a tempo*

cresc. -

Figure 9: L. van Beethoven - Symphony No 5 Allegro, b. 1-67. Source: Ludwig van Beethovens Werke, Serie 1: Symphonien, Nr.5, Leipzig: Breitkopf und Härtel, 1862.

Figure 10: L. van Beethoven - Symphony No 5 Allegro, b. 141-218. Source: Ludwig van Beethovens Werke, Serie 1: Symphonien, Nr.5, Leipzig: Breitkopf und Härtel, 1862.

Figure 11: L. van Beethoven - Symphony No 9 Allegro assai vivace alla Marcia, b. 546-594. Source: Leipzig: Breitkopf & Härtel, 1865.

In an E-mail to the author on April 9, 2016 Hans Adler, the principal of double bass section in the Gothenburg Symphony Orchestra wrote about the role of double bass in modern symphonic orchestra: “In essence the use of the double bass hasn't changed since the days of the continuo group. The bass has a supporting role - to play along the melodic line and give it a harmonic or rhythmic base. We are very important for the whole ensemble! The double bass is a part of the foundation of the orchestra sound - without a solid foundation a building caves in. In the modern symphony orchestra we jump in and out of different functions - rhythmically and harmonically - and we have to use our ears and intuitive feeling of what is expected of us in any given moment. I think that the best we can do as bass players is to strive for an ongoing critical assessment of what the ensemble needs from us. In a pizzicato section for example, we have to know if to pull or push or just be "right there" with the bass note. Is it rhythm or just harmony? Nothing is given. So basically I think we should try to love our colleagues and be "right there" together with them. Let them finish their sentences and don't stress them out by rushing - but of course give them a little push if the ascent is steep and they're getting tired. ”

To produce sound on double bassists use bow (arco) or they are plucking the strings (pizzicato). A lot of different articulations are used playing arco: legato, marcato, tremolo, detache, staccato, spiccato, con legno. Both arco and pizzicato can produce a whole range of possible dynamics, characters and intensity.

The left hand technique can be divided into a technique used from first to fifth position and from sixth up. There are several systems of naming positions on double bass. The one that I use is with fifth position on D# on the G-string. Until the fifth position the fingers hold the fingerboard with the thumb lying on the opposite side to the index finger (first finger), the middle finger (second finger) is lying in a semitone distance from the first finger, the ring finger (third finger) is just lying on the string but it is not used for plying, and the little finger (fourth finger) is lying in a semitone distance from the second finger (see figure 12 below). The distance from the first to the fourth finger is just one whole tone.

From sixth position there are “thumb positions”, because the thumb is in use. Bass players can operate more freely with distances from the thumb, the first, the second, the third and the fourth fingers, because all of them are in use. From the middle of the fingerboard (sixth position) distances between semitones are definitely smaller than in the positions from the first to the fifth, the relation is that – the higher the tones, the smaller the distances (see figure 13 below).



Figure 12: From the first to fifth position - position of fingers



Figure 13: En example of the thumb position

2. Results from my questionnaire

2.1. Tools and questions

I decided to create a simple, short questionnaire that could be done on computers, tablets and smart phones. After consultation with the professional social media manager Monika Czaplicka¹² I decided to use tool called Typeform¹³ because it's simple, nicely designed, modern and it can be use in all computers and mobile devices. Participants answered mainly from PC's/laptops and smartphones (PCs & laptops 42%, smartphones 45%, tablets 10%).

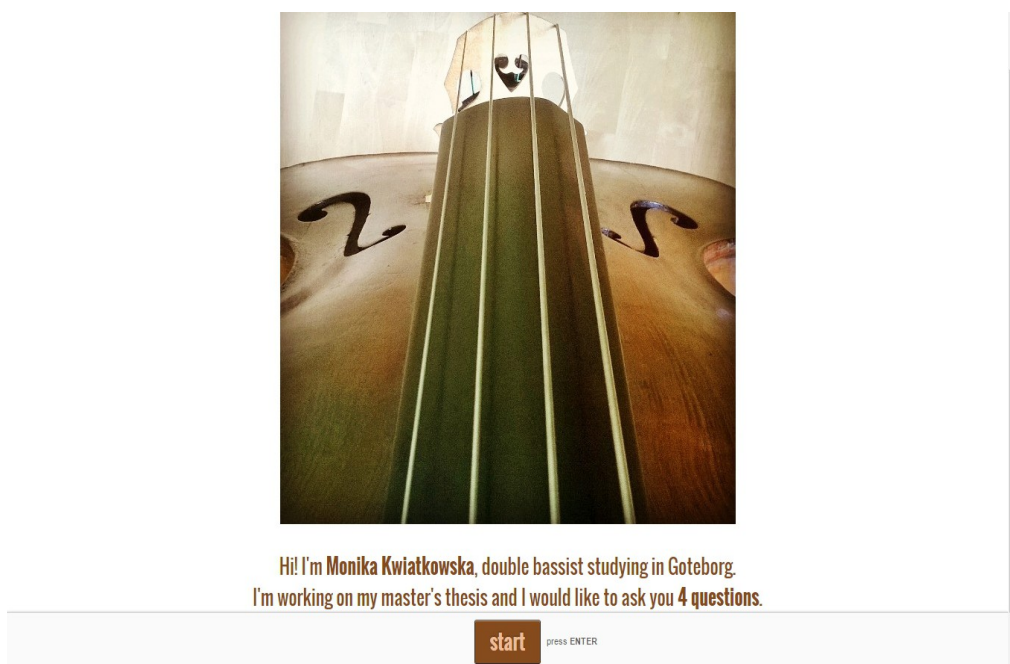


Figure 14: The start page of the questionnaire.

To find respondents I used mainly social media: Facebook groups for double bassists, my Facebook “wall”, Twitter, Instagram but also emails and personally asking my friends and teachers. Networking has worked very well. The questionnaire was available in English and Polish. In a period of three months I received 162 responses from 28 countries.

My questionnaire had four questions:

1. Where have you studied the double bass and with whom?
2. Are you a student or a professional?
3. What technical exercises and etudes have you used during your double bass studies?
4. What technical exercises do you use in your daily practicing?

¹² Monika Czaplicka is a CEO in Wobuzz – social media agency.

¹³ Questionnaire tool available on <https://www.typeform.com>.

1.- Where have yo...	2.- Are you a student...	3.- What technical ...	4.- What technical ex...	Start Date
		Flesch, Petracchi, George Vance, Jean-Marc Rollez, Real Book, Jamey Aebesold, Barry Harris		
Milano	professional	Caimmi, Mengoli, Bille, Petracchi, Kreuzer, Simandl	Caimmi, Petracchi, Mengoli	2014-12-02 17:14:53
Indiana University w/Bruce Bransby, Yale University w/Don Palma	student	Simandl Gradus Ad Pamassum, Findeisen	David Allen Moore nodes and frames packet, Rabbath Book III, 'Strokin' by Hal Robinson	2014-12-03 19:25:59
Manhattan School of Music, David J Grossman and Orin O'Brien and the Yale School of Music with Donald Palma. Additional teachers include David Neubert and Ricky Pringle	student	Simandl books I and II, 30 studies, and Gradus ad Pamassum, Sevcik, Storch Hrabe, Bradetich exercises, SCALES	I typically reduce difficult passages into patterns which I can modify with bowings and rhythms.	2014-12-06 16:50:28
Claus Fink, Darmstadt; Wolfgang Stert, Freiburg; Horst Stöhr, Hannover; Alfred Bürgschwendtner, Salzburg.	professional	Simandl, Findeisen, Hause	Hause, 90 Exercises (Volume 2 of his Complete Method); Simandl, 30 Exercises	2014-12-07 17:48:20
Barcelona with Ferran Sala	professional	Edouard Nanny, Streicher, Simandl	Streicher	2014-12-07 20:28:42
Oklahoma, USA with John Schimek and George Speed-Pennsylvania US with Jeffrey Turner-Michigan US with Diana Gannett	professional	Simandl books 1 and 2, Petracchi Simplified Higher Technique, Flesch Scale System, Bottesini 24 bowing exercises, George Vance series, Diana Gannett pedagogy series	"Phase" warm ups and scales from the Gannett books.	2014-12-12 00:59:40

Figure 15: Examples of responses

The first question (Where have you studied the double bass and with whom?) was important to know in which country and/or city respondent studied double bass and with what teacher. It was one of my assumptions to precisely match the place of studying and materials using for practicing. Knowledge of the teacher also pointed to the traditions or national schools with which they are associated. Because the British double bassist Duncan McTier was a professor at the Royal Academy of Music in London, the Zürcher Hochschule der Künstein Zürich and the Queen Sofia College of Music in Madrid, his way of playing influence students not only in Great Britain.

The second question (Are you a student or a professional?) was important to know on which level of professionalization respondents are. I assume that student are still in the process of finding the best exercises, whereas professionals, if they are using some for years, probably have found the most useful exercises and this selection is, in my opinion, more valuable.

Answers for the third question (What technical exercises and etudes have you used during your double bass studies?) should show how and if there is any dependence between country where respondent studied and books that he/she or teacher chose during the studies. Answers for the fourth question (What technical exercises do you use in your daily practicing?) will show what in the perspective of time respondent decided to choose for daily practicing, so what is the best for him/her.

2.2. Responses

I have got 163 responses. All are available in attachment 1. 57% of respondents are professionals, 43% students. They were from 28 countries: Austria, Belgium, Canada, Costa Rica, Croatia, Denmark, Finland, France, Germany, Great Britain, Greece, Honduras, Holland, Hungary, Italy, Israel, Mexico, Norway, Poland, Puerto Rico, Russia, Slovakia, South Africa, Spain, Sweden, Switzerland, USA and Venezuela.

Some responses were very precise, others more general. Sometimes respondents indicated only the name of composer so I had to find out what books he/she wrote. There was a group of double bassists who admit that they are not using any technical exercises. In some responses there was no books, names of composers pointed. Some double bassists to warm up practice only scales and arpeggios in different tempos, play open strings, with or without metronome, practice their own exercises, play intervals, practice articulations, chromatics, vibrato exercises, playing with piano or tuner for good intonation, intervals from current playing works, improvisations and long notes in different dynamics.

The questionnaire on the Internet was fruitful. I got many answers from all over the world from professionals and students. Responses show how similar double bassists work. Exercises that are used in Sweden are common also in USA, Russia or Puerto Rico. Despite similarities, differences between countries are also visible.

3. Materials for development double bass technique

From the beginning of playing on double bass students use different method books, schools and exercises. In the very beginning, it is very important with a teacher who creates a good environment for forming a new musician. Some teachers use specific method books, some not. They can mix various exercises from different sources to suit them to the student and her/his technical problems and their level of playing.

3.1. Method books and schools for double bass

There are a lot of old and new method books for playing on double bass. Some of them are designed for beginners and/or children. Some are for advanced players. Some are focused specifically on left or right hand technique.

I have systematized the most common method books and schools for double bass. I was searching for examples of method books, etudes and other technical exercises creating questionnaire and sending it to double bassists through the Internet. I have found a lot of examples in answers from the questionnaire. Names of composers are in alphabetical order and in brackets you will find dates of their living. In this chapter I have systematized and described them.

Methods and schools:

Nineteenth century:

- Hause, Wenzel (1764 - 1847) - *Methode complete de Contrebasse*, the 1st. ed. 1809. Wenzel may rightly be considered as a father of modern bass pedagogy. He was active in Bohemia, France and other European countries and made a big impact for the next generation of double bassists. His *Methode complete de Contrebasse* is 105 pages long, and was published several times in Germany, France and the United States. In my survey musicians from Greece, Germany and Costa Rica wrote that they use his books.
- Bottesini, Giovanni (1821 – 1889) - *Metodo Completo Per Contrabbasso* or *Method For Double Bass*, the 1st. ed. 1860. Bottesini is one of the most famous double bass virtuosos ever to have lived. In the age of 14, he entered the Milan Conservatory on a scholarship. He quickly became a virtuoso player and, after leaving the conservatory, established himself as an outstanding soloist. Bottesini performed throughout Europe and also toured America earning the nickname “Paganini of the double bass.” In later life he became a noted

conductor and composer, but it is for his double bass techniques that Bottesini is best remembered, and where he made his most significant contributions.¹⁴ His method book appeared in print between 1860 and 1970 in France, Italy and Great Britain. The value of Bottesini's method lies in the gradual progression from simple exercises in easy keys, to virtuoso studies that use advance bowing techniques and require a thorough knowledge of the instrument.¹⁵ The last edition is from 1981 Yorke Edition and is printed in two parts. This method book as well as other Bottesini exercises are according to my survey popular in USA, Canada, Great Britain, Israel and Costa Rica.

- Labro, Charles (1810-1882) – *Methode De Contre-Basse: Op. 119*, the 1st. ed. 1860. Labro was a doublebassist, composer and professor at the Paris Conservatory.¹⁶ Labro composed his method book in 1860¹⁷ It includes all basic information about double bass (construction), and lessons from beginning of contact with an instrument through all positions, techniques of right hand, articulations etc. According my survey Labro's book is used in USA.
- Montanari Carlo (1810 - 1853)¹⁸ - *Metodo per Contrabbasso : Con Relativi Esercizi in Tutti i Toni : Adottato nel R. Istituto Musicale di Parm.* Milano: F. Lucaa, 1st. ed. ca. 1864. Montanar was born in 1809 in Parma, Italy. In 1825 he joins the Ducale Orchestra and from 1851 he was a professor of Regia Scuola di Musica. His method book was used in almost all music schools in Italy.¹⁹ According my survey his work is used in Great Britain, Puerto Rico, USA and Canada.
- Simandl, Franz (1840-1912) - *New Method for the Double Bass*, Book 1²⁰, the 1st. ed. 1874. Born in Bohemia, Franz Simandl is one of the most influential double bass figure in the history of this instrument. More than one hundred years after his death *New Method* is still used as a standard study of technique and hand positions. There is no doubt that Frantisek Simandl was a pioneer of his time. He pushed the boundaries forward and his work helped succeeding generations of bassists to push them even further. Simandl was a double bassist,

14 “Giovanni Bottesini,” Oregon Symphony Program Notes by Elizabeth Schwartz, accessed April 26, 2016, <https://www.orsymphony.org/concerts/0809/programnotes/cl7.aspx>.

15 “Giovanni Bottesini,” accessed April 26, 2016, http://www.musicroom.com/se/id_no/065740/details.html.

16 “Charles Labro,” Bibliothèque nationale de France, accessed April 26, 2016, http://data.bnf.fr/14765606/charles_labro.

17 Auguste Louis Blondeau and Joël-Marie Fauquet, *Voyage d'un musicien en Italie (1809-1812): précédé des observations sur les theatres italiens*, (Liege: Editions Mardaga, 1993), 54.

18 Information from Mark Bernett on text message to author, April 6, 2016.

19 Grazia Elisa Caporali, Emilio Ghezzi and Gaspare Nello Vetro, *Il Conservatorio di Musica di Parma e le sue collezioni storiche*, (Parma, 2010), accessed April 26, 2016, <http://www.conservatorio.pr.it/doc/pubblicazioni/ilconservatorioelesuecollezioni.pdf>.

20 “Rabbath versus Simandl – a comparative study for double bass,” Jason Heath's Double-Bass Blog, accessed April 26 2016, <http://doublebassblog.org/2006/11/rabbath-versus-simandl-comparative.html>.

pedagogue, composer and soloist in Vienna's Imperial Opera, simultaneously a member of the Vienna Philharmonic Orchestra, Hofkapelle and from 1876 Principal Bass in Bayreuth's Wagner Festivals.²¹ Simandl wrote his method book for the Vienna Conservatoire, where he was a professor of the double bass, and it was first published in Vienna in 1874/5 and now is available in a number of editions and various languages. His method and books of studies marked a turning point in double bass teaching. He standardized much of the basic technique that we still use today and helped to increase the solo repertoire as a composer, transcriber and editor.²² More about his method book you can find in chapter 4.2. According to my survey Simandl's works are used in Sweden, Poland, USA, Russia, Honduras, Greece, Switzerland, Finland, Canada, Germany, Great Britain, Hungary, Italy, Spain, Holland, Mexico, Puerto Rico, Costa Rica and Israel, so in all countries from which I have got responses.

twentieth century:

- Caimmi, Italo (1889-1918) - *Metodo moderno per contrabasso : parte prima*, the 1st. ed. before 1912. The first method book of the Italian composer Caimmi was printed in Milano in the beginning of twentieth century and is 161 pages long. *Il Contrabbassista Moderno : Breve sunto sullo studio teorico-pratico degli armonici. Cognizioni utili al contrabbassista d'orchestra*. - second method book printed in 1941, 26 pages. According my survey Caimmi's works are popular in Great Britain, France, Italy, Switzerland and Germany.
- Černý, František (1861-1940) - *Moderne Kontrabas-Schule : verfasst von Fr. Černý*, Vol. 1-2. The 1st. edition was printed in Leipzig in 1906. Moreover he is an author of other technical exercises: *30 Études-Caprices* (1923) and *Technické studie v palcové poloze (Technical studies in the thumb position)* (1927). Černý was Czech double bassist, composer and teacher in Prague Conservatory. Respondents from Germany and Finland have indicated his works.
- Findeisen, Theodor Albin (1881 - 1936) - *Schule für Kontrabass, op. 17*, 1929.. Findeisen was an German double bassist, composer and teacher. His school for double bass is 44 pages long. According my survey Findeisen's works are used in Sweden, USA, Germany, France, Switzerland and Canada.

21 "Franz Simandl," A History of the Double Bass in 100 Pieces - Bass History facebook profile by David Hayes, accessed April 26 2016, <https://www.facebook.com/basshistory100>.

22 "Franz Simandl," A History of the Double Bass in 100 Pieces - Bass History facebook profile by David Hayes, accessed April 26 2016, <https://www.facebook.com/basshistory100/posts/1850243268535323>.

- Rossi, Luigi Felice (1805-1863) - *Esercizi per Contrabbasso Utili per L'Attacco Dell'arco : (Estratti dal Metodo) : Resi e Modernamente Diteggiati per Contrabbasso a 4 Corde da Isaia Bille, Milano 1932*. This Italian composer, theorist, musicologist and teacher is known from his opera “Gli avventurieri” and sacred music.²³ I haven't found more about his method book but according my survey it is used in USA.
- Gullbrandson, Knut (1892 - 1975) – *Kontrabas Skola*. According my survey this book of Swedish composer and double bassist is popular in Sweden. Six edition was published between 1941 and 1948. It's about 80 pages long and divided into two parts – the first included exercises from basics, the second – more advanced solo pieces.
- Montag, Lajos (1906 – 1998²⁴) *Nagybőgőiskola: (gordoniskola) = Kontrabass-Schule = Double Bass Method*. vol. 1. Budapest: Editio Musica, 1955. vol. 2. 1956, vol. 3a. 1960, vol. 3b. 1966, vol. 3c. 1967, vol. 4.1976, vol. 5. 1982. Montag was a Hungarian double bassist, renowned as principal bass of the opera and professor of double bass at the Budapest Conservatory. He was widely known throughout Europe as an exceptional player.²⁵ His “Double Bass Method” has five volumes. The first volume is intended for beginners of their first year of study. It comprises exercises based on three positions. What is important, Montag draws attention to the orchestral function of an instrument, and composed exercises similar in their structure to orchestral parts of the double bass at the same time as they help studying the basic skills. An important part of the method book are scales because it demands a different fingering practically for every scale. Summarizing, by using Montag's book, students will develop the theoretical and practical knowledge of the positions, the sureness in the positions and the correct execution of shifts. The second part of the method covers study of the IV to VII positions, major and minor scales and a more difficult selection of orchestral examples, and solo pieces. In this way, the book enables the student simultaneously to developed technique, expression and musical taste. In his books Montag included some music of Hungarian character, but as he mentioned “I have been careful however to choose only pieces which reconcile the characteristics of Hungarian music with the peculiar genius of the instrument.”²⁶ I haven't found any more information about other volumes of his method books. According my survey Montag's books are used in Hungary

23 “Luigi Rossi,” a biography by Joseph Stevenson, accessed April 26 2016, <http://www.allmusic.com/artist/luigi-felice-rossi-mn0001683693>.

24 “Lajos Montag,” accessed April 26, 2016, <http://www.billbentgen.com/bass/players/montag.htm>.

25 “Lajos Montag,” accessed April 26, 2016, <https://robertmeyer.wordpress.com/2006/11/19/professor-lajos-montag>.

26 “Lajos Montag Nagybőgőiskola: (gordoniskola),” Lemur Music shop, accessed April 26, 2016, <http://www.lemurmusic.com/Lajos-Montag-Double-Bass-Method-Vol-2/productinfo/B401>.

and South Africa.

- Eichstädt, Józef (1906 - 1966)²⁷ - *Szkola na kontrabas cztero- i pięciostunowy, cz. I oraz II (The school for four and five string double bass vol. I and II)*, the 1st. ed. 1959. It's a school for beginners written by the Polish double bassist and teacher Józef Eichstädt. The first part is 111 pages long plus piano supplement. It contains a lot of basic information including photos of instrument, correct holding of instrument, posture, bow-holding. Exercises from open strings to fifth position including short melodies. The second part discusses issues from sixth position and more advanced exercises. According my survey Eichstädt's books are used in Poland.
- Toshev, Todor (1919 – 1993)²⁸ - *Nachalna Shkola Za Kontrabas; Tekhnicheski Uprazhneniia Za Kontrabas*, the 1st. ed. 1959. Bulgarian double bassist Toshev was the first professor of this instrument in Bulgaria. After studied in Sofia with Asen Vapordjiev and in Prague with Nany and Shoreis he came back to homeland and created the Bulgarian school of double bass. He was popular soloist and teacher. His methods are still in use and promoted by his former students and his contribution to the development of the double bass technique is major.²⁹ According to my survey the book is used in Switzerland, Finland, Germany and Mexico.
- Hertl, František (1906 – 1973) - *Škola Hry Na Kontrabas: = Elementarschule Für Kontrabaß*, the 1st. ed. 1962. Hertl was the Czech double bassist, composer and conductor. He was a student of Frantisek Cerny at the Prague Conservatoire. In 1929 he become the Principal Bass of the Czech Philharmonic Orchestra and then from 1935-50 he was a member of the Czech Radio Symphony Orchestra. His is the most popular composition for double bass is Sonata for double bass and piano from 1946. In his last years he helped to build and develop the Brno School of Double Bass. According to various sources Frantisek Hertl was an excellent teacher and educator, and many of his students achieved a high performance standard and international reputation. From 1951 until his death, he taught at the Prague Academy of Musical Arts, Czechoslovakia's most important musical educational institution, and from 1954-61 at the Janacek Academy of Music in Brno. Hertl was dedicated to improve the standard of double bass playing and in the early 1960s composed his 'Method for Double Bass', published in 1962 by Editio-Supraphon, which draws on the

27 Information from Donat Zamiera on text message to author, February 7, 2016.

28 *Wikipedia*, s.v. "Todor Toshev," last modified January 7, 2015, https://en.wikipedia.org/wiki/Todor_Toshev.

29 *Wikipedia*, s.v. "Todor Toshev," last modified January 7, 2015, https://en.wikipedia.org/wiki/Todor_Toshev.

previous methods by František Simandl and František Cerný. '20 Studies for Double Bass' was published in 1965 and both works became a core part of standard teaching material in Czech music school.³⁰ His school was printed in Prague in six editions. According to my survey Hertl's work is used in Slovakia.

- Walter, David (1913 - 2003) - *The Melodious Bass*. New York: Amsco Music, 1964.³¹ Walter was one of America's leading double bass teacher and double bassist. His volume of solos titled *The Melodious Bass* is widely used by students and teachers.³² It's 96 pages long and according to my survey is used in USA.
- Rabbath, François (b. 1931) *Nouvelle Technique De La Contrebasse: Introduction to the Art of the Bow, Nouvelle Technique De La Contrebasse: Methode Complete Et Progressive = a New Technique for the Double Bass : a Comprehensive Tutor*, 1977. Rabbath, born in Syria, is a French double bassist, soloist, and composer. He is one of the most influential double bassist. The importance of François Rabbath to the development of double bass playing can be compared with that of Paganini to the violin. In the 19th century the development of double bass playing had been seriously neglected. "It demanded an artist with the unique qualities of François Rabbath to break this impasse."³³ More about his method book in the section 4.4. According to my survey Rabbath's method is used in USA, Sweden, Puerto Rico, Israel, Canada, Greece, Great Britain and Mexico.
- Starker, Janos (1924 – 2013) and Murray Grodner (b. 1921) - *An organized method of string playing: double bass exercises for the left hand*, 1977. Janos Starker was a Hungarian-American cellists, soloist and for over fifty years a professor of cello at the Jacobs School of Music at Indiana University.³⁴ Murray Grodner is Professor Emeritus of double bass at the same institution. Grodner was also an orchestra musician and the president and founder of Lemur Music, a company that served double bassists worldwide. He is the author of several publications, including the books *Comprehensive Catalog of Music, Books, Recordings & Videos for the Double Bass* and *A Double Bassist's Guide to Refining Performance Practice*.³⁵ The Starker's and Grodner's book contains a lot of basic exercises including:

30 "František Hertl," biography by David Heyes, accessed April 26, 2016, <http://www.contraclassics.com/browser/composer:1790>.

31 "David Walter," Liben Music Publisher, accessed April 26 2016, <https://www.liben.com/walter.html>.

32 "David Walter," The Juilliard School, accessed April 26 2016, http://weblibrary.juilliard.edu/pathfinders/walterdavid/walter_ead_20090325_1344.html.

33 "Francoise Rabbath," a biography of Rabbath by Franc Proto, accessed April 26, 2016, <http://www.liben.com/FRBio.html>.

34 *Wikipedia*, s.v. "János Starker," last modified March 24, 2016, https://en.wikipedia.org/wiki/J%C3%A1nos_Starker.

35 George Walker, *Double Bassist and Professor Emeritus Murray Grodner*, last modified September 15 2014, accessed April 26 2016, <http://indianapublicmedia.org/profiles/double-bassist-murray-grodner>.

trills, double stop trills, moving up and down the strings doing patterns in series across the strings and the double stop patterns. According to my survey this book is used in Sweden.

- Streicher, Ludwig (1920 - 2003) - *Mein Musizieren Auf Dem Kontrabass: Anweisungen Und Ratschläge Für Den Beginnenden Und Den Fortgeschrittenen Kontrabassisten = My Way of Playing the Double Bass : Instruction and Advice for the Beginning and Advanced Double Bassist*. 5 vols, 1977. Streicher is a very well known in Europe double bassist from Vienna, the former principal bass of Vienna Philharmonic Orchestra. Moreover he was a famous soloist and the author of double bass books. Streicher was a professor at the Vienna Musical Theater Academy and at the Escuela Superior de Música Reina Sofía (Queen Sofía College of Music) in Madrid.³⁶ His method book, according to my survey is used in Austria, Denmark, Hungary, Spain, Poland and Belgium. More about the book you can find in the chapter 4.3.
- Petracchi, Francesco (b. 1937) - *Simplified Higher Technique*, 1982. Petracchi is a well known Italian double bass soloist, composer, conductor and teacher. His *Simplified Higher Technique* is probably one of the most popular method books for double bass. His method to interpret, synthesize, and formalize the double bass technique brought it up to the level of other string instruments.³⁷ In his method he uses thumb as an equal finger from 5th position. More about this book in the section 4.4. According to my survey Petracchi's book is very widespread all over the world. Respondents from Israel, Sweden, Poland, Austria, USA, Italy, Great Britain, France, Switzerland, Finland, Canada, Germany, Croatia, Mexico, Puerto Rico, Costa Rica are using it.
- Rollez, Jean-Marc (b. 1931) - *Methode De Contrabasse: Le Contrebassiste Virtuose*, Paris: G. Billaudot, 1997, *Methode De Contrebasse: Exercices De Chromatisme Et De Changement De Corde*, Paris: G. Billaudot, 1983. Rollez is a French double bassist, soloist and professor.³⁸ The first book is based on 21 exercises in all scales. All fingerings are labeled. His method books are used in USA, France, Holland, Venezuela and Switzerland.
- Trumpf, Klaus (b. 1940) - *Kompendium Der Kontrabass-Bogentechnik (Compendium of Bowing Techniques for the Double Bass)*. 2 vols, 1986. Trumpf is a German professor of double bass at the University of Music and Performing Arts Munich and former principal of

36 *Wikipedia*, s.v. "Ludwig Streicher," last modified February 24, 2016, https://en.wikipedia.org/wiki/Ludwig_Streicher.

37 "Francesco Petracchi – biography," accessed April 26, 2016, <http://www.francopetracchi.com/biography.htm>.

38 *Wikipedia*, s.v. "Jean Marc Rollez," last modified August 20, 2014, https://fr.wikipedia.org/wiki/Jean-Marc_Rollez.

Berlin State Opera. He is also a soloist and researcher of Johann Matthias Sperger double bass works.³⁹ In the following book can be find fundamentals of bowing technique, scales, scales in thirds and triads. According to my survey the book is used in Sweden and Venezuela.

- Morton, Mark (b. 1962) - *Dr. Morton's Double Bass Technique: Concepts and Ideas*, 1991. Morton is an American double bassist, nowadays working as the Assistant Professor of Double Bass at Texas Tech University, Principal double bassist of the Lubbock Symphony Orchestra, and the Artistic Director of The American School of Double Bass.⁴⁰ His method book is intended for beginners, teachers and more advanced students. The book has a practical approach and the careful analysis given to each aspect of the double bass. It contains topics such as: posture, fingerings, shifts, vibrato, string crossings, bow action, articulations etc.⁴¹ According to my survey his book is used in USA.
- Suzuki, Shinichi (1898 – 1998) - *Suzuki Bass School*. 3 vols, 1991. Suzuki is well known violinist and founder of Suzuki Method which assumes that children can learn to play a musical instrument (or anything else) in the same way that they first learn language.⁴² The books are intended for small kids (in Suzuki Method music education starts in age 3-4) and contain simple songs such as “Twinkle, Twinkle, Little Star”, folk songs and small compositions of Suzuki.⁴³ According my survey Suzuki's books are used in USA and Israel.
- Dehant, Jean-Loup⁴⁴ - *La Contrebasse Classique; Ma Première Année de Contrebasse*, 1992. This method book of the contemporary French composer Dehant is intended for begginers and contains exercises in first positions, basic knowledge of bowing, articulations and simple pieces. According my survey the book is mainly used in France.
- Karr, Gary (b.1941) - *The Gary Karr Doublebass Book*. (3 vol.), 1996. American double bassist Karr is one of the most popular and recognized soloist and the first double bassist in history to make that pursuit a full-time career.⁴⁵ The book 1 of his method focuses on bass posture, bow placement and bow speed. It contains many photographs. The

39 “Klaus Trumpf,” accessed April 26 2016, <http://www.klaus-trumpf-sperger.de>.

40 *Wikipedia*, s.v. “Mark Morton”, last modified November 18, 2015, [https://en.wikipedia.org/wiki/Mark_Morton_\(double_bassist\)](https://en.wikipedia.org/wiki/Mark_Morton_(double_bassist)).

41 “Dr. Morton’s Double Bass Technique: Concepts and Ideas,” Lemur Music shop, accessed April 26, 2016, <http://www.lemurmusic.com/Dr-Mortons-Double-Bass-Technique/productinfo/B99>.

42 “Shinichi Suzuki – A Short Biography”, accessed April 26 2016, <http://internationalsuzuki.org/shinichisuzuki.htm>.

43 “Suzuki Bass School,” accessed April 26 2016, <http://www.sheetmusicplus.com/title/suzuki-bass-school-volume-1-sheet-music/4961909>.

44 I have not found dates of living.

45 “Gary Karr biography,” accessed April 26, 2016, <http://www.garykarr.com>.

first volume is intended for beginning bassists. The book 2 introduces an electric bass style fingering system that is user-friendly. It focuses on bowing technique and contains lots of photos. Volumes 1 and 2 are necessary prerequisites for volume 3 that contains many new fingering ideas with an emphasis on bowing.⁴⁶ According to my survey Karr's book is used in Austria, Canada, USA, Mexico and Sweden.

21st century:

- Levinson, Eugene - *A School of Agility: A Technical Method of the Scale System for String Bass*^{47,48}, 2002. Born in Ukraine, Levinson became a Principal Bass of the New York Philharmonic in 1985 and in the same year he joined The Juilliard School as a professor.⁴⁹ He is a world-class soloist and one of the foremost and world-renowned double bass teachers. The main aim of Levinson's book is to introduce the modern bass player to a wide range of fingerings that will enhance the left hand's agility upon the fingerboard of the bass.⁵⁰ In the book there are 24 major and minor scales and their respective arpeggios. Within each scale there are a variety of different fingerings which facilitate the shaping of musical phrases by creating smoother transitions from one position or string to another.⁵¹ According to my survey this method book is popular in Sweden and Venezuela.
- Pärssinen, Panu (b.1967) – *Kontrabassokirja*, 2011. Pärssinen is a Finish double bassist, composer, soloist, teacher and member of Tapiola Sinfonietta.⁵² His method book includes 101 exercises and issues about posture, right and left hand technique etc.⁵³ According to my survey the book is used in Finland and Switzerland.

3.2. Scales and arpeggios

Scales and arpeggios are fundamental exercises for every musician. For many of instrumentalists it's one of the first things they played. Scales develop good musical ear, sense of

46 "The Gary Karr Double bass Book (3 vol.)," Lemur Music shop, accessed April 26, 2016, <http://www.lemurmusic.com/Gary-Karr-Method-Books/products/197>.

47 *Wikipedia*, s.v. "Eugene Levinson," last modified March 18, 2016, https://en.wikipedia.org/wiki/Eugene_Levinson.

48 "Eugene Levinson," accessed April 26, 2016, <http://www.juilliard.edu/faculty/eugene-levinson>.

49 "Eugene Levinson," accessed April 26, 2016, <http://bcms.colourprep.com/about/artists/eugene-levinson.php>.

50 Eugene Levinson, "Preface," in *A School of Agility: A Technical Method of the Scale System for String Bass* (Michigan: Carl Fisher, 2002), 3.

51 Levinson, "Preface," 3.

52 Juha Kleemola, *Erilaisia opettajia– erilaisia metodeja. Tutkielma Michael Wolfin, Panu Pärssisen ja Duncan McTierin kontrabassokirjoista*, (The Sibelius Academy, 2010), accessed April 26, 2016, <http://ethesis.siba.fi/files/nbnfife201101241131.pdf>.

53 "Panu Pärssinen *Kontrabassokirja*," accessed April 26, 2016, http://www.levykauppax.fi/book/parssinen_panu/kontrabassokirja_kontrabasboken.

tonality, pitch and intervals. In my survey respondents often indicated to scales as an exercise in their every day practice routine.

There are plenty of scales books. In mostly of method books scales are also available. However I decided to present a few publications particularly intended for double bass. The list below presents books that was mentioned by respondents in my survey.

- Simandl, Franz - *Flageolet, Arpeggio, Doppelgriffe Und 2 Konzert-Etuden Mit Pianoforte: Harmonics (Arpeggios, Double-Stopping and 2 Solo-Studies with Pianoforte-Accompaniment)*, 1900.
- Caimmi, Italo - *Scale, Essercizi e Studi per Contrabasso*. Milano: R. Fantuzzi, 1902.
- Chomenko, Wiktor - *Nowa aplikatura gam i pasaży na kontrabas (The New fingering of scales and arpeggios for double bass)*,
- Gadziński, Wiktor – *Gamy i pasaże na kontrabas (Scales and arpeggios for double bass)*, PWM Edition, Kraków, 1981.
- Streicher, Ludwig - *Tonleiter Und Akkordstudien: Fur Kontrabass (Scale and Chord Studies: for Double Bas)*, Wien: Doblinger, 2000.
- Robinson, Harold – *Boardwalkin Scales and Arpeggios*⁵⁴

3.3. Etudes, caprices

More advanced double bass technical exercises are etudes. In the romantic period soloistic, virtuosic etudes were called caprices. Caprices are usually fairly free in form and of a lively character. Term *capriccio* in eighteenth century was sometimes used to indicate a cadenza. Often written out in full, such passages were occasionally published as separate pieces in their own right, usually as virtuoso technical studies.⁵⁵

Etudes can be intended for beginners or more advanced players. They are usually designed to solve specific technical problems such as intonation, rhythmic, shifting, thumb positions, bow distribution, string crossing, dynamic, vibrato, double-stops etc. A French term *étude* means study.

⁵⁴ "Scales for Double Bass," accessed April 26, 2016, <http://www.doublebassexcerpts.com/scales-double-bass>.

⁵⁵ *The Oxford Companion to Music*, s.v. "capriccio."

The study was designed to encourage amateurs by wrapping up the necessary technical practice in a piece that was interesting to play and tolerable to listen to. Studies were popular since nineteenth century, and in twentieth century were written both for professional concert use and for private amateur practice for any instrument.⁵⁶ There is a huge collection of etude book editions. Below I am presenting books written down by respondents in my survey.

Nineteenth century

- Hrabě, Josef (1816-1870) - *86 Etueden Für Kontrabass*. Edited by Franz Simandl, 2 vols. Leipzig: C. Merseburger, n.d.; - *86 Etudes for String-Bass*. 2 vols. Edited by Franz Simandl. New York: Carl Fischer, 1940, 1959. Hrabě was a Czech double bassist, teacher and composer. He build and develop the Prague School of Double Bass. He was a professor at the Prague Conservatoire and well known soloist.⁵⁷ According to my survey his works are used in Poland, USA, France, Great Britain, Venezuela, Puerto Rico, Canada, South Africa, Costa Rica, Sweden, Russia, France, Switzerland, Finland and Germany.
- Labro, Charles (1810-1882)⁵⁸ - *30 Grandes Etudes Pour La Contre-Basse, Op. 74: Avec Accompagnement De Violoncelle*. Edited by Schaft. Paris: Philippo, 1860;⁵⁹ According my survey Labro's works are used in USA.
- Mengoli, Annibale (1851 — 1895) - *20 Studi di Concerto per Contrabasso / di Mengoli Annibale Professore al Liceo Musicale di Torino*. Torino : Francesco Bianchi, ca. 1860 (and in many more reprints). Mengoli was an Italian double bassist and teacher. He is mainly known from book of twenty concerto studies requiring broad range of skills from double bassists. According to my survey his studies are used in Sweden, France, Switzerland, Finland, Germany, Italy, Great Britain, Venezuela and Costa Rica.
- Simandl, Franz (1840-1912)⁶⁰ According to my survey Simandl's works are used in Sweden, Poland, USA, Russia, Honduras, Greece, Switzerland, Finland, Canada, Germany, Great Britain, Hungary, Italy, Spain, Holland, Mexico, Puerto Rico, Costa Rica and Israel.

– *10 Kleinere Etuden*. Wien: M. Kramer, [188-]

– *30 Etudes for the String Bass*. New York: C. Fischer, [19-]

⁵⁶ *The Oxford Companion to Music*, s.v. “etude.”

⁵⁷ “200 let od narození hudebníka Josefa Hraběte,” Malostranský hřbitov, accessed April 26 2016, <http://www.malostranskyhrbitov.cz/products/a200-let-od-narozeni-hudebnika-josefa-hrabete>.

⁵⁸ Charles Labro biography available in the chapter 2.1.

⁵⁹ “Charles Labro,” Academic Bass Portal, accessed April 26 2016, http://academicbassportal.com/05m/01cp/01cp4/labr_c.

⁶⁰ Franz Simandl biography available in the chapter 2.1.

- *30 Etuden Für Dern Contrabass*. Heilbronn: C.F. Schmidt, [19–]
- *30 Etudes for the String Bass: For the Acquisition of Correct and Broad Intonation Together with Rhythmic Precision*. New York: Fischer, 1940.
- *30 Studies for String Bass*. Edited by Frederick Zimmermann. New York City: International Music Co, 1956.
- *Gradus Ad Parnassum Fur Kontrabass: 24 Etuden. Heft 1-2*. 2 vols. Leipzig: Carl Merseburger, [19–]
- *Gradus Ad Parnassum: Fur Kontrabass : 24 Etuden Zur Hoheren Technischen Ausbildung*. Leipzig: F. Hofmeister, 1935.
- *Gradus Ad Parnassum: 24 Studies for String Bass*. Edited by and Frederick Zimmermann. 2 vols. New York City: International Music Co, 1957.
- *Gradus Ad Parnassum: 14 Etudes / Franz Simandl*. 2 vols. New York, NY: Belwin-Mills Publishing Corp, 1957.
- *Gradus Ad Parnassum: Für Kontrabass*. 2 vols. Edited by Konrad Siebach. Leipzig: F. Hofmeister, 1966.
- *Gradus Ad Parnassum: 14 Etudes for the String Bass*. Melville, N.Y: Belwin Mills, 1970.
- Kreutzer, Rodolphe (1766 – 1831) Kreutzer was a French violinist, teacher, conductor, and composer. He was well known for his style of bowing, his splendid tone, and the clearness of his execution. He popular from his the *42 études ou caprices (42 Études or Capriccios, 1796)* which are fundamental pedagogic studies.⁶¹
Arrangement of his etudes and capricos for double bass was made by Franz Simandl, Frederick Zimmermann, Angelo Cuneo and Rudolf Malaric. According to my survey Kreuzer etudes are used in Puerto Rico, USA, Canada, Switzerland, Great Britain, Sweden, Poland, France, Switzerland, Finland, Germany, Italy, Croatia and Mexico.
- *18 Etüden für Contrabass*. Arranged by Franz Simandl. Heilbron: C.F. Schmidt, n.d.
- *18 Etudes Pour La Contr-Basse Avec Accompagnement De Piano*. Transcribed by Franz Simandl. Vienne: M. Kramer, 1888.

⁶¹ *Wikipedia*, s.v. “Rodolphe Kreutzer,” last modified March 6, 2016, https://en.wikipedia.org/wiki/Rodolphe_Kreutzer.

- *18 Studies for String Bass*. Transcribed by Franz Simandl, and edited by Frederick Zimmermann. New York: International Music Co, 1950.
- *Achtzehn Etüden Nach Dem Original Der Violinetüden*. Edited by Heinz Herrmann. Leipzig: F. Hofmeister, 1955.
- *60 Variations per Studio di Kreutzer*. Arranged by Angelo Cuneo. Manuscript, n.d.
- *Etüden für Kontrabass. Etudes pou Contrebasse*. Arranged by Rudolf Malaric. Wien: Efiton, 1948
- Kreutzer, Rodolphe (1766 - 1831) and Fiorillo Federigo (1755 – 1823) - *45 Uebungen Für Kontrabass: Mit Benutzung Von 20 Etuden Kreutzer's, Fiorillo's Und Anderer Meister (45 Exercises for the Double Bass: with 20 Transcriptions from Kreutzer, Fiorillo and Other Masters)* 2 vols. Arranged and Edited by Lucian Dereul, Hannover: Louis Oertel, [19–]
- Kreutzer, Rodolphe (1766 - 1831) and Fiorillo Federigo (1755 – 1823) - *Etudes De Kreutzer Et De Fiorillo: Transcrites Et Doigtees Pour La Contrebasse À Cordes Et Precedees De Quatre Etudes Preparatoires*. Edited by Edouard Nanny. Paris: Alphonse Leduc, 1921.
- Gouffé, Archille H. V. (1804-1874) Gouffé was an important figure in nineteenth century Parisian musical life. He composed a number of works for double bass.⁶² According to my survey his works are used in France and Switzerland.
 - *12 Exercises Dans Tous Les Tons Pour Contrebasse Seule*. Paris: Richault et Cie, n.d.
 - *Traité sur la Contre-Basse à quatre Cordes*

twentieth century:

- Storch, Josef Emanuel (1841-1877) Storch was a German double bassist and composer, member of the Leipzig Gewandhaus Orchestra.⁶³ According to my survey Storch's works are used in Sweden, Poland, Spain, USA, Russia, Honduras, Canada, Finland, Germany, Great Britain, Croatia, Venezuela, Puerto Rico and Costa Rica.
 - *Etudes for the String Bass*. 2 vols. Melville, N.Y: Belwin Mills Publ. Co, 1900, 1950

⁶² “Achille Gouffé,” accessed April 26 2016, <http://www.prestoclassical.co.uk/sm/category1%7CDouble+Bass~composer%7C34834-b>.

⁶³ “Josef Emanuel Storch,” Bill Bentgen's Website, accessed April 26 2016, <http://www.billbentgen.com/bass/players/others.htm>.

- *25 Etüden Für Kontrabass*. Edited by Konrad Ziebach. Leipzig: F. Hofmeister, 1960
- *32 Etüden Für Kontrabass*. Edited by Konrad Siebach. Leipzig: Hofmeister, 1959,1984.
- Storch, Josef Emanuel (1841-1877) and Hrabě, Josef (1816 – 1870)
 - *Etuden Für Kontrabass*. Arranged and Edited by Theodore A. Findeisen. 2 vols. Heilbronn: C.F. Schmidt, 1912.
 - *57 Studies in Two Volumes: For String Bass*. Revised by Albin Findeisen. Edited by Frederick Zimmermann. 2 vols. New York: International, 1948.
 - *32 Etudes for String Bass*. vol. 1. United States: Kalmus, Miami, Fla. : Warner Bros. Publications, 2003.
 - *25 Etudes for String Bass*. vol. 2. United States: Kalmus, Miami, Fla. : Warner Bros. Publications, 2003.
- Bille, Isaia (1874-1961) Italian double bassist, composer, teacher and the first double bass soloist in the main orchestras in Italy (La Scala in Milan and the Rome Opera).⁶⁴ He is an author of popular studies for double bass available in many reprints. According to my survey Bille's books are used in Poland, USA, Canada, Italy, Puerto Rico, Costa Rica, Great Britain and Switzerland.
 - *Sei Studii Caratteristici: Per Contrabbasso a 4 Corde*. Milano: G. Ricordi, 1927, 1956.
 - *12 Studies in Different Styles for Double Bass*. Philadelphia: Elkan-Vogel, 1948.
 - *18 [i.e., Diciotto] Studi in Tutti I Toni Per Contrabbasso D'orchestra a 4 E 5 Corde =: 18 Studies in All Keys for 4 and 5 Stringed Double Bass*. Milan: Ricordi, 1949. 1968, 1973, 1982, 1992, 2000, 2009.
 - *21 Piccoli Studi Melodici: In Tutti I Toni: Per Contrabbasso*. Milano: Ricordi, 1927.
 - *24 Studi-Capricci: Per Contrabbasso a 4 Corde (24 Studies-Caprices for 4 Strings Double Bass)*, Milano: Ricordi, 1921, 1955, 1971.
- Nanny, Edouard (1872 – 1942) Nanny was a French double bassist, teacher, and composer. He was a longtime professor of double bass at the Paris Conservatory.⁶⁵ His *Ten Etudes* according to my survey are used in Poland, Spain, USA, France, Greece, Switzerland,

⁶⁴ "Isaia Bille," accessed April 26, 2016, [http://www.treccani.it/enciclopedia/isaia-bille_\(Dizionario_Biografico\)](http://www.treccani.it/enciclopedia/isaia-bille_(Dizionario_Biografico)).

⁶⁵ "Edouard Nanny," accessed April 26 2016, <http://doublebass.website.free.fr/bio/enanny.php>.

Canada, Holland and Mexico.

- *Vingt Etudes De Virtuosite*. Paris: Alphonse Leduc, 1921.
- *Dix Etudes Caprices*. Paris: Alphonse Leduc, 1931, 1946, 1994.
- Caimmi, Italo (1889-1918)⁶⁶ According my survey Caimmi's works are popular in Great Britain, France, Italy, Switzerland and Germany.
 - *La Tecnica Superiore Del Contrabbasso: 20 Studi (Advanced Technique of the Double Bass : 20 Studies)*. Milano: G. Ricordi & C, 1924, 1954, 1979, 1995.
- Černý, František (1861-1940)⁶⁷ According to my survey his books are used in Finland and Germany.
 - *30 Etudes-Caprices Contrebasse*. Prague: Edition Neubert, 1927, 1961.
 - *Technicke Studie: Pro Kontrabas = Technische Studien Fur Kontrabass*, 1968, 1979, 1983, 2004.
- Montanari, Carlo (1809 - 1853)⁶⁸ According to my survey his work is used in Great Britain, Puerto Rico, USA and Canada.
 - *14 Esercizi per Contrabasso*. Milano, G. Ricordi, [191-]
 - *Quattordici Studi Per Contrabbasso*. Edited and Transcribed for a 4 String Bass by Isaia Billé. Milano: Ricordi, 1932
 - *Esercizi e Studi in Tutti i Toni per Contrabbasso : (estratti dal metodo)*. Edited by Isaia Bille. Milano : G. Ricordi e C., 1939.
 - *Etiudy Na Kontrabas*. Katowice: Druk. Panstw. Przeds. Fotogrametrii i Katograf, 1950.
 - *14 Studi Per Contrabasso (14 Studies for Double Bass)*. Edited and Transcribed for a 4 String Bass by Isaia Billé. Milano: Ricordi, 1959.
 - *14 Studies for String Bass*. Edited by and Homer R. Mensch. New York: International Music Co, 1974.
- Montag, Lajos (1906 – 1998)⁶⁹ According my survey Montag's books are used in Hungary

66 Italo Caimmi biography available in the chapter 2.1.

67 František Černý biography available in the chapter 2.1.

68 Carlo Montanari biography available in the chapter 2.1.

69 Lajos Montag biography available in the chapter 2.1.

and South Africa.

- *3 Etüden Für Den Contrabass: Zur Förderung Der Bogentechnik*. Budapest: Rozsavolgyi, 1930.
- *Etude Per Contrabasso E Pianoforte*. Budapest: Editio Musica, 1965.
- Bottesini, Giovanni (1821 – 1881)⁷⁰ According to my survey Bottesini's books are used in USA, Canada, Israel, Costa Rica and Great Britain.
 - *Trentasei Studi per Contrabbasso Estratti dalla 1. Parte del Metodo*. Milano : Ricordi, 1936.
 - *24 Exercises for Double Bass*. Edited by H. Samuel Sterling. London: Stainer & Bell, 1953,1997.
- Findeisen, Theodor Albin (1881 – 1936)⁷¹ According my survey Findeisen's works are used in Sweden, USA, Germany, France, Switzerland and Canada.
 - *25 Technical Studies: Opus 14, for String Bass*. Edited by Frederick Zimmermann. New York City: International Music Co, 1957.
 - *25 Technische Studien : op. 14*. Bad Aibling : CEFES – C. F. Schmidt, 2014.
- Pelczar, Tadeusz (1921 - 1994) – *Album Kontrabasisty (The Album of Doublebassist)* According to my survey Pelczar's book is used in Poland.
- Bergh, Harris V. (1914 - 2005) - *String Positions*. Evanston: Summy-Birchard, 1958. The book of this American double bassist according to my survey is used in the USA.
- Poradowski, Stefan Boleslaw (1902 - 1967) – *3 Kaprysy na kontrabas solo (3 Caprices for Double Bass Solo)*, 1960. According to my survey his *3 Caprices* are used by double bassists in Poland and Spain.
- Gadziński, Wiktor (1909 - 1995) – *Wybór etiud na kontrabas (Selected Etudes for Double Bass)*. 1963. Gadziński was a Polish composer, double bassist and professor at the Academy of Music in Katowice. According to my survey and my own experience his *Selected Etudes* are common used in Poland.
- Ruhm, Otto (1906-1979) - *Progressive Etüden Für Kontrabass*. 5 vols. Wien: Verlag

⁷⁰ Giovanni Bottesini biography available in the chapter 2.1.

⁷¹ Theodor Albin Findeisen biography available in the chapter 2.1.

Doblinger, 1964. Ruhm was an outstanding pedagogue and long-time principal contrabassist with the Wiener Philharmoniker.⁷² According to my survey Ruhm's book is used in Canada.

- Zimmermann, Frederick (1906-1967) - *A Contemporary Concept of Bowing Technique for the Double Bass*, 1966. Zimmermann was an American double bassist and teacher. He played in the New York Philharmonic from 1930-1966 as an assistant-principal and principal.⁷³ In his "A New History of the Double Bass", Paul Brun describes Zimmermann as „the father of bass teaching in the United States".⁷⁴ In „*A Contemporary Concept...*” you can find etudes constructed on the basic patterns and permutations of their elements, bowings and etudes build on the bowing patterns, examples from etudes, orchestral passages, and materials from the solo repertoire and graphic bowing charts.⁷⁵ Discussed book, according to my survey is used in USA, Mexico and Costa Rica.
- Weber, Alain (b. 1930) - *Quinze Etudes Rythmiques Et Melodiques Pour La Contrebass (Fifteen Rhythmic and Melodic Studies for Double Bass)*, 1970. 15 Rhythmic And Melodic Studies addresses a range of advanced techniques, including chromaticism, complex rhythms, varying time signatures, articulation, bowings and double stops, amongst other aspects.⁷⁶ His book was mention in my survey by respondents from France and Switzerland.
- Hertl, František (1906-1973)⁷⁷ - *20 Studii Pro Kontrabas (20 Etudes for Contrabass) : (1965)*. Praha: Panton, 1972.⁷⁸ According to my survey his works are used in Slovakia.
- Ševčík, Otakar (1852 – 1934) Ševčík is very well known author of method of violin playing. His violin studies and violin methods were published in several books and are still important as major teaching tools.⁷⁹ Ideas of this Czech composer and teacher were successfully introduced to other string instruments including double bass. The well-known 40 variations have been available for quite some time as transcriptions for viola and cello, as well as the

72 “Six members entered into retirement,” Wiener Philharmoniker, last modified October 27, 2003, accessed April 26 2016, <https://www.wienerphilharmoniker.at/orchestra/philharmonic-journal/year/2003/month/10/blogitemid/21>.

73 “Frederick Zimmermann Papers,” Columbia University, accessed April 26 2016, <http://www.columbia.edu/cu/lweb/eresources/archives/rbml/Zimmermann/main.html>.

74 Brun, *A New History of the Double Bass*, 207.

75 “A contemporary Concept of Bowing Technique for the Double Bass by Frederick Zimmermann,” Lemur Music shop, accessed April 26 2016, <http://www.lemurmusic.com/Zimmermann-A-Contemporary-Concept-of-Bowing/productinfo/B20>.

76 “Alain Weber: 15 Rhythmic And Melodic Studies (Double Bass),” Presto Classical, accessed April 26 2016, <http://www.prestoclassical.co.uk/sm/7378426>.

77 František Hertl biography available in the chapter 2.1.

78 “František Hertl: Sonata,” Liuzzi Vito The Double Bass Blog, accessed April 26 2016, <http://liuzzivito.blogspot.se/2014/10/frantisek-hertl-sonata.html>.

79 *Wikipedia*, s.v. “Otakar Ševčík,” last modified March 8, 2016, https://en.wikipedia.org/wiki/Otakar_%C5%A0ev%C4%8D%C3%ADk.

original work for violin, which was published in 1901. This work has been acclaimed as fundamental to the development of orchestra strokes for other string players.⁸⁰ In above examples of transcriptions is also available for double bassists. According to my survey this works are used in USA.

- *Best of Sevcik*. Arranged by Samuel Applebaum. 2 vols. Melville, N.Y: Belwin Mills, 1972.
- *Sevcik for Bass: An Entertaining Series of Exercises for Bow Technique*. Edited and Arranged by Abe Luboff. Studio City, Calif: Debabe Pub. Co, 1975.
- *Sevcik Op. 2: Bogenstudien / Gerd Reinke*. Arranged by Gerd Reinke. Cologne: Bosworth & Co, 1996.
- *School of Bowing Technique: Etudes Nos. 3-6*. Arranged and Transcribed by H. S. Brewster Jr., n.p.: H. Stevens Brewster, Jr, 1969.
- *School of Bowing Technique, Op. 2: Parts 1,2 & 3*. Edited by George Vance. Silver Spring, MD: SLAVA Pub, 1995, 2000.
- *Strokin': Sevcik School of Bowing Technique*. Edited and Transcribed by Harold Robinson. Wyncote, Pa. Bass Is, 1996.
- *The Essentials of Sevcik: Opus 2*. Edited by Neil Tarlton. St. Albans: Chance Publications, 1997.
- *Theme and Nineteen Variations: Intermediate Bowing Techniques; for Violin, Viola, Violoncello or String Bass, Individually or in Any Combination. Adapted from Opus 3 by Francis Grant*. Arranged by Francis Grant. Cleveland: Concert Music Pub. Co, 1968.
- *Theme and 19 Variations*. Arranged by Shmuklovsky Dmitry
- McTier, Duncan (b. 1955) – *Daily Exercises for Double Bass*, 1994. Briton, Duncan McTier is one of the world's foremost double bass soloists and teachers. He has given in excess of 400 solo performances worldwide and taught a huge number of students.⁸¹ His *Daily Exercises* are two pages, short exercises for everyday using. According to my survey they are used in Poland, Spain, Honduras, Switzerland, Finland, Costa Rica, Holland, Norway and Great Britain.

80 "Sevcik, Otakar - Variations, Op. 3, for bass (arr. Halloin)," Quantum Bass Market, accessed April 26 2016, http://www.quantumbassmarket.com/Sevcik_Variations_Op_3_for_double_bass_p/mbrp-05.htm.

81 "Duncan McTier biography," accessed April 26 2016, <http://duncanmctier.co.uk/McTier/Biography.html>.

- Bagovska, Petya (b. 1957)⁸² - *Double Bass Studies*, 1998. Bagovska is the Bulgarian double bass soloist and professor at the Sofia National Music Academy. According to my survey her book is used in Venezuela.
- Gajdoš, Miloslav (b. 1948) – *Selected Works for Bass: Capriccios, Solos, and Reflexes*. Bryn Mawr, Pa: T. Presser, 1999. Gajdoš is a Czech double bassist, composer and teacher. According to my survey his works are used in Poland.
- Karr, Gary (b. 1941)⁸³ - *The Gary Karr 'Vomit' exercise*. According to my survey Karr's book is used in Austria, Canada, USA, Mexico and Sweden. (n.d.)
- Rabbath, Françoise⁸⁴ (b. 1931) - *Etude Atonale*. Silver Spring, 1999. According to my survey Rabbath's books are used in USA, Sweden, Puerto Rico, Israel, Canada, Greece, Great Britain and Mexico.

21st century:

- Vance, George Louis (1949 – 2009)⁸⁵ - *Progressive Repertoire for the Double Bass*. 3 vols, 2000. Books of American double bassist who under the influence of Suzuki method has produced a new approach to the teaching of the double bass.⁸⁶ His design of introducing primarily the intervals of octaves, fifths and fourths is a logical step to ready the student for the smaller intervals.⁸⁷ According to my survey his book is used in USA, Israel and Sweden.
- Bradetich, Jeffrey David (b. 1957) - *Technical Exercises - The Ultimate Challenge for Double Bass*, 2000. Bradetich is an American professor and double bass soloist. He teaches at the University of North Texas College of Music.⁸⁸ According to my survey his book is used in Sweden, USA, Denmark and Costa Rica.

82 Petya Bagovska, text message to author, April 12, 2016.

83 Gary Karr biography available in chapter 2.1.

84 Françoise Rabbath biography available in chapter 2.1.

85 Joe Holley, *George L. Vance Dies; Musician Scaled Down Double Bass to Fit Children's Hands*, The Washington Post, last modified September 1, 2009, <http://www.washingtonpost.com/wp-dyn/content/article/2009/08/31/AR2009083103727.html>.

86 Joe Holley, *George L. Vance Dies; Musician Scaled Down Double Bass to Fit Children's Hands*, The Washington Post, last modified September 1, 2009, <http://www.washingtonpost.com/wp-dyn/content/article/2009/08/31/AR2009083103727.html>.

87 "George Vance. Progressive Repertoire For the Double Bass," accessed April 26 2016, <https://www.bassbooks.com/shopping/products/1011-progressive-repertoire-for-the-double-bass-vol.-1>.

88 *Wikipedia*, s.v. "Jeff Bradetich," last modified April 19, 2016, https://en.wikipedia.org/wiki/Jeff_Bradetich.

4. The experiment

4.1. Aim and process

I evaluated some method books regarding my technical development. For every two-month-period (with exception for summer holidays) I used a different selection of method books and exercises inspired by information from the questionnaire, tips from friends and library sources. I implemented exercises in my practice routine, observed myself, my technical progress and to find the most helpful books. From November 2014 to November 2015 I used four method books, and other technical exercises.

The process:

I have chosen following materials:

I. November/December 2014:

- Duncan McTier – *Daily Exercises for Double Bass*
- Hans Fryba – *Suite im alten Stil – Prelude, Allemande*

II. January/February 2015:

- Franz Simandl - *30 Etudes for the String Bass - etudes 29, 30*
- Francesco Petracchi – *Simplified Higher Technique for Double Bass Part II*
- Hans Fryba – *Suite im alten Stil – Courante, Sarabande*

III. Mars/April 2015:

- Franz Simandl – *New Method for String Bass Part II (Preparatory Course for Solo Playing)*
- Ferdinand Lipa – *Scales for the Double Bass through Three Octaves*
- D. Dragonetti – *5 Studi per contrabbasso (Emilio Salza) No. 1 and 2*

IV. May/June/July/August 2015:

- Storch-Hrabe - *57 Studies for String Bass vol. I*
- François Rabbath - *Nouvelle technique de la contrebasse (vol. 2 and 3)*

V. September/October 2015:

- Wiktor Gadziński – *Gamy i pasaże na kontrabas*
- Storch-Hrabe - *57 Studies for String Bass vol. II*
- Ludwig Streicher - *My Way of Playing the Double Bass Vol. 5 (The Instruction and Advice for the Beginning and Advanced Double Bassists)*

After every two-months period I recorded myself playing the first movement of the Dittersdorf's *Concerto in D*, and first or second movement of the Bottesini's *Concerto in B*. In the end of the experiment I compared recording. My aim was to find out if and then how I improved my playing.

4.2. Books that I was using during the experiment

My choice for the first two-months period were Duncan McTier – *Daily Exercises for Double Bass* and Hans Fryba - *Suite im alten Stil, movements: Prelude, Allemande*.

McTier is a British contemporary double bass soloist and teacher.⁸⁹ His *Daily Exercises (...)* were very popular in my questionnaire. It's a short form of 12 exercises for daily using. There are exercises with double-stops, passages with different fingering in all positions, exercise for changing the positions and intonation. For me the hardest were exercises with double-stops in fifths in two octaves on G and D strings (from A-D to a'-d'), in sixths in one octave (e-g to e'-g') and octaves (d'-d to a'-a' and d'-d). I noticed in myself mainly intonation problems and problems with the strength of the left hand. Intonation can appear as a problem when a thumb is used in thumb positions as a pressed finger. I think a thumb is not so precise as other fingers in pressing the string. The thumb is pressed horizontally in relation to the string, not like other fingers that pressed using fingertip from above. McTier's exercises are just two pages long, but they helped me to strengthen the fingers in the left hand, they gave proficiency of the thumb and improved intonation.

Suite im alten Stile (A Suite in Olden Style) was not an obvious choice. This piece is soloistic and virtuosic, but a lot of my double bass friends treat it also like a great exercise – a developed etude. Composed by Hans Fryba (1899-1986), the Austrian double bass virtuoso and composer⁹⁰ *Suite* is based in “old style” which imitate baroque style. For the first four months I was practicing *Prelude, Allemande, Courante* and *Sarabande*. The all four pieces are in high notation (mainly in the tenor clef and treble clef). In the *Prelude* (Allegro moderato) the rhythm is simple – there are almost all the time sixteenth notes but the difficulties of the piece are fast passages in thumb positions and double-stops. All of that is challenging for the left hand. Moreover, the right hand has to work precisely with changing the strings. In the *Allemande* tempo is slower (Adagio) and I can find more melodic lines. The rhythm is a bit more complicated – sixteenth, demisemi-quavers with a slurs (legato) and staccato articulations. The third movement –

Courante

89 “Duncan McTier biography,” accessed April 26 2016, <http://duncanmctier.co.uk/McTier/Biography.html>.

90 *Wikipedia*, s.v. “Hans Fryba,” last modified June 23, 2015, https://de.wikipedia.org/wiki/Hans_Fryba.

(Allegro non troppo) - is for me the easiest among all four. The rhythm is mainly built on triplets, the melodic lines are simpler, based on legato and more comfortable to play. The last movement which I have practiced – *Sarabande* (Lento) - despite the slow tempo is for me very difficult. Written in E \flat major, mainly in piano dynamic, it is based on the idea of double-stops as a harmony base. Because the double bass is tuned in fourths and that the distance between two fingers in the smallest interval is big, double-stops in this configuration are very hard for me. The key to solve problems in these pieces was for me to find good, comfortable fingerings, without too many position changings. I've done it using the pressed thumb in thumb positions. Working on Fryba's piece was enjoyable and I think it helped me to deal with technical problems and intonation challenges in both concertos.

Then I chose very popular works from Franz Simandl.⁹¹ During the experiment I was practicing etudes number 29 and 30 from his book *30 Etudes for the String Bass* and used the second volume of his *New Method for String Bass Part II (Preparatory Course for Solo Playing)*.

The subheading of Simandl's *30 Etudes for the String Bass* is *For the acquisition of correct and broad intonation together with rhythmic precision*, explains the aim of these etudes. Moreover, in the preface of the book, Simandl explains: “In the study of these Etudes stress is to be laid on the breadth of tone, precision of rhythm and correct intonation. Preceding the study of each Etude it is suggested that the scale of the key in which it is written be played through with the various bowings. The Etudes are arranged in progressive order and should be practiced slowly at first.”⁹² I chose the last two etudes from the book, because they are the most advanced. The etude number 29 (Andante con moto) was still fairly simple for me. It is based on a recurrent, rhythmic pattern in two bars and range to the fifth position (no thumb positions). The etude number 30 (Allegro) is more interesting. The rhythm and dynamic pattern is similar to an excerpt from Mozart's *Overture to the Magic Flute* – six eights in piano and four sixteenths with sforzato. As in the excerpt – in the fast notes it's comfortable to use the pivot technique (introduced by F. Rabbath, more about that in section of Rabbath's method). But still the melodic material is not coming out of the scale of the first five positions.

The first method book which I've used was Francesco Petracchi's *Simplified Higher Technique for Double Bass*.⁹³ There are 20 studies in this book. Exercises show how to use the pressed thumb from “d” on the G string (fifth position). The fingering system is based on three basic thumb positions: chromatic (comprising three semitones or a minor 3rd), semi-chromatic

91 Franz Simandl biography available in the chapter 2.1.

92 Franz Simandl, *Thirty Etudes for the String Bass*, (New York: Carl Fischer, 1990).

93 Francesco Petracchi biography available in the chapter 2.1.

(comprising a tone and two semitones) and diatonic (comprising two tones and a semitone or a perfect fourth).⁹⁴ Besides exercises helps for the intonation, strengthening the hand, flexibility and agility of the hand, and nice legato in thumb positions. Petracchi shows excerpts to demonstrate how the positions may be applied to the repertoire. There are also exercises with arpeggios and harmonics. In the book he explains the thumb positions clearly and aims to assist the player in developing a secure left hand. The exercises are progressive and can be applied to everyday practicing. They will render many awkward passages more easily accessible. Petracchi's book is the essence of his teaching.

I found Petracchi's exercises very useful in dealing with technical problems in my solo and orchestra repertoire, for example when there is no time to change position in fast passages, using the pressed thumb gives an extension of the hand. Staying in the same hand position gives opportunity to play using all fingers so that we can play more notes without moving the hand. Using the pressed thumb in lower positions is not a technique used from the beginning of double bass studying. I think gaining a proficiency in that allows double bassist play with not so many position changes which always involves a risk of bad intonation. Petracchi's book is very popular among double bassists, it's clearly written, quite short, and contains explanations from author and it's well available.

Then I chose the second volume of Simandl's *New Method* because it was more useful for me as an advanced player. The subheading is: *Preparatory Course for Solo Playing – The Thumb Position*. Simandl's method looks at the thumb positions and uses the thumb, first, second and third fingers, to play solo, high register work and again dividing the fingerboard up into a concept of positions. The second volume also delves extensively into the playing of harmonics. In the preface Simandl explains: “In cultivating a technique for concert playing, the thumb position constitutes one of the most important features, for only by these means is it possible to raise the String Bass to the rank of concert instrument.”⁹⁵ Simandl's *New Method* is now over a century old, so I have to add that from today's perspective it appears evident that double bass can be a fine solo instrument and using a thumb position is absolutely obvious. Simandl writes, “In order to retain the thumb position, the player must lay his left arm upon the sides of the instrument. In that part of thumb between the first joint and the nail horizontally across the string. The thumb may be placed lightly upon the string (producing harmonics) or firmly, pressing it down to the finger-board.”⁹⁶ This is a great but simple explanation of how the thumb is working on the string. Later Simandl explains the right position of the first and the second finger – placed upon the strings, curved but without touching the

94 Francesco Petracchi, *Simplified Higher Technique for Double-Bass*, (London: Yorke Edition, 1982), 1.

95 Franz Simandl, *New Method for String Bass Part II*, (New York: International Music Company, 1948), 3.

96 Franz Simandl, *New Method for String Bass Part II*, (New York: International Music Company, 1948), 3.

string by nail. Interesting is how he treats the third finger, as “a short and weak is seldom used independently, but mostly with the preparation” but he later adds: “Since, however, considerably thinner strings are now used for solo-playing, the use of the third finger is no longer so limited.”⁹⁷ Now, using the third finger independently is common.

The book is divided in the following sections:

- Exercises in thumb position on the G string,
- Exercises and short studies in thumb positions in combination with other positions,
- Exercises in thumb position on the D string,
- Exercises in thumb position on the D and G strings,
- Exercises in thumb position on the A string,
- Exercises in thumb position on the A, D and G strings,
- Exercises in thumb position on the E string,
- Exercises in thumb position on all the strings,
- Exercises and studies on the higher thumb positions in combination with the other positions,
- Exercises in Chromatic runs,
- Studies in scales and broken chords,
- Exercises in harmonics
- Exercises in the above ways of producing harmonics
- Harmonics in the highest thumb position
- Exercises in harmonics in the second position
- The first position
- Exercises in harmonics in the 1st and 2nd positions
- Arpeggio
- Double-stopping
- Two concert studies

⁹⁷ Franz Simandl, *New Method for String Bass Part II*, (New York: International Music Company, 1948), 3.

In my opinion Simandl's method book is very useful and well written. It's not surprising for me that it's still commonly used all over the world as a standard study of double bass technique for the left hand. I practiced all exercises contained in it and I think it was one of the best method books I've used. The thumb position is essential for playing on double bass and all exercises that will improve it are very desirable. I find it advantageous also in learning more about harmonics, which structure is fairly complicated on double bass. Although Simandl's book is slowly replaced by a modern way of teaching and new methods of playing I think every double bassist should try to implement it to his/hers process of learning because it is still an important text for all double bassists. Simandl's exercises allowed me to play more naturally in thumb positions, know better “geography” of the fingerboard and location of harmonics which is useful in both concertos, especially in cadenzas.

During the experiment I was also using the books with scales. The first one was the Ferdinand Lipa's *Scales for the double bass through three octaves*. Lipa was born in Czechoslovakia where he was teaching at the Academy of Music in Bratislava and playing solo double bass in the Chamber Orchestra of Slovak. Then he moved to Sweden, and from 1969 he was a principal double bassist at the Stora Teatern in Gothenburg and teacher of double bass at the Academy of Music in the same city.⁹⁸ In his book there are descriptions of all scales. For every scale there are from 10 to 13 organized in keys, with specific fingerings, arpeggios, double-stop exercises, and exercises in sixths and octaves. Moreover, Lipa specifies the positions of the left hand for *one position* and for *position with greater reach* which means to use extension fingerings without moving the thumb to reach intervals bigger than major second in first five positions. I find this book very useful, especially for warm-up in the beginning of practicing. Using position with greater reach can be useful with orchestra and solo playing.

To exercise etudes in classical style I decided to use *5 Studi per contrabbasso* by Domenico Dragonetti, edited by Emilio Salza, and I chose study No. 1 and 2. According to Emilio Salza, Dragonetti's studies could be some of the first etudes composed for double bass.⁹⁹ Dragonetti (1763 – 1846) was an Italian double bassist, composer and soloist. Known for playing on 3-string double bass, using *Dragonetti bow* which he evolved throughout his life¹⁰⁰ and very famous *Concerto No. 5 in A major for double bass and orchestra*. My aim was to play etudes that would be in classical style and composed for double bass. Both studies were quite easy for me and as Emilio Salza wrote,

⁹⁸ Ferdinand Lipa, *Scales for the double bass through three octaves*, 2.

⁹⁹ Domenico Dragonetti, *5 Studi per contrabbasso (Emilio Salza) No. 1 and 2*

¹⁰⁰ *Wikipedia*, s.v. “Domenico Dragonetti,” last modified March 10, 2016,

https://en.wikipedia.org/wiki/Domenico_Dragonetti#Compositions.

they may be used by not so advanced students. They are written in first five positions (no thumb position). The first study (Moderato) is in C major, the second (Allegro moderato) in F major. I found some similarities in rhythmical structure to Dittersdorf concerto, such as the structure of two sixteenths notes slurred with two sixteenths staccato.

The next studying book which I chose is very popular among the double bassists: Storch and Hrabe – *57 Studies for String Bass* in two volumes. These basic exercises for intermediate advanced players are composed by two nineteenth century double bassists. 32 etudes from the first book are based in the first and fifth positions, they rarely extend to thumb position on the G string. They address many rhythmical and articulation issues that can help to develop a right hand proficiency. The ideas based in the exercises are varied. In my opinion they are also indicated to improve intonation. The second volume of the Storch - Hrabe etudes are in my opinion more advanced. They are based on more complicated rhythmic ideas, they go out of the first positions and the melodic structure is more solistic. I have practiced all of the 57 etudes, mainly as a warm-up before solo pieces. They improved my proficiency in traditional technique in double bass playing.

A very significant method book which I have used during the experiment was François Rabbath¹⁰¹ - *Nouvelle technique de la contrebasse. A comprehensive tutor in three volumes*. Rabbath's method book was published in 1977 and is divided into three volumes. I decided to use the second and third volumes.

Rabbath demonstrates an entirely new way of treating the double bass. In the preface to the first volume he wrote: “Until recently the double bass has never been in the limelight, always having been restricted to an accompanying role (...). The methods were based on scales, arpeggios and melodies which from the outset confined the student bass player within the boundaries of what was expected of him; i.e. the role of an accompanist.” Firstly it must to be mentioned that Rabbath divides the double bass into only six sections to simplify the finding of notes: “It will, moreover, be noted that these divisions do not stop at the fateful 'thumb position'. Beyond this, the traditional methods maintained a characteristic silence, which deprived the student of at least a good third of the instrument's potential, leaving a zone of musical waste-land ...”¹⁰²

In the first volume Rabbath made a detailed study of the first and second positions. In the second volume he presents the third and fourth positions, pizzicato and progliato. It's based on scales, arpeggios and studies. Rabbath introduces pivot technique, which means shifting the left

101 Françoise Rabbath biography available in the chapter 2.1.

102 François Rabbath, *Nouvelle technique de la contrebasse. A comprehensive tutor in three volumes, the first volume*, (Paris: Editions Musicales Alphonse Leduc, 1977).

hand without extension of the fingers, keeping the thumb in the same place.¹⁰³

In the third volume Rabbath focuses on a physical and psychological approach to the double bass, which I haven't seen in any other method book. His idea of playing on double bass is based on notions of: movement (the movement determined by fingerings), space (accuracy of the notes, intonation) and time (the playing time) and these factors must function together. Rabbath emphasizes the importance of knowing one's body and the movements that it creates. The playing movements should be natural as walking. Moreover, in the preface he writes about the right way of holding the instrument, the distance between the strings and fingerboard, the bow, the vibrato, being a concert performer, virtuosity, harmonics, interpretation, visual blockages, relaxation and physical exercises and in the end about the word “difficult”.¹⁰⁴

In the first part of the book there is a voluminous chapter about the scales in many different combinations. The second part contains exercises and studies (with pivot technique). The third part is about the “crab technique”, another way to reduce shifting - moving on the fingerboard like a crab. In this technique the player should never lift one finger off the string without being sure of the following finger and in rising passages the finger of the high note must draw the hand towards the bridge in order to close it up until the positioning of the next finger.¹⁰⁵

In his “Art of the Left Hand” DVD he explains pivot technique: “the shifting is always dangerous – you can be out of tune, each shift you have two notes, and it's not allowed to go quick so using pivot technique you have three notes in one without moving a thumb, you have security and you don't have to move your hand. I'm not extending my hand, I just move my whole hand and always the other fingers are relaxed, I don't “help” one finger with another.” About the thumb based below: “traditionally we use thumb in the middle of fingerboard thumb position, when I've put a thumb in a low position I've realized that I don't have to move my hand any more, I can play six notes without extending my hand. The more we have the possibility to play without moving a hand, the more legato we can play, less stress.”¹⁰⁶

Francoise Rabbath's method book was for me the most interesting and the hardest from all four, which I was using during the experiment. His way of playing is completely new for me. Starting from dividing the fingerboard differently, pivot technique and ending with an approach to

103 François Rabbath, *Nouvelle technique de la contrebasse. A comprehensive tutor in three volumes, the second volume*, (Paris: Editions Musicales Alphonse Leduc, 1977).

104 François Rabbath, *Nouvelle technique de la contrebasse. A comprehensive tutor in three volumes, the third volume*, (Paris: Editions Musicales Alphonse Leduc, 1977).

105 François Rabbath, *Nouvelle technique de la contrebasse. A comprehensive tutor in three volumes, the third volume*, (Paris: Editions Musicales Alphonse Leduc, 1977), 91.

106 Francoise Rabbath, *Art of the left hand with Francois Rabbath DVD*, (Muncie: Ball State University, 2010).

being a musician. What I found the most interesting and useful is a pivot technique which I introduced to my solo and orchestra playing.

The second of the scales book was Wiktor Gadziński *Gamy i pasaże na kontrabas* (Scales and Arpeggios for Double Bass).¹⁰⁷ It contains scales and arpeggios which are the basic exercise material in everyday practicing. They help to improve fingering and bowing technique. Gadziński emphasizes the role of timbre, dynamic and rhythm during practicing scales. The scales are listed from the lowest string (E) in semitones and with major and minor keys. Some of the scales are in three octaves. I think Gadziński's book is convenient in practicing but it must be noted that his fingering propositions are not going beyond the traditional way of playing on double bass.

The fourth method book which I was using during the experiment was Ludwig Streicher - *My Way of Playing the Double Bass Vol. 5. The instruction and Advice for the Beginning and Advanced Double Bassists*. It contains issues about thumb positions: the fourth, the augmented fourth, the fifth, the sixth, the major sixth, the seventh and the main harmonics positions. The exercises are based in high registers which is useful especially for solo playing. I like that even in simple exercises there are a variety of dynamics, accents, articulations and bowings. That diversity makes that players is not getting bored from the exercises. Streicher is not showing any new, specific way of playing the double bass, but I have to admit that the exercises are very interesting, diversified and helpful. The chapter about harmonics is very useful and well explained.¹⁰⁸

4.3. Technical problems in concertos by Dittersdorf and Bottesini

The concerti by Bottesini and Dittersdorff are central works in the double bass repertoire, and are of the asked for orchestra auditions. Concertos place high technical demands on bass players. Originally written for instruments in different than modern tunings, now are greatly complicated. Basically there are a lot of hard passages, positions changings and string crossing.

Bottesini¹⁰⁹ composed his *Concerto in B* in 1845 but it remained unpublished until 1950. Soon thereafter it became a standard work for double bass, in both its orchestral and piano reduction versions. Bottesini was using three-string bass, tuned in A D G. The second movement is an aria for double bass, warm and lyrical, with an understated string accompaniment, while the third features a

107 Wiktor Gadziński, *Gamy i pasaże na kontrabas*, (Kraków: PWM Edition, 1981).

108 Ludwig Streicher, *My Way of Playing the Double Bass Vol. 5*, (Vienna: Ludwig Deblinger, 1980).

109 Giovanni Bottesini biography available in the chapter 2.1.

vigorous, muscular theme that later transforms into a march.¹¹⁰ Through his brilliant playing, Bottesini singlehandedly gave the double bass a new identity as a virtuoso instrument. He also composed a number of works that feature the double bass, although many are seldom performed today because of their extreme technical difficulty.

Carl Ditters von Dittersdorf (1739 – 1799) was an Austrian composer and violinist. After early success in Vienna, he settled for a modest career as a provincial Kapellmeister and administrator. His works span nearly the entire development of the Viennese Classical style. Dittersdorf's substantial catalog of works span all the major genres of his time. Adding to his dozens of symphonies, operas (opera buffa), cantatas, and assorted chamber music are concertos for almost every instrument in the early classical orchestra.¹¹¹ The oldest surviving concertos for double bass are the two composed by Dittersdorf. They were written for and premiered by Friedrich Pischelberger (1741-1813), a virtuoso double bassist. Concertos were composed in the Viennese tuning (F-A-d-f#-a).¹¹²

Most of the technical problems based in both concertos are: fast changing of positions in high register (mostly on G and D string), strings crossing, intonation challenges, harmonics, fast runs of passages, big intervals jumps and in general - playing in epoch style (classical, romantic). What is expected from good double bassist is: perfection of intonation, clarity of sound, and the right articulation and rhythm. Moreover, important are also: interesting interpretation, playing in the right style and with musicality.

To achieve all of the above components, double bassists are working incessantly for many years or even a lifetime. Francoise Rabbath said: "I developed my technique in six years. You can't reach velocity trying to go quick. You can be virtuoso only when you develop your endurance. To reach it practice two hours every day for six years with the same training. You must do it very carefully, endurance have to be developed little by little, don't rush, don't try to be smart."¹¹³

My experiment was only an introduction to some of the most popular nowadays techniques for double bassists. Methods of Francesco Petracchi, Ferdinand Simandl, Francoise Rabbath and Ludwig Streicher were highly helpful to improve my ability of playing. I think my technique benefits from every book and an exercise, but the most groundbreaking was Francoise Rabbath's and Francesco Petracchi's method books because of modern way of using thumb positions and pivot

110 "Concerto No.2 in B minor for Double Bass and Orchestra," Oregon Symphony Concert Programme, accessed April

26 2016, <https://www.orsymphony.org/concerts/0809/programnotes/cl7.aspx>.

111 *The New Grove Dictionary of Music and Musicians*, 2nd ed., s.v. "Carl Ditters von Dittersdorf."

112 Jeffrey R. Pierce "Dittersdorf: Concerto No. 2 for Double-bass and Orchestra," last modified November 11, 2014, <http://theelginreview.blogspot.se/2014/11/dittersdorf-concert-no-2-for-double.html>.

113 Francoise Rabbath, *Art of the left hand with Francois Rabbath DVD*, (Muncie: Ball State University, 2010).

technique of the left hand. I conclude that after analyzing my recordings and from my own feelings and observations. For example some of the hard passages or excerpts were a huge problem for me, now I can play them more easily, with confidence. Below I present selected examples in which I used techniques of pivoting and the pressed thumb.¹¹⁴

Pivoting:



Figure 16: Dittersdorf – Concerto in D, the first movement, bar 31st: pivoting between d-b on the G string.

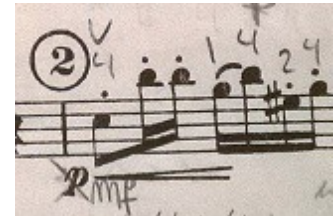


Figure 17: Dittersdorf – Concerto in D, the first movement, bar 31st, in the bass clef

¹¹⁴ More about pivoting and the pressed thumb techniques in the chapter 4.2.

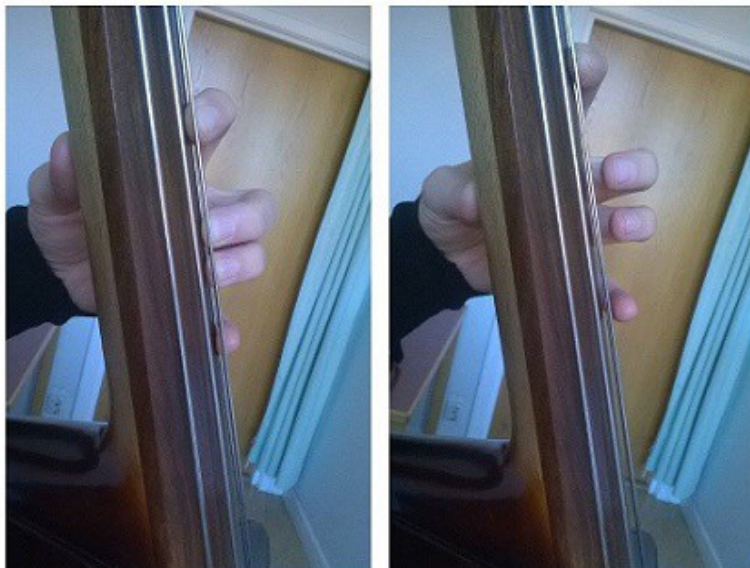


Figure 18: Dittersdorf concertino the first movement, bar 71st, pivoting between b-g# on the G string.

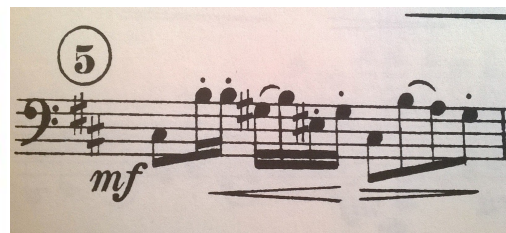


Figure 19: Dittersdorf – Concerto in D, the first movement, bar 71st, pivoting between b-g#

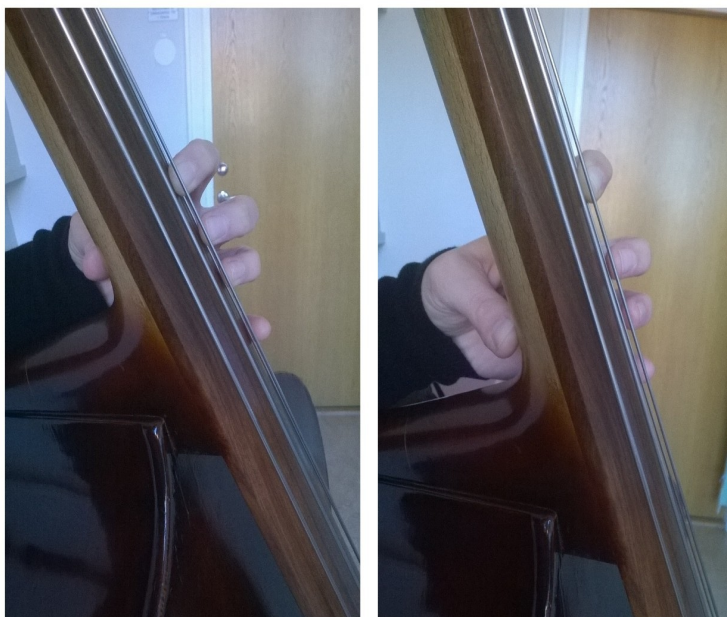


Figure 20: Bottesini - Concerto in B, the first movement, bar sixteenth, pivoting between d – c# on G string.



Figure 21: Bottesini - Concerto in B, the first movement, bar sixteenth, e-d-c#-d in the treble clef.

The pressed thumb:



Figure 22: Dittersdorf - Concerto in D, the first movement, bar 37th, pressed thumb on D and A strings, c#-a, f#-a.

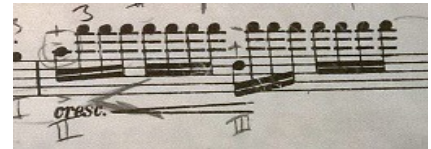


Figure 23: Dittersdorf - Concerto in D, the first movement, bar 37th, thumb position c#-a, f#-a in the bass clef.

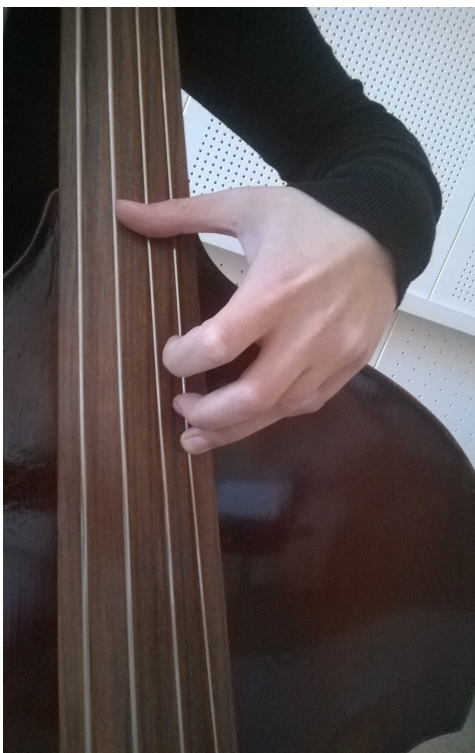


Figure 24: Bottesini - Concerto in B, the first movement, bar 10th, pressed thumb on the D string, c-a.

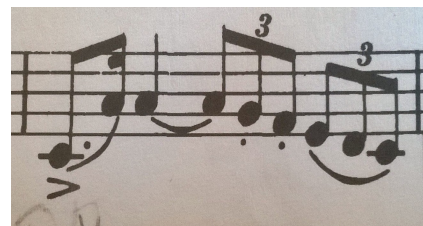


Figure 25: Bottesini - Concerto in B, the first movement, bar 10th, thumb position c-a, in the treble clef.



Figure 26: Bottesini - Concerto in B, cadenza, bar 119-121, passage in the thumb position on the G string: g#-a-c-b-a-g-b-a-g.



Figure 27: Bottesini - Concerto in B, cadenza, bar 119-121, passage in the thumb position on the G and D strings: f-a-g-f-e-g-f-e-d-f-e-d.



Figure 29: Bottesini - Concerto in B, cadenza, bar 119-121, passage in the thumb position on the D and A strings: c-e-d-c-b-a#-b-c-d-e.
Figure

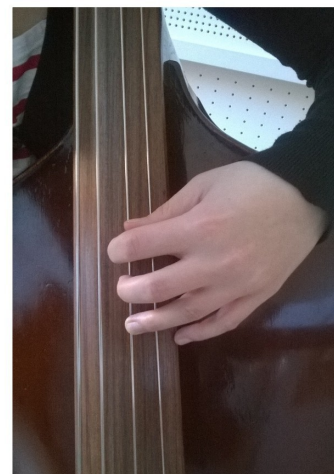


Figure 28: Bottesini - Concerto in B, cadenza, bar 119-121, passage in the thumb position on the D and G strings: f#-g#.

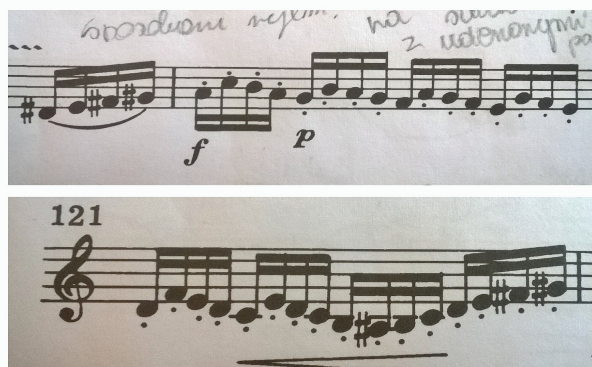


Figure 30: Bottesini - Concerto in B, cadenza, bar 119-121, passage in the thumb position on the G, D and A strings.

An example of harmonics in Dittersdorf's Concerto in D:

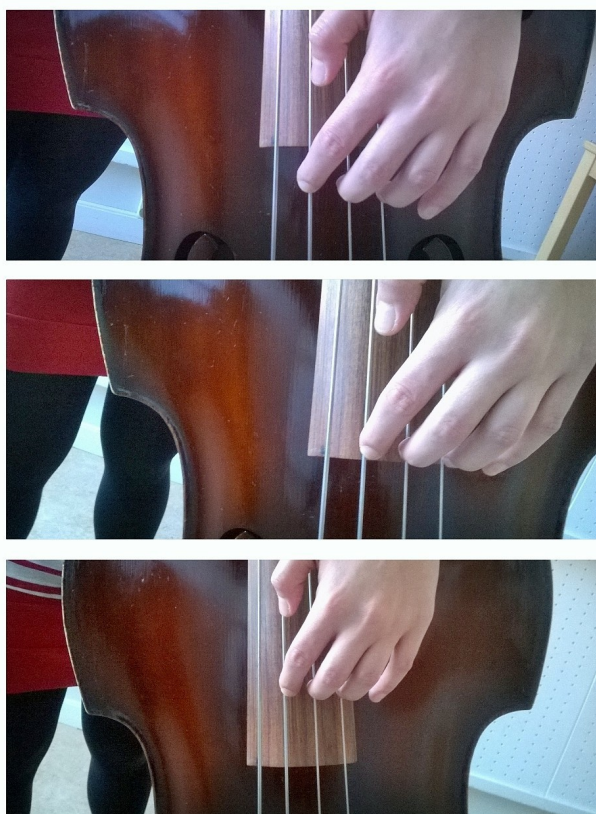


Figure 31: Dittersdorf – Concerto in D, the first movement, bar 39-41, harmonics on the D and A strings: e-a, c#-f#, a-d.

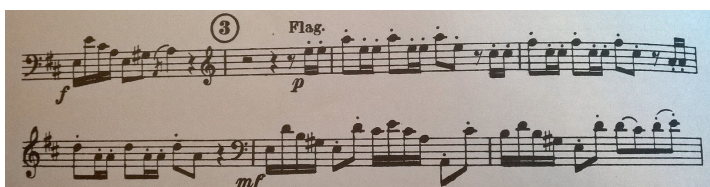


Figure 32: Dittersdorf – Concerto in D, the first movement, bars 39-41, harmonics.

4.4. Comparing my recordings

During my experiment I did 10 video recordings of Dittersdorf's and Bottesini's concertos, using a smartphone Nokia Lumia 640. The quality is not very good, but sufficient for the experiment.

The first two recordings were done on the January 2015. I recorded the first movement of Dittersdorf's *Concerto in D*, and the second movement of Bottesini's *Concerto in B*. At the later stage of experiment I was recording the first movement of Bottesini's concerto, but in that time it was in the initial stage of preparation.

Recording of the first movement of Dittersdorf's *Concerto in D* (Video 1) was done after the first stage of the experiment. I recorded it unaccompanied, in the practice room at the Academy of Music in Gotenburg. My performance, I assessed, was quite good, but there were a lot of deficiencies. First of all there was a general problem of keeping the same tempo from the beginning to the end, but it may be caused by playing solo, without piano. I can see problems with doing interesting and logical phrasing, probably because I was very focused on technical difficulties. Intonation was quite good, except for a few moments in passages where I used pivot technique and in the cadenza in double-stops. I could see problems with smooth string changes. Good performance is when musician knows the musical material very well and can afford to play with greater freedom and flexibility. This recording shows that I had to practice more to achieve lightness in performance.

The second movement of Bottesini's *Concerto in B* (Video 2) appears in the experiment only once, because in that time the first movement was still in the preparation. I recorded it unaccompanied, in the practice room at Academy of Music in Gotenburg. This slow movement is technical easier than the first, but the most challenging is to keep a good intonation, phrasing and good quality of the sound. I can see that the intonation was the biggest problem for me. Big intervals, wide passages and long distance jumps on fingerboard show that also the second movement of this concerto is hard and requires a highly skilled musician.

In the next recording of Dittersdorf's *Concerto in D* (Video 3) is from March 2015. Again, I recorded it unaccompanied, in the practice room at Academy of Music in Gotenburg. I played in a faster tempo, more courageously with better phrasing. I kept the tempo better than in the first recording. An unwanted effect of the faster tempo was that the intonation became less good.

The recording from the same period of the first movement of Bottesini's *Concerto in B* (Video 4) represents the first attempt to perform it. There is no doubt that this recording shows the whole range of problems that I met playing that piece. First of all, there are plenty of intonation problems – from the beginning until the end of the piece. The music wasn't yet well known by me,

so insecurity in playing is well heard. The tempo is slowing down when there are some technical problems, some jumps and passages are not clear and not in tune, but generally for short time of preparation I think I still manage to play it through without big mistakes.

The third recording of Dittersdorf's concerto is from May 2015 (Video 5). I played with the pianist Roger Johansson at the Academy of Music in Goteborg. This time I choose a quite fast tempo. The whole movement goes well, but because the tempo is very fast, not all runs are clear and in tune, but phrasing is better, it can be a merit of playing with piano. Again in the cadenza appeared intonation problems in the double-stops. I think tempo should be a bit slower, because of the technical problems but also because of the classical style of concerto.

The second recording of the first movement of Bottesini's concerto is also from May 2015 (Video 6) and from the same session with Roger Johansson. This is the first recording of it with piano accompaniment. My performance was definitely better than one from before, f.ex. very hard passages from bars 40-45 went well. Still the right, fast tempo seems to be a bit too fast for me that time. The cadenza went quite well however, some shifts and one important harmonic was missed or not in tune. Despite this I was satisfied with that performance.

The last two recordings that I want to write about are from April 2016, so realized after I finished the experiment and from the last months of studying on the master programme in orchestra performance at the Academy of Music in Goteborg. The last recording of Dittersdorf's concerto (Video 7) was played with pianist Mikael Kjellgren. I think that the difference between this performance and the previous are noticeable. I played more smoothly, with greater confidence. Intonation is still not perfect, but passages, harmonics and phrases went better. The double-stops in the cadenza are more in tune.

From April 2016 comes also the recording of Bottesini's concerto (Video 8). This time I performed with pianist Magnus Ricklund for my examination. I have to admit that I am very satisfied with that performance. Of course it's not perfect, and I have to still work on that concerto, but I think it was played smooth, with good intonation, phrasing, good quality of the sound and interpretation. In my opinion all the exercises that I used during my experiment and hours of practicing resulted in well done performance.

Conclusions

The development of musical skills and technique is a long process, that probably never ends. I found it interesting and useful to discover what double bassists in all over the world are using to improve their technique. From my questionnaire I learned that they use either specific books, methods and exercises created by them and customized to their needs. Each musician has to respond to current needs as repertoire and physical abilities. I found out that there are some differences between countries in the field of used books, but in the same time globalization and information flow unify the range of used exercises and books and that is what I expected to see. In my opinion we are now in an interesting period between the era of national schools and a globalized way of teaching the double bass. Besides the great impact of the Internet in connecting people, there are also professional double bass journals (f.ex. *Bass World*), double bass societies (f.ex. The International Society of Bassists, and national societies), conferences, festivals (f.ex. European Biennial Double Bass Congress), competitions and personal meetings that create a great environment of double bassists from all over the world.

The process of perfecting technical skills is long, but during the one year experiment my technique improved. It's very hard to specify which exercises or methods led to an improvement of specific technical abilities. The whole process of perfecting the capabilities in double bass playing is more holistic. During the time when the experiment took place I was also playing a lot with University of Gothenburg Symphony Orchestra, taking lessons with Hans Adler, Cherie DeRamus (tutti double bassist at the Goteborg Symphony Orchestra) and Johan Ekenberg (the principal of Goteborg Opera Orchestra) and preparing for auditions. Probably other factors affect to my playing too – listening others double bassists, concerts, workshops, conscious exercising etc. However, I think that my use of the special method books and exercises contributed to my development as a double bassist. The most valuable for that were method books of Francesco Petracchi and Françoise Rabbath and etudes of Storch-Hrabe. After that period I can see on the recording that both Dittersdorf's and Bottesini's concertos are better performed, with a greater ease of dealing with hard passages, intonations and shifts.

I hope this thesis will be a good source of knowledge and inspiration about technical exercises for double bass students, teachers, researchers and enthusiasts of that beautiful instrument and that it will be a base for the exploration of available sources for improving technical skills. I intend to continue to collect information from fellow double bassists and develop the catalogue of method books and exercises and share it with the international double bass community. I will also continue to try out and work with different technical methods and exercises for myself.

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