



The technical principles of Bel Canto in the 18th and 19th centuries: an experimental case study on dynamic range



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“The true method of singing is in harmony with nature and the laws of health”

G. B. Lamperti: *The Technics of Bel Canto*, pp. 5

“The genius that creates, the feeling that examines, the taste that judges, and the reflection that corrects and perfects, each have with the delicacy of art, and the exercising of the human refined the gifts of Nature, near to perfection and made them capable of delighting the human intellect and heart”

G. Mancini: *Practical reflexions on the figurative Art of Singing*, pp. 116

Abstract:

Introduction and objectives: The author aims to study singing treatises from 18th and 19th century in order to apply, into her singing practice, the technical principles of the Italian singing technique: *Bel Canto*.

The focus of the practical sessions of the author was on her dynamic range. The purpose was to increase her flexibility in her dynamic range in the different registers of her voice.

Method: At the beginning of the research process, the author made an audio recording of G. F. Händel aria: “Se Pietà di me non senti”, from the opera *Giulio Cesare*. In this same phase of the research, she recorded with singing technology that evaluates dynamics related to pitch, the same piece and the vowels /a/, /i/, and /u/ through all her vocal register, exploring her complete dynamics range. After three months, the same recordings will be made and also a comparison with the first recordings.

Results: The first recording demonstrates that the higher the author sings in her vocal register, the louder the dynamic gets. The difficulty to sing *piano* in high pitches is clear in the graphic results.

Conclusion: [STILL TO COME after the results of the second part of the recordings.]

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1. Introduction

This work is about the application of the Italian vocal technique of *Bel Canto*. It studies its origin, and technical specificities. As an early music singer, I applied these technical principles in repertoire from 18th century Italian opera. My main goal is to train flexibility of dynamic range in the whole vocal register.

Contemporary singing experts affirm that the Italian School of singing is a very effective technique for singing with freedom and to experience a long career. Besides that, the Italian singing treatises and methods are very clear about how important it is to sing in a healthy way and following the nature of the functioning of the mechanisms of the human body, such as breathing, vibration, resonance, articulation, which results in phonation.

As a singer, I consider very important to study this subject deeply, apply it in my singing practice, and be familiarized with it, therefore achieving a theoretical and practical knowledge of effectiveness in my singing technique. This knowledge can be a fundamental tool to accomplish an artistic goal only possible when possessing a good singing technique. Personally, I believe that the main goal of a musician is to make music as an artistic product, however to achieve the flexibility to express the artistic ideas, one must work technically. The technique is a way to achieve an end, as G. Mancini says: “The amount of pleasure to be derived depends upon the execution” (Mancini, G. 1777, P.26).

Before starting this research, as it is observed in the general thinking between singers, I believed that the *Bel Canto* singing technique had emerged in the 19th century, however after reading earlier singing treatises, it is clear that long before 1800 the Italian singing technique had already the same basic principles and purposes. These sources and their similarities and contradictions are discussed in chapter 4: Literature Review. It is true that in the 19th century the orchestras got bigger and also the halls, which brought as a priority for the singer, gaining more projection, singing louder. Moreover the repertoire of the 19th century, composed by Rossini, Bellini and Donizetti, explores other facets of the singing voice: there is a more extreme use of legato, dynamics, high register. One could ask if the singers explored more their singing technique skills to be able to sing the repertoire that was being composed, or was this new repertoire only possible because singers already had a technique that explored all their vocal skills?

1.1 *Bel Canto* terminology

The term *Bel Canto* is not easy to define. Literally, it means ‘beautiful singing’, which only by itself has a vague meaning. The first question that emerged at the beginning of this research was: what is the exact meaning of *Bel Canto*? The definitions founded demonstrate that there is not an exact meaning of this terminology. According to the *New Grove Dictionary of Opera*, *Bel Canto* is a “term with a variety of interpretations”; “Italian vocal singing of 18th and early 19th centuries” (Sadie, S., 2007, CHECK PAGE NUMBER). The first time the term *Bel Canto* appears written, is in a volume of “Ariette da Camera”, by Nicola Vaccai, before 1840¹. It does not appear in the singing treatises of 18th century, such as Pier Francesco Tosi or Giambattista Mancini.

¹ Warrack, J; West, E. (1992). *The Oxford dictionary of opera*. (CHECK PAGE NUMBER).

One of the most important characteristics of *Bel Canto* is grace: singing beautifully, as if it was easy. Since *Le nuove musiche* (1601), by Caccini, passing through others authors as Tosi, Mancini, Garcia, Lamperti, Marchesi, grace is a characteristic always present when describing how one should sing: effortless so it is graceful.

Rodolfo Celletti, in his book *A History of Bel Canto* (1991), has a more clear idea of what *Bel canto* represents. Celletti affirms that *Bel Canto* singing emerged in the Baroque period, following the artistic idea of the time: “Baroque art set itself a definite role – that of creating through the imagination a world more beautiful, more sumptuous than the everyday world, and depicting it in images calculated to appeal not only to man’s intellect but to his senses aswell” (Celletti, R., 1991, p.1). Celletti characterizes the manner of communicating through art in the Baroque period as “poetics of wonder”, explaining through his words: “wonder is precisely the emotion which Baroque art tended to excite and experience. The world of fantasy was set off against the real world, and became identified for that very reason with a whole sheet of emotions which went and still goes by the name of “poetics of wonder” (ibid, p.2). Giambattista Mancini confirms this ideology saying that music “is capable of making us forget the pains of life, thus relieving us [...] disclosing to us a better existence by giving us pleasure and recreation (Mancini, G., 1777, p. 17).” Celletti supports the idea that the *bel canto* singing arose to serve the “poetics of wonder” that characterized the Baroque era, saying that the Italian Opera is a “product of the taste and sensibility [...] of the age Baroque” (Celletti, R., 1991, p.1). The main adjectives that Celletti uses to describe *bel canto* singing, is hedonism (meaning “lyricism, [...] smoothness, tenderness and pathos (ibid, p. 4)”, and virtuosity. For these adjectives, Celletti explains their origin. (a) Hedonism: in the second half of the 17th century, “[...] melodies tended to become more and more expansive, and vocalises tended to break away from progressions formulated with geometrical rigidity” (ibid, p.5), (b) virtuosity: “Divisions, variations, and improvisations, which emerged in the first half of the sixteenth century not as vocal but as contrapuntal displays by the singers of the holy chapels, came within reach better endowed vocally and better trained” (ibid, p.3). This development of hedonism and virtuosity is very much explored by G. F. Händel.

The number one voice of Italian Baroque opera was the castrato. These voices, produced by a modified body, were associated with the fantasy that the poetics of wonder provided. Monteverdi writes in a letter for Striggio², that the roles for a common woman or man should be composed in a plainer and simpler singing style, while the castrato should sing roles from the divine and mythical, and their singing should be ornate and allegorical (scale runs, shakes and trills).

On the contrary of what this author considered, Celletti states that *Bel Canto* starts to wane with Bellini and Donizetti, because it is when opera involves realism in their arguments in place of abstraction, stylization and ambivalence of timbre (ibid, p.10). For Celletti, the golden age of *Bel canto* is between Latti and Händel (ibid, p.66).

This author considers that one of the reasons that the term *Bel Canto* can be difficult to describe is the fact that it can be seen through the following perspectives: (a) through an aesthetic point of view and (b) vocal technique point of view. Therefore, this research does not focus on the aesthetic of *Bel Canto*, but only in its technical principles, these being: Breathing; Hedonism (legato); Agility; Blending of the registers; *Messa di Voce*. Some of these principles will be discussed on the chapter: Literature Review (page 9).

² Venice, 9 Dec. 1616.

2. Specific goals

This study proposes:

- The increasing of knowledge about the Italian school of singing, focused on the 18th and 19th centuries
- The capacity to transfer this knowledge into the singing practice
- Training the flexibility of the dynamics range associated with pitch, especially the dynamic *piano* in the high register of the voice.

3. Research Question

This is an experimental study, being myself the object of study, with all the subjectivity issues that this entails. After practicing specific singing exercises, the goal is to be able to answer the following question:

How did the vocal exercises from Bel Canto singing influence my singing technique, especially in the dynamic range associated with pitch?

4. Literature Review

In this chapter, Italian singing methods of the 18th and 19th centuries will be discussed. Works written by Giulio Caccini, Pier Francesco Tosi, Giambattista Mancini, Manuel Garcia, Giovanni Battista Lamperti, and Mathilde Marchesi, will be compared. Here, this author attempts to find the ideals and practical elements of the singing technique that were taught and performed at the time. Next to that, the most general subjects more commonly described are presented as well.

4.1 Nature

All the methods that were analysed for this research state that the role of Nature in singing is fundamental: singers should follow the mechanisms of the human body which make the singing free, and not artificial.

Giambattista Mancini, in his *Practical Reflections on the figurative Art of Singing* (1777), mentions often how important it is to follow the laws of Nature: “Art consists in one’s ability to know what nature intended one to be. When once the gifts of nature, cultivating the easily makes man perfect. [...] The teachers must be careful not to betray their pupil and the pupils not to pay more attention to the teacher than to Nature” (Mancini, G., 1777, p.109). Mancini does not explore very deeply the anatomy, but “vocal organs” is an expression mentioned at various times in his singing treatise: “Nature in her generosity of giving away her gifts, never puts them [...] all in one person; so it seldom happens that we find one person gifted with all those harmonious conditions of vocal organs that form a perfect voice” (ibid, p.57).

Pier Francesco Tosi did not mention the nature as much as Mancini; however, he does say that the student should always “sing standing, that the voice may have all its organization free” (Tosi, F.P., 1723, p.7).

Giovanni Battista Lamperti opens his work – *The technics of Bel Canto* (1905) – with a chapter: “General Observations”, which only contains the following statement: “The true method of singing is in harmony with nature and the laws of health” (Lamperti, G.B., 1905, p.5). He also continues by explaining the anatomy of the human body and its interaction with singing phonation, which also calls for the laws of nature. (ibid, pp.5, 6 and 8) Lamperti’s illustration of the “Vocal Organs”:

2. The Vocal Organs

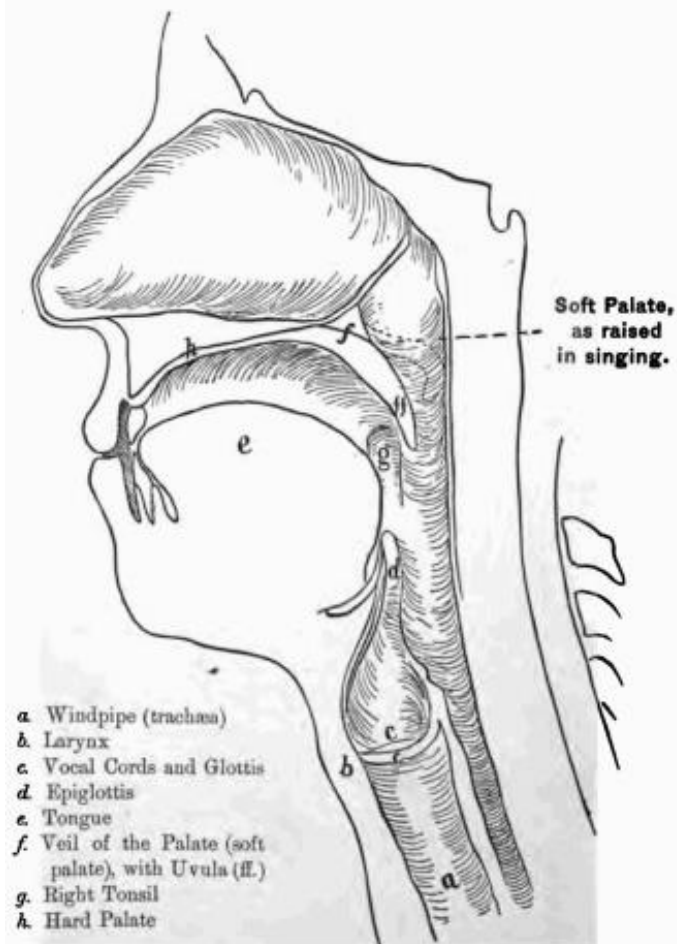


Image 1 – “Vocal Organs”, by Lamperti, page 8

Manuel Garcia, in his *A complete treatise on the Art of Singing* (1847), unlike Lamperti, gives a detailed explanation about the physiology of voice production, describing the (1) lungs, as “air supply”, (2) Larynx as “vibratory organ”, (3) Pharynx as “reflecting organ”, and (4) mouth as “articulating organs (i.e. lips, teeth, tongue and palate)” (Garcia, M., 1847, p.3). Garcia was one of the first singers/singing teachers that explored the science of singing, being the one who made the first experience with a laryngoscopy.

Such as Garcia, Mathilde Marchesi (who was one of Garcia’s pupils), in her *Vocal Method*, Op.31 (1910), also describes some mechanisms of the body that should function well, while singing, especially the “Respiration” (breathing).

4.2 Grace

This characteristic is important not only in the singing, but in the whole attitude of the performer, and who did not have it was considered to have a bad taste. Singing without effort, singing passages that are of difficult realization easily is needed to sing with grace: “That graces or passages be easy in appearance, thereby to give universal delight” (Tosi, P.F., 1723, p.82).

Giulio Caccini, in 1601 says that his goal by writing *Le nuove musiche*, is that the grace that he listens internally can come through in his writings (Caccini, 1601, p.5).

Tosi, regarding the attitude of a singer, says that one should take care while singing for a “graceful posture and an agreeable appearance (Tosi, P.F. 1723, p.7)”. The last chapter of his singing treatise: “Of passages or Graces”, states in what manner one should sing these graces, that are the ornaments of the music. Tosi defines graces as: “[...] being the principal ornaments in singing and the most favourite delight of the judicious, it is proper that the singer is very attentive to learn this art” (ibid, p.81). He affirms that a singer will be graceful by achieving five qualifications: (1) the appoggiatura, (2) the shake, (3), the putting forth the voice, (4) the gliding and (5) the dragging (ibid, p.81). He says that a passage with grace should seem invented and not studied, and that the singer should play with all the embellishments, *Messa di voce*, and more expressive resources.

For Mancini, grace was also a very important element. It is important to give a good impression to the audience with an elegant posture and never force the voice to have more sonorous volume. He writes: “Let it be known that to force a voice will always be one of the greatest errors a singer can commit” (Mancini, G., 1777, p.107). As Tosi, Mancini denominates embellishments to sing with grace: portamento di voce, appoggiatura, messa di voce, trillo and mordente (ibid, p.117). He also considers a good pronunciation a characteristic of grace (ibid, p.172).

With Lamperti grace is achieved with artistic taste, with dynamics, correct tempo, and phrasing. However, Lamperti considers important that each individual thinks individually about music and creates his own artistic taste (Lamperti, G., 1905, p.31). His perspective is not exactly the same as Mancini and Tosi, nonetheless the importance of singing effortless is the same.

Marchesi shares the same view of Lamperti: “all possible shades of tone, power, and expression can be produced by the vocal organs, would most assuredly be able to sing well, and without fatigue or effort (that is, without exaggeration or shouting), the long and declaimed modern phrases” (Marchesi, M., 1899, p.10)

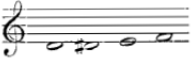
4.3 Registers equalization

Register equalization consists in blending all the vocal registers: chest, medium and head register. This skill offers homogeneity to the singing voice throughout all its *tessitura*. This ability is described by many authors as a very important element for a singer.

Tosi writes that the chest or head voice “should always come forth neat and clear, without passing through the nose or being choked in the throat [...]” (Tosi, F.P, 1723, p.5).

Mancini expresses the importance about this matter various times in his treatise. He states that “the great art of singing consists in acquiring the ability to render imperceptible to the ear, the passing from the one register to another. In other words, to unite the two, so as to have perfect quality of voice throughout the whole range, each tone being on a level with your best and purest tone”(Mancini, G., 1777, p.59)

Garcia writes that after the chest voice is well established, the singer should start to blend immediately with the other register. The author explains how this can be

obtained: between these notes  and it should be practiced slowly, and passing without interruption from one register to another (Garcia, M., 1847, p.8).

Lamperti, in the chapter “Vocal Development, and Blending of the Registers”, writes specific exercises:



Image 2 and 3 – Lamperti’s exercises for blending the registers (pp. 3 and 14)

Lamperti instructs the student to sing these exercises slowly and very legato.

Marchese advises that to blend registers: “the *Chest* and *Medium* registers, the pupil must slightly close the last two notes of the former in ascending, and open them in descending. Every effort expended upon the highest notes of a register increases the difficulty of developing the power of the lower tones in the next register, and therefore of blending the two registers, until eventually it becomes impossible” (Marchese, M., 1899, p.7)

4.4 Breathing

This subject is addressed in more detail by the authors from the 19th century mentioned here. It is considered the motor, the mechanism that starts the whole process of phonation.

What Mancini writes is that it is important to have a good breath control, especially to know how to economize the air, especially at the attacking and leaving a tone, and to realize a *Messa di Voce* (Mancini, G., 1777, pp.112-113).

Lamperti shows in his method a more mechanical explanation about breathing. First, an image illustrates the function of the breathing:

1. Diagram of the Action of the Diaphragm

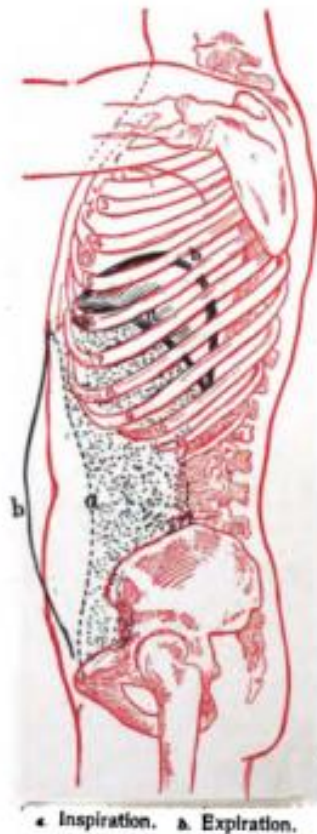


Image 3 - Illustration of the breathing from Lamperti's singing method (p. 6)

Lamperti explains that the inhalation must be done only through the mouth, and the last should be open with space to fit a finger (on the horizontal) between the upper and the lower teeth. The inhalation should be taken deeply, and quiet. Afterwards, Lamperti explains the involvement of the diaphragm, describing its movement during inhalation and exhalation (Lamperti, G., 1905, p.7). The author also warns us that if the breathing is uncomfortable for the singer, he/she still did not acquire a good skill of breathing. Lamperti mentions the support, which comes from the pressure caused by the air during exhalation. This chapter about breathing written by Lamperti, is concluded with the following statement:

“Breath-control is the foundation of all vocal study” (ibid, p.9).

Garcia debates the matter of breathing also as a primary force for singing, writing that to be a successful singer, breath control has to be very well-mastered. Before breathing, it is important to be in a correct posture: “[...] the head is erect, the shoulders thrown back without stiffness, and the chest expanded. The diaphragm must be lowered without any jerk, and the chest regularly and slowly raised” (Garcia, M. 1847, p.6). As Lamperti, in a more detailed way, Garcia describes the mechanism of breathing, agreeing that the inhalation should be quiet. Next, Garcia defines an exercise to increase the volume capacity of air of the lungs (ibid, p.6).

Marchesi describes three types of breathing: (1) Diaphragmatic or abdominal, (2) Clavicular, and (3) Lateral or intercostal (Marchesi, M. 1899, p.3). The first is considered the correct, and healthy one. The author, as Lamperti and Garcia, describes the physiology of the body while breathing (ibid, p.3).

4.5 *Messa di Voce*

Messa di Voce is a homogenous and long crescendo and decrescendo in one note. It is an expressive resource that gives extreme beauty if well applied, and realized. It is one of the tools to sing with grace.

Tosi considers that “modern” singers of his time could not realize a *Messa di Voce* with good taste. The author recommends that this resource is used “sparingly” and in open vowels (Tosi, 1723, p.8).

Mancini, believes that the “modern singers” were not able to sing well a *Messa di Voce*, because they did not know how to make the diminuendo. Next, the author advises the singers not to attack de *Messa di Voce* violently, and to be very soft and economical with the air. Mancini also characterizes the opening of the mouth while singing a *Messa di Voce*: “At the beginning of the tone, the mouth should be but slightly open, thus helping to draw the voice in its sweeter and softer quality. Then gradually reinforce the tone, by opening the mouth as wide as the rules of art prescribed” (Mancini, G., 1777, p.121)

Lamperti writes that a student should not start practicing *Messa di Voce* when the student is at an initial phase of the learning process of singing. After the student is mor advanced, his instructions to practice it: (1) strictly in tempo, (2) vowel /a/ (3) start very soft and swell the sound slowly until a forte (Lamperti, G.B., 1905, pp.20-21):

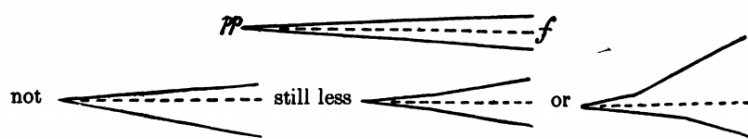


Image 4 - *Messa di Voce (crescendo)* (p. 21)

For the second part of the *Messa di Voce*, the decrescendo, Lamperti instructs that the diaphragm must be working with elasticity, so the air is streamed out softly. The decrescendo should be gradual and even, decreasing the breath pressure:



Image 5 - *Messa di Voce (decrescendo)* (p. 21)

Marchesa also advises that “The *mesa di voce* should not be practised until the voice has acquired a certain degree of suppleness and flexibility, and should never be attempted by beginners.” The following exercises are suggested to train *Messa di Voce*:



Image 6 Marchesa's exercise to train *Messa di Voce* (p. 49)

After reading all this material, this author concludes that the Italian School of singing, *Bel Canto*, evolved progressively. In two centuries there are not significant differences, talking purely about vocal technique and not aesthetic changes. The author considers that, with certainty, there were many good singers. The treatises, from Tosi, to Marchesa emphasize the importance of daily practice; even very successful singers should not stop practicing. It is interesting that the first singing treatises of the 18th century here analysed are written by two *castrati*. This fact, demonstrates how the *Bel Canto* technique emerged and evolved, probably boasted by the fact that *castrati* had very powerful voices and were the operatic stars. Only after their appearance and after they taught how they could sing, other teachers not *castrati* (Garcia – tenor; Lamperti – Bariton; Marchesi – Mezzosoprano), one century later, appeared with their singing methods, maybe with aesthetics starting to change direction, and with more scientific details, but the basic technical principles still being the same.

5. The Vocal Instrument

The human voice in a musical context is a particular instrument, as it is constituted by elements that are not directly observable, not palpable (Miller, R. 1996, CHECK PAGE NUMBER). Contrary to the instrumentalists, singers cannot observe how all the elements of the voice articulate between each other, therefore, singers must find helpful strategies to manipulate all parts of the voice. The next illustration presents the systems that are activated during phonation: respiratory system, which is constituted by the lungs vibratory system, resonator system and articulatory system.

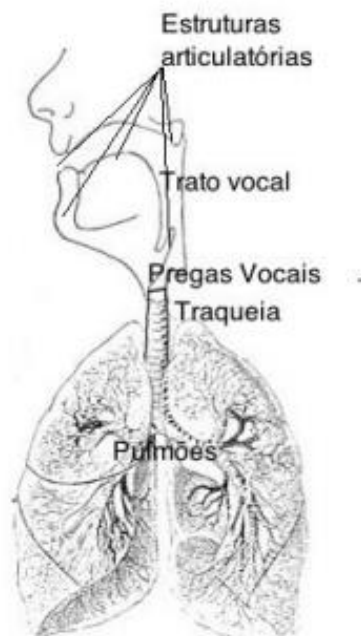


Image 7 - representation of the singing systems (adapted from Lindblom & Sundberg, 2007: p. 678) – the text on the image will be in english

All systems have their individual function in singing, but they are interdependent to work. If the respiratory system does not have air, the latter cannot go through the glottis

and produce vibration in the vocal folds, which means that there will not be the possibility for resonance in the vocal tract, or any articulation, or phonation.

6. Methodology

This research is an experimental case-study, in which this author applied the experiment to herself.

The practical method of this research follows these steps:

1. Audio recording of the aria: “Se Pietà di me non senti” (*Giulio Cesare*) by G. F. Händel.
2. Recording of the same aria and the vowels /a/ /i/ and /u/ with singing technology that evaluates range dynamics associated with the pitch.
3. Daily practice of specific Bel Canto exercises to increase the dynamic range through all the voice register.
4. Three months after, repeating the same recordings as in steps 1 and 2.
5. Comparison between the initial and final recordings and analysis of the results.
6. Conclusion.

6.1 Se pietà di me non sento

This aria (attachment 1) comes from the opera *Giulio Cesare*, written by Händel, sang by the role of Cleopatra. The reasons this author chose this specific aria were the following:

- a. It is from the golden age of Bel Canto in the 18th century.
- b. It is indicated for the voice type of this author, i.e. soprano.
- c. This aria is a technical challenge and could improve with the application of this study.
- d. The dynamics of this piece vary, according to the text and mood of the character (tempo: Largo), however, it is mainly *piano*, in a medium-high register, which is particularly difficult for maintaining flexibility of dynamic range.

Example (the dynamic suggestions were added by this author):



Image 8 - excerpt of the aria "Se Pietà di me non senti", Händel (bars 12-15)

- e. It is a piece which requires a very good legato, in a slow tempo, which will help the air stream to flow, which is necessary to be flexible at the dynamic range.

6.2 Recording with singing technology

In this recording, the author was connected to software that identifies the pitch and the dynamic that is being sung. The author recorded the vowels /i/, /u/ and /a/ starting at her lower register (chest voice), medium register, and highest register (head voice) in crescendo until a fortissimo and decrescendo until a pianissimo. Afterwards, the author recorded with the same technology the aria “Se pietà di me non sento”, by Händel. The result of this recording offers the author a precise feedback about her flexibility in terms of dynamic range. Besides that, using this technology at the beginning and at the end of the experiment allows to compare very specifically if there was differences in the technique of the author. This is also a tool which gives a visual feedback, making the results measurable, which would be difficult only from the audio recording.

6.3 Daily Practice: exercises and plan

After reading all these sources, this author designed a plan to apply the instructions of the treatises and methods into her daily singing practice. Between each exercise, there was a pause. The following table is a summary of the plan. These exercises are focused on dynamics.

Exercise	Description		Goals
1. Posture	Head erect and aligned with the neck, shoulders thrown back and down without stiffness, open chest.		A relaxed position of the body, however with energy. By having the head aligned with the neck, the shape of the vocal tract is not affected. Having the chest open so that the lungs are free to expand in the best way.
2. Breathing	With the posture described above, take a quiet inhalation through the mouth, and exhale with fricative consonants: /v/; /f/; /z/; /s/.	Repetition of the same exercise, but replacing the consonants with vowels. Note: The aim is not to feel any discomfort during this practice.	To breathe freely. This will be always the origin of a good phonation. Using the fricative consonants as these activate the air stream automatically. Adaptation of the same feeling when using vowels.
3. Messa di Voce	Sing exercises similar as in the example shown in Image 9 , in different vowels. Start slowly and very softly, and make a <i>crescendo</i> increasing the stream		To gain practice of breath control. Gain flexibility in the dynamic range. Realize a crescendo and a decrescendo “on the

	of the air. Without stopping the movement of the air, start a <i>decrescendo</i> , in a way that the diaphragm is flexible. Note: never execute this exercise by forcing the sound, causing subglottic pressure.	breath” (continuous movement of the air).
4. Händel Aria: <i>Se Pietà di me non sento</i>	Studying the aria, this author, should attempt to apply the results of the exercises described above. Singing separate phrases and fragments, not the complete aria every time that it is practiced. Start only by (a) examining the posture, (b) inhaling effectively (c) without stopping the air flux, exhaling by starting to sing the aria (d) realize desired dynamics, as explained in the <i>Messa di Voce</i> exercise: not creating subglottic pressure.	To apply the same exercises in the repertoire that the author wishes to perform.

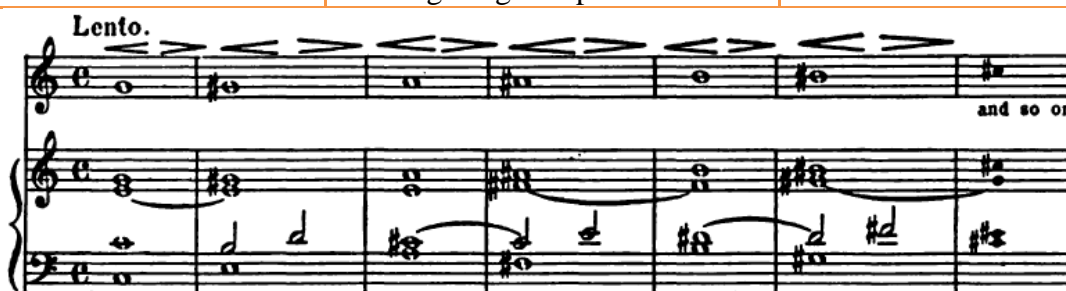


Image 9 - *Messa di Voce* exercise *The technics of Bel Canto*, by Lamperti (page21)

7. Results

In this chapter, the results of the impact of this plan are exposed. The results are based in the recordings that were made with singing technology, which evaluate the dynamic range associated with pitch.

The results for the recording of the vowels and the aria are the same: in the low register the author shows a better control of the dynamics than in the medium and higher registers. In the last two, it is clear, that the higher a pitch is being sung, the louder the dynamics are. The author was not able to sing in *decrescendo* when singing a high pitch. The following graphics illustrates this:

Note: I just received the email from Peter Pabon with the results of the first recordings. I will put his document in attachment. Being already the deadline date, I need more time to interpret the results e involve it in my body text.

8. Discussion and conclusion

This research offered me with a way of practicing with method, and specific goals every day. Before, I would study almost daily, with specific goals, however these sometimes were lost and got vague. In the way described here, the study of singing is always done in a precise way. After reading the sources from the 18th and 19th century, the idea of singing always in a healthy way and with the goal of serving the art is even more present for me. Comparing these sources with modern ones about singing, the main difference is that the science of vocal production is more developed, but the technical principles are almost the same.

Note: In the rest of the discussion, I want to compare the first and the finals recordings. As this is still an ongoing process, I will add it at the end of the experiment.

Bibliography

Caccini, G. (1601). *Le nuove musiche*.

Celletti, R. (1991) *A History of Bel Canto*. Oxford University Press: New York

Elliott, M. (2007). *Singing in Style: A Guide to Vocal Performance Practices*. Yale University Press: London

Garcia, M. (1847). *Treatise on the Art of Singing*. Leonard & co.: London

Lamperti, G. B. (1905). *The Technics of Bel Canto*. G. Shirmer: New York

Mancini, G. (1777). *Practical Reflections on the figurative Art of Singing*. Vienna

Marchesi, M. (1899). *Vocal Method*, op.31.

Miller, R. (1996). *On the art of singing*. Oxford University Press: New York

Reid, C.L. (1950). *Bel Canto: Principles and Practices*. Coleman-Ross Company: New York

Sadie, S. (2007). *New Grove Dictionary of Opera*. Oxford University Press: New York

Stark, J. (1999). *Bel Canto: A history of vocal pedagogy*. University of Toronto Press Incorporated: London

Tosi, F. P. (1723). *Observations on the Florid Song*.

Warrack, J; West, E. (1992). *The Oxford dictionary of opera*. Entry: Bel Canto. Oxford University Press: New York

Attachments

1.

Status report VRP recording Mariana Andrade Pimenta, made on 6th of October 2014.

Written 31st of October 2014, by Peter Pabon (PP). Royal Conservatoire, The Hague.

Mariana's aim as understood by PP

To establish a personal reference on her voice range and voice quality in relation to Belcanto training and the later use of these techniques in baroque. The idea is to compare again at the end of her training period to see what voice changes there can be seen.

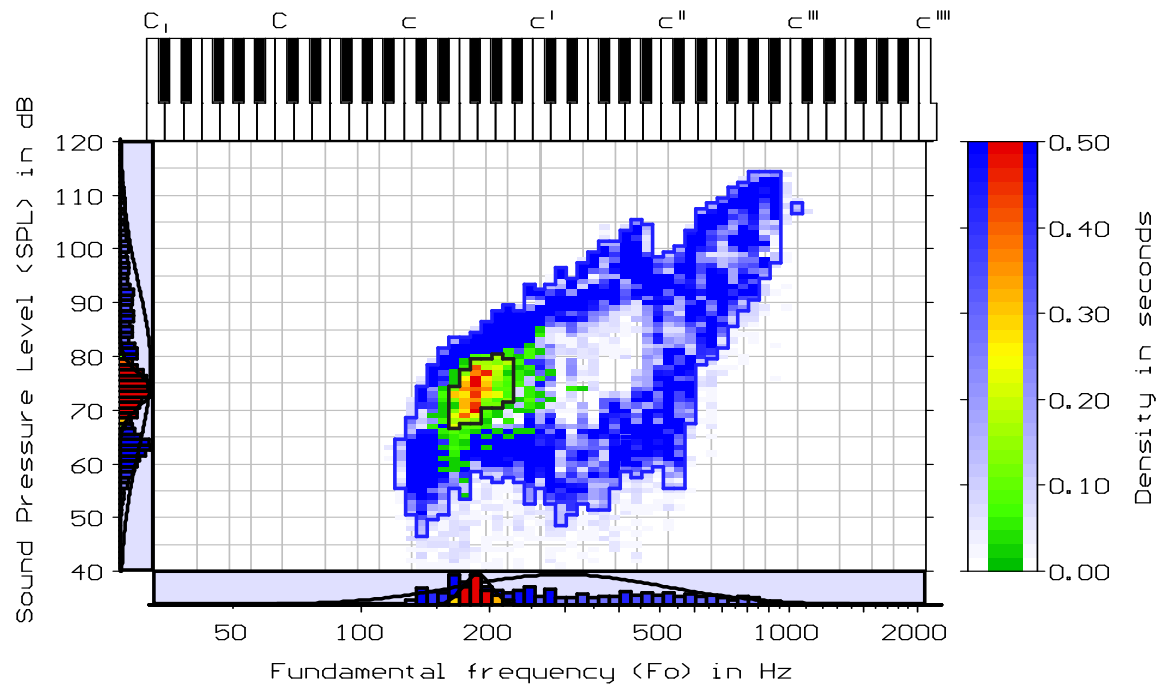
Interest / setup

The soft tones, actually the dynamic range at high pitch is a main area of interest as it is expected that there the effects of belcanto training could most clearly be seen. This VRP area will be measured with extra care and detail to guarantee an objective comparison. The other zone of interest in the VRP is the register transition area and the use of mixing techniques before and after training. VRPs will be made for the standard vowel /a/, and if time also for the vowels /u/ and /i/. An extra VRP will be made while singing an Aria from Handel [Giulio Cesare, Part Cleopatra, Se pietà di me non senti, giusto ciel]. The idea is to select specific parts from this aria to later compare with the same area on other voice features like vibrato, dynamics, etc. Which acoustical features we are going to compare on is still vague. There are likely too many variables so do not expect that much from this extra Aria based material.

Recording results

Speaking voice range on top of the total VRP with the vowel /a/.

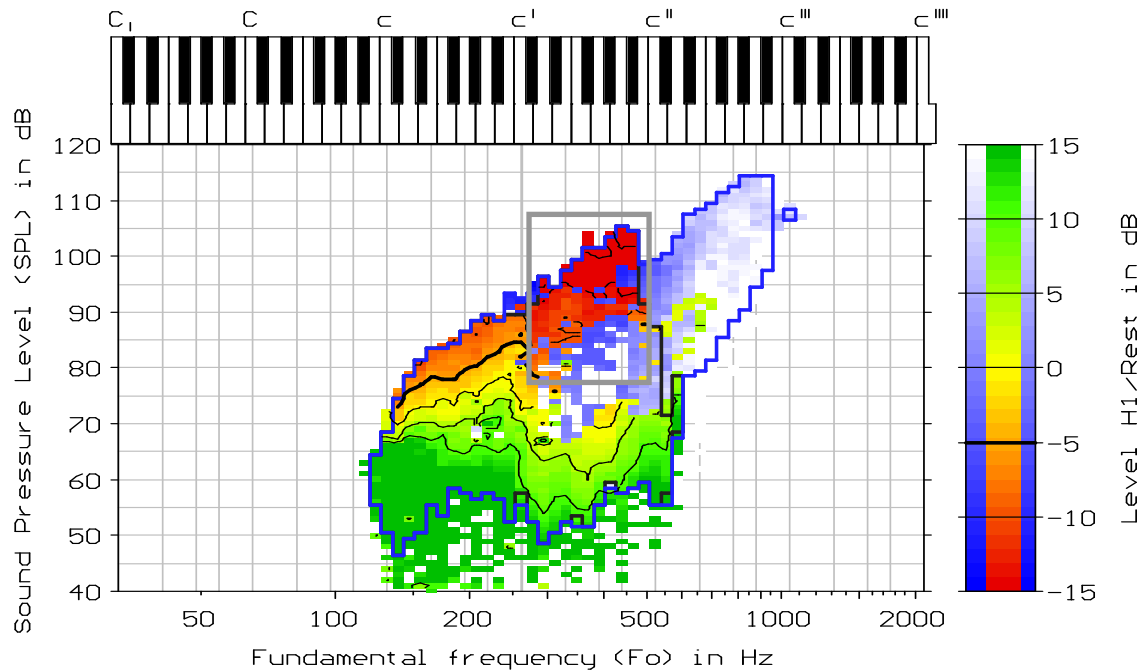
Metric below: density (sum), Data: MarianaSpeaks1.vrp (F)/(B)
MarianaRegistersCombined.vrp



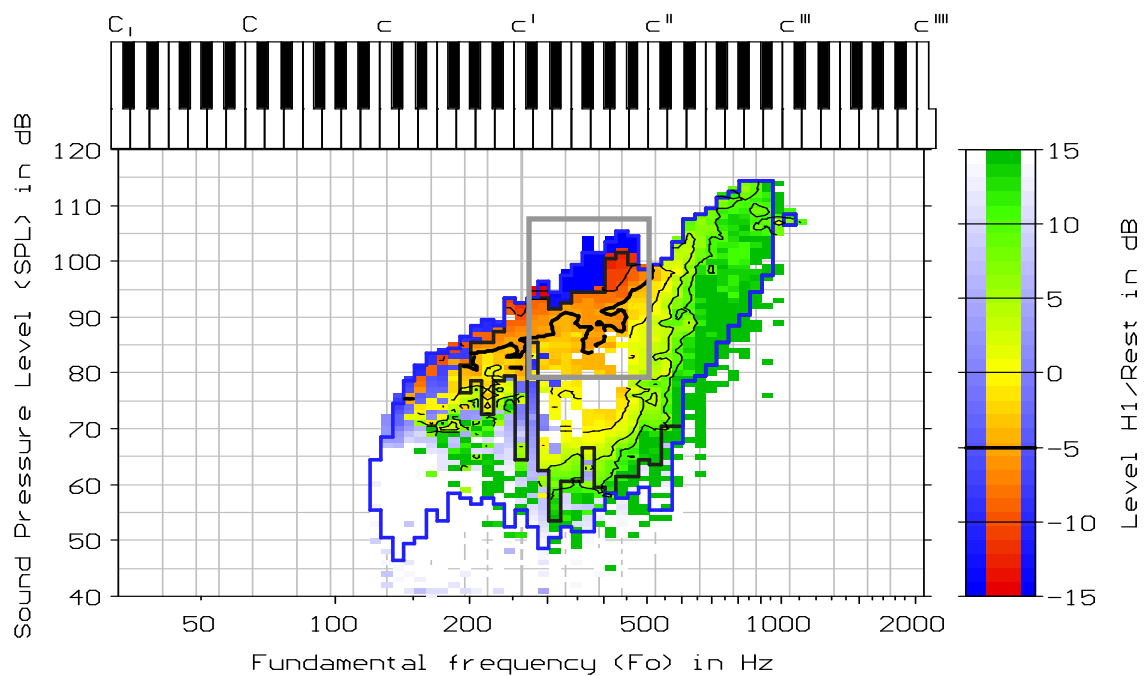
Average speaking fundamental frequency (also called pitch or the F0) is normal. Average SPL about 73 dB SPL, which is slightly (ca. 4 dB) above the average, but within normality. There is no standard or normal VRP added for comparison of maximum SPL levels reached, simply because voices are too different and variable on this aspect while still being normal. The VRP is however a very useful tool to compare voices with themselves over time in an objective way.

Recording of separate register areas (standard vowel /a/).

VRP below: Modal/chest/M1 register on top of total range, metric $L_{H1/Rest}$:



VRP below: Head/falsetto/M2 register on top of total range, metric $L_{H1/Rest}$:



There is a gap at the b1/c2 transition as it marks where the highest and loudest tones could still be produced while singing in modal register. The red coloured values for the $L_{H1/Rest}$ metric

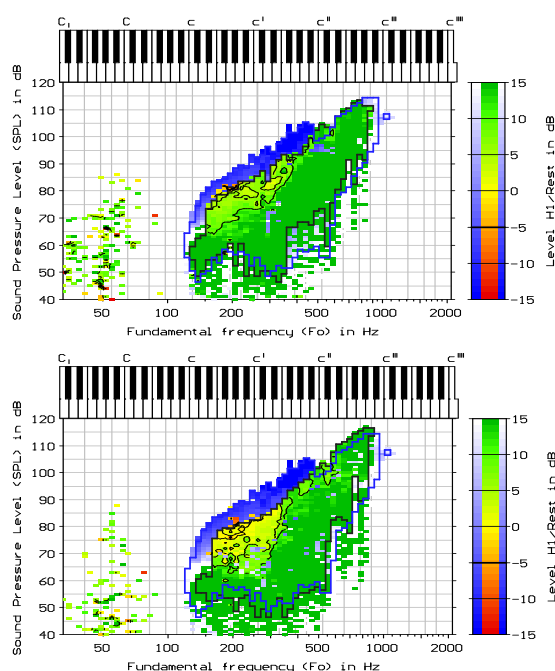
at high SPL in the octave above c1 (see the grey rectangle) clearly report on a very chest-like voice quality. Mariana was normally not using this chesty quality but a more mixed quality, so the red area is not representative for her voice, but it does show very clearly specific for her voice the high end of her chest register. The next VRP for her head register shows (see again the grey rectangle) in the same VRP area a more mixed quality where a bit chesty quality is approached when going to very high SPL (red area at g1-a1 and 100 dB SPL). She seems already from around c1 to mix-in a head voice quality but only with not too loud voice. With a slight ripple around c2 she more or less enter fluently into full head voice as a result of using this mixing /equalisation technique.

About the dynamics at the high pitch now and later?

Mariana's head voice is rather limited in SPL range at the high notes, maximum 25 dB in the range from e2 to b2. She is nearly able to reach the high c3 which does not make her match to a soprano range. Instead of future training to extend her pitch range a semitone at the high end, I hope her to do train (may be with belcanto techniques) to sing the high notes softer. A future goal could be being able to produce messa-di-voices over a larger SPL. So, increased dynamics and security by being able to sing softer at the highest notes in the e2 to b2 range. To reach this, vocal health and hygiene becomes more important as the price for shortly singing too loud in a pushed way could be a loss in dynamics at the high end of the voice range, but may be I am too patronizing here and this is all up to the student and her teachers..

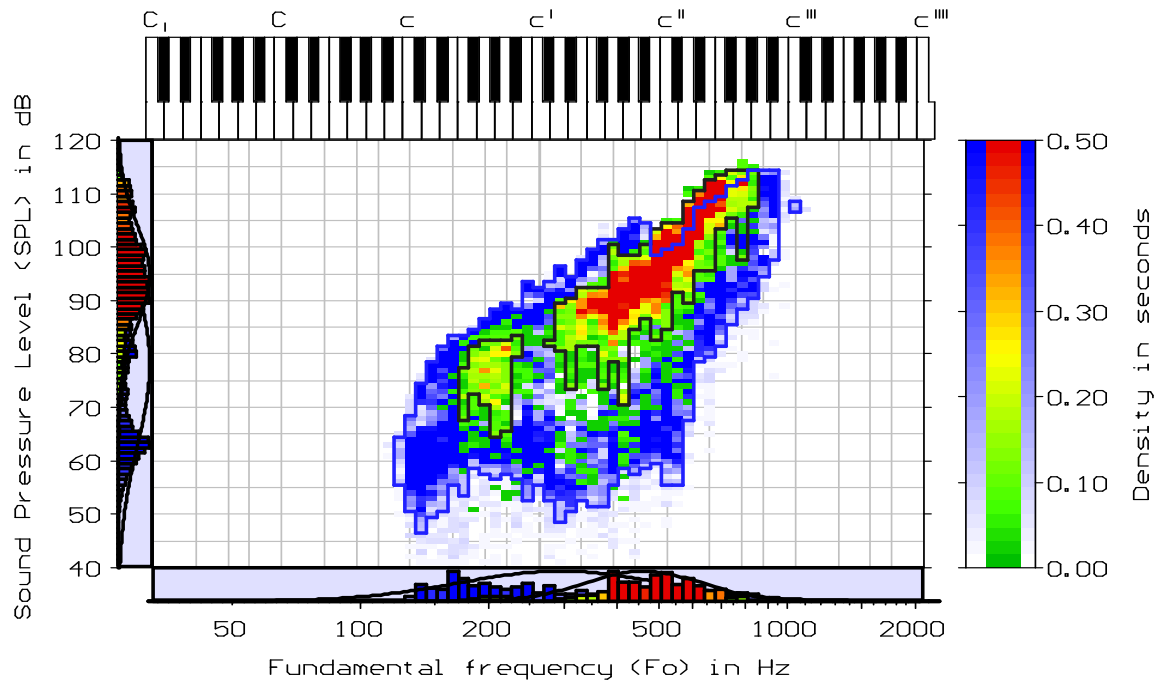
The next VRPs are there for completeness but there is no further interpretation given.

Below the VRPs with the $L_{H1/Rest}$ metric for the /i/ (left) and the /u/ vowel (right).



The two VRPs for the other cardinal vowels /i/ and /u/ combine the ranges of the two registers and were both produced using mixed voice in the c1-c2 range. No further comments.

Below: VRP area covered during singing Handel area projected on top of total voice range:



2. Händel Aria: "Se pietà di me non senti"

108

GIULIO CESARE, REDUCTION

2-26 CLEOPATRA. *Se pietà di me non senti, giusto ciel*

Largo.

CLEOPATRA.

Se pie-tà di me non sen-ti,

giu-sto ciel, io mo-ri-rò, giu-sto ciel,

io mo-ri-rò, io mo-ri-rò,

16

giu - sto ciel, giu - sto ciel, io mo - ri-rò;

19

se pietà di me non sen-ti, giu - sto ciel, io mo - ri -

22

- rò, giusto ciel, io mo - ri - rò, giusto ciel, io mo - ri-rò; se pie -

25

tà di me non sen - ti, giu - sto ciel, giusto ciel, io mo - ri-rò, giu - sto ciel, giu - sto

28

ciel, io mo - ri-rò,

31
giu-sto ciel, io mo - ri-rò.

34
Tu dà pa-ce a miei tor-men-ti, o quest' al - ma spi - re-

37
rò, o quest' al - ma spi - re-rò,

40
o quest' al - ma spi - re-rò; tu dà pa-ce a miei tor-

43
men-ti, o quest' al-ma spi-re - rò, o quest' al - ma spi - re-

The musical score is written for a voice and piano. The key signature is one sharp (F#), and the time signature is 4/4. The score is divided into systems, each with a measure number in the left margin. The lyrics are in Italian. The piano part includes various fingerings (e.g., 1, 2, 3, 4, 5, 6, 7) and dynamics (e.g., *f*, *pp*, *Fine.*). The vocal part includes lyrics such as "giu-sto ciel, io mo - ri-rò.", "Tu dà pa-ce a miei tor-men-ti, o quest' al - ma spi - re-", "rò, o quest' al - ma spi - re-rò,", "o quest' al - ma spi - re-rò; tu dà pa-ce a miei tor-", and "men-ti, o quest' al-ma spi-re - rò, o quest' al - ma spi - re-".

46 *Adagio.*

rò, o quest' al-ma, o quest' al - ma spi - re-rò.

47

Dal Segno