THE GERMAN SCHOOL OF SINGING:
A COMPENDIUM OF GERMAN TREATISES 1848-1965

by

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To My Mother, Dr. Louise Miller

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The German School of Singing: A Compendium of German Treatises 1848-1965

The German school of singing is often characterized by the principles of a muscular approach to respiration, an overexpansion of the chest, a darker tonal preference, fabricated laryngeal position, and the emphasis on text over vocalism. Singers, teachers of singing, musicologists, composers, and conductors rely on astute observations and intensive study of historical artifacts, including original writings, translated work, and secondary analyses to understand the German approach. English-speaking audiences typically "know'" German technique through English language writings or translated versions of scholars such as Richard Miller and German pedagogues such as Marchesi, Stockhausen, and Lehmann. However, omission of some seminal writings by German pedagogues not yet translated to English limit a full understanding of both the evolution of German technique and its applicability to teaching singing today.

This analysis documents the approach to singing advocated by nine German pedagogues beginning in the mid-1800's through the middle of the twentieth century. Using original German writings from these authors as sources for this review, it becomes clear that as the German style developed, there was a desire to move away from other European techniques, particularly Italian principles, to create a unique German method. Yet ultimately, many Italian ideas remained in the German approach. By comparing the beliefs and singing techniques of important German authors, a chronological appraisal of German style identifies the essentials of a *German school of singing*. These include Italian fundamentals of diaphragmatic-costal breathing, elastic tension of the breath musculature, *imposto* (breath-resonance connection), *chiaroscuro* tonal quality, an importance of head voice in blending registers, use of consonants in balancing a tone, and a gestalt approach to singing. These principles were modified to fit German preferences and taste.

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Chapter 1: INTRODUCTION

The prevailing view of the German approach to singing over the past fifty years has been that it is a singular, stand-alone set of principles. What has not been accounted for however is the impact of other European traditions on the development of the German method. It is intuitive to think singing traditions coming before, such as the Italian method or perhaps others, would influence German pedagogues. Yet, that influence is unclear. If and how, then, did other singing traditions influence German singing, and if so, to what degree? Or was the German method created independently?

This review details seminal writings of German authors who designed, developed, and refined a German approach to singing. Authors selected were those who made substantial contributions to the evolution of this singing style. As an overall German approach to singing developed, there was disagreement among teachers as to which elements were foundational to "correct technique" and how these should be practiced and delivered by the singer. For example, George Armin felt the answer to singing was in his *Stauprinzip*, a muscular storing and damming of the breath against the vocal folds. However, contemporaries such as Paul Bruns strongly criticized this idea, saying instead the use of *Minimalluft* (minimal air) and relaxation of the breathing muscles (e.g., abdominals) was the solution to problems associated with singing.

What we know in the English speaking world about the German approach to singing is through translated German language writings and English language summaries. While these are valuable to understanding German technique, original German treatises not published and unavailable in English can further extend and expand this understanding. The purpose, therefore, of this systematic review is to add to the knowledge base by incorporating these German language writings to describe a *German school of singing*. Ultimately, this review along with supporting materials from English language resources offers a more comprehensive understanding of German technique.

The American author, Richard Miller, in his book *National Schools of Singing* (1977), provided the most comprehensive English language discussion of the German approach. His summary of national methods was based on twenty-five years of his personal observations of professional singing. In his text, he noted the most common generalizations as to what makes up the "*German school of singing*." For example, Miller identified the breathing technique of *Bauchaussenstütze* (distended belly support),[1] *Deckung* (a mechanical over darkening at passaggio points) to unify registers,[2] and *Nach-hinten-Singens* (singing toward the rear) in attempt to create the correct pharyngeal space in phonation as key elements to the German approach.[3]

Because Miller's review focused generally on his onsite observations, little is actually known about original written sources that defined a *German school of singing*. German pedagogues such as Julius Hey, Friedrich Schmitt, and Franziska Martienßen-Lohmann had an enormous impact on the German tradition of singing, yet their presence in English writing is limited or, for Schmitt and Hey in particular, nonexistent.

This present review addresses this gap by including the work of these rather unknown authors as well as key figures from the early nineteenth century through the middle of the twentieth century. The movement to develop a German singing approach began with Mannstein's early writings in 1848, which were heavily influenced by Italian principles. Shortly after Mannstein presented his ideas, Schmitt followed with his attempt to create the first German school of singing in the mid-1800's. Evolution of the German approach continued well into the twentieth century when Husler published his text further detailing and explicating the true nature of a *German school of singing*.

Other lesser known English language contributions to understanding German singing add to

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1. Richard Miller, *National Schools of Singing: English, French, German, and Italian Technique of Singing Revisited* (Lanham, MD: Scarecrow Press, 1997), 21.
2. Ibid., 135.
3. Ibid., 70.

this discussion. Original treatises written by Julius Stockhausen, Mathilde Marchesi, and Lilli Lehmann are widely known and respected among English language readers as standard pedagogy texts. Writings by Stockhausen and Marchesi exemplify the singing tradition of their teacher Garcia II, whose ideas were very popular in Germany during the nineteenth and twentieth centuries. From their works, it was evident that Garcian principles, particularly a precise onset described as being made with the stroke of the glottis (*coup de glotte*), the balancing of registers through vowel modification, i.e. *clair* (light) and *sombre* (dark) *timbre*, and the emphasis on diaphragmatic-costal breathing were being taught and adopted by singers and teachers of singing in Germany. Lilli Lehmann, not a student of Garcia, also incorporated many of these same principles in her own individual approach. Importantly, she combined the vocabulary of the singer with the language of science.

One other teacher, Johannes Messchaert, while not well-known in the English language, is important to the discussion of the German singing tradition. Although his writings are less influential than those cited here, his principles reflect the development of the German school and are necessary to fully understand the evolution of vocal pedagogy in Germany.

Nine German authors are included in this review. Selection of these authors for analysis was based on several decision criteria: (1) their place in history as they contributed to the German singing tradition, (2) the lack of knowledge of their methods in the English speaking world (3) their discourse with their contemporaries about "correct" technique, (4) the chronology of the development of the German technique spanning the time of 1848-1965, and (5) success of their individual methods to develop singers.

Heinrich Ferdinand Mannstein who published his treatise in 1848 is pivotal as the starting point for this review since he is the one author who was most clearly linked to the existence of the Italian school of singing in Germany. His singing manual attempted to capture and emulate

teachings of the famous *castrato* and voice teacher Antonio Bernacchi.[4] Friedrich Schmitt's work that followed in 1853 was invested in designing a school of singing, to be built specifically on German principles,[5] which was later continued through the efforts of Julius Hey (1884).[6] Hey's close relationship and collaboration with Richard Wagner led to one of the most well-known works in the German language on recitation, a condensed version of *Deutscher Gesangs-Unterricht*, *Der kleine Hey* (1912). Wagner's influence on the development of opera in Germany was pivotal, encouraging nationalist ownership of German operatic style.[7]

The work of Ferdinand Sieber (1885), written thirty-seven years after Mannstein's contribution, reflected the influence of the Italian tradition, principles he developed through his experiences studying with Johannes Miksch in Dresden and Giorgio Ronconi in Italy.[8] At the same time, Bruno Müller-Brunow (1890) marked a new physiological-mechanical approach to singing (*Tonbildung)* in his speech-based approach.[9] George Armin (1909) continued the same approach of *Tonbildung*, adding the highly controversial method of *Stauprinzip*, which was a technique of "breath damming" to unify, what he called, the dualistic nature of the voice. Paul Bruns (1929) later attacked Armin's method, arguing instead for a technique of minimal air and relaxation of the breath musculature.[10]

By the mid-twentieth century, Franziska Martienßen-Lohmann (1963) offered a well-rounded, international school approach incorporating elements of previous German pedagogues as well as the old Italian masters.[11] Frederick Husler rounds out the important pedagogues who

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4. Heinrich Ferdinand Mannstein, *Die grosse italienische Gesangschule* (Dresden: Arnoldischen Buchhandlung, 1848), 3.

5. Friedrich Schmitt, *Grosse Gesangschule für Deutschland* (München: Beim Verfasser, 1854), 7.

6. Friedrich Blume and Ludwig Finscher, *Die Musik in Geschichte und Gegenwart: Allgemeine Enzyklopädie der Musik; Personenteil,12*, (Kassel: Bärenreiter 2004), 1505.

7. Julius Hey, *Deutscher Gesangs-Unterricht. Lehrbuch des sprachlichen und gesanglichen Vortrags* (Mainz: B. Schott's Söhne, 1884), 2-4.

8. Ferdinand Sieber and Ferdinand Seeger, *The Art of Singing* (New York: Wm. A. Pond, 1872), 14.

9. Franziska Martienßen-Lohmann, *Der wissende Sänger: Gesangslexikon in Skizzen* (Zürich: Atlantis-Musikbuch-Verl., 1988), 147.

10. Ibid., 148.

11. Ibid., 148.

make up the German approach with his text, being one of the first to use physiology to demystify the singing process in the hopes of making it a clear-cut discipline.[12] His work still serves as a decisive guide to vocal pedagogy in conservatories throughout Germany.[13]

This present review details key points for each of the German authors and summarizes English language writings central to the topic at hand. Elements foundational to singing are detailed by author to include discussions about respiration, resonance, phonation, registration, and unique aspects of each treatise. The purpose therefore of this review is to compare and contrast various elements of technique advocated by all authors in an effort to define a German approach to singing - the German school of singing.

12.. Frederick Husler and Yvonne Rodd-Marling, *Singing: The Physical Nature of the Vocal Organ: A Guide to the Unlocking of the Singing Voice* (London: Hutchinson, 1976), xiii.

13. As I selected references for this dissertation, I asked many of my German colleagues which materials they found most useful in their careers. The majority were familiar with Husler's work and used it in their studies. The same cannot be said of other references reviewed in this paper.

CHAPTER 2: MECHANICS OF THE SINGING VOICE

The twentieth and the twenty-first centuries brought many advances to vocal pedagogy, particularly with infusion of scientific principles into the teaching of singing. Consequently, when treatises written during the nineteenth and early twentieth century are interpreted for modern day use, vague language in early writings creates confusion and disagreement surrounding key concepts among today's teachers of singing. For example, "diaphragmatic breathing" can imply different types of muscular involvement.[14]

Therefore, to correctly interpret and analyze singing manuals presented in this paper, a discussion of the current understanding of selected basic principles of vocal pedagogy is necessary. It is important to note that, since singing is a gestalt act, it is difficult to isolate each element, and thus, overlap between elements should be expected. Terms used in this review are defined in the Appendix.

Respiration

Role of Posture

Modern vocal pedagogues suggest a strong connection between posture and breathing, believing posture sets the conditions for optimal breathing and therefore exemplary singing.[15] Meribeth Bunch Dayme describes good body alignment for singing as consisting of three important aspects:

- The head is up, face forward, and the external auditory meatus is vertically above the middle of the point of the shoulder.
- The chest is high, yet not rigid as in a military position of attention.

14. Diaphragmatic breathing is a vague description because it implies various types of breathing methods. This is due to the fact that the diaphragm, being the chief muscle of respiration, must be involved in every method of breathing (clavicular, thoracic, abdominal, diaphragmatic-costal).

15. Oren Brown, *Discover Your Voice: How to Develop Health Voice Habits* (San Diego: Singular Publishing Group, 1996), 18; Barbara M. Doscher, *The Functional Unity of the Singing Voice* (Metuchen, NJ: Scarecrow Press, 1994), 69; Richard Miller, *Solutions for Singers: Tools for Performers and Teachers* (New York: Oxford University Press, 2004), 39.

- The highest point of the pelvis is also on the same line (as the external auditory meatus and acromion).[16]

Types of Breathing

Clavicular Breathing

This type of breathing is seen in the average person who has no training in singing. It is characterized by a simultaneous movement of the shoulders, clavicles, and thorax upon inhalation. As with all types of breathing, the diaphragm is involved in the process. However, in clavicular breathing, engagement of the diaphragm is also supplemented by muscles that lift the upper chest, e.g. levator scapulae, scalene, and trapezius.[17]

Richard Miller notes this type of breathing results in what he terms "a noisy incomplete breath," resulting in a collapsed rib cage. He indicates the rib cage must be constantly repositioned during the singing process.[18] The result is a quick ascent of the diaphragm and tension in the laryngeal muscles, leading to poor breath control and either a tense, or breathy vocal tone.

Abdominal Breathing

In this type of breathing the chest is held relatively low[19] and upon inhalation there is a great expansion in the abdominal region caused by the relaxation of one or more of the abdominal muscles.[20] As a result, this type of breathing is often called "belly breathing,"[21] or *Bauchaussenstütze* (distended belly support).[22]

During inspiration, the downward movement of the diaphragm displaces the viscera resulting in a bulge in the abdomen. Scott McCoy notes that, depending upon which specific abdominal

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16. Meribeth Bunch Dayme, *Dynamics of the Singing Voice* (Wien: Springer, 2009), 57.
17. Scott McCoy, *Your Voice: An Inside View* (Princeton: Inside View Press, 2006), 94.
18. Miller, *National Schools of Singing*, 19.
19. Dan Marek, *Singing: The First Art* (Lanham, MD: Scarecrow University Press, 1996), 71.
20. Ibid.
21. William Vennard, *Singing: The Mechanism and the Technic* (New York: C. Fischer, 1967), 28-29.
22. Miller, *National Schools of Singing*, 1-2.

muscles are relaxed in the abdomen, the viscera can be displaced at the anterior wall, to the sides, or to the lower back of the abdomen. If all abdominal muscles are relaxed simultaneously, the result will be an even distribution of the viscera throughout the abdomen.[23]

McCoy also points out that anatomical differences between men and women (e.g. female reproductive organs) may account for the differing opinions as to where breath expansion is experienced in this type of breathing. He states that men often sense breath expansion at the epigastrium while women expand more abdominally.[24]

During phonation, the abdominal muscles contract against the viscera, pressing the diaphragm back to its resting position.[25] Because the intercostal muscles are not involved in this type of breathing, it can result in pressed phonation as the abdominal muscles are the only ones involved in supporting the diaphragm's ascent. Dan Marek best describes the problems with this type of support:

> Each muscle depends upon its opposite to counterbalance its pull and allow movement in the opposite direction. The diaphragm is no exception. When forceful exhalation begins, the diaphragm begins to relax and move upward, as the abdominal muscles tighten and push up against it. This is where the singer begins to feel the sensation in the larynx called subglottal pressure. Some have called it "the fist in the throat." One can experience this grunting sensation by picking up something heavy. The resulting pressed feeling in the glottis is associated with Valsalva maneuver. If one attempts to tighten the glottis, the tone becomes impressive but very fatigued after a time. The powerful abdominal muscles are directly pitted against the tiny laryngeal muscles. As a result, fine coordination of the inner laryngeal muscles is often lost, and the closing muscles are replaced in function by the tensors. One hears many so-called "dramatic" singers who can sing only fortissimo or in a falsetto piano after years of singing in this manner. Coloratura is a lost cause, and dynamic flexibility is impossible.[26]

Intercostal Breathing

Intercostal breathing is typified by the expansion of the external intercostal muscles upon inhalation and the internal intercostal muscles upon exhalation. In this mode of breathing,

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23. McCoy, *Your Voice*, 95.
24. Ibid.
25. Ibid.
26. Marek, *Singing*, 71.

expansion at the flanks and back coincides with the contraction and flattening of the diaphragm. In addition to the involvement of these muscles, there is some engagement in the musculature of the abdomen.[27]

Many authors see great benefit in this type of breathing. Dan Marek states that the intercostal muscles are extremely powerful and should be sufficient for most phrase lengths[28] and Scott McCoy maintains contraction of both sets of intercostal muscles gives the singer greater control over breath pressurization.[29] Finally, William Vennard advocates that, "probably breath control depends upon resisting the tendency to collapse the ribs as long as possible."[30]

However, as with abdominal breathing, Intercostal breathing is incomplete as it does not allow for full descent of the diaphragm.[31] An example of such an incomplete breathing method that chiefly depends upon intercostal breathing is *pancostal breathing*. It is a pivotal point in the discussion of the writings of early pedagogues discussed in this document.

Vennard states that in this type of breathing, the singer holds the abdominal muscles firmly during inhalation in the belief that "[they] will maintain a high central tendon, causing the diaphragm to raise the ribs."[32] He, however, notes this idea, once popular, has been disproved, and that when the diaphragm is allowed to flatten displacing the viscera (as in abdominal breathing), the singer is able to draw in more air. Furthermore, he notes that a combined method of breathing containing elements of both thoracic and abdominal breathing allows the singer to optimally breathe for singing.[33] This method of breathing is named diaphragmatic-costal breathing. It correlates to the type of breathing termed *appoggio* (to lean upon), which is a hallmark of the Italian school of singing.[34]

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27. Marek, *Singing*, 72.
28. Ibid.
29. McCoy, *Your Voice*, 95.
30. Vennard, *Singing*, 28.
31. Marek, *Singing*, 72.
32. Vennard, *Singing*, 243.
33. Ibid., 28.
34. Marek, *Singing*, 73.

Diaphragmatic-Costal Breathing (Balanced Breathing, Appoggio)

This type of breathing, a combination of abdominal and intercostal breathing, is advocated by the majority of current day vocal pedagogues and believed to be the most efficient method for controlling the outflow of air.[35] As noted, this method reflects the Italian method of *appoggio.*[36]

In diaphragmatic-costal breathing, abdominal expansion is limited and not allowed to fully distend (i.e. over-distention of the belly as if the singer were pregnant, which often corresponds to a sunken chest position) and is accompanied by the expansion of the lower rib cage. This permits the diaphragm to fully descend upon inhalation. Upon exhalation or phonation, the expansion of the rib cage (controlled by the intercostal muscles) is supported by a passive contraction (flexible) of the abdominal muscles, which helps support the weight of the viscera and maintain chest expansion.[37]

Dan Marek observes that in this type of breathing the intercostal breath is the primary mode of control for the outflow of air. The abdominal breath is used as the reserve for a long phrase when the intercostal breath will not suffice.[38] Thus, diaphragmatic-costal breathing is the most effective breathing method for singers and, through reflex action, creates the proper position of the larynx (comfortably-low) and freedom in the muscles of the upper vocal tract (e.g. tongue).[39]

Important Aspects of Breathing[40]

- Breathing for singing is different than in normal respiration. This is due to muscular involvement involved in balancing air pressure.
- The muscular activity for breathing for singing is very individual and depends on the shape of the singer's physical stature, i.e. the shape of the rib cage.
- Posture and alignment play an important role in the breathing process.

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35. Dayme, *Dynamics of the Singing Voice*, 86-89; Marek, *Singing*, 73; Miller, *The Structure of Singing*, 23-25.
36. Miller, *The Structure of Singing*, 23-25.
37. Dayme, *Dynamics of the Singing Voice*, 88.
38. Marek, *Singing*, 72-73.
39. Scott McCoy, *Your Voice*, 129-130.
40. Summarized from Dayme, *Dynamics of the Singing Voice*, 86-88.

- Excessive tension in the body can deceive the singer into believing that he/she is "full" of air, creating a false sense of abdominal tension that does not allow the diaphragm to fully descend.

- Inhalation is most effective when it is effortless. This implies the respiratory muscles move freely and easily, and that there is low resistance to the incoming air in the vocal tract. Silent inhalation is a tell-tale indication of this dynamic freedom.

- Breath support is the balancing of subglottic pressure by retaining optimal postural alignment. This allows the position of the rib cage, abdominal muscles, and the diaphragm to function most efficiently.

- The rib cage should not be fixed or rigid, rather the singer should maintain a comfortable expansion that does not impede on the muscles of the larynx.

- At the attack of the tone, the inspiratory muscles continue their engagement while at the same time, the abdominal muscles also contract.

- The abdominal muscles passively contract against the diaphragm helping to prop up the rib cage during expiration.

Phonation

Theories of Voice Production

Currently Accepted Theory of Phonation: Myoelastic-Aerodynamic Theory

Today's widely accepted theory of voice production is the myoelastic-aerodynamic theory. This idea was first put forward by Johannes Müller (1801-1858) in 1843 and was further developed by Janwillem van den Berg (1920-1985) during the 1950's.[41] Recently in 2006, Ingo Titze further explicated the elements that define this idea.[42] This theory promulgates the notion that the vocal folds approximate to the thought of pitch and then fully adduct as air passes between them, consistent with the physical laws of the Bernoulli effect.[43] Willard Zemlin best describes this phenomenon:

> The myoelastic-aerodynamic theory postulates that the vocal folds are subject to well-established aerodynamic and physical principles. The compressible and elastic vocal folds are set into vibration by the air stream from the lungs and trachea, and the

41. Willard R. Zemlin, *Speech and Hearing Science: Anatomy and Physiology* (Boston: Allyn and Bacon, 2011), 182.

42. Ingo R. Titze and Fairborz Alipou, *The Myoelastic Aerodynamic Theory of Phonation* (Denver: National Center for Voice and Speech, 2006).

43. Brown, *Discover Your Voice*, 45; McCoy, *Your Voice*, 104-105.

> frequency of vibration is dependent upon their length in relation to their tension and mass. Properties of the mucus, mucous membrane, connective tissue, and the boundaries of the vocal folds all contribute to the mode and frequency of vibration. These properties are regulated primarily by the delicate interplay of the intrinsic laryngeal muscles.[44]

The myoelastic-aerodynamic theory contrasts with the neurochronaxic theory of voice production.

Neurochronaxic Theory of Voice Production

This theory of voice production was advanced by the French physiologist Raoul Husson (1901-1967) during the 1950's, but is now largely if not totally refuted.[45] This theory introduced the idea that vibration of the vocal folds was caused by neuromuscular activation. Again, Zemlin best describes this theory:

> The neurochronaxic theory advanced by Husson postulates that each new vibratory cycle is initiated by a nerve impulse transmitted from the brain to the vocalis muscle by way of the recurrent branches of the paired vagus nerve. This means that the frequency of vocal fold vibration is dependent upon the rate of impulses delivered to the laryngeal muscles and is relatively independent of those very factors which are crucial in the myoelastic-aerodynamic theory.[46]

Zemlin notes these two theories, myoelastic-aerodynamic and neurochronaxic, are too dissimilar to be merged into one combined theory of voice production.[47]

Types of Onsets

There are three general types of onsets, each of which corresponds to a quality of phonation. These are the breathy, the hard, and the balanced onsets. The two faulty onsets, breathy and hard, can vary in degree of intensity. For example, a hard (or glottal) attack can be made with a strong glottal plosive resembling a cough, or with a light glottal attack characteristic of the German language.

- The *breathy onset* is caused by inadequate use of air flow to fully adduct the vocal folds (breath flow is either too fast or consists of too much pressure), or there is an inefficient

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44. Zemlin, *Speech and Hearing Science,* 182.
45. Vennard, *Singing,* 56-57.
46. Zemlin, *Speech and Hearing Science,* 182.
47. Ibid.

contraction of the laryngeal muscles. It has a breathy quality, thus its name.[48] This type of onset corresponds to breathy phonation.

- The *hard onset* or glottal attack is characterized by an onset with a "cough-like" quality. It is caused by complete closure of the vocal folds before phonation creating a buildup of breath pressure.[49] This onset corresponds to pressed phonation.

- The *balanced onset* occurs when there is correct coordination between air flow and muscular tension in the vocal folds. This type of attack is fundamental to optimal phonation and serves as the basis for all aspects of vocalism such as blending registers and agility.[50] This onset corresponds to flow phonation.

Coup de Glotte

One major point of debate among pedagogues has been an onset closely associated with the teaching of Manuel Garcia II, termed the *coup de glotte*. While the term literally translates as "stroke of the glottis," suggesting a hard or glottal attack, many modern scholars believe Garcia was actually advocating for a precise balanced onset.[51] In fact, when examining Garcia's treatise closely, one can infer this interpretation since he clearly rejects a glottal attack, what he called "the stroke of the chest" (*coup de poitrine*).[52]

Resonation

Harmonics and Formants - Vocal Source and Vocal Tract Filter

Vocal resonance is created by the interaction of two different elements:

- Harmonics, created by the vibration of the vocal folds;

- Formants, concentrated acoustical energy that measures around a certain frequency, created by the filtering of harmonics in the vocal tract.

Harmonics

The quality of phonation, i.e. the vibration of the vocal folds, determines the quality of the harmonics produced. Different types of phonation affect harmonics in these ways:

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48. Dayme, *Dynamics of the Singing Voice*, 103-104.
49. Ibid.
50. Ibid.
51. Miller, *National Schools of Singing*, 2.
52. Manuel Garcia and Donald V. Paschke, *A Complete Treatise on the Art of Singing: Complete and Unabridged* (New York: Da Capo Press, 1984), 42.

- *Pressed phonation* produces a moderate fundamental frequency, with a gradual roll off of power. It consists of stronger and higher harmonics.

- *Breathy phonation* produces a moderate to strong fundamental frequency, but has a steep roll off of power. It consists of fewer and weaker higher partials.

- *Flow (balanced) phonation* produces a strong fundamental frequency, with a moderate roll off of power. It consists of a good set of high harmonics.

- *A thyroarytenoid-dominant tone* (chestier adjustment) creates stronger high harmonics than a *cricothyroid-dominant tone* (headier adjustment). A thyroarytenoid-dominant tone possesses a brassier timbre than a cricothyroid-dominant tone.

- *Louder* phonation consists of more harmonics and stronger harmonics.

- *Softer* phonation consists of fewer harmonics which roll off quickly and weaker high harmonics.[53]

Formants

Formants are created by the filtering of harmonics through the shape of the vocal tract. Key points to understand about formants include the following:

- The vocal tract is shapeable and, as a result, has the ability to tune harmonics with formants. The singer can alter this shape through the positioning of the larynx, tongue, jaw (mouth opening) and soft palate. This movable shape is what creates formants, leading to vowel definition and tonal quality.

- Formants are infinite but only three to five play a factor in the timbre of a singer's voice. In general, a bass' tonal quality possesses five formants, a soprano's three, and all other voice types four.

- The first two formants are fundamental for the definition of the vowel.

    - The first formant is most responsible for timbral depth and whether or not the timbre is open (*voce aperta)* or closed (*voce chiusa*).[54]

    - The second formant plays a stronger role in defining vowel clarity, the front-back dimension of the vowel, and resonance balancing in the upper range of the male voice and middle range of the female voice.[55]

- *Singer's formant cluster* is a clustering of sound formants (third formant and above); it is a major factor in classical singing, giving the voice carrying power.[56]

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53. Kenneth Bozeman, *Practical Vocal Acoustics: Pedagogic Applications for Teachers and Singers* (Hillsdale, NY, 2013), 5-7.
54. Ibid., 15.
55. Ibid.
56. Ibid., 107.

- In the 1970's, Johan Sundberg studied recordings of Jussi Björling and identified the average frequency spectrum had a strong presence around 3000Hz. Sundberg described this phenomenon as singer's formant.[57]
- Specifically, Singer's formant clusters around 2400-3200 Hz. This is an area where the human ear is most sensitive.[58]
- Singer's formant clustering involves formants three and above (usually formants 3-5).[59]
- A comfortable low laryngeal position is necessary to achieve this quality.[60]
- Singer's formant allows the voice to project easily over an orchestra because its frequency is well above that of an orchestra, which is approximately 450 Hz.[61]
- This clustering is most characteristic of male voices but is also used by female singers in the middle and low registers.[62]
- Women rely less on singer's formant in the upper range since the fundamental pitch they sing is often high enough for their voices to project.[63]
- While this scientific concept was first identified in the 1970's, awareness of this phenomenon has been noticed since at least 1885, when Herman von Helmholtz (1821-1894) described the sound as a strange ringing sensation present in male voices. He noted this was a quality not present in musical instruments. [64] One can assume he was hearing singer's formant clustering.

Nonlinear Source-Filter Theory

While the discussion above highlights linear source-filter theory, modern day voice scientists also recognize the importance of nonlinear source-filter theory in singing. In nonlinear source-filter theory, it is thought that some of the acoustical energy is reflected back onto the vibrating vocal folds.[65] While this acoustical reflection occurs only in certain circumstances, it raises the

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57. National Center for Voice and Speech, "Vocal Ring, or The Singer's Formant," Last modified n.d. Accessed March 18, 2016, http://www.ncvs.org/ncvs/tutorials/voiceprod/tutorial/singer.html.
58. Bozeman, *Practical Vocal Acoustics*, 17.
59. Ibid., 107.
60. Johan Sundberg, *The Science of the Singing Voice* (Dekalb, IL: Northern Illinois Press, 1987), 121.
61. Dayme, *Dynamics of the Singing Voice,* 130.
62. Bozeman, *Practical Vocal Acoustics*, 17.
63. Ibid., 32.
64. James Stark, *Bel Canto: A History of Vocal Pedagogy* (Toronto: University of Toronto Press, 1999), 46.
65. Bozeman, *Practical Vocal Acoustics*, 43.

importance of a finely tuned vocal tract, as it can have positive benefits upon phonation, creating more efficient vocal fold closure. This acoustical energy requires the singer use less airflow without demanding more muscular effort to close the vocal folds. Furthermore, the freedom induced in the larynx helps to form and maintain a convergent resonator space (an inverted megaphone-shaped vocal tract with a larger opening near the glottis and more closed opening near the lips), a stable laryngeal position, an open throat, and a narrowed exit of the epilaryngeal tube.[66]

Registration

Division and number of registers and the way they are unified is controversial among scholars and teachers. Often, registration is an individualized element of a singer's technique. However, two key factors dominate the technical discussions related to it. These include:

- Laryngeal registration - the muscular action in the larynx (thyroarytenoid dominance vs. cricothyroid dominance).[67]
- Vowel modification – adjusting the vowel (vocal tract shape) to achieve even timbre across all sung registers.

Laryngeal Registration – Thyroarytenoid Dominance vs. Cricothyroid Dominance

To more clearly define the physiology of registration, modern voice scientists and scholars take the position there is a dynamic balance between the thyroarytenoid muscle (TA) and cricothyroid muscle (CT).[68] In this view, a typical tone in the middle (male) to lower voice (male, female) is created with a dominance of the thyroarytenoid muscle (thyroarytenoid-dominant production, TDP) through its shortening and thickening muscular contractions. This muscular adjustment is known by several terms, e.g. chest voice, modal voice, or the heavy mechanism. In contrast, higher pitches show a strong involvement of the cricothyroid muscle. This type of adjustment, termed cricothyroid-dominant production (CDP), is traditionally called head voice, the light mechanism or loft voice.[69]

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66. Ibid.
67. McCoy, *Your Voice*, 65.
68. Bozeman, *Practical Vocal Acoustics*, 92.
69. McCoy, *Your* Voice, 65-67.

Dynamic Interplay

Regarding registration, interplay between the muscles is dynamic during singing. Oren Brown best summarized adjustments these muscles make in balancing registers.

> I like to use the following diagram to illustrate the interplay between the two principle registers: falsetto (Register 3) [cricothyroid-dominant production, CDP] and chest voice (Register 2) [thyroarytenoid-dominant production, TDP]: The whole represents the integrated voice, from top to bottom. If the full, even range of the voice were represented by outside lines, there would be a mixture of light to the bottom of the range and heavy to the top of the range in varying proportions of muscular input. In soft, high singing there would be less activation of Register 2 adjustment [TDP] and in loud singing, more. Throughout the range, the proportion of light and heavy is constantly changing, I realized the illustration is idealized, but I haven't found a better way to represent what we are striving for.[70] (See figure 2.1.)

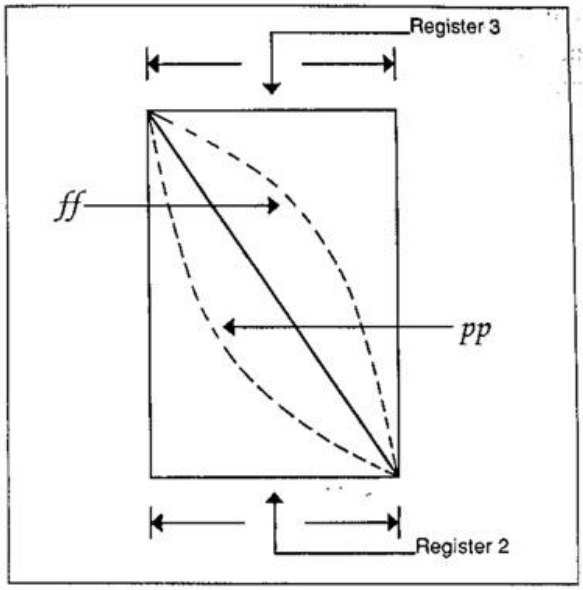

Figure 2.1. Interplay between Registers[71]

Vowel Modification

Vowel modification throughout the singer's range is necessary to achieve an even scale. Ralph Appelman stresses this point, saying,

> One of the main objectives of the singers of the bel canto was the development of a vocal scale that was pure, unbroken, and uninterrupted. The transition of registers - either up or down the scale - demanded a modification in the tonal color of the topmost notes to prevent them from becoming disagreeable and harsh and to preserve the quality of the vowel sound as well as an even tonal line.[72]

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70. Brown, *Discover Your Voice*, 54.
71. Ibid., 55.
72. D. Ralph Appelman, *The Science of Vocal Pedagogy: Theory and Application* (Bloomington, IN: Indiana University Press, 1967), 90.

Singer's Control Over Acoustical Breaks

To reiterate, vocal resonance is created through the interplay of harmonics (created by the vibration of the vocal folds) and formants (created by the filtering of these harmonics in the vocal tract). While the fundamental frequency of the first harmonic (the written pitch) is not chosen by the singer but rather dictated by the composer, the only control over balancing resonance is through the adjustment of the vocal tract.[73] This adjustment of the vocal tract is called vowel modification, with the singer adjusting primarily the first and second formants since these two formants play the principal role in defining the vowel. The formants above this range (formants 3, 4, and 5) should generally remain stable because they are necessary for maintaining a consistency of timbre.[74]

Relationship Between Harmonics and Vowel Formants

The general range in which a singer sings has strong implications as to how male and female singers achieve an even scale. This is due to the fact the acoustical adjustment needed for lower pitches differs from higher pitches.

- Lower pitches generally require less adjustment of the vowel (formant tuning) because the pitch is usually below the first formant. Thus, this means in this lower range, there are more than enough harmonics to adequately resonate the first, second and higher formants. This factor has a large effect on male voices due to the range in which they sing.

- Higher pitches, on the other hand, require more adjustment of the vowel as they have formants spaced more widely apart making it difficult to resonate them.[75] This factor greatly impacts female voices due to their singing range.

Male Voices

Because male singers tend to sing lower pitches than females, the way males approach registration is different. Four points Kenneth Bozeman makes of the male singer's approach to registration are important for the following discussion of the individual treatises:

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73. Bozeman, *Practical Vocal Acoustics*, 20.
74. Ibid.
75. Ibid.

- Male voices will close the vowel as they ascend the scale in an attempt to avoid singing "too open" or "spread" in the upper range. This open timbre (*voce aperta*) is what Bozeman calls "yell timbre," occurring when acoustic coupling of the first formant and 2nd harmonic is taken too high.[76]

- Closed timbre (*voce aperta*) or "turning over" is an acoustical event that occurs in the male voice through vowel modification to a more closed neighbor of the dictated vowel (e.g [ɛ] moves to [e]). Acoustically, when the voice "turns over," the second harmonic crosses above the first formant.[77]

- After the singer achieves closed timbre (when the voice has "turned over" into the new register), the vowel can be opened to allow the voice to avoid what Bozeman called "whoop" timbre, "a hootier" more head-based timbre. By opening the vowel, the singer is able to maintain a more virile timbre and, at the same time, stay in the closed quality.[78]

- Bozeman noted elite operatic male voices usually employ second formant tuning to create a masculine ring in the upper range (modification to vowels that have a higher second formant, e.g. [a] moves [æ]). This is particularly true of premier tenors.[79]

Female Voices

Bozeman further describes important attributes of the female voice.

- In order to achieve an even scale, women's voices will need to open the vowel as they ascend the scale. This is due to the fact that in the upper range of the female voice, the first formant of the vowel is often lower than the sung pitch.[80]

- In contrast to men, women generally rely on what he called "whoop coupling." This acoustical tuning relies on a strong relationship between the first formant and the first harmonic, creating a quality that is "hootier" or "headier" and dominated by the fundamental frequency.

- Similar to some male singers in the upper range, women utilize second formant strategies for the lower middle voice. However, if this is taken too high, this tactic will result in a strident tonal quality.[81]

- Women generally balance resonance in the middle voice through one or two methods:

    - Active vowel modification in the middle voice (on the staff). Women will move to a more closed neighboring vowel as they ascend the scale ([a] to [ʌ]). They will therefore arrive at the headier "whoop timbre" earlier.

76. Ibid., 21-22.
77. Ibid., 23.
78. Ibid., 24.
79. Ibid., 29.
80. Ibid., 32-33.
81. Ibid., 29.

- Maintaining vocal tract shape by retaining a low laryngeal position and a closed vowel resulting in headier more closed timbre in the middle voice (on the staff). The sung tone will eventually arrive in full "whoop timbre" an octave higher.[82]

- Countertenors (male falsettists) tend to use the same resonance strategies as women.[83]

Implications of This Discussion for This Dissertation

The above discussion reconciles present-day thinking related to fundamental attributes of modern singing and the teaching of singing. Pedagogues reviewed in the next chapters incorporate these aspects - respiration, phonation, resonation, and registration - but are not consistent in the way they use and explain them. Much has been learned about the science of the voice and mechanics of singing since the early writing of Mannstein in 1848 to the 20th century work of Husler (1965). Therefore, the review that follows reflects my interpretation of these authors' treatises using the most literal reading and analysis of their work.

82. Ibid., 28.
83. Ibid., 32.

Chapter 3: HEINRICH FERDINAND MANNSTEIN (STEINMANN) (1806-1872) *Die grosse italienische Gesangschule* (1848)

Heinrich Ferdinand Mannstein was a singer, voice teacher and author. He was well known for his writings in the field of vocal pedagogy and musicology, and his pastime later in life, writing novels.

Biographical Sketch

Mannstein was born in Berggießhübel Pirna in Saxony in 1806. As a boy, he was a student at the *Kreuzschule* in Dresden and the *Thomasschule* in Leipzig.[84] Perhaps it was at these schools where Mannstein's interest in singing first developed, since both schools had a strong choral tradition for boys (the *Thomaskirche* being the church where Johann Sebastian Bach had previously served as cantor). As a young man, Mannstein was influenced by his father's strict orders to study theology at the University of Leipzig.[85] After graduation, he found it difficult to find a job in the field of theology and was forced to choose a different career path. He chose music.

In 1829, Mannstein was hired as a bass in the chorus of the *Hoftheater* in Dresden. His attractive voice drew the attention of the well-respected voice teacher, Johannes Aloys Miksch (1765-1845). Miksch invited Mannstein into his studio,[86] which consisted of singers such as Wilhelmine Schröder-Devrient, Ferdinand Sieber, Johann Gottfried Bergmann, among others.[87] Training Mannstein received from Miksch was based on the old Italian tradition of the *castrati*, in

84. Fürstenau Moritz, "Mannstein, Heinrich Ferdinand," *Allgemeine Deutsche Biographie 20 (1884)*, 211-212.

85. Ibid., 211.

86. Ibid., 212.

87. Historische Kommission bei der Bayerischen Akademie der Wissenschaften, F., "Miksch, Johannes Aloys" in: *Allgemeine Deutsche Biographie 21, (1885),* 726. Last modified November 11, 2014. Accessed March 2, 2016. http://www.deutsche-biographie.de/sfz63324.html#top.

particular the Bolognese school of Antonio Bernacchi (1690-1756). The Italian principles Miksch imparted to Mannstein significantly influenced his views on vocal pedagogy.

Although very little is known about the success of Mannstein's teaching, his books were highly regarded by contemporary German singers and teachers of singing. His most notable work was his original treatise, *Die grosse italienische Gesangschule* (1848). It was revised in the second edition as *Das System der großen Gesangschule des Bernacchi von Bologna.* Later in his life, Mannstein followed other interests, writing his own novels and later gaining employment at the Saxon Court as a stenographer.[88]

Place in History

Mannstein exemplified the strong influence of the Italian tradition upon German vocal pedagogy in the early nineteenth century. German technique at this point was based primarily on the method of the Italian *castrati*, notably Tosi (1653-1732). Tosi's influence was a result of Johann Friederich Agricola's translated version of his treatise *Opinioni de' cantori antichi, e moderni o sieno osservazioni sopra il canto figurato*. This work titled *Anleitung zur Gesangkunst* (1757) served as the foundation for vocal pedagogy in Germany during the late eighteenth century and first half of the nineteenth century.[89]

Mannstein's link to the Italian school was historically important because his writing demonstrates the strong influence the Italian method had on German singing. Later authors, specifically Schmitt, Hey, Müller-Brunow, and Armin, decried this influence. Because of this, they were inspired to develop their own unique method which have come to be recognized as Germanic principles. In spite of this, many pedagogues continued to employ Italian methods similar to Mannstein's in their own teaching.

Aim of Mannstein's Treatise

Mannstein provided German and other singing audiences insights into the old Italian tradition

88. Moritz, "Mannstein, Heinrich Ferdinand," 212.
89. Stark, *Bel Canto*, 60.

of singing. He boldly presented his views on the Italian principles promulgated by the famous *castrati* and Italian singing teacher Antonio Bernacchi (1690-1756).

Structure of *Die grosse italienische Gesangschule*

Mannstein approached his treatise with a short review of the theory of vocal pedagogy and quickly moved to address practical applications. His writing was presented as follows:

- *Theoretical section*, reviewing technical aspects of the voice, including physiology, respiration, onsets, voice categories, registration, and rehabilitation methods for ill voices;
- *Practical section*, dealing with issues such as classification of voices, posture, sound production, agility, *portamento*, and the blending of registers;
- *Acquisition of agility*, covering all aspects of agility from scales to trills;
- *Aesthetics of singing*, presenting issues related to stage presence, diction, and expression;
- *Preservation of the voice*, describing specific issues regarding vocal health to the duration of practice periods;
- *Exercises and repertoire*, a section containing vocalizes as well as selected songs and arias to use for pedagogical purposes.

Respiration

Process of Breathing

The type of inhalation Mannstein prescribed was based upon the Italian principles of the *castrati*.

Breathing for Speaking vs. Singing

Mannstein believed the breathing process for speech differed from singing. He described this process in two steps:

1) Upon inhalation the abdomen expands, while the chest moves forward;
2) Upon exhalation both areas move immediately back to the same position.

Due to immediate collapse of the chest, this type of respiration was not beneficial for singing.[90]

90. Mannstein, *Die grosse italienische Gesangschule*, 7.

In contrast when singing, Mannstein thought the singer needed to maintain expansion of the ribcage. He emphasized two points to achieve this.[91]

1) Upon inspiration, the chest of the singer should expand, while the abdomen should be quickly "pulled in;"

2) Upon expiration, the rib cage should move slowly back to its original position, thus delaying the exhalation process.

Mannstein's description of breathing suggests a technique of *pancostal breathing*, in which the abdominal muscles are tightened upon inhalation. This tightening thus halts the displacement of the viscera and the expansion of the abdomen. Vennard notes this method was often advocated as it was believed that the action assisted the diaphragm in propping up the rib cage.[92]

This method, apparently popular in nineteenth century Germany, resulted in less efficient breath control as blocking abdominal expansion does not allow for full descent of the diaphragm. Among its enthusiasts was the famous soprano Lilli Lehmann (1848-1929) who used this method for twenty-five years at the beginning of her career until she was better instructed by an Italian colleague to relax the abdominal muscles for inhalation.[93]

Therefore, the question is whether or not the method Mannstein advocated was truly based on Italian principles (which he sought to exemplify) since the breathing method of the Italian tradition incorporates expansion in both the abdomen and lower ribs (diaphragmatic-costal breathing, *appoggio*).[94] It is likely he only partly understood the Italian model, regarding the expansion of the rib cage as the most important aspect of breath support, and believing wrongly, that holding the abdominal muscles tightly during inhalation would allow for more rib expansion and, thus, better breath control.

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91. Ibid., 7.
92. Vennard, *Singing*, 24.
93. Marek, *Singing*, 68.
94. Miller, *Solutions for Singers*, 1-4, 11.

Other Aspects of Respiration

Inaudible Breath

Proper breathing was to also occur without any audible sounds such a "moaning or sighing." Mannstein believed an audible inhalation would disrupt the physiological function of respiration as well as musical expression.[95]

While Mannstein's support of pancostal breathing is clearly not an aspect of the Italian tradition, emphasis on "silent" inhalation is. Silent inhalation is a chief trait of the technique of *appoggio* and its presence suggests elastic freedom within the vocal tract and the breath musculature.[96]

Posture

Posture too played an important role in the breathing process, setting the conditions for proper breathing. If posture was not correct, the singer could not breath properly.[97] To illustrate this, Mannstein used a hypothetical visual, explaining that if the singer's head lowered during phonation, the improper position of the head would crush the larynx.[98] In addition to the purely functional reasons for maintaining correct body alignment, Mannstein felt that without proper posture, the singer's stage presence would be negatively affected.

When teaching breathing, Mannstein recommended only practicing in combination with phonation. He believed exercises focusing solely on respiration were not beneficial. Through those types of exercises, the singer would never learn an economy of breath control.[99]

Mannstein's ideas about posture were correct. Posture sets the right conditions for proper breathing for singing.[100] His views corresponded directly to the majority of writings on vocal pedagogy from the baroque period to present day and tied him to the Italian tradition that he wished to replicate.

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95. Mannstein, *Die grosse italienische Gesangschule*, 7.
96. Miller, *Structure of Singing*, 29.
97. Ibid., 25.
98. Ibid.
99. Ibid., 7-8.
100. Miller, *Solutions for Singers*, 39.

Resonation

Mannstein's sought to develop a *chiaroscuro* (light and dark) tone in his students. Two points from his treatise demonstrated this: 1) his discussion of the different types of tonal possibilities, and 2) the importance of proper mouth position in singing.

Types of Tone

Mannstein maintained there were three different possible types of sung tones associated with different resonance. These types were: 1) the laryngeal/throaty tone (*Kehlton*), 2) the nasal tone (*Nasenton*), and 3) the balanced tone (sound placed at the hard palate).[101]

Kehlton (Throaty Tone)

Mannstein described the laryngeal/throaty tone as a tone that falls into the "vault" of the pharynx. This tone sounds dampened and had a strong correlation with pressed phonation. Mannstein felt that to a trained ear, the sound was unbearable and was typical of the bass voice type.[102] To correct this sound, he suggested gently pressing on the larynx while singing. This was meant to relieve tension and pressure there.[103]

Nasenton

Mannstein stated this was a tone that struck the posterior nasal apertures, termed the *choanae*. This sound was associated with nasality in the tone, which he described as "reprehensible."[104] To correct this fault, Mannstein directed the student to pinch his nostrils while singing. If the tone changed, nasality was present in the sound.[105] Through this correctional tool, the student was able to develop awareness of the faulty tone.

Balanced Tone

Mannstein viewed the balanced tone as strongly connected with sympathetic resonance felt on

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101. Ibid., 32.
102. Ibid., 33.
103. Ibid., 37.
104. Ibid., 34.
105. Ibid., 37.

the hard palate. This tone, in his view, was most desirable because of its flexibility, full body, and, in his words "noble" characteristic.[106] This tone was both light and dark - *chiaroscuro.* Techniques to correct the *Nasenton* and the *Kehlton* (i.e. touching the larynx, and pinching the nose) assisted in developing the balanced tone.[107]

Mouth Position

Mannstein felt the proper mouth position was necessary to achieve a *chiaroscuro* tone. He listed these rules to form a correct mouth position.

- Mouth should have an elliptical or oval shape; this is the only position that allows a proper [a] vowel to be sung;
- Teeth need to be an inch apart;
- Jaw should not move forward or sideways; lips should be tensed;
- Tongue should lie flat and stretched, touching the lower teeth, and should avoid a “well shape;”
- The upper lip should not be pulled down over the front teeth; it will dampen the sound;
- Proper mouth position should be formed before the onset of the tone;
- Mouth position should not change when the same vowel is sung consecutively, e.g., *Ach, arme Anna; Es lebe Edward*;
- Jaw, lips, and tongue should not move or tremble in agility passages or trill positions.[108]

While Mannstein never mentioned the term *chiaroscuro* (a tonal quality that is both light and dark, i.e. balanced), his discussion suggested this was his tonal preference. This notion is inferred as the two aesthetically unpleasing tonal qualities he mentioned are at the extremes of this balance, i.e. “nasal” tonal quality corresponding to too light a timbre (*chiaro*), and a “throaty” tonal quality to too dark a timbre (*scuro)*. Likewise, the tonal quality he promoted was between these two - it is balanced, or *chiaroscuro* (both light and dark).

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106. Ibid., 39.
107. Ibid., 37.
108. Ibid., 46-48.

In addition, all elements he suggested for creating the correct mouth position prepare for this balanced tonal quality. His instructions demonstrated he was asking the singer to "open the throat" through these three actions:

- Reflex action of the zygomatic muscles lifting the soft palate, by creating an oval mouth position and not pulling the upper-lip down;
- Placement of the tongue forward with the tip at the lower front teeth, thereby opening the pharynx;
- Freeing the jaw by maintaining a similar mouth position for repetition of the same vowels (inner-diction).

Phonation

Mannstein stressed the importance of the onset and its effect on voice production in his discussion of phonation. He listed four characteristics of a correct onset.

- Onset should avoid any unwanted sound during the attack (e.g., an [h] as heard in a breathy onset, or a glottal plosive);
- Tone is made freely and quickly, avoiding any "scooping" in pitch, e.g., 2nd, 3rd, 4th or 5th;[109]
- Tone is prepared by a slight opening of the mouth. If the mouth is too open the tone will have a "careless, crying" quality;
- Tone should not be pushed out of the mouth, but rather "drawn inward", corresponding to the old Italian idea of "*filar il tuono*" (spinning of tone).[110]

Mannstein's instruction to "spin the tone" (*filar il tuono*) and the visual of a tone that is "drawn inwards" reflect the coordinated balance of subglottic air pressure needed between the vocal folds, the breath, and the respiratory musculature to achieve balanced or flow phonation. This imagery was beneficial to clarify a chief characteristic of the Italian breathing method of *appoggio* in which dynamic interplay between the phonatory and respiratory muscles is at work.[111]

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109. Ibid., 8-9.
110. Ibid., 36.
111. Miller, *Solutions for Singers*, 1.

Registration

Mannstein's treatise included a thorough discussion of registration, including classification of voices, registration points, and the importance of falsetto/head voice.

Tetrachords (Passaggio Points)

He viewed the voice as divided into tetrachords (an area of four pitches within the span of five semitones). These *passaggio points* marked an area where the singer needed to adjust the voice so that no change in sound quality would be heard.[112] He noted these "breaks" in vocal timbre could be identified by the voice teacher through observation of three qualities in the student: changes in tonal quality, raising of the student's eyebrows, and/or the singer becoming red in the face.[113]

An example of register breaks in the tenor voice is noted in the score below. The first tetrachord occurs from A2-D3 with a break, the second E3-B3, and the third from C4-G4.[114] Mannstein believed the singer should bridge these tetrachords so there was no audible change in tone quality. This was, he felt, the mark of a fully developed singer.[115]

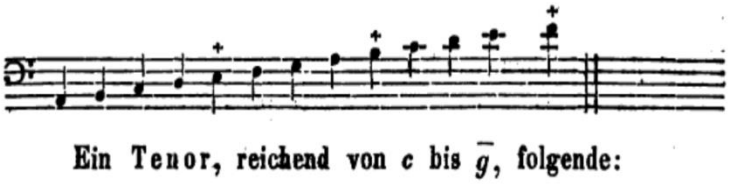

Figure 3.1. Tetrachords of the Tenor Voice[116]

Number of Registers

Mannstein thought the human voice had two distinct registers (with the exception of the soprano voice). He named these two registers head voice and chest voice. As noted above regarding *passaggio points*, the mark of a good singer was a balanced scale, where no audible

112. Ibid., 12.
113. Ibid., 13-14.
114. Ibid., 16-17.
115. Ibid., 15.
116. Ibid.

changes in tone quality would be heard. To achieve this, Mannstein believed that registers had to be blended. He illustrated this balance in the soprano voice saying that, because the chest voice was so strong, the middle voice (an area where more head voice is mixed in) had to be strengthened as a counterbalance, while head voice had to be mellowed.[117]

In developing this balance between registers, Mannstein suggested singers find the point where the two registers meet (i.e. a pitch at the break between head and chest voice). On that pitch, students were then to alternate between sung chest and head tones, allowing for a momentary pause between the two. By juxtaposing these register adjustments, the quality of the two tones would eventually blend into one quality, i.e. a unified balanced tone.[118]

It is clear from Mannstein's discussion of registration he placed significance on a dynamic balance between chest voice and head voice. Modern scholars would describe this as a balance between thyroarytenoid-dominant production (chest voice, TDP) and cricothyroid-dominant production (head voice, CDP).

Practical methods Mannstein recommended for balancing registers, however, were more imprecise. He gave clear instructions the singer should blend registers by singing notes at *passaggio* points first in a chest quality (TDP) immediately juxtaposed with a head quality (CDP). However, he was not clear if the adjustment should deal with laryngeal registration (the laryngeal muscular adjustment), the acoustical concerns in registration (vowel modification), or elements of both.

This is an ill-defined topic, creating confusion among modern voice teachers and scientists. The answer is two-fold. On one hand, there is certainly a major element of laryngeal muscular adjustment as the muscular balance between TDP and CDP is constantly changing throughout a singer's range. However, primarily what the listener hears as "turning over" or switching registers

117. Ibid., 90.
118. Ibid., 91.

is acoustical.[119] Consequently, while Mannstein did not mention adjusting the vowel to achieve an even timbre throughout the range, he likely supported some element of passive vowel modification. Only then, could the voice achieve a truly even timbre.

Falsetto[120]

Mannstein valued falsetto; however, he noted that it was often disregarded by voice teachers in his day. This, he believed, was a mistake. He asserted that without falsetto the singer would have significant difficulty in the upper range. Mannstein cited the bass as being the singer who typically avoided falsetto, leading to a disjunctive voice and scale.

Mannstein's comments on falsetto demonstrate unmistakably that he recognized the need to strengthen the falsetto mechanism, believing it reinforced the voice as a whole. This approach was likely beneficial to his students since it exercised and strengthened the musculature of the upper two thirds of their range. This musculature, primarily the cricothyroid muscle, tends to be weaker than the muscle associated with lower pitches, the thyroarytenoid. This is a result of many singers' tendency to speak in the lower third of their range on a daily basis.[121]

Other Important Aspects

Agility and the *messa di voce* were two points Mannstein emphasized in his treatise.

Agility

Mannstein believed agility was vital to the singer's development and, without this, the voice could not fully develop. He emphasized four points affected by agility.

- Create a good quality of tone on each pitch with proper intonation;
- Achieve perfect tonal quality (a balanced tone);
- Learn to overcome the problems of singing;
- Learn strength and power.

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119. Bozeman, *Practical Vocal Acoustics,* 26.
120. Ibid., 12.
121. The Voice Foundation, "Therapy for Singers Part 1, Brown," The Voice Foundation Archives. Last modified October 29, 2015, Accessed March 1, 2016, https://www.youtube.com/watch?v=8VpgvqN-53o.

To acquire agility, Mannstein listed the four following guidelines:

- Notes should be connected (legato) and articulated at the same time;
- Mouth position should not change;
- The body should not move (extraneous movement);
- Very little air should be used in the larynx.[122]

Messa di voce

Mannstein promoted the idea that the *messa di voce* was the only element the singer could use to create a breath connection with the upper register. Using this technique, the singer was made aware of the amount of pressure the voice could tolerate.[123] Mannstein adhered to the old Italian theory that, through the practice of the *messa di voce*, the singer would gain strength, flexibility and a powerfully expansive breath.[124]

Mannstein identified five rules to achieve a proper *messa di voce*:

1) No pressure from the chest register (i.e. glottal pressure, like a hard cough) should occur at the beginning or the end of a tone;
2) Mouth position should open for a louder dynamic, but vowel purity should not change;
3) Singer must maintain a posture consisting of an expansive chest and "pulled in" abdomen;
4) *Messa di voce* should be practiced until a student can perform the entire exercise over twenty seconds; after the [a] vowel is mastered, the student should move to [e]; and then continue to the other vowels;
5) When practicing ascending and descending scales, the student should breath after each tone.

Summary of Mannstein's Treatise

1) *Place in History*

- His treatise demonstrated the influence of Italian singing in Germany in the nineteenth century.

122. Ibid., 111.
123. Ibid., 41.
124. Ibid.

2) ***Respiration***

- Optimal breathing for singing consists of 1) upon inhalation, the singer expands the rib cage and pulls in the lower abdomen; and 2) upon exhalation, the singer strives to maintain expansion of the chest, thereby delaying movement back to the body's resting position. Mannstein's description suggests a method of pancostal breathing.

- Inhalation should be silent, preferred for vocal production and artistry.

- Breath exercises without phonation are not useful.

3) ***Resonation***

- There are three types of vocal tones: 1) nasal tone (*Nasenton*), 2) laryngeal tone (*Kehlton*), and the 3) balanced tone. The balanced tone, which corresponds to a placement point at the hard palate, is the ideal tone. Mannstein's writing suggests he was an advocate of a *chiaroscuro* tonal quality.

- Mouth position is critical to finding the proper artistic tone. Mannstein's description suggests the creation of an "open throat" formed by lifting the soft palate through the reflex action of the zygomatic muscles, opening the pharynx by maintaining a forward tongue position, and freeing the jaw through inner-diction.

4) ***Phonation***

- The onset should avoid any unwanted sound during the attack (e.g.[h] as in a breathy onset, or a glottal plosive).

- Student should avoid any "scooping" in pitch when making an onset.

- The onset is made freely and quickly.

- The onset is prepared by a slight opening of the mouth; if the mouth is too open, the tone will have a "careless, and crying" character.

- Tone should not be pushed out of the mouth, but rather drawn - "filar il tuono" (spinning of tone).[125] This idea addresses the issue of the balance of subglottic air pressure between the vocal folds, breath, and respiratory musculature.

125. Ibid., 36.

5) ***Registration***

- All voices other than the soprano have two registers - head voice and chest voice. To unify these registers, Mannstein likely advocated for some aspect of passive vowel modification.

- Falsetto should not be avoided; it is important to the function and development of the voice.

6) ***Other Important Aspects***

Agility

- Is fundamental to the development of the voice.

- Is a way to achieve good intonation, a balanced tone, and strength and power.

Messa di voce

- Is a method to gain strength, flexibility, fullness of tone, and a powerful expansive breath.

- Is the sole method to connect breath with the upper register.

Chapter 4: FRIEDRICH SCHMITT (1812-1884)
Große Gesangschule für Deutschland (1854)

Friedrich Schmitt was a professional operatic tenor and a well-known pedagogue who is credited with the first attempt to create a singing school designed on German principles.

Biographical Sketch[126]

Schmitt was born in Vienna in 1812. He began his vocal studies in Darmstadt, studying voice with Ch. Mangold (full first name unknown) and later continuing in Munich under Stuntz (first name unknown). His first engagement as a singer was at the *Hofoper* in Munich (1833), singing in L.J.F. Hérold's *Zampa*. Because of Schmitt's success with the production, he was asked to join the ensemble of the *Hofoper* for the following season. During his time in Munich, he sang roles such as Alphonse in *La muette de Portici* and Raimbaut in *Robert le diable.* In 1834, Schmitt left Munich for an engagement in Magdeburg (1834-35). Later he joined the ensembles in Leipzig (1835-36) and Dresden (1836-37). Because of vocal misuse, Schmitt lost his voice early in his career and his last professional performances were in Dresden in 1837. In search of a new career, Schmitt turned to teaching voice.

Schmitt's first teaching job was in Munich, where Richard Wagner invited him to join the newly formed *Deutsche Musikhochschule*. In fact, it was Wagner who entrusted Schmitt with the work of developing a new technical approach to singing based on German principles. Unfortunately, a later quarrel with Wagner led Schmitt to leave Munich for Berlin where he continued to teach voice. Among Schmitt's students were Julius Hey, Fritz Plank, Anton Schittenhelm, and Josef Neydhart. Hey, one of his most famous students, had a significant impact on vocal pedagogy. He went on to advance Schmitt's ideas, creating a fully developed German approach to singing described in his singing manual, *Deutscher Gesangs-Unterricht* (1884).

126. Karl J. Kutsch, Leo Riemens, and Hansjörg Rost, *Grosses Sängerlexikon Bd. 6* (München: Saur, 2003), 4234.

Place in History

Friedrich Schmitt was the first pedagogue to attempt a singing method based on German principles. Wagner was a strong supporter of his work, considering it to be the technical basis for performing German opera during the mid-1850s.[127]

Problems with Contemporary Methods

Schmitt saw many problems with the contemporary approach to vocal pedagogy in Germany. He believed talented German students were forced to study in foreign countries because of the lack of good teaching in their home country.[128] He was disappointed too there were few good singing teachers in Germany, and of those few, the majority were trained in foreign countries. Additionally, he saw problems with the principal methods (French and Italian influence) being taught in Germany at the time, suggesting they lacked organization. Furthermore, Schmitt thought German singers lacked technical precision (e.g., trill) and he took the position that "99 of 100 singers' voices would be ruined" by poor teaching.[129]

Aim of Schmitt's Treatise

Schmitt's treatise addressed the problems he identified with contemporary teaching methods by refocusing these issues into five clear purposes.[130]

- Young singers could be trained in Germany, rather than being sent to foreign countries;
- German teachers would have a resource to help them teach singing;
- Singers who needed further training would have a reference to assist in their individual study;
- Instruction would be available for a more natural, simpler approach to teaching singing;
- There would be an end to "sick and ruined voices" through a safer, natural, more tasteful approach.

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127. Hey, *Deutscher Gesangs-Unterricht*, 3-4.
128. Schmitt, *Grosse Gesangschule für Deutschland*, 3.
129. Ibid.
130. Ibid., 10.

Structure of *Große Gesangschule für Deutschland*

Schmitt presented his ideas by first detailing his rationale for the existence of a newly formed German singing school, specifying the principles to achieve good function. In this first section of his treatise, he discussed the following issues related to singing:

- Problems with current teaching methods;
- Critique of current singing practices;
- Principles for his systematic approach delineated by:
    - *Construction of the voice as instrument*, addressing breathing, resonance, intonation, connection of "so-called" registers, and the development and beautification of the voice;
    - "*Technical education" of the voice as an instrument*, addressing issues of onsets, connection of tone with and without portamento, coloratura (agility), and *messa di voce;*
    - *Intellectual education (geistige Ausbildung) of vocal study*, commenting on aspects related to material properties (where in the music a singer should breathe, clear diction, musical accent and rhythm, precision, nuances);
    - *Intellectual properties* including correct character portrayal, expression of sentiment (*Empfindung*), "the fire of zeal," "grace of word and tone," and good taste.
    - *Additional points* related to range and register, breathing, process of studying voice, and vocal health.

A second section focused on vocalizes and teaching philosophy. Schmitt covered the following points:

- *Solfege* study;
- Difficult agility patterns;
- Exercises with various leaps;
- Acquisition of proper dynamics (piano, forte, and others);
- Trill;
- Portamento;
- Staccato.

Respiration

Breathing for Singing

Schmitt saw the process of respiration for singing as being different from speaking. When singing, he emphasized expansion of the chest during inhalation, saying this position should be maintained throughout phonation. However, in contrast to the Italian method that advocated a comfortable elastic expansion of the rib cage, Schmitt recommended a more muscular position to allow for full lung dilation. In addition to this chest position, the tongue was to lie flat in the mouth with its tip resting at the lower front teeth. To achieve the correct breath, Schmitt listed the following specific instructions:[131]

1) During inspiration:
    - The breath should be taken as quickly as possible;
    - It should fill the entire chest area;
    - The breath should be silent.
2) During phonation:
    - The lower body should be pulled in;
    - The mouth should be opened widely;
    - The tongue should lie completely flat;
    - The chest should be lifted.
3) Action of the "full" expanded chest[132] (filling the lungs to maximum capacity):
    - During phonation, the chest should have the feeling that it remains expanded or full. If the singer feels it is not full, he should take two or three additional breaths;
    - While exhaling or phonating, the singer should feel that expansion continues, as if the air is held in;
    - In the beginning of study, as little air as possible should be expelled. As the student progresses in learning how to sing, more and more air will be released as she learns breath control.

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131. Ibid., 28.

132. This model of an expanded chest position was important to the German singing tradition since it served as the basis (rightly or wrongly) for George Armin's *Stauprinzip*.

Schmitt's description of breathing for singing reflects aspects of diaphragmatic-costal breathing since he emphasized expansion of the lower rib cage. Furthermore, while there is no mention of expansion in the abdomen, he does not advocate a "pulling in" of the abdominal muscles upon inhalation, a chief trait of pancostal breathing.

While his writing suggests he was teaching diaphragmatic-costal breathing, modern pedagogues would likely take issue with Schmitt's emphasis on chest expansion. Schmitt's instruction that the singer fill to "maximum capacity," and, if the singer felt he had not achieved this expansion, "to take additional breaths," suggest that he was asking his students to overbreathe.

Current thinking supports a dramatic expansion of the rib cage and abdomen but with the recommendation this expansion remain flexible.[133] Flexibility is a telling sign the singer is not overfilling.[134] Nevertheless, the emphasis Schmitt placed on overexpansion is an important historical point, as it significantly influenced later pedagogues, namely George Armin.

Also of concern to present-day views on respiration would be Schmitt's instruction for a breath to be "taken as quickly as possible." While a singer must often breathe quickly (what Garcia called *mezzo respiro*, or a catch breath), many modern teachers, like the teachers of the *bel canto*, believe slow inhalation (what Garcia called *respiro*, or full breath) to be the basis for breathing.[135] In other words, when given the chance to inhale slowly, the respiratory muscles are able to expand without excessive tension. This current practice may be due to the strong influence of Italian technique on modern day methods. When comparing this slow long breath (*respiro*) to Schmitt's quick breath (*mezzo respiro*), one can clearly see an example of Schmitt's divergence away from the Italian tradition.

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133. William D. Leyerle, *Vocal Development Through Organic Imagery* (Geneseo, NY: Leyerle Publications, 1986), 106.

134. Dayme, *Dynamics of the Singing Voice,* 87.

135. Marek, *Singing*, 76.

Resonation

Nasal Singing

Schmitt stressed the importance of nasality, i.e. directing the tone through the nose.[136] In his view, nasality gave the voice a round, metallic, sonorous sound that would "fill a hall." He stated it was a "happy day" when the student was able to find a nasal tone.[137]

For students unable to find the nasal quality, Schmitt recommended using [i] and [e] vowels. When singing these two vowels, the tongue was in a high arched position. He believed this position would allow the sound to be easily directed through the nasal sinuses. Schmitt suggested the soprano voice did this naturally.[138] Another option to achieve nasality was through the use of nasal consonants, such as [n]. Schmitt noted, however, the use of consonants was to be the last option in finding this nasal quality. He did not mention a reason for this.[139]

Schmitt's points on resonance are imprecise. It is not clear if he was advocating for an actual "nasal" tonal quality or merely promoting a balanced tone that resulted in the singer sensing sympathetic nasal resonance. Most likely he preferred the latter, since a "nasal" sound would not have the carrying power nor the "round" tonal quality he described in his writing. Thus, he was probably describing his sensation of what felt like a "nasal" sound.

Mouth Position

In Schmitt's view, the mouth position of the singer was critical to the quality of tone. The singer was to form the mouth according to two principles:

- *Tongue* - the tongue should lie forward and flat in the mouth. If the singer had difficulty with the tongue lying forward, a teacher was to use a pair of tongs to pull it into the correct position. Schmitt in fact created a model prototype of these tongs.

- *Mouth position* - the mouth should be open as "wide" as possible for all vowels, particularly on high notes. There should never be a grimace and the mouth should maintain and oval position.[140]

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136. Schmitt, *Grosse Gesangschule für Deutschland*, 15.
137. Ibid., 16.
138. Ibid., 15.
139. Ibid., 16.
140. Ibid., 27.

Schmitt's description related to the correct mouth position for singing is also difficult to interpret. The phrase Schmitt used to describe this mouth position literally translates to "the mouth must for all vowels be opened as wide (*weit*) as possible, especially for high notes."[141] It is unclear if he intended the mouth to be opened vertically or horizontally.

Considering his direction, it is important to point out a mouth that is too widely opened in the middle and lower range would be disadvantageous to developing *chiaroscuro* tonal quality. Excessive overemphasis of the oral cavity in this range is a poor resonance strategy.[142] Yet, in the upper range, this advice may have been beneficial since a wider mouth opening would open the vowel and could help the singer achieve the proper vowel modification necessary to maintain a balanced timbre.[143] However, it is important to note the mouth position in the upper range must be addressed individually. All singers do not conform to a one-only approach that could in fact be harmful.

One other point regarding resonation deserves attention – a corrective method Schmitt used for correct positioning of the vocal tract, this being his use of tongs to correct the position of the tongue. While many voice teachers advocate a forward tongue position and some modern pedagogues used such devices (e.g. Douglas Stanley's "tongue instrument"),[144] the majority of modern teachers would find this excessive and actually harmful.

Phonation

Good Onset

Schmitt viewed the onset as vital to creating a good tone. Without a proper onset, Schmitt thought the tone would be adversely affected, what he called the "lack of melting quality in the

141. Schmitt, *Grosse Gesangschule für Deutschland*, 27.
142. Bozeman, *Practical Vocal Acoustics*, 15.
143. Ibid., 29-30.
144. Douglas Stanley, *Your Voice: Applied Science of Vocal Art, Singing and Speaking* (New York: Pitman Publishing Corporation, 1945), 75.

tone."[145] In addition, he saw a poor onset as the cause of hoarseness or swelling.[146] Schmitt outlined an approach to teaching the proper onset, which as he said, "allowed for a round tone on all high and low tones."[147]

Schmitt offered the following example to describe the way a singer could create a good onset:

1) Attain good posture, and take a breath;
2) Speak the word "Vater,";
3) Sing a tone that is "fresh, and short," like the "stroke of a hammer without any difficulty or force."

Schmitt noted the importance of the tongue lying flat during this exercise.[148] When this tongue position, along with posture of the body and mouth position were correct, the balanced onset would follow.[149]

Schmitt's description of the proper onset was very similar to Garcia's *coup de glotte*. Thus, it was likely he was also promoting a precise balanced onset. This onset set the framework upon which all other aspects of singing (registration, resonation, agility, and others) could be developed.

Dark Onset

Schmitt believed an onset with a fabricated laryngeal position (i.e. consciously depressed) was one of the most harmful techniques a teacher could suggest to his students. He felt this "dark onset" (Schmitt's terminology) damaged the overall vocal health of the student and disturbed musicality.[150]

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145. Schmitt, *Grosse Gesangschule für Deutschland*, 14.
146. Ibid.
147. Ibid., 15.
148. Ibid.
149. Ibid., 13.
150. Ibid.

Registration

Number of Registers

In Schmitt's view, attempting to impose the classification of specific "registers" on the human voice was not appropriate since he believed they did not naturally exist. He viewed the term "registers" as more suitable to instruments such as the pipe organ. Consequently, he saw the typical classification of voices, what he identified as chest voice, middle voice, head voice and falsetto, as being incorrect. In contrast, he believed there was only one register for all voice types (both male and female), that being chest voice. He did recognize one exception; this was the presence of an additional register in the tenor voice, the falsetto.[151]

Schmitt's description is somewhat misleading. While he believed there was only one general register, later in his treatise, he softened his stance on the issue, stating there are moments when one hears "a sudden abrupt change" between a collection of sung pitches. He specifically mentioned two such timbral "changes," this being falsetto in the male voice and an "isolated" register for the lowest part of the alto and soprano voices (likely the traditional view of the chest register – thyroarytenoid-dominant production).[152] From this description, it can be inferred that while Schmitt actually recognized "registers" in the human voice, he thought it was pedagogically not useful to think about them, believing a one register approach would best result in a seamless scale.

Stating this register was "chest voice" and applying it to all voice types, especially women, is, however, confusing to modern readers. It suggests Schmitt was promoting a chestier, thyroarytenoid-dominant production (TDP) for female singers throughout their entire range. The pedagogical implications of such a view are potentially harmful. Nevertheless, his later comment regarding a different "isolated" low register in the female voice suggests he recognized the register typically termed "female chest voice" (TDP). As a result, one can infer he did not

151. Schmitt, *Grosse Gesangschule für Deutschland*, 17.
152. Ibid.

advocate TDP throughout the entire range, but rather a more dynamic balanced laryngeal adjustment of head (CDP) and chest (TDP).

Falsetto

Schmitt believed falsetto was unique to the tenor voice. He thought it was an important aspect to the development of this voice type and without it, the singer would not be able to sing any "modern day" repertoire.[153] He saw the technique as particularly useful in teaching tenors how to find a beautiful color and avoid tension in the upper range.

When teaching falsetto, he noted the difficulties when singing in this register, namely, bridging falsetto with chest voice, or as he explained, avoiding the "yodel-like break."[154] Schmitt recommended the following exercises for blending falsetto with the chest register:

- Correct onset;
- Open mouth and proper tongue position (lying flat at the front teeth) must remain constant;
- Tone should not be timid or held back;
- Phonation should be free and effortless;
- Should only be practiced in pianissimo, particularly when dealing with notes that border chest and head (i.e. passaggio points).

Schmitt, like Mannstein and later modern-day scholars, recognized the importance of strengthening the falsetto mechanism. It probably had a positive effect on his students' singing, as it would have strengthened and balanced the musculature of the entire voice.

Upper Register

Schmitt set several conditions to access the upper register for all voices:[155]

- The larynx should rise;
- Glottis narrows;

153. Ibid., 179.
154. Ibid., 15.
155. Ibid.

- Tongue must stay forward and lie flat at the lower front teeth;
- Good onset is necessary;
- The mouth should open slightly for high notes.[156]

Schmitt believed sympathetic resonance would change when approaching the upper register. The sound was to be delivered differently compared to the middle and low range. For these pitches, the sound should flow "through the parts of the head and through the pharynx." The singer should feel no pressure in the throat, but instead only in the skull. This resonance change occurred gradually rather than suddenly.[157]

Unifying the Scale

Schmitt thought the singer should view register changes with same smoothness as those of a musical instrument, thereby avoiding abrupt alterations in tone quality. Rather than a pronounced adjustment, the singer was to make a change that occurred naturally and gradually at *passaggio points*.[158]

In order to unify the scale Schmitt provided only vague methods focusing only on laryngeal registration with no discussion of vowel modification. He focused on four points:

- Setting good basic conditions of vocalism (onset, tongue position);
- Practicing higher notes softly, suggesting a lighter laryngeal adjustment (cricothyroid-dominant production);
- Allowing the larynx to rise (a recommendation contrary to the western classical singing tradition);
- Finding the correct placement, i.e. directing "the tone through higher parts of the head and pharynx."[159]

Schmitt's instructions to achieve an even scale and access the upper range is slightly unsettling. He was correct in his assertions that a balanced onset was fundamental, the mouth

156. Ibid., 18.
157. Ibid., 15.
158. Ibid., 17.
159. Ibid., 15

position would likely need to open, glottal closure was greater, and the tongue should stay forward in the mouth. However, his instruction that the larynx rise was not beneficial for singing in the classical western tradition.

In order to achieve even registration, tube length of the vocal tract must remain constant.[160] This means the larynx should remain in a comfortably low position throughout all registers (with the exception of the extreme upper range of the female voice, i.e. above Bb5).[161] This position should be created by the reflex action induced by proper breathing.

Other Important Aspects

Diction

Diction was critical to Schmitt's principles. He felt it was the most essential element in singing. He saw words as the "most beautiful ornament" giving the singer a more powerful communicative tool than the instrument.[162] His aesthetical view of the importance of the text combined with Wagner's requests to create a method to fit his *Musikdrama*, drove Schmitt to develop a technique that would make the text more understandable. This focus on diction was one of the primary purposes in Schmitt's method.[163]

Schmitt recommended three strategies to achieve good, clear diction.[164]

- Sing pure vowels as they would be spoken;
- Assure consonants were strong, but also quick so as to not disturb the flow of the line;
- Maintain the correct vowel color even if a short vowel was on a long sustained note. The key in achieving this was to maintain vowel purity, without regard for the actual length of the vowel (short as in "*müller*," or long as in "*mühle"*).

160. Bozeman, *Practical Vocal Acoustics*, 37-38
161. Ibid., 34.
162. Ibid., 21.
163. Hey, *Deutscher Gesangs-Unterricht*, 3-4.
164. Schmitt, *Grosse Gesangschule für Deutschland*, 21.

Summary of Schmitt's Treatise

1) ***Place in History***

- Schmitt's treatise represented the first attempt to create a school of singing based on German principles.

2) ***Respiration***

- Breathing for singing is different than speaking and consists of a greatly expanded rib cage.

- Expansion of the chest is formed during inhalation and maintained throughout phonation.
- Schmitt's discussion is reflective of diaphragmatic-costal breathing; however, the emphasis placed on chest expansion suggests over-breathing, an action foreign to *appoggio*.

- His view the breath should be "taken as quickly as possible" is contrary to the Italian tradition and that of many modern voice teachers' approach of a long slow inhalation (*respiro*).

3) ***Resonation***

- Nasality assists the singer's tone; it is this characteristic that gives color to the voice and carrying power.

- The forward vowels [i] and [e] as well as nasal consonants are beneficial in finding nasal resonance.

- Whether or not Schmitt actually advocated a nasal tone is uncertain. His discussion implies he was supporting sympathetic nasal resonance.

4) ***Phonation***

- The onset is vital to the beauty of tone.

- When all elements (posture, mouth and tongue position) are correct, the onset will be correct.

- The onset should be "fresh, and short," like the "stroke of a hammer without any difficulty or force," and should be developed from natural speech. The inference from Schmitt's discussion was he supported a precise onset similar to Garcia's *coup de glotte*.

- A "dark onset" in which the larynx is consciously depressed is harmful to the health of the singer and disturbs the musical presentation.

5) ***Registration***

- Schmitt stated that all voice types have one register, with exception of falsetto in the

tenor voice. However, later he alluded to the idea there were register breaks the singer must blend or unify.

- Falsetto is unique and very useful to the tenor; it should be developed and blended with chest voice.

- Correct acquisition of the upper register depends upon the following aspects:
    - Larynx should rise;
    - Glottis narrows;
    - Tongue must stay forward and lay flat at the bottom front teeth;
    - Good onset is necessary.

- The highest notes should move through the parts of the head and pharynx; this is the major difference between resonance of the upper and lower range.

6) ***Other Important Aspects***

- Diction is the most important aspect of singing; it makes the voice more musically expressive than the instrument.

- Correct acquisition of diction is achieved by singing pure vowels and strong and quick consonants.

Chapter 5: FERDINAND SIEBER (1822-1895)
Katechismus der Gesangkunst (1862)

Ferdinand Sieber was a successful singer and widely respected as a voice teacher and expert on vocal pedagogy.

Biographical Sketch[165]

Ferdinand Sieber was born in Vienna into a musical family on December 5, 1822. His father, Carl (Caspar) Sieber, was an operatic bass who was engaged in Vienna at the time of Sieber's birth. His father's career in Vienna was short-lived, and as a result, the family relocated to Dresden. In Dresden, young Sieber had his first experiences as a singer, performing in a boys' choir. Because of his obvious talent, Sieber was accepted into the studio of Johannes Miksch. In 1842, at the age of 20, Sieber sang his first performance as a soloist. In 1843, he toured Germany, and after a successful concert in Detmold, became a member of the ensemble at the city's theater.

While in Detmold from 1844-1847, Sieber sang major parts including Sarastro in *Die Zauberflöte*, Kaspar in *Der Freischütz*, Bertram in *Robert le Diable*, Marcel in *Les Huguenots*, Osmin in *Die Entführung aus dem Serail*, and Figaro in *Le nozze di Figaro.* He later appeared in guest appearances in cities such as Hamburg, Schwerin, Leipzig, Vienna, and Würzburg.

Later, Sieber toured Switzerland and Italy, which brought him into contact with the well-regarded voice teachers Girolamo Fiorini and Felice Ronconi. In 1849, Sieber returned to Dresden and shifted his focus to teaching singing. It was in Dresden where Sieber taught at the *Blochmann'sche Institut*. Later in 1854 he moved to Berlin and taught at *Königliche Musikakademie*, receiving the title of professor in 1864. Among Sieber's students were Bianka Blume, Hermine Spies, and Anna Schoen-René.[166]

Place in History

165. Kutsch, Riemens, and Rost. *Grosses Sängerlexikon*, 4389.

166. Janis White Dees, "Anna Schoen-René: Minnesota Musical Pioneer," *Minnesota History* 48, no. 8 (Winter, 1983): 332-338.

Sieber's treatise was largely influenced by the principles of the Italian *castrati*. He became familiar with this approach through his teacher, Johannes Miksch, and from his experiences in Italy with Ronconi and Fiorini. In carrying on this tradition, Sieber, like Mannstein, demonstrates the influence of Italian methods on German singing during the nineteenth century.[167]

Aim of Sieber's Treatise

Sieber created his singing manual as a response to the poor state of singing he observed across Germany. His detailed manual targeted singers and teachers to provide to them a clear, thorough understanding of the basic principles of singing.

Structure of *Katechismus der Gesangkunst*

Sieber covered six key areas in his treatise:

- Vocal hygiene;
- Basics principles of pedagogy;
- Types of tones possible and how to achieve them;
- Diction and articulation;
- Agility;
- Interpretation and stage presence.

Respiration

Inspiration and Expiration in Singing

Inspiration

Sieber broke down inspiration into three parts, all of which occur simultaneously:

1) A considerable amount of air is inhaled, quietly, and without haste;
2) The chest rises gradually, as the thorax expands forward and laterally;
3) The diaphragm descends. [168]

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167. Kutsch, Riemens, and Rost, *Grosses Sängerlexikon*, 4389.

168. Ferdinand Sieber and Ferdinand Seeger, *The Art of Singing* (New York: Wm. A Pond, 1872), 39-40.

Expiration

Sieber saw expiration as the more difficult task. When singing, the singer was required to balance the task of retaining air, while at the same time phonating. To achieve a gradual release of air, Sieber made two points:

1) The success of expiration is dependent upon the quality of the inspiration. If inhalation was taken "hastily," it will have to be "hastily" exhaled;

2) The thorax and rib cage stay expanded, returning to their original resting position slowly with no sudden collapse or jerking.[169]

Importance of Proper Respiration

Sieber believed the student and teacher needed to address the importance of breath since the process was critical to tone quality. When the student practiced, he/she was to fully concentrate on the process of breathing. Beyond singing, Sieber felt strongly that breathing was important to the overall health of the student. Forcibly expanding the lungs and violently expelling air made the student prone to developing fatal illnesses.[170]

Sieber was likely teaching diaphragmatic-costal breathing. Reflective of this was his emphasis on chest expansion and instruction that the diaphragm descends during inhalation. This suggests expansion was occurring both abdominally as well as thoracically.

A comparison of Sieber's diaphragmatic-costal approach and Mannstein's pancostal method is revealing because both styles derive from the same teacher, Johannes Aloys Miksch. Perhaps it was Sieber's additional study in Italy with Fiorini and Ronconi that further developed his views on diaphragmatic-costal breathing. Regardless, Sieber had a more thorough understanding of the Italian tradition than Mannstein.

Another compelling point Sieber highlighted was the significance breathing played in the singing process and the attention the singer should place on it when practicing. This was valuable advice since breathing sets the conditions for the voice to function well and should be the first

169. Ibid., 40.
170. Ibid., 41.

element a singer considers. Specifically, breathing permits the larynx to naturally descend through reflex action, allowing the laryngeal muscles and muscles of the vocal tract to function most favorably. If this basic condition is not met, any attempts to correct vocal problems will be merely patchwork (e.g. placement of the tongue, sympathetic resonance sensations). In this context the well-known *bel canto* maxim best sums it up: "*chi sa respirare, sa cantare"* ("He who knows how to breathe, knows how to sing").[171]

Phonation

Elements of a Good Tone

Sieber thought every tone should be "pure and clear" and must have the ability to achieve a *messa di voce,* i.e. the ability to swell to forte and diminish back to pianissimo.[172]

The correct onset consisted of the following sequence:

1) Air passes into the larynx;
2) The sound then passes into the pharynx creating secondary resonance;
3) Next, the sound passes over a flat tongue (with the tip lying at the lower front teeth);
4) At the same time, the sound comes into contact with a portion of the hard palate close to the roots of the upper teeth, thereby increasing resonance;
5) The sound flows out of the mouth, free and pure.[173]

How to Achieve a Good Tone

Sieber believed in a gestalt approach to tone production. He illustrated this idea by comparing singing to the act of grabbing an object. In this visual, the arm raises, the elbow bends, and the hand grasps the object.[174] Thus, the entire arm is involved in grabbing the object, not only the hand. In his view, this grabbing motion corresponded directly to the function of the entire body when all elements work simultaneously together creating a well-balanced tone. Posture of body

171. Marek, *Singing*, 67.
172. Ibid., 40.
173. Ibid., 44.
174. Ibid., 42.

and position of the mouth set the framework to achieve this balance.

He listed ten aspects (below) required of good posture and tone production.[175]

1) The singer should stand firmly on both feet with the body erect. Arms should not be crossed, rather they should be hanging at the singer's side with no undue tension;
2) Chest expands forward;
3) The body moves backwards;
4) The head should be stretched upwards in a natural position;
5) Mouth should be in a slight smiling position;
6) Mouth should have a slight oval shape, which is formed from above, not below;
7) Mouth opening should allow a space between the teeth the width of the middle finger;
8) Tongue should lie flat and quietly in the mouth, with the tip resting at the lower front teeth;
9) Upper lip should be raised so that half of the upper front teeth are visible;
10) The head must not press downward on the larynx.

Messa di voce

Sieber believed the *messa di voce* was a tool that allowed the singer to develop an elegant full tone, a quality he called the "highest charm." Through the *messa di voce*, the singer became aware of all dynamic possibilities of a sung pitch and became acquainted with the different degrees of tension required in singing them. The *messa di voce* balanced all aspects of the singing process - registration, respiration, phonation, and resonation.

Sieber listed the following concerns related to the *messa di voce*. Before proceeding with the exercise, the singer needed to be capable of singing a proper *piano, mezzo forte,* and *forte*. He emphasized beginners were never to practice the exercise because it was too difficult and could be harmful to the vocal health of the student.[176]

Sieber did not specifically mention mechanics of phonation as Schmitt did (i.e. onset

175. Ibid., 37-39.
176. Ibid., 52-54.

formation). Instead, Sieber emphasized how phonation was affected by the body functioning as a whole (gestalt). He made this clear in his instructions for posture, describing a condition in which all elements worked together.

Sieber's assertion was accurate. Breathing conditions are set by the singer's basic posture (i.e. lengthened spinal cord, high chest position). While good resonate attacks are prepared by "opening the throat" through a slight inward smile (zygomatic muscles) and a forward tongue position with the tip resting at the lower front teeth. The connection between the two is called *imposto* (a breath-resonance connection), and is foundational to good phonation.

Resonation

Faulty Tones: Causes and Corrections

Sieber stressed the importance of tongue mechanics. In his view, all faulty tones were a result of an improper position of the pharyngeal and buccal cavities. The cause of these tones was due primarily to the action of the tongue since it is capable of moving in a wide variety of positions (forward, backward, and up and down,). He named three different types of faulty tones:[177]

- The *throat-sound* caused by an incorrect position of the epiglottis as it closed, thereby cutting off the resonance of the sung tone. Sieber felt the underlying problem was related to tension in the root of the tongue, occurring when the tongue pulls back into the pharynx. This problem could be corrected by allowing the tip of the tongue to rest at the front teeth. He noted this was often difficult for the beginning singer to correct.[178]

- The *nasal tone* was the sound made when the tone flowed into the pharynx and passed into the nasal cavities, creating an "intolerable" nasal sound. The nasal tone was caused by two actions, these being too low of a velum position combined with a high tongue position (e.g., the [ŋ] present in the word "mengst"). Sieber felt the primary cause was faulty use of the articulators, often a by-product of movement occurring after phonation had begun. Correction of this problem targeted position of the tongue so the tongue would lie flat. If the student had difficulty with this, the teacher was to use a spoon to depress the tongue.

- The *palate-sound* was created by improper movement of the tongue moving up against the roof of the mouth. This movement blocked the sound, not allowing sound to move beyond the hard palate. As a result, the sound was unable to become fully resonant.[179]

177. Ibid., 44-45.
178. Ibid., 35.
179. Ibid., 35-36

Sieber's assertion that tongue tension played an important role in poor tonal quality was accurate. If the tongue is in a poor position, the vocal tract will be inadequately modified, resulting in poor resonance. For example, when the tongue retracts into the pharynx (tip away from lower front teeth), it blocks off vital resonating space, resulting in a muffled, less resonant sound. This sound may please the singer (through internal vibrations) but not the audience.

To correct tongue tension, Sieber championed a method many modern teachers would find controversial. This method, similar to Schmitt's use of tongs, was to use a spoon to depress the tongue if it was not lying flat. This method was problematic. First, this was an extremely invasive mechanical adjustment and secondly, the tongue should have a slight arch on all vowel sounds (higher on [i] and [e], lower on [a]) regardless of the vowel sung. A slight arch implies the tongue is free of tension, allowing the back of the tongue to form the vowels. The great Italian teacher Giovanni Sbiriglia (1832-1916), commenting on the contemporary emphasis on tongue placement, validated this point stating,

> There is no way to tell people how to use their tongues, their lips, or their mouths in singing. It depends on the formation of these organs. Always keep the tongue flat, is another universal method. How stupid! The tongue usually goes up in the back just a little.[180]

Registration

Two Registers

Sieber argued all voices have two distinct registers - chest voice and head voice. He believed there were physiological differences between the two registers. In chest voice, the full mass of the vocal folds vibrated, while in head voice, only the edges of the folds vibrated.[181]

Passaggio Points

In an ascending scale, the point at which an inequality in timbre occurred (resembling a trill), was the point where the singer needed to transition to a new register. Sieber believed *passaggio*

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180. Berton Coffin, *Historical Vocal Pedagogy Classics* (Lanham, MD: Scarecrow Press, 2002), 100.

181. Sieber and Seeger, *The Art of Singing,* 34.

points occurred at the following pitches in these voice types:

- bass at Bb3 or B3
- baritone at C#4 or D4;
- tenor at E4 or F4;
- contralto at A4 or B4;
- mezzo soprano at C#5 or D5;
- soprano at Eb5 or E5.

Above these *passaggio points*, the singer was to sing in pure head voice.[182]

Criticism of Three-Register System: Dangers of Chest Voice and Importance of Head Voice

Sieber noted his contemporaries taught a three-register system. He was critical of their so-called "middle register." He believed teachers were advocating that students take chest voice up too high and that they should have rather prescribed head tones. Incorporating too much chest mechanism resulted in an uneven voice and, in Sieber's view, was dangerous to the singer's vocal health.

As noted, Sieber and Mannstein suggested the voice had two distinct registers, chest voice and head voice. Their observations can be compared to the modern view of thyroarytenoid-domination production (chest voice) compared to cricothyroid-dominant production (head voice). Sieber's discussion focused on laryngeal registration and said nothing about balancing these registers through vowel modification. However, as with Mannstein, there was likely some use of passive vowel modification because the event of "turning over" into a new register (i.e. what the listener hears as a register change) is primarily an acoustical phenomenon.[183]

Other Important Aspects

Artistic vs. Natural Singing

Sieber emphasized the difference between natural talent and artistry. He believed natural

182. Ibid., 35.
183. Bozeman, *Practical Vocal Acoustics*, 26.

talent was an innate gift but artistry had to be developed. The training to develop artistry was what Sieber termed "technique." This technique leading to artistry involved five components - good breath control, good onset, mastery of the *messa di voce*, ability to phrase, and agility.

Summary of Sieber's Treatise

1) *Place in History*

- His treatise demonstrates the influence of Italian singing in Germany in the nineteenth century.

2) *Respiration*

- Promoted diaphragmatic-costal breathing.
- Inspiration consists of three simultaneous elements: 1) silent inhalation, 2) expansion of the chest, and 3) descent of the diaphragm.
- Expiration in the singing process is a balancing act of gradually releasing expansion of the chest during phonation.

3) *Resonation*

- The tongue is the most important muscle for achieving proper resonance; tongue faults are the causes of poor resonation.
- There are three types of faulty tones: 1) the throat-sound, 2) the nasal tone, and 3) the palate-sound.
- Used a tongue depressor to adjust faulty tongue position.

4) *Phonation*

- A five-part process is necessary to achieve a "pure and clear" (balanced) tone. This type of tone, when correct, sets a foundation upon which a *messa di voce* can be performed.
- Through proper body alignment, all parts of the body work synergistically to produce an ideal tone.

5) ***Registration***

- The voice consists of two registers - head and chest voice.
- The point at which an audible inequality (trill-like sound) is heard marks the point where a singer transitions to a new register (head in ascending, chest in descending).
- The three-register approach to registration is flawed. In this method, too much chest voice is incorporated into the middle register. This creates an uneven scale, and is dangerous for the vocal health of the singer.
- He viewed registration issues in terms of laryngeal adjustment; however, one can infer there was an element of passive vowel modification present.

6) ***Other Important Aspects***

- Artistry and talent are different; artistry is the acquisition of technique whereas talent is naturally given.

Chapter 6: JULIUS HEY (1832-1909)
Deutscher Gesangs-Unterricht (1884)

Julius Hey was a renowned German pedagogue who was Richard Wagner's most trusted advisor on aspects of singing. Hey based his approach on Friedrich Schmitt's work *Grosse Gesangschule* (1854), further expanding Schmitt's model and disseminating what came to be a widely accepted German method of singing.

Biographical Sketch[184]

Julius Hey was born on April 29, 1832 in Irmerlshausen, Germany. He first studied to be a painter at the *Künstakademie* in Munich, while at the same time studied composition and music theory with the musician Franz Lachner (1803-1890). This latter experience fueled an even greater interest in music, compelling Hey to switch his focus away from painting to music.

Hey later met and studied voice with Friedrich Schmitt, who had come to Munich at the behest of Wagner. Schmitt was one of the few in the field who addressed problems associated with diction in German repertoire. This particular aspect of singing greatly influenced Hey and his future aesthetical approach to teaching voice.[185]

In 1864, Hey met Wagner and later became his most trusted advisor on the art of singing. At the time, Wagner felt singers performing his music sang with poor diction. Known for his nationalistic views highly critical of the French and Italian musical styles, he was convinced this problem was caused by the influence of Italian vocal technique.[186] In many ways Wagner's disapproval of poor diction prompted Hey to commit to developing a new technique specific to Germanic repertoire.

In 1867, Hey began to teach voice at the newly formed *Königliche Konservatorium* in

184. Friedrich Blume and Ludwig Finscher, *Die Musik in Geschichte und Gegenwart: Allgemeine Enzyklopädie der Musik; Personenteil,12* (Kassel: Bärenreiter, 2004), 1504-1505.

185. Hey, *Deutscher Gesangs-Unterricht*, 5-6.

186. Ibid., 2-3.

Munich. After Wagner's death in 1883, Hey left the conservatory and focused his efforts on refining a technique that fit the needs of Wagner's *Musikdrama*. Hey's fully developed method was published in his text, *Deutscher Gesangs-Unterricht*. Later in his career in 1887, Hey moved to Berlin where he continued to teach voice.

Hey was a well-known, well respected pedagogue in his day, teaching many students who had prominent professional careers of their own. His pupils included Katharina Klafsky, Eva von der Osten, Rosa Olitzka, Elise Kutscherra de Nyß, Charlotte Huhn, Georg Unger, Karl Perron, and Albert Hoeberg.[187]

Place in History

Julius Hey is most recognized by his extension of Schmitt's earlier ideas in creating a German singing method, rejecting Italian and French influences, and his efforts to respond to Wagner's concerns related to text comprehension. Through his affiliation with Wagner, Hey developed an innovative singing technique to emphasize text comprehension. Hey's method placed stronger influence on *Sprechgesang* (text-based singing) than the pure vocalism of the Italian and French schools.[188]

In addition to Hey's work with singers, his principles were highly regarded by actors and professional speakers, known to them through the condensed version of *Deutscher Gesangs-Unterricht*: *Der kleine Hey*. This abbreviated book spoke to the demands of recitation and served as a standard in Germany for those involved in public speaking. In fact, this book is Hey's greatest legacy.

Aim of Hey's Treatise

Hey's four-volume work, *Deutscher Gesangs-Unterricht*, aimed to meet the needs of Wagner's *Gesamtkunstwerk.* Hey outlined principles for achieving clear understandable text in

187. Kutsch, Riemens, and Rost, *Grosses Sängerlexikon*, 2069.
188. Blume and Finscher, *Die Musik in Geschichte und Gegenwart*, 1505.

singing German repertoire, what Hey called "German *Bel canto*."[189]

Structure of *Deutscher Gesangs-Unterricht*

Several editions of Hey's work are available, however the first two editions focused solely on Hey's ideas related to teaching singing. Later editions were expanded and included commentary by the editors. The second edition added exercises for individual voice types and offered a more structured discussion of Hey's principles. Hey's work is written in two parts - the *Sprachlicher Teil* (linguistic detail) and the *Gesanglicher Teil* (singing detail).

Sprachlicher Teil addressed key concepts of Hey's approach to include:

- Hey's argument for a new German system of singing offering a criticism of past and contemporary methods, a summary of Wagner's dissatisfaction with the poor diction of German singers, and his rationale for a new method;
- An in depth discussion of speech sounds related to correct formation of vowels and consonants;
- Linguistic cultivation focused on the most common problems associated with singing (e.g., lack of resonance, uneven scale) and solutions using mainly speech-based corrections.
- Dynamic and rhythmic elements of the German language such as speech inflection and rhythm, among others.

Gesanglicher Teil was primarily an exercise book of scales, songs and arias to be used for training singers. The second edition (1913) added a discussion of technical principles (e.g., breath, registration). Hey suggested vocal exercises to practice the following singing elements:

- Exercises to strengthen natural chest resonance;
- Blending of registers;
- Dynamic progression of the vowels;
- Scales: chromatic and diatonic;
- Interval training;
- Ornamentation;
- The trill.

189. Ibid.

Respiration

Diaphragmatic Breathing

Julius Hey believed the majority of singing problems were caused by poor respiration. To correct this, he advocated diaphragmatic breathing, which, in his view, was the correct method of respiration for singing.[190] He felt techniques that taught tightening of muscles (chest and abdominal) were not helpful. This unnecessary tension crippled movement of the diaphragm, negatively impacting respiration. Hey described this type of respiration as a "jerky" breath or a breath without resistance.[191]

It is difficult to know which breathing method Hey taught. He simply mentioned diaphragmatic breathing should occur without any unnecessary tightening of the muscles of the thorax or abdomen. His assertion was accurate - while the breath musculature must remain taut, it should remain flexible for optimal function.

Nevertheless, Hey did not discuss the use of any secondary muscles in breathing. Therefore, it is unclear if he was teaching abdominal breathing or a diaphragmatic-costal breathing. As well, pancostal breathing was clearly not a possibility since he specifically stated there should be no tension in the abdominal muscles. Nevertheless, his emphasis on low diaphragmatic descent implies he was asking his singers to breathe "low," indicating some element of abdominal breathing.

Achieving Proper Respiration

When teaching breathing, Hey believed breathing exercises should not be separated from phonation. Instead, breathing exercises should be combined with speech since he thought respiration for both the singing and speaking processes were similar. The only difference Hey observed was the sustained sung tone required less air.[192] Specifically, Hey thought the solution

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190. Hey, *Deutscher Gesangs-Unterricht*, 139.
191. Ibid.
192. Julius Hey, Hans Erwin Hey, and Fritz Volbach, *Der kleine Hey. 2,1* (Mainz: Schott, 1913), 4.

to poor respiration was by connecting breathing with bright and dark vowels.[193] To achieve proper respiration, Hey recommended the following sequence:[194]

- Breathe through the mouth;
- As the inhaled air increases, so should the opening of the mouth;
- At the end of the inhaled breath, there should be a large jaw opening, with the soft palate and the uvula in the highest position possible;
- Before phonation there is a short pause;
- After the pause, the student should speak vowels in either an order from bright to dark ([i], [e], [ɛ], [a] [o], [u]), or from dark to bright ([u] [o] [a], [ɛ], [e], [i]);
- This exercise should begin almost "whisper-like;"
- Throughout the entire exercise, the student should feel a widening of the pharynx. As a result of the widening, a free, resonate tone will result.

Laryngeal Position

Hey believed a comfortable low (unforced) laryngeal position was a prerequisite for superior phonation. Students were to be aware of this position and maintain it throughout the respiration and phonation processes (i.e. avoidance of the rising or lowering of the larynx). The unforced lowering of the larynx created through diaphragmatic breath, what he called, the *Tiefgriff der Stimme* (the lower grip of the voice) gave the voice a *Halt* (foothold) or *Stütze* (a support point). To find the correct position of the larynx, the vowels [o] and [u] aided the singer. In addition, Hey recommended students image all sung pitches as being on a horizontal plane; this too was beneficial for achieving a stable laryngeal position.[195]

Phonation

Three Types of Tones

Hey described three different types of tones:

- *Naturton* (natural tone), the tone that developed naturally from the student;

193. Ibid., 4.
194. Ibid., 4.
195. Ibid., 4.

- *Normalton* (normal tone), a tone which was refined, but not yet fully developed; it had the potential to develop into the *Idealton*;

- *Idealton* (ideal tone), an "expressive, individual, free tone" that "gave pleasure to the listener." This was, in Hey's view, a fully developed balanced tone.[196]

The method to develop the *Idealton* originated in the *Naturton*.

Naturton and the Development of Tone

Hey saw the *Naturton* (natural tone) as the key to building proper phonation. This tone resulted from "unforced" production; its refinement led to the *Normalton* (normal tone), which served as the precursor to the *Idealton*.[197] To find this tone, the student performed speaking exercises in his most comfortable range. Hey recommended sentences with strong consonants to help ground the voice, which included:

- *Barbara sass nah am Abhang*;

- *Es streben der Seele bebete*;

- *Oben throne fromme Nonnen.*

By practicing these exercises, the student learned "a natural attack, free from any pushing that seemed to flow out of the mouth."[198] After the student learned this coordination in the most comfortable range, the singer advanced to higher and lower pitches, beginning with neighboring tones.

Hey's approach to phonation was based on the refinement of natural speech, a method similar to many modern-day pedagogues including W. Stephen Smith.[199] If the singer speaks well, this would be an efficient approach since it uses the student's natural coordination as a starting point to develop the voice. However, problems may occur if the student's speaking voice is not well coordinated. In such cases, "primal" sounds (e.g. sighing, crying, laughing) would be more beneficial.

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196. Ibid., 2.
197. Ibid., 2.
198. Ibid., 3.
199. W. Stephen Smith and Michael Chipman, *The Naked Voice: A Wholistic Approach to Singing* (New York: Oxford University Press, 2007), 49-65.

Importance of the Tongue[200]

Hey noted improper tension of the tongue was often a cause of poor tonal quality. He felt this tension was caused by poor consonant production. To correct this, he recommended gymnastic exercises of the tongue, uvula, soft palate, jaw, and lips to free it. These exercises were practiced until articulation was secure and clear. Examples of these types of movements included extending the tongue outside the mouth over the lips, lowering the jaw, and quick jaw movements.[201]

Hey made a valuable point that tongue tension was often the root of poor tonal quality. The tongue directly affects the larynx through its connection to the hyoid bone. Consequently, tension in the tongue is inadvertently transferred to the laryngeal muscles, causing vocal problems such as a slow or quick vibrato.

Furthermore, the position of the tongue also significantly affects the shape of the vocal tract, impacting tonal quality as well as clarity of diction. Poor shape of the resonator caused by tension in the tongue may boost unwanted frequencies, creating timbre distortion and unclear diction.

Hey's method for correction (gymnastic exercises of the articulators) may have had benefits. They reflect many modern day methods of releasing tension in the body.[202] If done efficiently, the result could be freedom in the upper vocal tract and larynx.

Resonation[203]

Hey believed there were two qualities of resonance - chest resonance, and head/nasal resonance.

- Chest resonance was the sympathetic resonance felt between the cartilages and bones of the upper ribcage. In Hey's view, chest resonance gave strength to the voice and played an important role in fortifying the tone.[204]

- Head/nasal resonance was described by Hey as sympathetic resonance felt in the area above the larynx, in the upper skull, and in the upper nasal cavities. He noted this type of resonance was important because its metallic quality was what gave the voice its carrying power.

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200. Hey, *Deutscher Gesangs-Unterricht*, 129.
201. Ibid.
202. Brown, *Discover Your Voice*, 11-14.
203. Hey, Hey, and Volbach, *Der kleine Hey,*6.
204. Ibid., 5.

Balancing Resonance

Hey suggested the balance between chest and head/nasal resonance should be ideally an equal 50-50 split. However, for the lowest pitches the singer would sing, the balance should be an 80-20 chest vs. head/nasal resonance, while the highest pitches in the upper range, require a balance of 20-80, chest vs. head/nasal resonance. Hey called this balance of resonance the *gold'ne Brücke* (the golden bridge).

Importance of Nasal Resonance

Hey believed head/nasal resonance had another importance; it was the bridge between head and chest voice. To find this quality, Hey recommended use of the nasal consonants ([m] [n], [ŋ]). However, he thought nasal resonance should never be isolated. This isolation led to a *Nasenton* (a pure nasal tone), which he viewed as an ugly abhorrent sound.[205]

Unification of Sound

Hey saw poor vowel formation as often being the root cause of faulty tonal quality.[206] In his view, vowel color should have the same basic sonority (acoustical ring), regardless of which vowel was sung. Maintaining a unified timbre in every vowel helped to achieve a balanced registration and therefore an even voice.[207] To illustrate this, Hey offered the following image to aid his students in finding a balanced vowel color. The figure below demonstrates different vowels unified by a constant sonority.

Figure 6.1 Vowel Color[208]

205. Ibid.
206. Hey, *Deutscher Gesangs-Unterricht*, 8.
207. Hey, Hey, and Volbach, *Der kleine Hey,* 6.
208. Hey, *Deutscher Gesangs-Unterricht*, 12.

Hey's emphasis on nasal resonance raises an issue. There is a strong connection between sympathetic nasal resonance and an even scale. Consequently, many would agree these vibrations are beneficial.[209] However, these sympathetic vibrations could be the source of this freedom or attributable to something else. What Hey was likely describing (sympathetic nasal resonance) was a by-product of a well-functioning voice in which all elements (resonation, registration, phonation and respiration) complemented one another. Thus, it is not the resonance but rather the well-functioning voice that allows registers to be united and an even timbre created.

It is plausible Hey realized awareness of this sympathetic resonance was a useful pedagogical tool, allowing the singer to gauge the state of his vocalism. It is important to note, however, that placing a tone can have dual results solving selected problems and leading to others. A preferable solution is to create the right conditions (e.g. proper breathing, onsets, etc.), thereby allowing (not making) these beneficial sympathetic vibrations to occur.

Registration

Hey believed the voice was comprised of three registers: chest register, middle register, and head register.[210] The singer's ultimate aim was to blend these registers so they would become one register. One of the major challenges in singing was to avoid abrupt changes in tone quality when moving from one register to another.[211] Hey thought the solution lay in balancing resonance. As with resonance (see above section), the range in which the singer was singing needed to have the proper distribution of chest vs. head/nasal resonance. In other words, the singer had to avoid too much chest voice in the upper range and too much head voice in the lower range.[212]

Blending Registers[213]

In developing the individual registers and creating a balance between them, Hey outlined the

209. Brown, *Discover Your Voice*, 82-84.
210. Hey, Hey, and Volbach, *Der kleine Hey,* 6.
211. Ibid.
212. Ibid., 7.
213. Ibid.

following instructions relevant to the mezzo-soprano voice:

- Chest register
    - Attention should be paid to correct vowel color;
    - Sentences should be used with forward (bright) vowels;
    - Exercises should begin in piano and progress to forte.
- Middle register
    - Best vowels to develop this register are the dark vowels ([o] and [u]). These vowels promote the lowering of the larynx;
    - After registers are well established, the student may proceed to brighter vowels ([i] and [e]), giving a bright metallic color to the voice.
- Head register
    - Head register must be developed through the strengthening of the middle voice. Only then is this voice useful in performance;
    - Consonants [n] and [ŋ] assimilate registers;
    - A wide mouth position, like that of a pure [a] vowel, is needed for this register;
    - A low laryngeal position with a raised soft palate is necessary;
    - Staccato exercises bolster this register.

Hey's view of registration was strongly rooted in vowel modification. Unlike Mannstein and Schmitt, Hey did not address laryngeal adjustment in balancing registers. Rather, he focused solely on unification through achieving the proper acoustical balance, i.e. vowel modification. The vowels Hey chose for blending registers reflect the acoustical nature of the mezzo-soprano voice, and would have aided the singer in creating an even scale.

- Closed vowels such as [i] and [e] aid in achieving full glottal closure in the chest register, a typical challenge in the female voice. In addition, closed vowels make it generally easier for a mezzo-soprano to find a resonant tone in this register.[214]

214. Bozeman, *Practical Vocal Acoustics,* 33.

- Using closed vowels [u], and [o] in the middle register, or what Hey called "dark vowels," assist the singer in tracking resonance which will prepare them for the upper range – an early arrival in what Bozeman calls "whoop timbre."[215]

- Open vowels such as [a] are ideal for the upper range of the female voice, as the sung pitch is often above the first formant of the sung vowel. Thus, to maintain an even timbre all vowels will open as the female singer ascends the scale, approaching an [a] or [ə] in the extreme upper range.[216]

Other Important Aspects

Diction

Hey's influence on the importance of diction in both German singing and recitation is unsurpassed. In his treatise, Hey presented a detailed discussion of correct vowel color and the way a singer should achieve this quality. These principles were relevant to the training of both singers and professional speakers. Hey's diction rules developed because of his drive to create a technique congruent with Wagner's ideals.[217] His goal was a technique that assured clear accentuation of text as opposed to simply pure vocalism.

To acquire clear diction, Hey emphasized fusing vowel and consonant, what he called *Wortbildung* (word formation). He believed the singer had to develop pure vowels and sharpen consonants, which he thought the majority of professional singers were too lax in doing.[218] This emphasis on the consonant, not typical of Italian or French methods, shifted the focus away from pure vocalism to *Sprechgesang* (text-based singing).[219] However, Hey believed that while emphasis on diction would disturb vocalism, he only advocated for a lessening of vocal line rather than an elimination of it.[220]

Summary of Hey's Treatise

1) *Place in History*

- Julius Hey was a voice teacher who created a comprehensive approach to German singing based on Friedrich Schmitt's model.

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215. Ibid., 34.
216. Ibid., 34-35.
217. Hey, *Deutscher Gesangs-Unterricht*, 2-3.
218. Ibid., 9.
219. Blume and Finscher, *Die Musik in Geschichte und Gegenwart*, 1505.
220. Hey, *Deutscher Gesangs-Unterricht*, 9-10.

- He was closely connected to Wagner and aimed to create a technique to address Wagner's *Gesamtkunstwerk*.

2) *Respiration*

- Discussion of breathing is too vague; it is difficult to know which method he recommended.
- Overly tense muscles do not allow the breath organ to function efficiently.

3) *Resonation*

- There are two qualities of resonance - chest resonance and head/nasal resonance.
- A balancing of these resonance types is needed; the ratio of head/chest depends on the range in which the singer is singing. This balance is called the *gold'ne Brücke* (the golden bridge).
- Nasal resonance plays an important part in the blending of registers; it can be developed with nasal consonants.
- All vowel colors should have the same sonority.

4) *Phonation*

- There are three types of phonation: *Naturton* (natural tone), *Normalton* (no*rmal ton*e), and *Idealton* (ideal tone*).*
- Th*e Naturton* is the foundation for developing the *Idealton*.
- A low laryngeal position is needed for good phonation.
- The tongue has an important effect on the quality of the sung tone.

5) *Registration*

- There are three registers: chest register, middle register, and head register.
- Registers must be blended so that no audible changes in tone quality are heard.
- Register balance is best achieved through the use of vowels and consonants.
- Vowel modification plays a central role in balancing registers. He said nothing of the laryngeal adjustment needed.

6) ***Other Important Aspects***

- Hey significantly influenced the practices of diction used by singers and public speakers.
- Clear vowels and strong consonants are necessary.
- Pure vocalism should not be destroyed; instead it should be tempered.

Chapter 7: BRUNO (BENNO) MÜLLER-BRUNOW (1853-1890) *Tonbildung oder Gesangsunterricht?* (1890)

Bruno Müller-Brunow was a voice teacher and author. His views on pedagogy ushered in a new style of teaching voice. This was *Tonbildung* - a physiological-mechanical approach to teaching singing. He cultivated voices chiefly through a speech-based method, which carried forward to the next generation of singers and voice teachers impacting their individual methods.

Biographical Sketch[221]

There is very little information about the life of Müller-Brunow other than that he was born in Leipzig in 1853 and died there in 1890. It is known that Müller-Brunow studied voice following traditional singing methods at the time (Italian and French influenced). However, he felt these methods were not helpful and resulted in harming his own voice. Unfortunately, as a result of his vocal study, he lost his voice.

Müller-Brunow was able to rebuild his voice while studying with Ludwig (unknown first name) in Darmstadt, using principles Müller-Brunow called the *Primärton* (primary tone). This tone was created through natural coordination and was the tone that was easiest for the singer to produce.[222] After his voice rehabilitation was complete, Müller-Brunow later reconciled himself to the fact that he was only a mediocre singer. As a result, he shifted his focus to teaching singing.

Similar to his biography, little is known about Müller-Brunow's students other than the comments of his contemporary George Armin, who stated Müller-Brunow's singers sang with a thin quality and lacked carrying power.[223] This may be an unfair critique when one considers the

221. Th. Westrin, E. Fahlstedt, and V. Soderberg, *Nordisk Familjebok* 37 *supp. L*, 652, last modified June 13, 2013, accessed May 18, 2015, http://runeberg.org/nfcq/0362.html.

222. Bruno Müller-Brunow, *Tonbildung oder Gesangunterricht? Beiträge zur Aufklärung über das Geheimnis der schöner Stimme* (Leipzig: C. Merseburger, 1904), 13.

223. George Armin, *Das Stauprinzip oder, die Lehre von dem Dualismus der menschlichen Stimme, dargelegt für Sänger, Schauspieler und Rezitatoren* (Leipzig: C.F.W. Siegel's Musikalienhandlung, 1909), 9.

aggressive muscular approach of Armin's *Stauprinzip*. Nevertheless, *Tonbildung oder Gesangsuntericht?* is Müller-Brunow's written legacy, which had an impact on future methods.

Place in History

Müller-Brunow's book *Tonbildung oder Gesangsunterricht?* (1890) has an important place in the chronology of the German singing tradition. His concise text was widely circulated throughout Germany, influencing future pedagogical techniques including George Armin's *Stauprinzip* (vocal damming). This treatise was one of the first to approach voice training from the perspective of *Tonbildung* (cultivation of tone). *Tonbildung* promoted voice training based on a physiological-mechanical point of view. Consequently, he avoided use of pure singing methods such as elaborate agility patterns, exercises to blend registers, or *solfege*, and instead relied chiefly on syllabic exercises.

Problems with Contemporary Methods

Müller-Brunow saw two problems with traditional methods taught at the time. In his view, existing methods were "overly scientific," relying heavily on principles espoused by Helmholtz.[224] Secondly, he felt teachers placed too much importance on Italian technical principles. In sum, Müller-Brunow suggested these techniques were too general and lacked clear direction for students learning to sing.[225]

Aim of Müller-Brunow's *Tonbildung oder Gesangsunterricht?*

Because of the observed faults in methods at the time, the single purpose of Müller-Brunow's treatise was to outline a clear, simple approach for learning to sing correctly. He wrote his singing manual in what he called the "singer's language," i.e. use of imagery and a vocabulary suited to the singer, thereby avoiding detailed scientific discussion of his singing principles.[226]

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224. Müller-Brunow, *Tonbildung oder Gesangunterricht?*, 4.
225. Ibid., 17.
226. Ibid., 4.

Structure of the Book

Müller-Brunow divided his ideas into two categories: theory and practice. *Theory* provided a targeted analysis of other schools of singing as well as his own technical principles; *practice* suggested specific exercises to develop the voice.

Respiration

Importance of Respiration

Müller-Brunow believed the study of singing should not be centered upon singing beautiful notes or sounds, but rather should focus on correct breath function.[227] Optimal respiration created a domain over all registers and colors of the voice.[228] He used imagery to describe this process.

In his visual, he compared respiration for singing to a fountain. He described this fountain as having a stream of water that shot straight into the air with a glass ball resting at the peak of the stream. In this representation, the water stream corresponded to breath flow and the glass ball denoted the sympathetic resonance felt in the skull. This imagery illustrated his understanding of the importance of the relationship between breath and resonance in the singing process.[229]

How to Practice

One of the main problems Müller-Brunow observed with breathing was the improper hyperfunctional breath, what he called the "wild stream of air." To address this problem, he recommended a singer practice the [ŋ] consonant with a half-closed mouth. This technique created a sympathetic resonance placement point in the front portion of the mouth, leading to a sensation that the breath "vibrated against the upper lip."[230]

From Müller-Brunow's discussion, it is not possible to discern his method of breathing. He omitted description of specific parts of the body involved in the breathing process. However, a

227. Ibid., 9.
228. Ibid., 12.
229. Ibid., 27.
230. Ibid., 24.

useful point Müller-Brunow made through his use of imagery (fountain with a ball) was the sensation of balancing subglottic pressure between the respiratory muscles and the vocal folds. This suggests a sensation of *imposto*, in which breath and sympathetic vibrations in the upper vocal tract are strongly connected. It is characteristic of the Italianate *appoggio* approach and recommended by many modern voice teachers.[231]

Resonation

Importance of Forward Resonance

Müller-Brunow's approach to resonation hinged on the singer placing the tone into the sinuses. He described this as a "bow-like" direction of the breath. In his view, breath should not come out of the mouth causing a "flat" sound but should flow through the sinuses.[232] This breath resulted in a flawless tone and was developed from "natural resonation." When this resonance was connected to the resonance of the rib cage and vertebrae, the singer's tone was amplified in volume.[233]

Speaking = Singing

Müller-Brunow believed the spoken tone was the basis for the sung tone.[234] Based on this assumption, his entire approach to singing originated from speech, i.e. using consonants and vowels to develop the proper resonance. Unlike Hey, however, Müller-Brunow did not focus on using recitation to develop proper coordination, e.g. using sentences or phrases. Instead he championed syllabic coordination exercises. This mechanized method exemplified *Tonbildung* (physiological-mechanical approach to singing).

Primärton (Primary Tone)

The notion of *Primärton* (primary tone) was the underpinning to Müller-Brunow's technique.

231. Miller, *Structure of Singing*, 23.
232. Ibid.
233. Ibid., 16.
234. Ibid., 10.

He defined this sound as being the easiest and most natural tone the student could produce.[235] The primary tone was best developed through the mixed vowel [ø]. This mixed vowel combined aspects of both forward (high partial) and back (lower partial) vowels. He saw it as the most advantageous vowel in creating proper resonance, i.e. directing the sound toward the frontal sinuses.[236]

Müller-Brunow thought vowels should be developed through vowel harmony (timbre matching) using the *Primärton* [ø] as the foundational vowel. To accomplish an even timbre on all vowels, the singer began with the [ø] vowel and blended or matched its quality with the vowels [y], [o], [a], [u]. In Müller-Brunow's view, these four additional vowels were the most important after the primary tone [ø].[237] Mastery of all vowels balanced the singer's tone.

This approach to developing balanced tonal quality is similar to Oren Brown's "primal tone" strategy, which focuses on finding the tone the student can produce with the most "natural" coordination. This suggests a basic coordination in which articulators in the vocal tract (e.g. tongue) are free of unnecessary tension and function optimally in conjunction with the breath and laryngeal musculature.

The vowel sound both Müller-Brunow and Oren Brown used to develop this sound demonstrates similarities. Brown made the recommendation that singers develop this natural coordination with the schwa vowel [ə], noting this is the most "relaxed" vowel sound and most characteristic of a baby's cry.[238] While this sound is present in many world languages, it is not a vowel sound that German speakers recognize. Close to this sound, however, is the mixed vowel sound [ø] (a "relaxed" version of this sound is the sound Germans use to describe their schwa sound),[239] which was in fact the vowel sound Müller-Brunow recommended to find the coordination for the *Primärton*.

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235. Ibid., 9.
236. Ibid., 26.
237. Ibid., 45.
238. Brown, *Discover Your Voice*, 1.
239. I learned about this German speech sound in a conversation with diction coach, Sujata

Nevertheless, finding a singer's best vowel should be considered on an individual basis. Yet, the idea of finding a balanced tonal quality and then matching its timbre to other vowels is a useful concept.

Consonants

Müller-Brunow believed the consonant was the most effective tool for developing proper resonance since consonants guided the tone into the front part of the mouth. Specifically, nasal consonants were exceptionally valuable, as they grounded the voice to this placement point "putting bad habits, particularly throaty singing to rest."[240]

Laryngeal Position

Müller-Brunow believed a low laryngeal position for singing was necessary. To accomplish this, he suggested using darker vowels[241] (low spectrum) and mixed vowels, specifically [ø], [y], [o], [a], and [u].[242]

Phonation

Proper Onset through Consonants

In Müller-Brunow's view, teaching the correct coordination for an onset had to be combined with a consonant. By successfully "concentrating" the sound into the front of the mouth, the student was able to avoid a glottal or breathy attack, thereby creating a balanced onset.[243] Specifically, Müller-Brunow recommended using bilabial consonants to achieve this coordination.[244]

While present in other traditions, Müller-Brunow's support for a consonant based approach to phonation tends to suggests a Germanic trend in cultivation of a balanced onset. Perhaps this is due to the hard nature of the German language, namely its glottal-like nature. Regardless, the use

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Huestege in Würzburg, Germany.

240. Müller-Brunow, *Tonbildung oder Gesangunterricht?*, 44.
241. Ibid., 26.
242. Ibid., 45.
243. Ibid., 23.
244. Ibid., 45.

of the consonant is beneficial in coordinating breath and resonance because it aids the singer in concentrating the tone. In addition, if made precisely without any hint of "scooping" (starting below the sung pitch and sliding up), the result is a balanced attack similar to the one advocated by Manuel Garcia II.

Registration

Müller-Brunow included very little about registration in his treatise. Instead, he reiterated the importance of balancing the voice through the *Primärton* (primary tone). He believed registration would be achieved on its own if the middle range was properly coordinated. After the middle register was adequately strengthened, the singer moved to both higher and lower pitches using the same principles.[245] In addition, Müller-Brunow made two other points about registration: 1) as pitch rises, breath pressure increases at the placement point in the front of the mouth, and 2) there should only be a minimal change in mouth position.[246]

Similar to his discussion of respiration, Müller-Brunow was vague about the way to achieve a balanced scale, only noting it should be developed from the basic coordination of the *Primärton*. His view was accurate. Creating basic coordination is a prerequisite to all other aspects of vocal training (e.g. range and registers, agility, among others). Yet, this view is also too simplistic. More research into Müller-Brunow's technique is needed to fully understand his approach to registration.

Other Important Aspects

Development of the Voice

Müller-Brunow believed that, while it would take five to six months to achieve basic vocal coordination, it would take at least five to six years to fully develop a voice.[247] He compared this development to the time it took any artisan to learn his trade. He noted singers who

245. Ibid., 12.
246. Ibid., 69.
247. Ibid., 25, 28.

did not take sufficient time to fully develop their own singing techniques typically shortened their careers by twenty years. He went on to say the tenor voice was the most difficult voice type, requiring the most time to fully mature.[248]

Summary of Müller-Brunow's Treatise

1) ***Place in History***

- His method fit into a new physiological-mechanical approach to vocal training, called *Tonbildung* (cultivation of tone), representing a break from other singing schools that focused heavily on technical exercises such as agility and register blending.
- *Tonbildung* provided the foundation for future methods, most notably Armin's *Stauprinzip*.

2) ***Respiration***

- Description of breathing is too vague to know exactly what method of breathing he advocated.
- Proper respiration is foundational to optimal function.
- Image of a proper breath simulates a fountain with a glass ball on top of its peak that corresponds to breath (water) meeting the sympathetic resonance points (ball). This is a beneficial visual, as it captures the balance of subglottic pressure between the breath musculature and the vocal folds.
- Breath exercises should be combined with humming or nasal consonants to correct hyperfunctional breath; nasal consonants create proper resonance to concentrate the tone.

3) ***Resonation***

- A "bow-like" direction of the breath to a placement point in the front of the mouth is vital to creating an optimal tone.
- Optimal resonation is created through the primary tone (mixed vowel [ø]) and use of consonants that concentrate the sound in the front portion of the mouth.

4) ***Phonation***

- Consonants are needed to create a healthy onset.
- Darker vowels such as [ø], [y], [o], [a], and [u] help create the proper laryngeal position for phonation.

248. Ibid., 23.

5) ***Registration***

- Proper registration is achieved through balancing the voice with the *Primärton* primary tone (the student's best note) and approaching the lower and upper registers from that point.

- As pitch rises, breath pressure at the sympathetic resonance point in the front of the mouth increases and there is a slight change in mouth position.

- Offers a vague description of a method Müller-Brunow used to develop balanced registration. More research is needed to determine methods Müller-Brunow truly taught.

6) ***Other Important Aspects***

- At least five to six years of training and practice are required to fully develop a voice.

Chapter 8: GEORGE ARMIN (HERMANN) (1871-1963) *Das Stauprinzip* (1909)

George Armin was a voice teacher and central figure in German vocal pedagogy during the twentieth century. He is most recognized for writings on his method, titled the *Stauprinzip* (vocal damming) and for his aesthetical challenge to Paul Bruns' *Minimalluft* theory.

Biographical Sketch

George Armin (Hermann) was born on November 10, 1871 in Braunschweig, the son of conductor Otto Hermann. Armin decided to pursue music, first studying voice with August Iffert and later with the heldentenor L.C. Törsleff.

After completing his vocal studies, Armin focused on teaching rather than performing. His first position was in Leipzig as a teacher of "theater and the art of recitation." In 1904, Armin moved to Berlin, where he continued to teach voice. In 1925, he founded an association dedicated to vocal pedagogy and science, the "*Gesellschaft für Stimmkultur"* (society for voice culture). Armin later served as a publisher for the magazine, "*Der Stimmwort*," a periodical dedicated to vocal pedagogy and science. In the 1940's, Armin moved to Denmark and taught there.

Armin's controversial approach to teaching voice made him a polarizing figure in the teaching community. Among his students who achieved professional success were Gertrude Bartsch and Rudolf Waschke. [249]

Place in History

George Armin is best known as a dominant figure in the debate with Paul Bruns (*Minmalluft* - minimal air), as the two pedagogues had diametrically opposed views on vocal pedagogy. The argument between the two men generated a passionate dispute throughout Germany about the correct way to teach singing.

249. *Die Musik in Geschichte und Gegenwart 1, 1* (Kassel: Bärenreiter, 1999), 948.

Development of the *Stauprinzip*

The impetus for Armin's ideas for the *Stauprinzip* came about from his experiences as a singer. He had many vocal problems as a young singer. As a result, he turned to the available literature for guidance and answers, namely the writings of Müller-Brunow and Friedrich Schmitt. While Armin saw problems with both authors' ideas, he synthesized their approaches into his new solution.

In creating the *Stauprinzip*, Armin combined Schmitt's breathing technique, what Armin called the "lower voice," with Müller-Brunow's use of consonants, termed the "upper voice." Through this technique, the voice was to be broken down and rebuilt from scratch. His approach to teaching singing, like Müller-Brunow's, fit into the realm of *Tonbildung*, a physiological-mechanically based modus operandi devoid of the technical singing exercises (e.g., agility, *solfege*) used by previous generations of teachers.

Criticism of the *Stauprinzip*

Many pedagogues viewed Armin's ideas as harmful for voice production and vocal health, so much so it is necessary to bring attention to the reactions of his peers. His contemporary, Franziska Martienßen-Lohmann wrote, while there may be some truth in his method, particularly the idea that air must be sustained in singing, his ideas were extreme and often resulted in voices being ruined.[250] The pedagogues Frederick Husler and Paul Bruns concurred.

Aim of Armin's Treatise

Armin believed the voice was dualistic in nature. For example, the following aspects demonstrated an inherent dualism - his view of onsets (glottal vs. breathy), vowels (bright vs. dark), and registers (head vs. chest). Armin suggested this natural dualistic nature did not allow the voice to be fully manifested. His remedy to this duality was to take the voice apart and rebuild it using the *Stauprinzip* (vocal damming), a technique in which stored breath is dammed against

250. Martienßen-Lohmann, *Der wissende Sänger*, 365-366.

the vocal folds and grounded by a consonant in the upper vocal tract. Through the use of this technique, the voice could be "unified" and could achieve its full beauty.[251]

Structure of *Das Stauprinzip*

Armin addressed four overarching topics in his singing manual *Das Stauprinzip*:

- Basic principles of the *Stauprinzip*:
    - Introduction to the principles of the *Stauprinzip*, namely the explanation of the dualistic nature of the voice and his argument that the *Stauprinzip* is the only method for overcoming this dualism and unifying the voice.
- The dualistic nature of tone production and the way to achieve balance:
    - Types of onsets advocated in contemporary vocal pedagogy (glottal attack and consonant-based onset);
    - Various approaches to breathing;
    - In depth review as to how the *Stauprinzip* affects the voice's dualism;
    - Dualism of registration, i.e. head vs. chest voice.
- Dualism of vowel formation:
    - Examination of the dualistic properties of vowels - high spectrum flat vowels vs. low spectrum cavernous vowels;
    - Technique to overcome vowel dualism through the *Stauprinzip* and *Rundung* (rounding of the vowels);
    - The consonant and its effect on tone production.
- Other aspects of the voice training:
    - Issues arising after the voice has been unified through the *Stauprinzip*, including scales, dynamics, and diction.

Respiration

Armin believed there were two fundamental characteristics to the breath process - dammed function and sounding function in his *Stauprinzip*.[252]

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251. Armin, *Das Stauprinzip*, 1-2.
252. Ibid., 16.

- Dammed function (*stauen)* consisted of an exaggerated muscular expansion of the upper rib cage and a powerful damming of the breath against firmly closed vocal folds.[253] The vocal folds were key to the process since they served as a counterbalance to the dammed air. This created a balance allowing the larynx to be under no undue strain.[254]

- Sounding function marked the phase when properly stored air changed into what he called the "ideal tone." This came about by the balancing of what Armin called the "lower and upper voice."

Lower Voice – Breath Support

The lower voice was what Armin meant by breath support. In other words, this was the dammed air created through extreme muscular tension and expansion of the chest. Armin developed his theory of the lower voice using Friedrich Schmitt's model who also recommended maximal expansion of the chest and filling of the lungs. Through the expansion and tension of the lower body Armin believed all resistance was removed from the larynx, thus allowing for a freely produced tone.[255]

Upper Voice – Sympathetic Resonance Breath Connection

Armin believed this lower voice (breath, now transformed into tone) had to be grounded to what he called the "upper voice." This upper voice, was defined by Armin, as a "support" point of sympathetic resonance, which could only be created through the help of a consonant that "concentrated" the tone.

This connection between breath and resonance draws many similarities to the Italian model of *imposto* (breath-resonance connection). Nonetheless, Armin's muscular approach is foreign to the Italianate method of singing, which advocated a much more elastic use of musculature and "spinning" air. In sum, Armin noted the duality between this upper and lower voice could only be unified through the *Stauprinzip*, as the dammed air set the correct circumstances for the laryngeal mechanism to function properly.[256]

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253. Ibid., 17-18
254. Ibid., 17, 20.
255. Ibid., 11-14.
256. Ibid., 16, 99.

Posture

In the *Stauprinzip*, posture played an important role in respiration permitting the body to correctly store and dam the breath. Armin argued for a military-like posture thereby allowing the entire strength of the lower body to dam the air against the vocal folds. He noted this tense physical posture of the lower body would release tension in the larynx. Without the *Stauprinzip*, freedom in the larynx would not be possible and it would not be able to function freely.[257]

Support Point

Armin discussed the point at which the singer should feel support when singing. He stated at the beginning of vocal study, support would only be detected in the upper rib cage. As the student progressed, a sense of support developed lower in the body, with the student having a sensation of muscular engagement in the lower back and diaphragm.[258]

Interpreting Armin's views on respiration presents some challenges. Armin's principles, in some ways, reflected the technique of the *appoggio* (diaphragmatic-costal breathing). This means he saw the importance of posture, a connection between breath and resonance, and the significance of maintaining the expansion of the rib cage throughout a sung phrase.

However, his views are a gross exaggeration of the Italian method. In particular, in Armin's view, appropriate posture was to be military-like instead of a flexible dynamic pose. Furthermore, breath was to be strongly dammed against the vocal folds instead of maintaining a vibrant balance of subglottic pressure. Such an approach can only result in rigidity and a tense tonal quality, which, beyond poor technique, was harmful to the singer's vocal health.

While written accounts are open to misinterpretation and it is possible that Armin was advocating a balanced approach, contemporary critics, namely Martienßen-Lohmann and Husler, suggest this was not the case. The consensus is that Armin's method was too muscular of an

257. Ibid., 18.
258. Ibid., 20.

approach.[259] Such a method has no place in the modern voice studio.

Phonation

Armin reviewed different types of onsets and the way in which they corresponded to the teaching methods at the time.

- *Hard onset (glottal attack)*[260] - Armin challenged Manuel Garcia II's teaching of the *coup de glotte* (stroke of the glottis), dismissing the existing view of modern vocal scholars that Garcia did not advocate a glottal attack, but rather a concentrated balanced attack. In contrast, Armin believed Garcia endorsed a pure glottal attack. He further suggested Garcia's approach coincided with the raising of the larynx.

Armin believed this type of attack was not useful for classical singing and was harmful to the vocal mechanism. He saw it as a mark of the scientific method of singing, a popular approach to singing throughout Europe whose supporters in addition to Garcia were the pedagogues and scientists Helmholz, Seiler, Stockhausen and Marchesi.

- *Onset combined with a consonant (die Silbenstudie)* - Armin critiqued another type of onset promoted in Germany at the time, an onset combined with a consonant. Armin saw this type of onset as representative of the teaching of Müller-Brunow. In some ways, Armin found Müller-Brunow's method useful, as it helped to find a good forward placement through a breath-resonance connection, what Müller-Brunow described as a "consonant connected to the bow-like stream of breath."[261]

Armin noted this approach was useful in avoiding a hard, glottal onset. Nevertheless, Armin also criticized Müller-Brunow's approach believing it focused solely on placement and avoided the importance of the breath. Armin felt this lack of lower support resulted in a voice that was too elastic and lost its voluminous tone. Armin believed a full tone could only be created through the *Stauprinzip*, i.e. combining sympathetic resonance created by the consonant combined with lower "dammed" support. This method, in his view, allowed for the eradication of the duality of the upper and lower voices as discussed in the respiration section.[262]

Armin modeled his approach to phonation on Müller-Brunow's method of using a consonant

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259. Paul Bruns, *Minimalluft und Stütze* (Berlin-Charlottenburg: Walter Göritz, 1929), 13; Husler and Rodd-Marling, *Singing*, 44-46; Martienßen-Lohmann, *Der wissende Sänger*, 366.

260. Armin, *Das Stauprinzip*, 16.

261. Ibid., 7-8.

262. Ibid., 6-10.

in conjunction with an onset. However, Armin differed saying this should only occur with a much stronger connection to the singer's breath. When Armin's muscular approach is ignored, this advice is beneficial, drawing on the Italian method of *appoggio* and *imposto* with no separation of breath support and placement. Nevertheless, the muscular nature of Armin's method suggests this too was a distortion of these Italian principles.

Resonation

Duality of Vowels

Armin thought vowels were dualistic in nature having two characteristics - *Flach* (flat, high spectrum) vowels and *Hohle* (cavernous or hollow, low spectrum) vowels.[263] As with all other dualistic aspects of the voice, Armin felt vowels had to be unified for the voice to be fully developed.

To solve this problem, Armin used mixed vowels in a technique he referred to as *Rundung* (rounding).[264] In *Rundung*, forward vowels such as [i] and [e] were merged with back vowels such as [o] and [u], thereby creating mixed vowels such as [œ]. In fact, this was Armin's preferred vowel in creating a "round" tone. Similar to Müller-Brunow,[265] he called this mixed vowel the primary tone.[266] In addition to [œ], the other most useful vowel in Armin's view was [y] (especially in acquisition of the upper range for men).[267]

From these two vowels, [œ] and [y], the singer then had a basis to develop the other vowels. Armin thought that once the singer could correctly produce the primary vowel, he/she would then find the coordination of all other vowels through vowel harmony (timbre matching).

Figure 8.1. demonstrates the development of the vowels. Using the vowel [œ] as an example, the singer first began with a darker form of the [œ] vowel, which, through the *Stauprinzip,*

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263. Ibid., 60.
264. Ibid., 67.
265 While similar, Müller-Brunow recommended the closed [ø] while Armin advocated the open [œ].
266. Armin, *Das Stauprinzip*, 81.
267. Ibid., 69.

developed into the pure form of the [œ] vowel. After proper coordination of this tone was achieved, the singer then moved to the rest of the vowels until a balanced tone on all vowels was attained. (In this chart this full development of tone is noted as the [a] vowel under *Endbildung* - end of training. This is the vowel he saw as the most difficult to balance).[268]

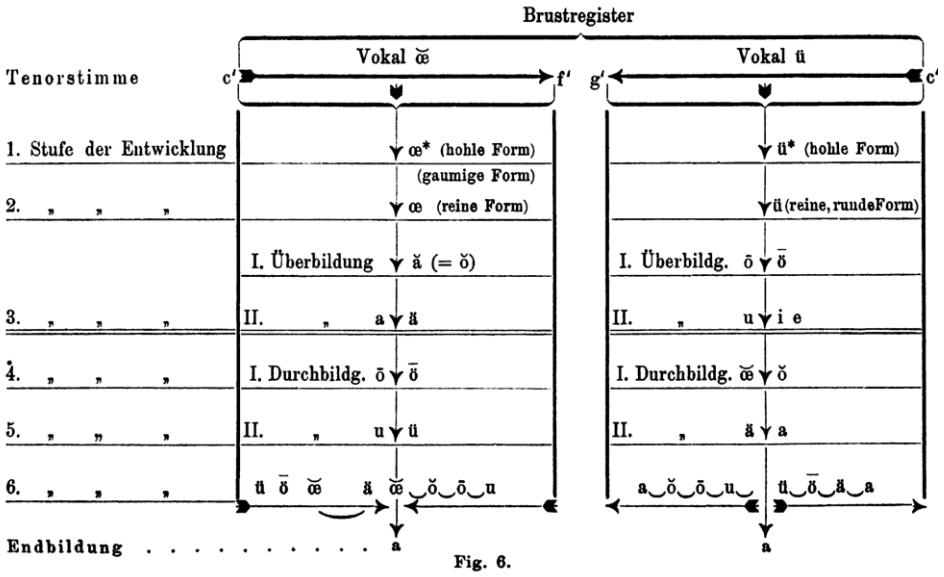

Figure 8.1. Vowel Development

Armin's method, like Müller-Brunow's, for finding tonal balance was through development of the *Primärton*, an approach similar to the modern teacher Oren Brown's primal sound strategy. However, Armin differed from Müller-Brunow and Brown on tonal preference. Armin's teaching reflected an inclination towards a darker tonal quality, created through a technique he called *Rundung*.[269] This tonal preference, when combined with his recommendations for breathing, further suggested a muscular approach to singing. It is highly unlikely that such an approach could result in healthy, well-balanced vocal production.

268. Ibid., 81.

269. For instance, when considering the above chart (figure 8.1), his suggestion was that singers begin with a darker form of the [œ] further implies Armin's preference.

Registration

Dualistic Nature of Registers

As with vowels and onsets, Armin believed the voice in its natural state was dualistic, i.e. chest voice vs. head voice or falsetto. He suggested this dualism could not be corrected through the commonly held view of *Verschmelzung*, or the fusing of registers in which they lose their individual characteristics creating a so-called *voix mixte* (mixed voice). Rather, Armin concluded that registers should achieve an *Ausgleich* (a balance) in which the abrupt contrast between the chest voice and head voice/falsetto was lessened, but with both registers retaining their individual characteristics.[270]

Stauprinzip and *Ausgleich*

According to Armin, the only method to accomplish an *Ausgleich* (balance) was through the *Stauprinzip*. Armin believed the coordination of the *Stauprinzip* could only be developed in the chest register. As a result, he placed great importance on strengthening the singer's chest voice to achieve balanced registration.

He noted that when first learning the coordination of registration, the student would be able to sing only a few pitches correctly. As the student progressed, range would gradually expand to both higher and lower registers maintaining an even sound quality. This even quality was due to the fortification of the chest voice; it was the element that made falsetto (head register) artistically viable.[271]

Armin's views on laryngeal registration diverge dramatically from the views of contemporary teachers and modern pedagogues. The majority of scholars both then and now argue for a dynamic balance between chest voice (thyroarytenoid-dominant production) and head voice (cricothyroid-dominant production) in which the two qualities mix together to become one register. Armin was critical of this approach, what he called *Verschmelzung*, "fusing." Instead he

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270. Ibid., 50.
271. Ibid., 50-51.

advocated for *Ausgleich* (balancing) in which the two registers retained their same individual qualities while attempting to only lessen the contrast between them.

Armin's approach complicated registration. By attempting to maintain separate laryngeal adjustments, it makes it more difficult to unify the voice. In this situation. the singer must be continually attentive to registration. In contrast, elite singers often speak about the sensation of no registers.[272] Yet this can only truly occur if the muscles of the larynx function automatically to create a dynamic imperceptible balance between the cricothyroid and the thyroarytenoid muscles.[273]

Furthermore, Armin's strong emphasis on chest voice as the only method to initially develop the coordination of the *Stauprinzip* is particular troubling. While individual voices have unique qualities, most voices already have a tendency toward a thyroarytenoid-dominant sound, as this muscle is used regularly on a daily basis during speech. Consequently, often when singers attempt to ascend the scale with a chestier adjustment (TDP), they will in turn engage the swallowing muscles that pull the larynx upwards.[274] To counteract this, a head-down approach is a better solution to unifying registers.

Vowels and Registration

Passaggio Points

Armin noted the presence of registration or *passaggio points* in the human voice. These were points where an audible change in tone quality was heard in the untrained or beginning singer. Armin like Mannstein, saw these points divided into tetrachords (register breaks the span of five semitones or were a perfect 4th apart). Armin believed these changes were best balanced through vowel modification.[275]

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272. Michael Trimble, Richard Di Renzi, and Christopher Arneson, *Fundamentals of Great Vocal Technique: The Teachings of Michael Trimble*, (Delaware, OH: Inside View Press, 2013), 102.

273. Brown, *Discover Your Voice,* 52-53.

274. The Voice Foundation, "Therapy for Singers Part 1, Brown," https://www.youtube.com/watch?v=8VpgvqN-53o.

275. Ibid., 86.

Vowel Modification

Consistent with his view on balancing vowel color, Armin recommended the use of mixed vowels in blending registers. By balancing resonance through vowel modification, Armin believed a singer could achieve an even scale. He, therefore, recommended at first solidifying an even transition over all tetrachords (registers) using solely mixed vowels. After this was adequately accomplished, the student was allowed to move onto the other vowels.[276] A detailed discussion of the process is presented below first for the male voice (in this example a tenor), and secondly for the female soprano voice.

Male Registration

Figure 8.2 illustrates the typical process for the tenor voice type in achieving balanced registration. Armin would have the singer practice chest voice (*Brustregister)* and head voice (*Falsettregister)* separately. At first, the singer was to use mixed vowels, primarily the more closed [ø] and open [œ] in the lower range (listed on the chart as ö and œ), and in the upper chest/falsetto range the vowel [y], which Armin believed was best for accessing the upper range (listed on the chart as ü).[277] Armin felt this would teach the student the position of the other vowels, which would then be fully developed through vowel harmony (timbre matching).[278] He noted in the end, the result would be an even tone on all vowels with no abrupt change in tonal quality throughout the scale.[279]

276. Ibid.
277. Ibid., 89.
278. Ibid., 86.
279. Ibid., 87.

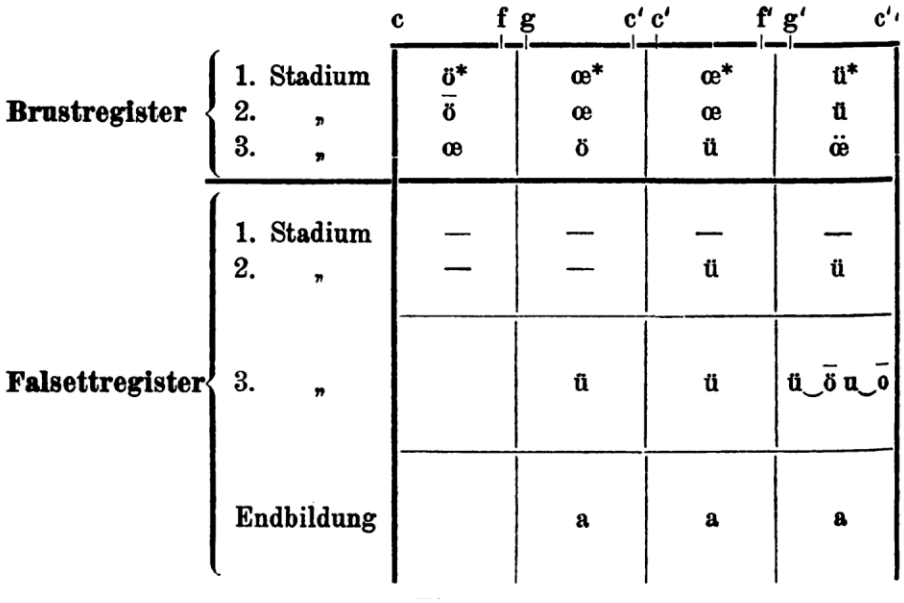

Figure 8.2. Use of Vowels to Achieve an Even Scale in the Tenor Voice[280]

Female Registration

Figure 8.3 below demonstrates the way in which Armin would teach a soprano to achieve a balanced scale. The voice was first developed according to the principles of the *Stauprinzip* in the chest register as this was the only range in which the method could function for a beginning student. This range, in Armin's view, was from C4-C5. Here, the singer was to use the *Primärton* vowel [œ]. As the student ascended the scale, she was to then close the vowel to [y].

Once this coordination was adequately developed, the student then moved on to develop the falsetto register (head voice). To do so, Armin instructed his sopranos to sing, now with a head voice adjustment (CDP), the closed vowel [y] from C4-C5, from C5-F5 the open vowel [œ], and from G5-C6 a more open vowel [a].

280. Ibid., 86.

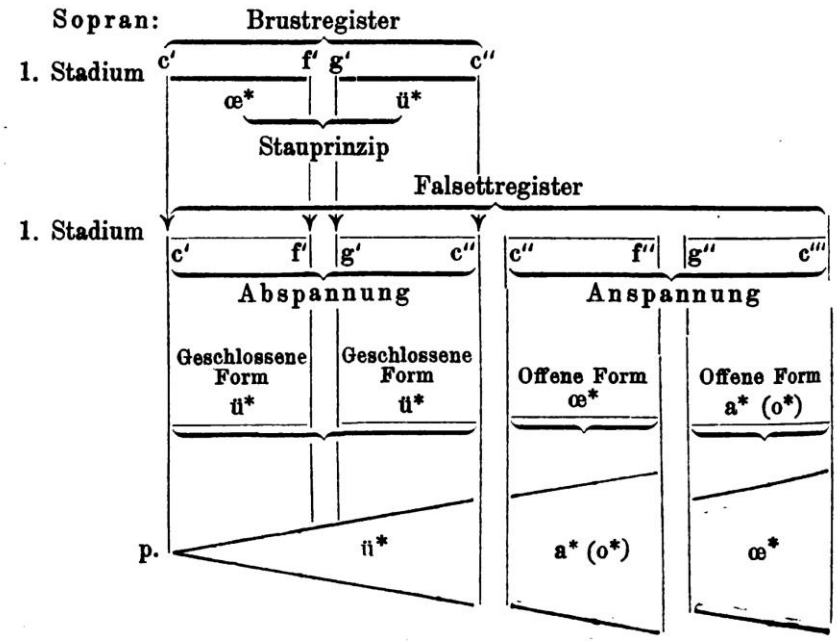

Figure 8.3. Use of Vowels to Achieve an Even Scale in the Soprano Voice[281]

While Armin's views of laryngeal registration do not match most modern pedagogue's views of registration, his view of vowel modification is helpful. The vowels Armin chose to achieve an even scale are appropriate for the voice types he discussed.

First, in the tenor voice, the mixed vowel [y] is a favorable vowel, as the vowel is generally easier to balance through the passaggio since it consists of a low first formant and a high second format. Furthermore, the [u] aspect of this mixed vowel creates a reflex action which automatically lowers the larynx and raises the soft palate.[282] Both of these elements aid the tenor in "turning the voice" and developing a unified scale.

Secondly, the vowels Armin recommended for the soprano were also beneficial. A closed vowel in the lower to middle range generally is easier for a female to sing; however, as she ascends the scale, the singer must open the vowel to properly track the first formant.[283]

281. Armin, *Das Stauprinzip*, 90.
282. Brown, *Discover Your Voice,* 55.
283. Bozeman, *Practical Vocal Acoustics*, 28-29.

Other Important Aspects

Diction

Armin was highly critical of the Italian influence on singing in Germany, namely the effect it had on text comprehension. He asserted Italian *bel canto* principles were primarily designed for sound effects, and that Italianate teachers recommended the avoidance of sharp articulation of consonants believing it would disrupt the legato vocal line.[284]

In contrast to the Italian method, Armin strongly emphasized the aesthetical importance of sung text and promoted the view that singers should have stronger articulation. To sum up his thinking, Armin said voice building was nothing more than text building. In his view, text building led to diction, and diction led to declamation.[285]

Summary of Armin's Treatise

1) ***Place in History***

- Armin was a central figure in the contentious debate with Paul Bruns (*Minimalluft*) over pedagogical principles.
- He combined principles of Müller-Brunow's and Friedrich Schmitt's methods in creating his own technique.
- He was a controversial teacher in Germany because of his extreme muscular approach to singing.

2) ***Respiration***

- Proper respiration is built upon principles of the *Stauprinzip*.
- Two important aspects of respiration are the dammed function and sounding function.
- Posture should be military-like with a tense lower body, which releases tension in the larynx.
- Support will first be felt in the upper rib cage but will move lower as the student progresses.

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284. Ibid., 118.
285. Ibid., 119.

3) ***Resonation***

- Vowels are dualistic in nature (flat, high spectrum vowels vs. cavernous low spectrum vowels).

- Mixed vowels (e.g., [œ], [y] work to break down this duality and achieve a balanced tone).

4) ***Phonation***

- The hard glottal onset is harmful and is not useful for artistic singing.

- An onset combined with a consonant is valuable, but must be combined with the *Stauprinzip* to achieve a proper tone.

- Emphasis on connection between the breath (what Armin called the lower voice) and the upper vocal tract (what Armin called the upper voice).

5) ***Registration***

- Registers are dualistic in nature (head vs. chest voice).

- Registers should not be fused (*Verschmelzung)*, but rather balanced (*Ausgeglichen)*.

- Register breaks are divided into tetrachords; vowel modification originating from mixed vowels is the way to balance these breaks.

- Vowels suggested for adjusting registers are appropriate for the individual voice types discussed.

6) ***Other Important Aspects***

- Italianate *bel canto* principles placing vocalism over clarity of diction are not fit for German vocal music.

- Voice building leads to declamation, which is the ultimate goal of vocal study.

Chapter 9: PAUL BRUNS (1867-1934)
Minimalluft und Stütze (1929)

The tenor Paul Bruns was a well-regarded voice teacher and author. He is best known for his views on the use of *Minimalluft* (minimal air) in the singing process, and through his views, became a prominent figure in the aesthetical debate with the vocal pedagogue George Armin (*Stauprinzip*).

Biographical Sketch

Paul Bruns was born in Werden/Ruhr on June 13, 1867. He studied law in Berlin, Bonn, Marburg, and lastly in Leipzig, where he graduated with a Juris Doctor. While in Leipzig, Bruns also studied both musicology with H. Kretzschmar and voice with L. Törsleff. He continued his vocal studies with B. Corelli in Leipzig.

As a young man, Bruns published writings on vocal pedagogy, serving as a publisher for the magazine *Der Kunstgesang* (1895-1900) and for the journal *Gesangkunst* (1900-1902). Bruns' teaching career began in 1902 when he became a faculty member at the *Eichelbergschen Konservatorium* in Berlin as a voice teacher. In 1906, Bruns joined the famous *Stern'sches Konservatorium* in Berlin, where he furthered his reputation as a pedagogue, becoming a highly regarded voice teacher throughout Germany. Among Bruns successful students were John Gläser Willi Domgraf-Fassbaender and Emmy Neiendorff.[286]

Place in History

Paul Bruns' *Minimalluft und Stütze* is significant for its connection to George Armin's *Stauprinzip*. Bruns saw many problems with Armin's concepts and similar singing methods being taught in Germany at that time. He felt techniques being taught were too muscular and "against the nature of the human body." In response and particularly in rebuttal to Armin's *Stauprinzip*,

286. Friedrich Blume and Ludwig Finscher, *Die Musik in Geschichte und Gegenwart: Allgemeine Enzyklopädie der Musik Personenteil 3* (Kassel, Bärenreiter, 2000), 1156.

Bruns recommended an approach focused on muscle relaxation and minimal air in singing. His comparison and analysis of the two different approaches, his *Minimalluft* and Armin's *Stauprinzip*, best captures the nature of this argument.

Aim of Bruns' Treatise

Bruns set out to demonstrate through "diaphragmatic breathing" only a minimal amount of air was needed for optimal singing.

Structure of the *Minimalluft und Stütze*

Paul Bruns' singing manual focused on the relationship minimal air has on all aspects of the singing process, i.e. resonation, phonation, and registration. All section headings in his book used minimal air as the starting point.

- Theory of *Minimalluft und Stütze* (minimal air and support);
- Relationship between minimal air and the diaphragm;
- Association between minimal air and future methods of breathing;
- Link between minimal air and registration (registers in general and the importance falsetto);
- Correlation between minimal air and phonation (*Freilauf)*;
- Bond between minimal air and resonance (partial tones or singer's formant).

Respiration

In his manual, Bruns differentiated between two approaches for breath support, the Germanic *Stütze* and Italianate *appoggio*.

- *Stütze* - Bruns identified *Stütze* as the muscular approach to breath support advocated by many voice teachers in Germany at the time. However, it was an approach he strongly criticized. He characterized *Stütze* as having four qualities.[287]
    - Emphasis on a supported or strengthened tone;
    - Focus solely on breath support (breath support is separated from other aspects such as resonance);

287. Paul Bruns, *Minimalluft und Stütze* (Berlin-Charlottenburg: Walter Göritz, 1929), 8.

- "Pumping the lungs full of air:" taking in as much air as possible, and retaining as much air as possible during phonation;
- Over-tension of lower body musculature.

- *Appoggio* (to lean upon) was the Italianate approach to breath support and the technique Bruns recommended and taught to his students. It served as the basis for his *Minimalluft* principle. He identified the following elements that were a result of *appoggio*.
  - Breath support was connected with nasal resonance;
  - It was not created through muscular tensing of the abdominal muscles, or as he called it a "stomach exercise;"
  - It was connected with head voice and register adjustment;
  - It allowed for carrying power (i.e. correct acoustical properties).

Bruns believed Germans were unable to separate the word *stützen* (to support) from words built on physical strength, such as *drücken* (to push) and *pressen* (to press).[288] Consequently, through *Stütze,* effortless legato, *messa di voce*, and free-flowing air (*Freilauf*) were impossible.[289] Further, he felt these limitations made the German singer a "stranger" to the concept of *appoggio*.[290]

Subtler Use of the Diaphragm

In Bruns' view, the diaphragm was the phonation muscle, allowing the singer to successfully use a minimal amount of air during the phonation process.[291] While other German teachers and authors also recognized the importance of the diaphragm in singing, Bruns believed the approach should be subtler than concurrent German methods such as the *Stauprinzip*.

He noted that by "pumping the lungs full of air," "over-cramping the abdominal muscles," and by "pressing the flanks," a condition was created, termed *dysphonia spastica* (involuntary

288. Ibid., 9.
289. Ibid., 15.
290. Ibid., 9.
291. Ibid., 22.

spasms in the larynx during phonation).[292] A singer developed this condition because the diaphragm was unable to fully descend due to too much muscular tension. Bruns used the example of Enrico Caruso's success as a singer to illustrate his point, saying Caruso's *messa di voce* and *decrescendi* were not a result of overfilling the lungs with air, but rather by allowing the diaphragm to move the furthest.[293]

Process of a Good Breath

Bruns provided detailed description about correct components of respiration for singing.

- Deep breathing is not a conscious activity;
- The singer should take a breath that is long and slow;
- The breath should not be sudden or with a sense of angst;
- Breath should be taken as if one was "smelling a flower;"
- In a good breath, it is not possible to feel the diaphragm;[294]
- "Breath gymnastics," i.e. over-tensing the musculature of the abdominal region, should be avoided;[295]
- The singer should focus on expiration more than inspiration, thereby allowing the breath to be inhaled without too much muscular tension.[296]

Bruns' description of breathing reflected diaphragmatic-costal breathing with strong Italianate underpinnings. For example, Bruns stated there was a strong connection between breath and resonance, he advocated for a long slow inhalation (*respiro*) and that the breath should be taken as if one were smelling a flower.

However, his discussion of the musculature involved in the process presents some concerns. Bruns stated throughout his singing manual that the breath musculature must be completely relaxed for the singer to breathe well for singing. This seems to underplay the muscular

292. Ibid., 22.
293. Ibid., 24.
294. Ibid., 23.
295. Ibid., 30.
296. Ibid., 37.

involvement needed for the task, as a notable expansion of the lower ribs is required upon inhalation and must be maintained throughout phonation.[297]

In addition, the abdominal muscles must remain taut (while still allowing for some abdominal expansion) because of their important role in supporting the weight of the viscera and propping up the rib cage.[298, 299] Thus, some amount of muscular tension is needed. Martha Lipton's comment about whether or not a singer should relax clearly makes the point: "You'll have plenty of time to relax when you're six feet under."[300]

Before dismissing Bruns' ideas, the setting in which he was making these statements is relevant. Some of his contemporaries were at that same time advocating methods similar to George Armin's muscular approach. When considering this, Bruns' view that the breath musculature should be relaxed is understandable. In such a context, it is more likely he was suggesting a flexible musculature rather than "relaxation."

Resonation

Partial Tones and *Minimalluft*

Bruns believed there was a strong link between breath and resonance, or as he stated, a strong connection between the sensation of resonance in the skull and the releasing action of the diaphragm. As a result, the singer was able to develop a tone that would have carrying power and beauty of tone. He felt this connection would not be possible if abdominal muscular tension and overcrowding of the lungs impeded the natural free descending action of the diaphragm.[301]

Bruns was firmly committed to the idea that the *Minmalluft* approach was key to avoiding this unneeded muscular tension. He was emphatic that the only way a singer could develop partial tones (overtones) was through a total relaxation of the respiratory muscles through an intake of

297. Dayme, *Dynamics of the Singing Voice*, 87.
298. Ibid., 88
299. Brown, *Discover Your Voice*, 26.
300. From email discussion on Feb. 23, 2016 with Davis Hart, who was an accompanist in her studio for many years.
301. Bruns, *Minimalluft und Stütze*, 9, 87.

minimal breath. He saw it as a mistake to believe that a singer could make this "acoustic phenomenon" occur through force.[302]

Vowels, Consonants and Partial Tones

In addition to the correct breath function, Bruns believed certain vowels and consonants could help the singer find proper resonance. To achieve this coordination, he recommended singers use the vowels [u] [i], and [e] because they assisted in finding sympathetic resonance.[303] Bruns also felt consonants were beneficial in accomplishing balanced resonation. He suggested consonants were a tool to create a breath resonance connection because they resulted from intervention of the diaphragm.[304] Bruns viewed this connection as the origin of desirable sympathetic nasal resonance.

In practice, Bruns specifically recommended use of nasal consonants. He included the following example to demonstrate a useful exercise to develop ideal resonance:

- Whisper words such as *"münn"* or *"nimm"* to activate the diaphragm;
- Then practice the words on a voiced staccato;
- Follow by speaking words such as *"mühende"* in a musical rhythm; this last stage simulates the singing process, as speech is elongated into an almost singing quality;
- Important in this process is that the singer should not be aware of the diaphragm, but rather the acoustical ring in the room. In addition, attention should be placed on sympathetic resonance, namely a placement point at the sinuses in the front and back of the nose.

Falsetto and Partial Tones

Bruns thought the falsetto function assisted with range and registers, but also helped to strengthen partial tone formation.[305]

His discussion related to resonation highlighted an important point for his students, i.e. the role acoustics play in developing carrying power and how it is created through dynamic

302. Ibid., 81.
303. Ibid., 39.
304. Ibid., 33.
305. Ibid., 48.

coordination rather than tense muscular effort. If Bruns' assertion of "relaxation" was to mean flexible dynamic muscular involvement, Bruns' views were correct.

Specifically, Bruns' discussion implied the Italian principle of *imposto* in which the connection between breath, resonance, and phonation optimally work together. This principle suggests the following elements are present:

- Flow phonation, producing the best type of vocal vibration (strong fundamental frequency, a moderate roll of in power, and a good set of high harmonics);[306]
- Well-positioned vocal tract, suggesting that a comfortably low laryngeal position is present, a raised soft palate, and a tongue that lies forward in the mouth with the tip resting at the front teeth. The position allows for the creation of singer's formant, a formant cluster with an average spectrum frequency around 3000 Hz.[307] It is this acoustical phenomenon that allows the voice to be heard easily over an orchestra.[308]

This type of coordination is the best approach to developing carrying power.

Bruns' practical methods based on refinement of speech to develop this coordination were also beneficial and reflected methods of Hey, Müller-Brunow, and Schmitt. The key point is that refined speech works with the student's natural coordination to develop *imposto*.

Phonation

Freilauf

Bruns identified *Freilauf* ("free-running of air") as the type of phonation resulting from a *Minimalluft* approach. He described the *Freilauf* phenomenon as a sound that "envelops all latent sound possibilities in every range, width, carrying power and sensuality." He felt the way to achieve this sound was to relax all muscles involved in respiration (abdominal, intercostal, etc.) and allow the air and diaphragm to do the work. Bruns stated that because the diaphragm was an involuntary muscle, it would positively affect the other muscles involved in phonation to thus create a balanced tone.[309]

306. Bozeman, *Practical Vocal Acoustics,* 5-7.
307. Ibid., 17.
308. Dayme, *Dynamics of the Singing Voice*, 130.
309. Bruns, *Minimalluft und Stütze*, 94.

Primal Response

Bruns viewed the best approach to learning correct engagement of the diaphragmatic muscle was through primal sounds such as laughing. He noted that because the diaphragm was an involuntary muscle, it could not be consciously engaged as the singer could manipulate the musculature of the tongue, for example. Instead diaphragmatic movement was automatic.[310]

Creating Proper Phonation

Bruns listed the following sequence to induce proper phonation, or what he called *Freilauf*:[311]

1) Begin with a sustained exhalation on the consonant [f] or [s], assuring there was no tension in the lower body;

2) Next, move to pronouncing words in whispers, words comprised of the vowels [i], [e], and [u] (e.g., *Lift*, *Gift*, *Gruft*, *Schuß*,)

3) Follow by three syllable words such as *Tivoli*, *Kanada*, *Marmar*;

4) Finally, as the exercise progresses, the whisper should develop in volume.

Through this exercise, the student learned the coordination for sustaining long legato phrases.[312]

The *Freilauf* phenomenon Bruns' wrote about reflects the present day myoelastic-aerodynamic theory of voice production. In this theory, the vocal folds approximate to the thought of a pitch and are fully adducted by the air passing between them consistent with principles of the Bernoulli effect.[313] Addressing phonation from this perspective likely benefitted his teaching because it suggests interplay between a dynamic muscular coordination of the vocal folds and breath, allowing the airflow to do the work for the singer.

His practical application of the *Freilauf* principle was a useful strategy, foreshadowing Oren Brown's primal sound approach. Through the use of sounds such as laughing or crying, this coordination was automatically achieved.[314] These automatic phonatory adjustments could serve

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310. Ibid., 18-19.
311. Ibid., 38-39.
312. Ibid., 37-41.
313. Brown, *Discover Your Voice*, 45.
314. Bruns, *Minimalluft und Stütze*, 39.

as the basis for fully developing a singer's instrument.

Registration

Falsetto Function

Bruns believed falsetto played an important role in the acquisition of well-balanced registers. He used contemporary scientific evidence to support his opinion and felt the issue was so clearly supported it was no longer open to discussion or argument.[315] Falsetto, in his view, was vital to strengthening the mechanisms of both the upper range and middle voice.

The Upper Range

When describing the way in which the falsetto function affected high notes, Bruns suggested high notes that "rang in the hall" were nothing more than an acoustically strengthened falsetto function. He pointed out that falsetto, when combined with the *Freilauf* principle, allowed the vocal folds to be stretched to their full capacity.[316] He noted to achieve this function, the singer had to avoid muscular tension of the abdominal muscles[317] and his *Minimalluft* technique set the conditions to awaken this sound.

Bruns emphasized the importance of the falsetto using the upper range of the tenor voice as an example, making the following points.[318]

- An incorrect approach to falsetto, caused by muscle tension, would cause the singer to fail already at G4 or A4;
- The acoustic region of the high B4 natural and C5 was dependent upon falsetto;
- A sick voice (physiological poor condition) was incapable of falsetto;
- Acoustically strengthened falsetto in the upper range had the same volume as the mezzo forte or forte of a lyric tenor in the middle range;
- A tenor without falsetto is not a tenor (physiological poor condition).[319]

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315. Ibid., 48-49.
316. Ibid., 51.
317. Ibid., 50.
318. Ibid., 49-50
319. Ibid., 53.

The Middle Range

In addition to the importance of falsetto in the upper range, falsetto significantly affected the middle voice. Regarding this, he mentioned the following points.

- Falsetto is important in strengthening the mechanism of the middle voice;
- Fortification through falsetto of the middle voices developed chest voice timbre qualities;[320]
- It assisted in creating partial tones that helped the carrying power of the voice (singers formant);[321]
- It supported the creation of well-blended registers.

Bruns believed future discussion of register adjustment by vocal scholars would no longer be focused on the importance of one register over another. Rather, balance of registers would be adjusted due to the presence of partial tones in the voice and through the degree of chest vs. head voice (falsetto) needed in the sound.[322]

Similar to three other pedagogues, Mannstein, Schmitt, and Sieber, Bruns saw the importance of falsetto in strengthening the vocal mechanism. Noted earlier, because the musculature involved in creating pitches in this range is generally weaker, exercising the falsetto would have had a positive benefit by strengthening the overall vocal mechanism.[323]

Dangers of *Deckung* (Covering)

Bruns strongly criticized the German technique of *Deckung*, a muscular mechanical approach to register adjustment at passaggio points. He believed this muscular register adjustment created a tone that sounded "strangled" and resulted in a loss of resonance. He thought the correct form of "covering" or register adjustment came as a result of the *Freilauf* phenomonen.[324]

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320. Ibid., 58.
321. Ibid., 48.
322. Ibid., 57.
323. Brown, *Discover Your Voice*, 61.
324. Bruns, *Minimalluft und Stütze*, 60.

From this, it can be seen that Bruns also observed the acoustical changes involved in registration. While he made no mention of vowel modification in his method of singing, his critique of the *Deckung* suggests Bruns supported a form of passive vowel modification. This approach would require the singer maintain a similar vowel posture but allow the vowel to unconsciously make the tuning adjustments needed. Such modification would allow the harmonic changes to occur without manual manipulation.

Other Important Aspects of the Treatise

Bruns listed three points hampering the operatic profession in general. These included the singer's fight against the size of the orchestra, lack of knowledge from those making operatic decisions, and poor stagings.

- *Issues with the orchestra* - Bruns was frustrated by the lack of ability and talent conductors had in managing their orchestras. He felt the volume of the orchestra endangered the human voice. In fact, he claimed elaborate stagings in vogue at the time were used because the focus was no longer on the singer, but instead had shifted to the orchestra.[325]

- *Ignorant decision makers* - Bruns believed conductors, stage directors, and intendants (i.e. those involved in casting decisions) were not well informed about what was "good" singing. They were ignorant about the limitations of the voice and the aspects that contributed to creating the most beautiful tone. In Bruns' view, all those who made casting decisions needed to be educated in singing and should have been required to study voice.[326]

- *Poor stagings* – Contemporary stagings were designed to be very elaborate, but, in his view, overshadowed the singers. Furthermore, this focus on staging and scenery created poor standards for the acoustical needs of the singers. Often singers were placed in strange positions (e.g., forced to sing upstage) and at other times were at a significant disadvantage due to the poor acoustics created by the stage set.[327]

Summary of Bruns' Treatise

1) *Place in History*

- Bruns served as a prominent figure in the debate between *Minimalluft* and the *Stauprinzip*.

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325. Ibid., 104.
326. Ibid., 108.
327. Ibid., 113.

2) *Respiration*

- He differentiated between the German muscular approach to respiration, *Stütze* and Italianate *appoggio*.

- *Appoggio* is the basis for a beautiful tone and optimal function.

- The diaphragm should be used in a subtler way than the typical German approach.

- A good breath is based on the following principles:
    - Deep breathing is not a conscious activity;
    - The singer should take a breath that is long and slow;
    - The breath should not be sudden or with a sense of angst;
    - Breath should be taken as if one were "smelling a flower";
    - In a good breath, it is not possible to feel the diaphragm;
    - "Breath gymnastics," i.e. over-tensing the musculature of the abdominal region, should be avoided;
    - The singer should focus on expiration more than inspiration, thereby allowing for inhalation without excessive muscular tension.

3) *Resonation*

- Partial tones are a result of the *Minimalluft* method, allowing for a diaphragmatic acoustical connection.

- Vowels and consonants help the singer access proper resonance.

- Falsetto helps the singer access and strengthen resonance.

4) *Phonation*

- Proper phonation is based on the principle of *Freilauf* in which the diaphragm is allowed to directly affect phonation.

- Proper phonation is caused by a primal response from the diaphragm.

5) *Registration*

- Falsetto plays an important role in the strengthening of registers.

- Future teachers will approach register adjustment by listening for partial tones and the ratio of chest and head voice present in the tone.

6) *Other Important Aspects*

- Bruns saw the following problems with the contemporary operatic profession:
    - The singer's fight against the orchestra;
    - Lack of knowledge from those making operatic decisions;
    - Poor stagings.

Chapter 10: FRANZISKA MARTIENßEN-LOHMANN (1887-1971) *Der wissende Sänger* (1956)

Franziska Martienßen-Lohmann was a distinguished German vocal pedagogue and well regarded Lieder singer. Through her writing and teaching, she had a long lasting impact on singing in Germany.

Biographical Sketch[328]

Franziska Martienßen-Lohmann was born in Bromberg an der Weide, in what today is Bygoszcz in Poland. She first studied voice in Leipzig and later in Berlin. Her principal voice teacher was Johannes Messchaert, the well-known Dutch baritone and pedagogue. Through Messchaert, Martienßen-Lohmann traced her singing lineage back to the teaching of Manuel Garcia II.

In 1914, Martienßen-Lohmann sang her first professional performances as a concert singer. Soon thereafter, Martienßen-Lohmann began teaching in Munich, later moving to Berlin and Weimar. Strongly connected to the teaching of her husband, the voice teacher and author Paul Lohmann, the couple took professorships in Weimar from 1946-1949. In 1949, they moved to Wiesbaden, where Paul Lohmann accepted a professorship at that city's conservatory and in Frankfurt. At the same time, in 1949, Martienßen-Lohmann also accepted a professorship at the Hochschule für Musik in Düsseldorf, where she remained until her retirement in 1969.

Martienßen-Lohmann was well-known for her writings about singing, which included important works such as *Die echte Gesangkunst* (1934), *Das bewußte Singen* (1922), *Berufung und Bewährung der Opernsängers* (1943), and her most well-known book, *Der wissende Sänger* (1956).

She was also a distinguished teacher, training many renowned vocalists, including Hildegard

328. Kutsch, Karl J., Leo Riemens, and Hansjörg Rost, *Grosses Sängerlexikon Bd. 4* (München: Saur, 2003), 2950-2951.

Hillebrecht, Judith Beckmann, Leonore Kirschstein, Ingrid Bjoner, Hanna Ludwig, Wilfriede Lüttgen, Jutta Vulpius, Johanna Rütishauer, Ursula Zehnder, Jakob Keller, Paul Gümmer, Josef Olbertz, Kurt Wolinkski, Jakob Stämpfli, Hans Sojer, Rudo Timper, Kurt Widmer, Morris Morgan, and Hermin Esser.

Place in History

Der wissende Sänger is Martienßen-Lohmann's most notable work. It is still used in conservatories throughout Germany and is familiar to the majority of singers and voice teachers in German speaking countries.

Martienßen-Lohmann's approach marked another major shift in vocal pedagogy in Germany. She moved away from the physiological-mechanical approach of Müller-Brunow, Bruns, and Armin to a purely individualized approach customized to each student's needs and talents. She first wrote about this shift in her book *Das bewußte Singen*.[329] With the introduction of this new one-on-one approach, pedagogy no longer was addressed in a dogmatic way, but rather as a system of balance. Martienßen-Lohmann continued to develop her approach in her follow up book, *Der wissende Sänger*.

Aim of Martienßen-Lohmann's Treatise

Der wissende Sänger presented the most important concepts as a compilation of short essays, each of which discussed key areas of the singing process. These essays were written as practical learning and reference tools for students so they could easily locate specific essays to answer questions and solve particular problems.

Structure of *Der wissende Sänger*

Martienßen-Lohmann's essays were organized alphabetically for easy reference by the user. Pedagogical principles and career development were the main themes of her essays. Specifically, she wrote on the topics of technical aspects of the singing process, performance practice, stage

329. Martienßen-Lohmann, *Der wissende Sänger*, 148.

presence, psychology of singing, music business, and teaching. The essays were further organized in the table of contents according to the type of reader. For example, essays on breath and performance practice were organized under a topic called "the singer," while "carrying power" was listed under "those who judged and cast singers." She organized her book according to the following types of readers:

- Singers;
- Those who judged and cast singers - critics, agents, and those who served on juries;
- Those in musical leadership positions - intendant, kapellmeister, stage directors;
- Musicians - composer, conductor, pianist.

She also added ancillary groups:

- Those interested in singing (choral director, music teachers, concert goers);
- Those in charge of culture (librarians, city administrators);
- Those who deal with professional voice users (pedagogues, voice doctors, scientists).

Respiration

Martienßen-Lohmann made the following points related to four key topics of respiration, including the process of taking a good breath, importance of posture, definition of *appoggio*, and the importance of the diaphragm.

Elements of a Good Breath

Martienßen-Lohmann listed five elements the singer must achieve when learning to breathe:[330]

- Silent inhalation, noting inhalation should be inaudible (a noisy breath upset the freedom of the larynx);
- Ability to sing long phrases;
- Reliance on a quick elastic breath that is often unnoticed;
- Learning to take a calm breath without any "thrusting" (i.e. sudden movement of the

330. Ibid., 36.

respiratory muscles, which would cause tension);

- Achieving and maintaining good vocal fold closure (or the air will be blown out).

Importance of Posture

She felt posture in itself was a form of "low-breathing," setting the conditions to allow the breath musculature to work properly.[331] Thus, the process of taking a breath was based on a gestalt view. Proper support through correct posture was not a "magical" quality, but rather the consequence of full body training and vocal fold closure.[332]

Appoggio vs. Stütze

In her discussion of *appoggio*, Martienßen-Lohmann differentiated the concept from the notion of the German *Stütze* (support). She believed *Stütze* was a type of breath support focused solely on the respiratory process at the expense of other important aspects of singing, e.g., resonation, registration, and phonation.

Alternatively, she noted the Italian position on breathing for singing adhered to a gestalt view of respiration in which all aspects of the singing process were interconnected. In other words, *appoggio* affected or was intertwined with all facets of the singing process (respiration, phonation, registration, and resonation), which in turn worked together creating an equilibrium.[333] *Appoggio* was Martienßen-Lohman's preferred method. She characterized it as consisting of or creating the following elements:

- A connection between breath and the sympathetic resonance (*imposto*), what she called "skull sound;"
- The presence of legato in the singer's phrasing;
- Noble body posture;
- Breath power and full vocal fold closure;

331. Ibid., 37.
332. Ibid., 386.
333. Ibid., 31-32.

- Balanced tone and resonance;
- Elastic singing.[334]

The Diaphragm

Martienßen-Lohmann stressed the importance of the diaphragm, describing it as the "seat of the soul" for the singer (similar to the ancient Greeks). Because this muscle was strongly connected to the muscles of the abdomen and the ribs, it was critical to avoid unnecessary tension in these areas resulting in the diaphragm functioning improperly. Martienßen-Lohmann felt that without a fully functioning diaphragm, *appoggio* would be absent, and as a result, the singer would have no breath control.[335]

Resonation

Martienßen-Lohmann focused on three points related to resonation: 1) components of a resonant voice, 2) carrying power, and 3) formants and their relationship to vowels and registration.

Martienßen-Lohmann's view of respiration clearly reflected diaphragmatic-costal breathing, consistent with the modern view of respiration for singing. This is true in her discussion of the importance of posture, the diaphragm's connection to the ribs and muscles of the abdomen, and the connection between breath and resonance (*imposto*).

A Resonant Voice

Martienßen-Lohmann believed there were two aspects present in all balanced resonant voices. They were forward placed vowels and an unchanging timbre regardless of vowel color or articulation.

- *"Forward placement" of vowels* - Martienßen-Lohmann thought vowels should not be distorted, i.e. falling back into the throat and thereby losing their natural acoustical coordination. She noted this was often caused by erroneous movement of the tongue, throat, or pharynx. To remedy this, she recommended using consonants that would place the voice as forward as possible, thereby avoiding any distortion in tone quality.

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334. Ibid.
335. Ibid., 452-454.

- *Undisturbed resonation* – the alteration of vowel and consonants in a sung phrase should not affect the basic sonority of the singer's timbre. For example, when changing from an [a] vowel to an [u] vowel, basic core resonance should remain even though the vowel color changes. In sum, Martienßen-Lohmann said, "the voice is well-placed when the actual sound space stays undistorted and undisturbed through flawless vowel formation."[336]

Carrying Power

An important point in Martienßen-Lohmann's treatise was her discussion of carrying power. To illustrate this phenomenon, she described a familiar occurrence - a singer, when singing in a small room, has what seems like a very small voice; however, in a large hall, the voice seems to grow in size. She believed the cause of this occurrence was a result of the vibration of the laryngeal muscles in combination with head voice resonance. She noted this type of carrying power was often more important than the size of the voice - a large voice does not necessarily transfer to good carrying power. Size of a voice, in Martienßen-Lohmann's view, was more a characteristic of the voice's beauty.[337]

Formant, Vowels, and Registration

Martienßen-Lohmann emphasized the importance of understanding the relationship between vowels, acoustics, and registration. Because vowels are made up of sound formants, they must be modified to fit the frequencies of the pitch being sung. For example, it is often easier for tenors to sing a closed vowel in the passaggio, such as [i] or [u]. These vowel shapes contain a low first formant and a high second formant, which "turn over at lower pitch."[338] Furthermore, Martinenßen-Lohmann noted, in general, women's vowels must open as they ascend in pitch, while the men's voice must close the vowel. The old Italian *castrati*, she pointed out, did this naturally, singing only [a] vowels in the upper range.[339]

Similar to her discussion on breathing, Martienßen-Lohmann's views on resonation reflect

336. Ibid.
337. Ibid., 402.
338. Bozeman, *Practical Vocal Acoustics,* 39.
339. Martienßen-Lohmann, *Der wissende Sänger*, 115.

present day understanding. Most modern vocal scholars agree on three key points - consonants can aid the singer in finding sympathetic resonance, carrying power can be deceiving, and importance of tuning the vowel to the sung pitch.

Phonation

Onsets

Martienßen-Lohmann felt there were three types of onsets, these being a hard (glottal), breathy, and balanced attack. For these types of onsets, she also saw a connection with the different registers of the voice: the hard attack was related to the chest voice, the breathy attack was associated with head voice, and the balanced attack connected with the middle voice.

She, however, noted it was important to develop a balanced onset and flow phonation throughout all registers, as the balanced onset was vital to the singer's vocal health.[340] Thus, to clarify, with regard to the correlation between registers and onset, she merely believed different onsets were characteristic of the voice in its most natural state.

Coup de Glotte and Balanced Onset

The type of onset Martienßen-Lohmann thought most harmful to vocal health was the glottal attack. This type of attack was strongly associated with the teachings of Manuel Garcia II (*coup de glotte)*. However, she believed his methods were misunderstood by vocal pedagogues. In support of this, she shared the view of Stockhausen, a well-known Garcia II student. She noted Stockhausen maintained that many of Garcia's students took his ideas beyond what was intended.

Further, Martienßen-Lohmann felt Garcia's success as a teacher would not have been possible if his students had sung with such a hard attack. Consequently, she suggested the *coup de glotte* was in fact a precise balanced onset in between a breathy and hard attack. This was an onset she championed. To achieve this coordinated onset, Martienßen-Lohmann listed four requirements:

340. Ibid., 94-96.

- A low larynx position (this is the most important factor);
- The attack must be absolutely precise (but not hard like the sound of a machine gun);
- Attack must be clean but without any breathiness;
- Attack must not be louder than the respective vowel.

Laryngeal Position

Martienßen-Lohmann thought laryngeal freedom was the entire quest of vocal study.[341] To achieve this freedom, she commented that many pedagogues often instructed their students to find a low laryngeal position, a concept made popular through the teaching and writing of Julius Stockhausen. However, she raised the question as to whether or not a singer could and should place the larynx. She believed the artificial placing or positioning of the larynx was a mistake and saw its promotion across Germany as being rooted in a misunderstanding of Stockhausen's method. While Stockhausen himself fully understood how to achieve a comfortably low laryngeal position, many of his students and assistant teachers did not. As a result, the position was taught and then disseminated incorrectly. For this reason, Stockhausen earned a poor reputation in the singing community with regard to laryngeal positioning.[342]

In recognizing the dangers of a fabricated laryngeal position, Martienßen-Lohmann promoted a moderate approach to determining this position. In her view, the singer's search to establish a comfortably low laryngeal position took a "lifetime" to fully develop. To find this position, she felt vowels such as [u] aided the singer. However, Martienßen-Lohmann also suggested a strong focus on breathing should be the priority to achieve this position. She validated this, citing the wisdom of the *castrati*, which promoted correct breathing as the way "to open the throat."[343]

Martienßen-Lohmann's ideas on phonation basically correspond to the modern view. She believed a low laryngeal position was necessary. She noted three types of onsets, recognizing the balanced onset was important for vocal health and beauty of tonal quality. And, finally, she was

341. Ibid., 168.
342. Ibid.
343. Ibid., 169.

clear in saying many contemporary teachers and singers misunderstood Garcia's *coup de glotte*.

Registration

Martienßen-Lohmann identified three distinct registers, but advocated a "one register" system as the goal for the singer.[344] She described the three distinct registers as follows:

- *Chest voice* - the register corresponding to the strongest action of the vocalis muscle, noting that the vocal folds vibrate in their full length and width.
- *Middle voice* - the register between head and chest voice. It showed similar involvement of chest voice, but with gradual use of head voice musculature. She emphasized a healthy voice had aspects of head voice in this register.
- *Head voice* - the upper register of the human voice: in this register primarily the fringe area of the vocal folds vibrated.[345]

One Register

A voice consisting of one register with an even sound was the aim of both the singer and the teacher. Martienßen-Lohmann emphasized the importance of head voice in creating this balance. She saw the head voice as "good oil" for blending registers, as its "gliding" factor is what allowed the one-register system to develop. Thus, she believed the voice was to be strengthened from the head down. However, while the goal was to eventually move beyond register breaks, Martienßen-Lohmann stressed that a one-register approach for a beginning student was not appropriate or recommended. She felt this idea could be confusing to the new singer and that an awareness of the three registers and how they relate to one another was a prerequisite to developing a unified one register approach.[346]

Falsetto

Martienßen-Lohmann was adamant that falsetto had no place in classical singing.[347] She commented that some singers move in and out of falsetto and *mezza voce* (another word for *voix mixte*, a mixed quality of head and chest voice) but to trained ears, this type of singing would always be apparent. In her opinion, teachers who advised students to practice falsetto to

344. Ibid., 316.
345. Ibid., 314.
346. Ibid., 315.
347. Ibid., 104.

strengthen the mechanism were simply wasting the student's time. The only benefit for practicing falsetto was as a relaxation technique, yet over-practicing falsetto led to a weakening of the instrument.[348]

Deckung (Covering)

Deckung, a form of covering that called for a mechanical addition of darker timbre (low spectrum vowels) at passaggio points was, in Martienßen-Lohmann's view, a harmful practice. She declared this technique was foreign to the old Italian method. Her view of *Deckung* was that the larynx was pushed down and the voice lost its forward resonance resulting not only in a loss of resonance, but also a "tight" tone.[349]

Martienßen-Lohmann's discussion of registration brings up several points. Importantly, her views on registration represent current understanding of today's pedagogues and scientists. In particular, she noted the different laryngeal adjustments involved in registration and the importance of vowel modification while, at the same time, recognized problems created by the method of *Deckung*. Likewise, she commented on the importance of head voice in strengthening the overall mechanism.

However, her views on falsetto are viewed now as controversial. Martienßen-Lohmann stated the falsetto had no place in western classical music. It is obvious that she, like Richard Miller, saw a clear difference between the muscular coordination involved in falsetto and head voice.

Richard Miller notes that while the elongation and stretching of the vocal folds induced largely by the action of the cricothyroid muscle is similar in both head voice and falsetto, vocal fold closure is less complete in falsetto.[350] Consequently, the sound takes on a "feigned" quality

348. Ibid., 105.
349. Ibid., 72-73.

350. Miller, *Solutions for Singers*, 154.

that is in stark contrast to the tonal quality of the upper register of a premier singer (e.g. Jussi Björling's upper range).[351] In this context, Martienßen-Lohmann's assertions were correct.

Her views, however, on the pedagogical use of falsetto are incorrect. As noted with other pedagogues, most vocalists routinely use the thyroarytenoid muscle in daily speech. As a result, the cricothyroid muscle, dominant in falsetto production, is usually significantly weaker. Through vocalization in falsetto, the muscle will consequently strengthen, therefore adding to a more balanced laryngeal musculature.[352] In sum, Martinenßen-Lohmann was correct that falsetto has little place in performance (unless one is a falsettist), she was not correct in her view that falsetto would weaken the mechanism.

Other Important Aspects

Diction

Martienßen-Lohmann addressed two key points about diction - the treatment and use of consonants and articulation compared to diction.

- *Consonants* - Martienßen-Lohmann commented that German had a bad reputation as being a language requiring strong consonants, which was often seen by many pedagogues as troublesome in singing. She, however took a different view, seeing consonants as being helpful to diction. In her approach, *voiced consonants* were important to finding a balanced tone, noting that these had a long tradition in vocal pedagogy. Furthermore, *unvoiced consonants*, often overlooked, were also useful in developing 1) singing power and 2) finding a forward placed "concentrated" tone.[353]

- *Articulation vs. Diction* - Martienßen-Lohmann distinguished how articulation and diction differed. Articulation focused on training of the mouth, jaw, and tongue. The key to good articulation was simplification, namely, less articulation was more. She emphasized that diction was not articulation. Instead, she compared diction to a gymnastic dance of the articulators in a singing-like declamation.[354]

Voice Teacher as a Doctor

Martienßen-Lohmann compared teaching voice to the process a doctor uses to diagnose and treat illnesses. She believed the teacher should diagnose vocal faults in the same straight-forward manner a doctor would diagnose a medical condition or disease. As with a doctor, a teacher must

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351. Miller, *The Structure of Singing*, 121.
352. Brown, *Discover Your Voice*, 54.
353. Martienßen-Lohmann, *Der wissende Sänger*, 196.
354. Ibid., 34.

also be a healer, offering therapy that required expertise and skill. She offered the example of how useless a complex diagnosis of vocal faults would be for a beginner, saying the beginning student would be overwhelmed by an in-depth physiological explanation of a vocal shortcoming.[355]

Summary of Martienßen-Lohmann's Treatise

1) *Place in History*

- Martienßen-Lohmann's writings marked a new shift from the physiological-mechanical approach to singing to a more individual approach.
- She had a significant impact on the tradition of singing in Germany as both an author and as a voice teacher.

2) *Respiration*

- There are six elements for a proper respiration:
  - A connection between breath and the sympathetic resonance (*imposto*), what she called "skull sound".
  - The presence of legato in the singer's phrasing.
  - Noble body posture.
  - Breath power and full vocal fold closure.
  - Balanced tone and resonance.
  - Elastic singing.[356]
- Posture is very important to the breath process. It is a low-breath in itself, as it sets the correct conditions for the respiratory muscles to function optimally.
- *Appoggio* differs from *Stütze*. *Appoggio* focuses on the entire singing process (resonation, respiration, registration) while *Stütze* has a narrow focus, only centering on respiration.
- A good functioning diaphragm is instrumental for achieving *appoggio* and good breath control.

3) *Resonation*

- A resonant voice has characteristics of forward placed vowels and an undisturbed ground sonority (timbre remains the same regardless of vowel color).
- Carrying power is caused by vocal fold vibration in combination with head voice resonance.

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355. Ibid., 74-76.
356. Ibid., 31-32.

- A firm understanding of formants, vowels, and how they related to registration is necessary to develop a balanced voice.

4) ***Phonation***

- Three types of onsets had a natural correlation to the three different registers, noting however the balanced attack should be made throughout the entire range:
    - Hard (glottal)/chest voice.
    - Breathy/head voice.
    - Balanced/middle voice.
    -

- Glottal attack is harmful and should be avoided. Garcia II was misunderstood on this principle.

- The larynx should lie comfortably low and should be formed by the breath. Stockhausen was misunderstood on this principle.

5) ***Registration***

- There are three distinct registers corresponding to different actions of the vocal folds:
    - Chest register, a strong action of the vocalis.
    - Middle voice, mixed action of the vocalis and head voice musculature.
    - Head voice, a vocal fold action where only the fringe area of the vocal folds vibrate.

- Blending the three registers into one register is ideal and is built on use of the head voice.

- Falsetto is not useful in both performing and teaching classical singing.

- *Deckung* results in a loss of resonance and a tightness of tone; it should be avoided.

6) ***Other Important Aspects***

- Consonants can be beneficial in learning how to sing.

- Articulation and diction are different. Articulation is the training of the mouth, jaw, and tongue while diction is more of a singing-like declamation.

Chapter 11: FREDERICK HUSLER (1884-1969)
Singen: die physische Natur des Stimmorganes (1965)

Frederick Husler was a professional operatic tenor and a prominent vocal pedagogue. His teaching and pedagogical views greatly influenced the development of the German approach to singing.

Biographical Sketch[357]

Frederick Husler was in born in Utah in 1884 to a Swiss father and a German mother. When he was eight years old, his father died and the young Husler returned to Germany with his mother. Husler was not a naturally talented singer, and because of this, he had to work hard to learn to use his voice efficiently. His dedicated effort taught him much about his voice and Husler became a successful singer. As a young singer, Bruno Walter asked him to sing the title role in Verdi's *Otello*. Later, he became a member of the Kroll Opera where he had the opportunity to work with the conductor Otto Klemperer.

Husler's teaching career began early. Already in his twenties, he had much success as a voice teacher in Munich. In 1922, Husler moved to Berlin, where he became head of the *Stern'sche Konservatorium* and later, from 1936-1939, was in charge of the *Konservatorium Reichsthauptstadt Berlin.* In 1946, he helped found the *Musikhochschule* in Detmold, where he served as professor from 1946-1961. In 1961, he opened a private school for singing with Yvonne Rodd-Marling in Lugano, Switzerland.

Well respected as a pedagogue, conductors such as Furtwängler, von Karajan, and Sargent, consulted with Husler about singing. His books on vocal pedagogy were widely read and regarded throughout the German speaking countries. He taught more than sixty students who

357. Ron Murdock, "Prof Frederick Husler," Cursa Ur. Last modified 2015, Accessed June 12, 2015, http://www.cursa-ur.com/husler.html.

went on to have their own successful professional careers. Among them were Hannelore Bode, Dieter Behlendorf, Elfie Mayerhofer, Werner Hollweg, Hans Kaart, Robert Titze, Fausto Tenzi, and Gudrun Ebel.

Place in History

Husler established himself through his writings as a widely known and recognized pedagogue in Germany. His book, *Singen:die physische Natur des Stimmorganes*, was very influential in the German speaking countries and was one of the first writings to integrate vocal science into the teaching of singing.

Aim of Husler's Treatise

Husler presented his ideas for teaching voice through scientific arguments based on the physiology of the human body.

Structure of *Singen: die physische Natur des Stimmorganes*

Husler broke down the singing process in two ways: 1) a discussion of anatomy and physiology and its effect on the singing process (i.e., resonation, registration, respiration, and phonation), and 2) review of other aspects important to singers and the singing process. Specific topics discussed in the book include:

- The unity of voice production;
- Anatomy and physiology;
- Aspects of phonation;
- Registration;
- Resonation (placement);
- Musicality;
- Singing and speech;
- Vocal health;
- Voice training.

Respiration

Husler focused on the physiology and mechanics of respiration, in particular the connection between the larynx, muscles of the ribs and diaphragm, and the lower back. His descriptions of correct respiration were clearly linked to what was known at the time about the science of the body.

Low Larynx and Respiration

Husler believed the larynx should be in a comfortably low position for singing and the way to find the position was through proper respiration. The connection between the larynx and muscles of respiration was the most important aspect in finding this position because it created a comfortable low larynx position as opposed to a fabricated depressed laryngeal position of other methods. This position, Husler noted, was one of the most important factors in determining the quality of the tone.[358]

Process of the Breath

Husler believed two elements were essential to the breathing process. These were expansion of the ribs combined with a counter-movement of the diaphragm, and a sensation of lower back breathing.

Rib Expansion and Diaphragm

Rib expansion combined with a counter-movement of the diaphragm were necessary features for most favorable singing. In Husler's view, the diaphragm served as the counterweight to rib cage expansion. He described the two opposing forces of the ribs and diaphragm as creating a balance allowing the singer to control and release air as needed.[359] Husler suggested the key factor to singing well was to keep a continuous expansion of the rib cage. He stressed the greatest singers kept this position while singing, never seeming to take a breath.[360]

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358. Husler and Rodd-Marling, *Singing*, 31.
359. Ibid., 36.
360. Ibid., 34.

Lower Back Breathing

Husler thought the proper breath should be felt in the lower back because the strongest muscles of the diaphragm are connected to both the thorax and the inner side of the lower back. This physiological relationship was in line with his rationale that a singer should breathe into the lower back, a concept often expressed by the world's greatest singers.[361]

Simplification of the Breath Process

Husler believed his peers in Germany placed too much emphasis on physical engagement of the breathing muscles. He also felt the majority of professional singers were too focused on taking a good breath, saying this over-contraction caused stiffness in muscles of the abdomen and the flanks. Consequently, this tension did not allow the muscles of inspiration to work to their full ability.[362]

Rather than a feeling of immobility in the abdomen, Husler thought the singer should release the respiratory muscles, allowing the muscles to work together in a natural coordination. He believed this functional unity was much simpler and more primal, seeing it as having less to do with "supporting" the voice but closer to a primal cry.[363]

Faulty Breathing Methods[364]

Husler listed several breathing methods he believed were incorrect and limited the singer.

- *Fixing the flanks* causes immobility of the breathing muscles, resulting in a throaty sound;
- *Permanent contraction of the diaphragm*, often combined with abdominal tension, weakens the muscles of the larynx;
- *Diaphragmatic pressure* using the breath to press the dome of the diaphragm, resulting in diaphragmatic immobility;

361. Ibid., 35.
362. Ibid., 37.
363. Ibid., 40.
364. Ibid., 44-45.

- *Forced deep breathing* immobilizing the abdominal wall connection to the pubic bone, creating a suction effect and drawing the diaphragm to extreme depths resulting in lack of high notes;

- *Congesting method (Stauprinzip)*, typical of non-Latin schools, capturing air with a tense upper body and damming it against the vocal folds resulting in "chesty" voices;

- *Pressing* or acts of displaying pure vocal power.

Principles of Breathing[365]

Husler emphasized nine key principles the singer should remember about breathing.

- Avoid any systems of breathing (systems that go against the nature of the human body);

- Do not overfill the lungs;

- Overfilling the lungs will result in weakening of the respiratory system;

- Breath should be small, thorough and intensive;

- Vocal folds are capable of vibrating by themselves; the breath organ is not the motor;

- Breath should not be taken in deliberately and the singer should aim at breathing out;

- Breath exercises without phonation are not beneficial;

- The properly functioning larynx is regulated by the breath;

- Systems that try to improve breathing are always incorrect.

Husler's views on respiration correspond to diaphragmatic-costal breathing. For example, he stressed the importance of a continually expanded rib cage, the opposing force of the ribs and diaphragm, and lower back expansion. A surprising point in his discussion, however, was his view of the role breath played in phonation. He believed that breath was not involved in the vibration of the vocal folds, considering it to be "simply the element that carries and forms the sound."[366] Furthermore, he was convinced the voice was not a wind instrument. He stated:

> Learn, therefore, to distinguish clearly between the breathing *organ* and *breath*. Remember that the old concept, of the pressure of breath as the motive power in giving voice, has been disproved by modern science. The singing mechanism is not a

365. Ibid., 50-51.
366. Ibid., 55.

> wind instrument. Remember instead that "the vocal folds are capable of vibrating independently of the current of breath."[367]

His views reflecting the neurochronaxic theory of phonation (see phonation section for further discussion) were incorrect. The current view promulgated by voice scientists, such as Ingo Titze, is the myoelastic-aerodynamic theory in which the vocal folds approximate to the thought of a pitch and are fully adducted by the breath passing between them (Bernoulli effect).[368] The conclusion therefore is that the voice is in fact a wind instrument.

Resonation

Husler's most notable teaching contribution was the method he used to teach resonation. Husler believed the way the voice could best be adjusted was by placing attention at placement points. He noted resonance changes always corresponded with muscular movement and these movements could be adjusted by focusing on sympathetic resonance.[369,370] He stated "the most promising possibilities to unlock the voice successfully lie, indeed in this practice of "placing," and the singer and teacher should rely upon it".[371]

Figure 11.1. below illustrates the process and technique Husler thought teachers and students should use to correct vocal problems. For example, if the student were singing with a shallow, thin, or narrow sound caused by a high larynx, the student should practice placing the sound at point no. 4 and 6. If the sound happened to be "throaty," the student should place the sound at point no. 2, but also at points no. 3a and 3b could be practiced.

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367. Ibid., 51.
368. Titze and Alipour, *The Myoelastic Aerodynamic Theory of Phonation*, 81.
369. Husler and Rodd-Marling, *Singing*, 29.
370. Ibid., 69.
371. Ibid., 72.

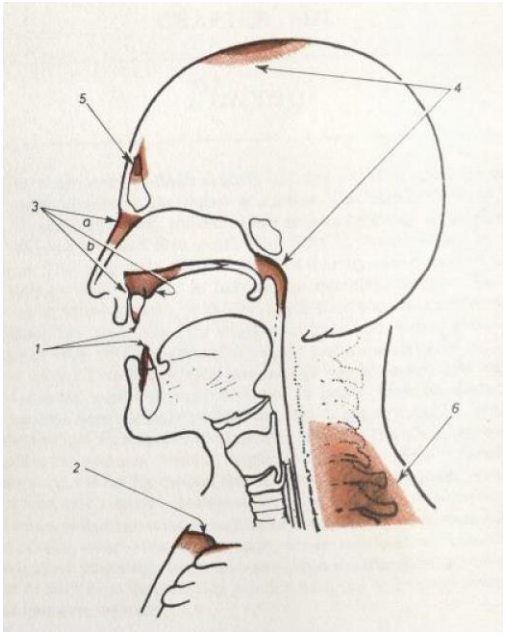

Figure 11.1. Sympathetic Resonance Placement Points to Correct Vocal Faults

Husler's views on sympathetic resonance as the best source to correct vocal faults are problematic. While placement plays a major role in voice training, Husler's overemphasis on placement could result in tension. This is due to the fact that good placement is the result of a well-coordinated voice, rather than the converse.

While sympathetic resonance sensations can serve as valuable feedback tool, if one attempts to make or place a tone, it can often result in holding or tension. A more effective route would be to develop the proper conditions (etc. proper breathing, onsets etc.) and be aware of these beneficial sympathetic vibrations. They are a byproduct of a well-coordinated voice that functions as a unit. Regarding this, Oren Brown best captures the importance of this point:

> The resonance sensations are by-products of the correct function in other areas and are not prime objectives in themselves. When resonance is properly developed, you have the sensation that all the vowel sounds emanate from some area in the middle of your head, perhaps just behind the soft palate. These sensations can be a guide for producing voice but should not be sought out for themselves in early study…such an endeavor would be putting the cart before the horse.[372]

372. Brown, *Discover Your Voice*, 81.

Phonation

Husler took issue with the prevailing views as to how phonation occurred. He aligned himself with *Neurochronaxic Theory* (now disproved). He also addressed the principles associated with forward vowels and their connection to vocal fold adduction. Again, he based his ideas on his understanding of the physiology of the voice.

Neurochronaxic Theory

Husler's views on phonation corresponded more closely with the (now refuted) *Neurochronaxic Theory* of voice production (muscles of the larynx are solely involved in phonation) as compared to the presently accepted view of the *Myoelastic Aerodynamic Theory* (the vocal folds approximate and are fully adducted by the movement of the breath through the Bernoulli effect). He stated,

> It is more likely that the vocal folds produce a rhythmic oscillatory movement, partly brought about by the muscles imbedded in them, and partly by the passive tension between them".[373] Further, "It is not the outflowing breath that sets the vocal folds vibrating; breath is simply the element that carries and forms the sound."[374]

Forward Vowels and Vocal Fold Adduction

Husler believed forward vowels (e.g. [i], and [e]) and the "nasal resonance" they created had a direct connection with vocal fold adduction. Through these vowels the singer was capable of achieving full adduction without thickness or heaviness. In sum, this maneuver allowed ideal phonation to occur without undue tension.[375]

Glottal Attack

Husler saw the glottal attack as being the most harmful type of onset even though famous teachers and singers such as Garcia II, Duprez, and Viadort supposedly adhered to this concept. Husler argued the type of onset Garcia taught was likely not faulty; rather, it was in fact a

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373. Husler and Rodd-Marling, *Singing*, 54.
374. Ibid., 55.
375. Ibid., 66.

balanced coordinated onset similar to sung staccato. He noted an actual glottal attack was harmful, and especially so for non-singers or beginning singers. Husler said this type of onset was unhealthy as the vocal folds were made immobile by sub-glottal air pressure.[376] He also emphasized the low laryngeal position would lessen the effect of any faulty onset – breathy or hard (glottal).

Husler's belief the neurochronaxic theory governed phonation was inaccurate. This theory, developed by the phoniatrist Raoul Husson during the 1950's, postulated that the vocal folds were set into motion by a nerve impulse from the brain.

The neurochronaxic theory has now been disproved. While the scientific view of the voice continues to evolve, it is important to note Husler posthumously was still associated with these claims that the vocal folds were self-vibrating as late as 1976 (restated in future editions of this book published by his colleague Yvonne Rodd-Marling). This persistent view is problematic since this theory was largely discredited as early as 1967.[377]

Registration

One Register Approach

Husler believed singers and teachers of singers should approach the voice as having only one register. In his view, working with the voice as if it had separate registers would only create a disjunctive voice consisting of only notably separate registers.[378] He claimed that naturally gifted singers never experienced such shifts. Husler did see registration as more of a balance between the muscles typically associated with chest voice, the thyroarytenoid, and the muscles associated with head voice, the cricothyroid.[379]

Falsetto

Husler thought falsetto played an important role in coordinating registers. If falsetto was

376. Ibid., 75.
377. Vennard, *Singing*, 57
378. Husler and Rodd-Marling, *Singing,* 58.
379. Ibid., 57.

missing, the voice could not be fully developed. He noted:

> The entire complex of the vocal folds has to be properly stiffened before the fibers of this inner muscle [vocalis] are able to operate to full capacity… Pathology tells us that failure of the M. Cricro-thyreodieus [cricothyroid] through disease results in a deep, raucous voice with lack of high notes.

He continued:

> If the vocal lip [vocalis] is forced to act entirely on its own [without the cricothyroid muscle], it means that the vibratory mechanism that constitutes the organ of singing does not exist.[380]

Husler saw two different types of falsetto - a collapsed falsetto (an unusable sound) and a supported falsetto.[381] The supported falsetto was very beneficial to the singer because in this adjustment the glottis was fully closed and the sound had a "core" of resonance. This quality was characteristic of all great voices.

Husler believed the voice should be balanced with this falsetto mechanism. As a result of this strengthening, the voice would be capable of an even sound in all dynamics and ranges.[382] When practicing this register adjustment, he recommended the singer begin with the collapsed falsetto tone. Through intensification of the respiratory muscles, the singer would strengthen the falsetto mechanism.[383]

Husler only commented on laryngeal registration with no mention of vowel modification. His main point, as with other authors, was the importance of falsetto. He recommended developing this range by beginning with the "collapsed falsetto" and then refining it into "supported falsetto." Strengthening the musculature of the larynx and connecting it with diaphragmatic-costal breathing is a useful approach from which the upper register can be developed and the various registers of the voice unified. Thus, it was likely valuable for his students.

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380. Ibid., 63.
381. Ibid., 59.
382. Ibid., 63.
383. Ibid., 66.

Other Important Aspects

Gestalt Principle

Husler 's use of physiological principles were fundamental to his view for teaching singing. He felt the process of good singing was a result of all parts of the vocal process working together (i.e. respiration, resonation, registration, phonation). He thought, while it was important to understand how individual elements of the voice functioned, it was more important for the singer and teacher to understand the wholeness of the vocal mechanism working together to produce vocal tone as a sum of all parts.[384]

Summary of Husler's Treatise

1) ***Place in History***

- Husler was a well-respected pedagogue whose ideas were disseminated across Germany and the rest of the world through his writing and teaching of students.

2) ***Respiration***

- There is a counterbalance produced between rib expansion and the diaphragmatic engagement.
- A good breath should be felt in the lower back where the strongest muscles of the diaphragm are connected.
- The breath process should be simplified and should involve minimal muscular contraction.
- There are six faulty breathing methods:
    - Fixing the flanks;
    - Permanent contraction of the diaphragm;
    - Diaphragmatic pressure;
    - Forced deep breathing;
    - Congesting method (*Stauprinzip*);
    - Pressing.
- There are nine principles of breathing:
    - Avoid any systems of breathing;
    - Do not overfill the lungs;
    - Overfilling the lungs will result in a weakening of the respiratory system;
    - Breath should be small, thorough, and intensive;

384. Ibid., 12.

- Vocal folds are capable of vibrating by themselves; the breath organ is not the motor;
- Breath should not be taken in deliberately and the singer should aim at breathing out;
- Breath exercises without phonation are not beneficial;
- A properly functioning larynx is regulated by the breath;
- Systems that try to improve breathing are always incorrect**.**

3) ***Resonation***

- Placing a tone at different placement points is the best method to correct faults in singing.

4) ***Phonation***

- Husler's views of phonation correspond the *Neurochronaxic Theory* of voice production.
- Forward vowels assist in achieving a healthy adduction.
- The glottal attack is harmful, particularly for the lay person or beginning singer.

5) ***Registration***

- Singers and teachers should approach registration from a one-register view.
- Falsetto is instrumental in building a healthy, balanced voice.

6) ***Other Important Aspects***

- Good voice production is not dependent upon individual muscles, but is rather a sum of its parts.

Chapter 12: RICHARD MILLER (1926-2009)
National Schools of Singing (1977)

American author and pedagogue Richard Miller has been the main source of information on different national approaches to singing for English speaking pedagogues, singers, and students over the last fifty years. Written in his native English, this book presents the standard, prevailing view English speakers have of the modern German school of singing, detailing national trends in German pedagogical principles. His work is based on both his observations of teachers of singing as well as his analysis of the writings of vocal scholars.

A discussion of Richard Miller's work is added to this review because his observations further explicate the German approach to singing. Miller's English language summary is critical to fully understanding the topic of the Germanic approach. Published in 1977, it provides a comparison to native speaking German authors from fifty to more than one hundred years earlier. His analysis gives American and other English speaking audiences yet another option to decide about "correct" teaching techniques from Miller's perspective as compared to original German writings presented here.

General Concepts

Richard Miller noted in his text that many German teachers and authors adhered to the idea of *Stimmbildung* (voice cultivation). He described this approach as a mechanical adjustment of the voice as if it were a machine, in which the voice must be taken apart and rebuilt. He suggested this mechanical approach was the explanation for the number of diverse theories and techniques of singing generated by German pedagogues during the nineteenth and twentieth centuries.[385]

While none of the authors in this review used the word "*Stimmbildung*," three authors (Müller-Brunow, Armin, and Bruns) adhered to this approach, calling it instead *Tonbildung*. This

385. Miller, *National Schools of Singing*, 67.

physiological-mechanical approach to singing was a break from the methods of the past. Namely, the focus was often placed on a single individual aspect and less so on practical methods such as agility or the *messa di voce*.

For example, Müller-Brunow believed the voice could only be unified through a speech-based method of the correct vowels and consonants. However, unlike Hey, he detached his approach from actual speech, focusing only on syllabic exercises with phrases such as [bø, by, bo, ba]. Bruns too thought all aspects of singing could be solved through his *Minimalluft* approach, in which residual air volume and relaxation of the breathing muscles allowed the body to function properly. Armin, on the other hand, believed all aspects had to be developed through vocal damming (*Stauprinzip)*. Further, Armin's views of the voice in its natural state was that it was inadequate and needed to be dismembered and later reconstructed, validating Miller's general observation of a mechanical German approach.

Phonation

Onset[386]

Miller observed the breathy onset as the preferred method of German vocal pedagogues. This may surprise many in the English speaking singing world since the commonly held view was the glottal attack was preferred. This assumption was likely due to the hard nature of the German language. Miller noted Germans actually associated the hard attack with the Italian school of singing through its connection with Garcia II (*coup de glotte)*. In other types of onsets, in particular the balanced and the hard attack, Miller commented that the balanced attack (*Stelleinsatz)* was rarely prescribed in Germany and the hard attack originated from those adhering to the *Stauprinzip*.

In contrast to Miller, no author reviewed in this document advocated a breathy onset. Nevertheless, nearly all of authors disapproved of the hard glottal attack, affirming some of

386. Ibid., 4-5.

Miller's observations. The way authors corrected the onset, however, points to a Germanic trend in overcoming the glottal attack - the combination of an onset with a consonant. Six authors prescribed this method (Müller-Brunow, Armin, Bruns, Hey, Martienßen-Lohmann, and Schmitt). In contrast, Mannstein, Sieber, and Husler reflected an Italian model of a balanced attack beginning with a vowel. In total, all authors promoted a balanced onset, or as Miller termed it, the *Stelleinsatz*.

Laryngeal Position

Miller pointed out German teachers preferred a low laryngeal position often taken to extremes.[387] He suggested this position was frequently combined with the enlargement of the pharyngeal space in attempt to achieve better resonation.

Nearly all the German treatises Miller reviewed placed importance on a low laryngeal position. The majority, however, cautioned against over-depressing the larynx. There were two exceptions - Armin's *Stauprinzip* advocated a fabricated low laryngeal position confirming Miller's observation and Schmitt's *Grosse Gesangschule*, which supported a high laryngeal position.[388]

Respiration

Miller noted that, while there are many useful German techniques in breathing (e.g., lower dorsal expansion), the method termed *Bauchaussenstütze* (distended belly support) was particularly emphasized in German teaching. Miller described this approach in a three-step sequence - the singer exerts outward pressure with the abdominal muscles, tightens the buttocks, and attempts to engage the back muscles. He suggested this muscular tension does not allow the diaphragm to function properly because it retards its upward movement.[389]

Armin's *Stauprinzip* directly corresponds to observations Miller made about German

387. Ibid., 86.
388. Schmitt, *Grosse Gesangschule für Deutschland*, 15.
389. Miller, *National Schools of Singing*, 21-22.

respiration for singing. The *Stauprinzip* called for an intense muscular expansion of the lower body. At the start of the breath, expansion was to be felt in the chest but would move lower as the singer's training progressed.[390] Overall, the tension of the lower body was intended to result in the absolute relaxation of the larynx.

In contrast to Richard Miller's observation of a "pushing out" of the abdominal muscles, three other authors, Schmitt, Mannstein, and Sieber, advocated the lower abdominal muscles be "pulled in" during phonation. It is unclear if these three teachers were recommending a slight contraction to assist in maintaining the expansion of the rib cage or if they were actively seeking muscular support from the abdominal muscles. It may be the case, however, that these instructions (pulling in) led to Miller's conclusions about muscular tension in the abdominal region.

Resonation

Miller made three observations related to resonation in the German school:

- *Equalization of vowel sounds* - German teachers advocated avoidance of vowels on the high end the vowel spectrum (i.e. [i] and [e]). This was achieved through buccal rounding (i.e. avoidance of the "horizontal smile" position), and through the use of mixed vowels, e.g., [ø].

- *Alteration of the pharynx* - German teachers espoused the idea that a widened pharyngeal position ("room in the throat") produces a full, richer sound.

- *Posterior singing* - German teachers recommended an approach called *Nach-hinten-Singens* (sing towards the rear), viewing this as the optimal way to "open the throat."[391]

In contrast to Miller's observations, seven of the nine works reviewed here did not advocate for diminishing high spectrum vowels. Rather only Armin and Müller-Brunow viewed modification to a darker vowel as crucial to achieving a balanced tone. These two authors believed all vowels were to be developed from mixed vowels, namely [ø] or [œ].[392] In fact, in direct correlation with Miller's observations, Armin and Miller used the same terminology in

390. Armin, *Das Stauprinzip*, 20.
391. Miller, *National Schools of Singing*, 67-69.
392. Müller-Brunow still believed the nasal quality was important in the singing process.

describing this method of resonance balancing, *Rundung* (rounding).

Registration

Miller observed a technique called *Deckung* being taught in German pedagogical circles. This was a technique used in an attempt to balance registers. Miller described *Deckung* as "the alteration of the vowel through active depression of the larynx and pharyngeal enlargement. The intensity of the vocalis muscle intensifies through the contraction of the muscles of the torso and neck."[393] Miller commented this technique was foreign to ideal Italian *chiuso* singing, in which the register was blended through proper muscle balancing and vowel blending.[394]

Again, the majority of techniques discussed in earlier chapters of this review discouraged the use of such a manipulative approach as *Deckung*. While individual approaches differed, most authors advocated for a moderate approach to registration. For example, Schmitt focused on the use of nasal resonance or nasality in accessing the upper range. Sieber and Mannstein approached registration through a balance of the head-chest mechanism while Martieneßen-Lohmann and Hey recommended vowel modification.

Yet, one author, Armin, is congruent with Miller's observations of a *Deckung*. Armin believed the head and chest registers should not lose their individual qualities (what he called *Ausgleich*) and criticized the common practice of register fusion (*Verschmelzung)* that created the sense all registers were unified. In addition, Armin advocated for strong use of vowel modification emphasizing a darker tonal preference (i.e. a movement away from high partial vowels). While Armin did not mention *Deckung*, his recommendations suggest a similar tactic.

Relevance of Richard Miller's Writing

Richard Miller's *National Schools of Singing* provides a useful resource for English speaking teachers and singers. Because of his meticulous observations, Miller was able to authentically describe German methods used to teach singers in the modern age. Miller's work, written well

393. Miller, *National Schools of Singing*, 134-135.
394. Ibid.

after many important German treatises were published, offers important observational data detailing the German approach to teaching singing. His English synopsis of German style adds to the working dialogue about what in fact is true German technique.

Chapter 13: SUMMARY OF OTHER KEY TREATISES

German authors included in this review were selected using five criteria: (1) their place in history as they contributed to the German singing tradition, (2) the lack of knowledge of their methods in the English speaking world (3) their discourse with their contemporaries about "correct" technique, (4) the chronology of the development of the German technique spanning the time of 1848-1965, and (5) success of their individual methods to develop singers.

Additional German pedagogues contributed to the understanding of German technique but are well known to English audiences through English language translations of their writings. Consequently, a comprehensive review of the German school of singing would be incomplete if these particular pedagogues were omitted. These authors, contemporaries of German pedagogues reviewed here, not only influenced the evolution of the German approach to singing but to this day maintain an important presence in the German pedagogical literature.

Because the focus and scope of this review is to only consider writings of German pedagogues not readily available in English translations, four German authors whose views are available and easily accessed in English versions are summarized below from secondary sources. Two of these authors, Mathilde de Castrone Marchesi and Julius Stockhausen, were writing at the same time as Hey, Sieber, Müller-Brunow, and Schmitt, between 1854 and 1890. Two additional authors, Lilli Lehmann and Johannes Messchaert, both of whom were singing and writing in the late nineteenth and early twentieth-centuries were contemporaries of Armin and Bruns.

Mathilde de Castrone Marchesi (Graumann) (1821-1913)[395]

Mathilde Marchesi was a student of Manuel Garcia II, and she, like her teacher became a renowned teacher of singing earning professorships in Vienna and Cologne. Garcia was so taken with Marchesi's teaching ability that he entrusted her with his students when he was ill. Like her

395. Ank Reinders and Heinz Kimmerle, *Atlas der Gesangkunst* (Kassel: Bärenreiter, 1997), 176-178.

teacher, Marchesi too became well known as an author of singing manuals, particularly those addressing technical exercises.

Principles of Marchesi's Technique[396]

- *General Concerns* - Marchesi believed all teachers of singing should have a thorough grounding in anatomy, physiology, and acoustics and their effect on voice production. Marchesi's position was that no national schools of singing existed (German, French, or Italian) but instead there was only one universal and correct method.

- *Respiration* - Marchesi advocated diaphragmatic-costal breathing occurring when the chest expands and the diaphragm descends. In her opinion, all other methods were incorrect because they did not allow for full expansion of the lungs. She advised against wearing corsets when singing (a recommendation of many teachers to aid in feeling expansion) because she thought the singer would breath too laterally.

- *Phonation* - Following the practices of her teacher Garcia, Marchesi promoted the *coup de glotte* (stroke of the glottis). In the view of many singing scholars, this technique was a firm balanced attack rather than an actual glottal attack.[397] This onset was prepared through a mouth position of an [a] vowel. Marchesi compared the onset to primal sounds, like the "crying of a baby."

- *Registers* - Marchesi suggested, as did others, there were three different registers - chest, middle, and head. In her view, the chest was to be fused with head voice and the laryngeal position was to remain the same for all registers
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- *Diction* - Diction, in Marchesi's view, was to be clear but also should not disturb the vocal line. She instructed students to practice consonants alone, which would then improve function when singing.

- *Stylistic Traits* - If a singer practiced "unmusically" the session was of no value. Stylistically, she was rigid, seeing either good style or bad style with nothing in between.

Julius Stockhausen (1826-1906)

Julius Stockhausen was a well-recognized singer and vocal pedagogue, who was particularly regarded for his interpretations of German Lieder. Like Marchesi, Stockhausen was a student of Garcia II and was significantly influenced by Garcia's techniques. He continued Garcia's tradition of investigating the scientific aspects of singing, particularly in relation to his own assumptions on acoustics and how they related to the voice. [398]

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396. Ibid., 176-178.

397. Miller, *National Schools of Singing*, 2.

398. Coffin, *Historical Vocal Pedagogy Classics*, 37-42; Reinders and Kimmerle, *Atlas der Gesangkunst*, 181-185.

Principles of Stockhausen's Technique

- *General Concerns* - Stockhausen believed there were three aspects of singing:
  - Pitch, created by vibrations in the larynx;
  - Power, the creation of amplitude through the power of the lungs;
  - Quality, determined by the shape of the vocal tract.[399]

Stockhausen viewed quality as one of the most important aspects to develop, noting that power was relative.[400]

- *Respiration* - Stockhausen wrote little about respiration in his treatise. His main point was that diaphragmatic breathing was the correct method and the expansion of the ribs was essential to good breathing.

- *Phonation* - Stockhausen in the tradition of Garcia promoted the idea of the *coup de glotte*. He placed much importance on a low laryngeal position in singing and thought the resting larynx position was not adequate, since this high position did not allow for a full round tone.

- *Resonation* - He believed the Italian idea of the smiling mouth position was outdated. Instead he recommended the lips be drawn back when singing the vowels [o, u, ø, y] and the lips should extend forward when singing the vowels [i, and e]. He also supported the idea that vowels played an important part in a balanced vocal tone. The open vowels [a, ɑ, ɛ, ʊ, ɔ, ʏ, and ɪ) assisted in strengthening resonance of a weak voice, while the closed vowels [e, ø, o, u, and y] helped with mellowing in a shrill voice.[401] Stockhausen thought consonants and vowels had to be fused[402] and the more the articulators were used, the less amount of tension was created in the larynx.[403]

- *Registration* - Stockhausen agreed with others that there were three registers comprised of a series of tones utilizing the same mechanism (i.e. chest or head voice).[404] He thought in chest voice, the full vocal folds vibrated while in head voice, only two-thirds of the mass vibrated.[405] Vowel modification, according to Stockhausen, was important in balancing registers. For example, he observed a similar region in all voices from d-f# at which audible breaks were heard. He felt the method to adjust these breaks was to close the vowel in ascending scales and to open the vowel when descending.

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399. Coffin, *Historical Vocal Pedagogy Classics*, 38; Reinders and Kimmerle, *Atlas der Gesangkunst*, 181.
400. Coffin, *Historical Vocal Pedagogy Classics*, 38.
401. Ibid., 39.
402. Reinders and Kimmerle, *Atlas der Gesangkunst*, 181-185.
403. Ibid., 185.
404. Ibid., 181-185.
405. Ibid., 181-182.

Lilli Lehmann (1848-1913)[406]

Lilli Lehman was one of the most famous singers in her time, singing over forty roles from light coloratura roles to Wagner. She sang in the most important houses in the world - Covent Garden, the Metropolitan Opera, and Bayreuth - and shared the stage during her career with other very well-known singers including Jean de Reske and Nellie Melba. In addition to her singing, Lehmann was recognized for her teaching and her text titled *Meine Gesangkunst (*My singing Art, published in English as *How to Sing)* (1902). In her singing manual, Lehmann attempted to combine the language of imagery for singers (dark, bright, forward) with science.[407] Her ideas inspired both her contemporaries and future generations of singers.

Principles of Lehmann's Technique[408]

- *Respiration* - Lehmann believed one of the most important elements for a proper breath was a raised chest. In this posture, the upper ribs expanded and the lower ribs supported the voice acting like columns. From this position, the singer was to press the breath against the walls of the chest using as little breath as possible. The position of expansion was to remain throughout the singing process and was only to relax when the last tone was sung.[409]

- *Resonation* - The result of a good tone, Lehmann said, was to be felt in the resonance cavities of the head. Importantly, breath and tone were to meet at the resonance point of the soft palate. Pitches in head voice were to be felt outside of the head. Lehmann emphasized correct tongue position. She felt resonance could be adjusted through vowels. For example, a brighter sound could be obtained by using the [i and e] vowels while the vowels [o and u] could make the tone naturally darker. According to Lehmann, the [e] vowel was superior for finding the resonance cavities. The tongue position for all vowels was to have a slight arch, like that of the [i or e] vowel. This created the conditions for ideal resonance, as the back of the tongue was the point where breath and tone were dispersed.[410]

- *Registration* - Lehmann felt the prevailing view of the voice consisting of different registers was incorrect. Instead she thought the singer and teacher should approach the voice as having one register. However, she noted in the untrained singer, the voice would have three registers - chest, middle, and head voice or falsetto. These registers corresponded to a group of notes created by a certain position of the larynx, tongue, and soft palate. The strength of the register depended upon how much a register was used in daily speech.[411]

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406. Reinders and Kimmerle, *Atlas der Gesangkunst*, 189-194.
407. Coffin, *Historical Vocal Pedagogy Classics*, 112-113.
408. Reinders and Kimmerle, *Atlas der Gesangkunst*, 189-194.
409. Ibid., 191.
410. Ibid.
411. Ibid., 192.

Johannes Messchaert (1857-1922)[412]

Johannes Messchaert was a Dutch baritone who was well-known as a Lieder singer. He was a student of Julius Stockhausen, and, like his teacher, became famous for his teaching of singing across Europe. One of Messchaert "most recognized" students was Franziska Martienßen-Lohmann.

Principles of Messchaert's Technique

- *Respiration* - Messchaert believed posture affected breath production. He recommended having a raised chest position, a tightened, pulled-in stomach, and the singer's weight dispersed backwards. This chest position was to be fixed throughout the singing process. During phonation, Messchaert taught the breath should be expelled slowly with the diaphragm gradually returning to its resting position.

- *Phonation* - Messchaert felt imagining the tone before it was sung was critical to successful phonation. Onset was not to come from below and no sound was to be heard prior to the onset.

- *Resonance* - Messachaert believed vowels would modify throughout the scale; however, every sung vowel had to be intelligible on every pitch. He also noted, when singing in head voice, the tone had to be placed very forward.

- *Registration* - Messachaert felt strongly that chest voice should not be taken too high and every tone should have the ability to swell on every pitch. In his approach, vowel modification was an important part of registration. [413]

Comparison of Pedagogues' Views on Main Points Related to German Technique

In general, several key principles for teaching the German technique stood out among all authors. These include diaphragmatic breathing, importance of a low laryngeal position, recommendation of a balanced onset, and *chiaroscuro* vs. a dark tonal concept.

Respiration

- Several of the authors advocated for diaphragmatic-costal breathing (Bruns, Martienßen-Lohmann, Sieber, Husler, Marchesi, Stockhausen, Lehmann, and Messchaert). In contrast, Schmitt and Armin argued for an approach that combined more muscular

412. Ibid., 193-194.
413. Ibid.

tension, Mannstein promoted pancostal breathing, and Müller-Brunow's and Hey's methods were to vague to make a clear distinction of the method they were promoting.

Phonation

- *Balanced onset* - All authors believed an onset should be balanced, however the way to achieve this onset was individualized. Some saw the use of the consonant as necessary to avoid a hard attack (Müller-Brunow, Hey, and Armin) while others promoted a precise attack (Stockhausen, Marchesi, Messchaert, Sieber, Mannstein, and Schmitt).
- *Low laryngeal position* - As with onset, all authors noted the importance of a comfortable low laryngeal position with the exception of Armin and Schmitt. Schmitt advocated a high laryngeal position, especially in the upper register, while Armin recommended a depressed laryngeal position.

Resonation

- *Tonal preference* - The majority of authors supported a brighter or a balanced tonal preference (Schmitt, Mannstein, Bruns, Martienßen-Lohmann, Sieber, Husler, Marchesi, Messchaert, and Lehmann). Three authors, however, emphasized a darker tonal preference created through rounded vowels (Stockhausen, Müller-Brunow, and Armin).

Registration

- Three pedagogues presented in this final chapter (Lehmann, Marchesi, and Stockhausen) and only one other from the main review (Martienßen-Lohmann) believed in the three register approach. The remaining authors supported the idea of two registers, head and chest voice.

Chapter 14: A Definition of the German School of Singing

A musical movement of nationalism came about in Europe beginning early in the nineteenth century and continued well into the twentieth century. European composers were interested in creating a musical language and distinctive style reflective of their home countries. Composers such as Bedřich Smetana from the Habsburg Empire (modern day Czech Republic) attempted to depict images of his homeland in his symphonic poem *Má vlast*, while the *Mighty Handful*, a group of Russian composers, incorporated peasant elements and whole-tone exoticism to produce a characteristic Russian sound. In Germany this fervor was particularly evident in the works of Wagner who was creating a new type of German opera, the *Musikdrama*, a genre that combined the artistry of poetry with musical composition. His influence on the operatic medium in Germany was unsurpassed.

While the impetus persisted in Germany to create a uniquely German style, Wagner's operas were not entirely German in their musical roots. In fact, Wagner's style included stylistic components from the French and Italian traditions. For example, in *Der fliegende Holländer*, Wagner utilized the *bel canto solita forma*,[414] clearly borrowing from the Italian tradition. But German identity was important to Wagner, and he was able to successfully demonstrate Germanic traits in his music through the use of *Leitmotif*, increased orchestration, a more elaborate harmonic palate, and increased importance of the sung text.

Der fliegende Holländer raises an interesting question in German music: Is this work truly "German"? While *Der fliegende Holländer* continues to be recognized as an example of pure German opera, Wagner's work more correctly represents a merging of techniques, namely an Italian structure with German modifications. Wagner's use of both Italian and German styles paralleled the development of a German method for singing that, like Wagner's approach,

414. Thomas S. Grey, *Richard Wagner, Der fliegende Holländer* (Cambridge, UK: Cambridge University Press, 2000), 43-44.

included essential Italian principles revised to suit German style and culture.

Another question comes up about the potential impact of other singing traditions. While there is evidence of other national influences (notably French) in the German tradition, the basis for singing in Germany lies in the Italian tradition. Germans found synergy with selected Italian methods, generally adopting overarching Italian principles of the physiology of breathing, blending of registers, and importance of balanced resonation. As German technique developed during the nineteenth century and particularly later in the twentieth century, Some German pedagogues either purposefully or unknowingly began to either clearly reject or exaggerate Italian principles (referred to in this review as "German modifications") as each created their individual singing method.

Early Italian Tradition

Insight into Italian technique is an important pre-requisite to understanding the evolution of German style because of the profound influence of Italian methods on German ideas. The technique of the Italian *castrati* was the most prominent method used in singing during the eighteenth and early nineteenth centuries. These principles matured slowly in Italy beginning with composers and singers of the Florentine Camerata, carrying through to seventeenth century virtuosic singers of public Venetian theaters and finally to the *castrati* of the eighteenth century.

The repertoire of the *castrati* along with the later *bel canto* tradition required singers to perform very demanding repertoires. For example, singers were regularly asked to sing long sustained lines, manage rapid agility patterns, and cover extremes of range and register. A singer needed a technique in which the voice functioned optimally to execute these difficult singing requirements. The technical principles of the *castrati* met this demand, permitting singers to be "masters of their voices" through the merging of beauty with optimal vocal function. Quite simply, the technique of the *castrati* met the needs of their repertoire. In addition, it unlocked the answer to full functionality of the voice.

German Reaction

During the mid-nineteenth century, German pedagogues started to reject many of these Italian principles, primarily because of Wagner's influence. Wagner attempted to create a much closer relationship between word and tone in his *Musikdrama*, placing more importance on the intertwining of music with text in his operatic compositions. Therefore, the size and importance of the orchestra increased and the text was given more dramatic purpose. Furthermore, the relationship between the two (orchestra and text) was fused, creating what Wagner called a *Gesamtkunstwerk* (a complete art work, a merging of word and tone).

Because of Wagner's influence, German voice teachers began to develop a method that would better fit the nature of the German language and respond to increased demands of the Wagnerian orchestra. Namely, they wanted a technique that was more articulate and generated more power to handle this new style of dramatic singing.

While German pedagogues hoped to separate themselves from Italian traditions and aimed to develop a school based solely on German principles, they were unable to discard many Italian elements. Because Italian technique was built on the physiology of optimal voice function, German pedagogues found themselves incorporating these concepts into their own ideas, even if they did so unknowingly. Italian basics of respiration, resonation, registration, and phonation had to remain, albeit modified or altered to suit newer Germanic principles.

Consequently, a German method did not evolve as a standardized unified approach. Instead, it is more accurate to say that a German school of singing included strong underpinnings of Italian technical principles, which were modified and customized to fit the individual approaches of German pedagogues. Within the German approach there was variation; some German pedagogues relied more on Italian principles while others used Germanic style, and still others created a mix of both Italian and German principles.

The One Idea Solution

One of the most significant modifications to the Italian style was the belief in a "one element"

solution to correct all problems associated with poor function (Schmitt, Hey, Müller-Brunow, Armin, Bruns, and Husler). In contrast, three writers, Mannstein, Sieber, and Martienßen-Lohmann, adhered to a gestalt view, an Italianate approach in which no specific element was more significant than any other. Rather, all parts function together in unison to create correct coordination for singing.

Italian Roots

Gestalt Approach

The Italian tradition of singing placed importance on the unity of pedagogical elements (respiration, resonation, registration, and phonation) in order to sing well; no one element could be separated from another. The Italian idea of breath support, *appoggio*, demonstrates this unity. *Appoggio* (to lean against) is more than a single idea of breath support; instead, *appoggio* suggests a connection with the sympathetic resonance felt in the upper vocal tract, termed *imposto*.[415] Other examples of a gestalt synergism are seen in the balancing of resonance and achieving even registration.[416]

German Modifications

Systematic Approach

Friedrich Schmitt's treatise showed an extreme systematic approach to training singers. His aim was to create a generic system that uniformly addressed the needs for every singer in the same way. This regimented approach was in contrast to the Italian and French schools, which Schmitt felt lacked organization.

His system consisted of a regulated program to properly train a student, beginning with what he called "the construction and development of the voice as an instrument" (basics in breath, resonance, intonation, connection and blending of registers, and beautification of the voice). Students then progressed to tackle "the technical development of the voice as an instrument"

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415. Miller, *Structure of Singing,* 61.
416. Doscher, *The Functional Unity of the Singing Voice*, xviii- xix.

(addressing the application of the tone, connection of pitches with and without *portamento*, agility, and the *messa di voce*). Finally, training concluded with "expressive aspects," which dealt with what he called material attributes (e.g. breath division, clear diction, musical accent) and expressive characteristics (e.g. character portrayal, expression, good taste).[417] In contrast, the Italians worked with each student to correct his/her unique problems on an individual basis.

Sprechgesang

Wagner's view that singer's diction needed improvement led German pedagogues to respond by developing techniques to meet his demands. One such method was created by Julius Hey. His method placed clear articulation of text over vocal line, often referred to as *Sprechgesang*. He called this new style of singing "German *bel canto*." Hey's method was credited as being the most fully developed for use in Wagner's work.

In addition to creating a speech-based approach to singing, Hey seemed to view acquisition of the correct vowel and use of consonants, i.e. diction, as the solution to all problems in the singing process. To achieve this correct coordination, all methods of correction were developed from a basis of *Sprechgesang*. Hey's ideas were not unlike the Italian concept *"si canta come si parla"* (sing as you speak). However, his emphasis on diction as a panacea to all voice issues significantly exaggerated these Italian ideas.

Speech-Based Approach

The views of Müller-Brunow ushered in a new approach to teaching voice - *Tonbildung.* His method was a mechanical-physiological approach to singing, as opposed to the purist singing schools of the previous generation that incorporated extensive exercises such as agility and the *messa di voce*. Müller-Brunow, like Hey, believed all solutions to the singing process could be solved through speech-based methods. But unlike Hey, Müller-Brunow focused less on singing repertoire, difficult agility exercises, and strayed from text recitation. Instead he simply

417. Schmitt, *Grosse Gesangschule für Deutschland*, 11.

emphasized a mechanical syllabic based approach, centering on correct articulation of vowels and consonants developed from what he called the primary tone.

Placement Points

Husler in many ways believed in a gestalt approach to singing, but to correct vocal problems, he centered his method on placing the voice at different areas of the body. He believed that through awareness of sympathetic resonance, vocal problems could best be corrected. For example, if the singer had a “throaty” tone, he would be asked to place his voice at the bridge of the nose or at the sternum in order to correct it. He saw this as the best way to adjust muscular movement of the vocal apparatus. Therefore, Husler believed “the most promising possibilities to unlock the voice successfully lie, indeed in this practice of “placing” and the singer and teacher should rely upon it.”[418]

Stauprinzip

George Armin, dealing with what he called the duality of the voice (e.g. head vs. chest register, breathy vs. hard onset) developed the method of *Stauprinzip,* or the “damming” of air against the vocal folds. Armin's method suggested the voice be "torn apart" and rebuilt according to his precepts. It was only through the *Stauprinzip* that the voice could "be rid of its dualistic nature and brought into full development" - a rigid, singular, very German approach to solve all vocal faults.

Minimalluft

Paul Bruns' approach to singing was also one-directional, focusing solely on his view of the importance of *Minimalluft* (minimal air) in the singing process. Bruns’ ideas were contradictory to those of Armin’s, suggesting all aspects of the singing process could be addressed through the use of residual air volume and muscle relaxation. However, Armin’s and Bruns’ views were similar in their oversimplification of the singing process in a one element solution.

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418. Husler and Rodd-Marling, *Singing*, 72.

Diction

Another refitting of Italian principles was greater emphasis on clear diction at the expense of pure vocalism as advocated by Schmitt, Hey, Müller-Brunow, and Armin. In comparison, while not diminishing the importance of diction, other authors (Mannstein, Sieber, Martienßen-Lohmann, Bruns, and Husler) did not overemphasize the need for more enunciation in singing. These authors instead encouraged a method of clear articulation without disturbance of the vocal line.

Italian Roots

Unity of Vocal Line and Diction

Benefiting from the fluidity of their native language, the Italian school of singing placed significant importance on legato in achieving a beautifully sung line. Several authors (Bruns, Martienßen-Lohmann, Husler, Mannstein and Sieber) were most influenced by this Italian approach and closely adhered to its principles. They saw the acquisition of good diction developing from the gestalt process of the body. In their view, good diction was connected with legato and was the result of a well-coordinated body in the singing process.

German Modifications

More Emphasis on Diction, The German Bel Canto

With the advent of the new form of German opera in the nineteenth century, pedagogues including Schmitt, Hey, Müller-Brunow, and Armin believed a new approach to diction was needed. They viewed text as being more closely intertwined with music and as a result, clear articulation was essential to dramatic portrayal.

Three of these authors (Schmitt, Hey, and Armin) severely criticized the effect of the Italian school on German singing. They viewed Italian *bel canto* principles as being foreign to the needs of Germanic repertoire, thereby creating a more speech-based approach to singing. Here vocal line was no longer the master of text. However, clearly sung text was not to destroy the vocal line, but rather lessen the effect it had on vocalism. This new approach was labeled "German *bel canto*" by Hey.

Respiration

The Italian technique of diaphragmatic-costal breathing was recommended by some German pedagogues (Sieber, Bruns, Martienßen-Lohmann, and Husler). The clearest exception to this method was Mannstein who promoted pancostal breathing. In addition, while endorsing many elements of diaphragmatic-costal breathing, in particular expansion of the rib cage and emphasis on low breath (implying abdominal expansion), Schmitt and Armin suggested a much more muscular approach to breathing combined with an overcrowding of the lungs - a clear exaggeration of Italian principles in order to fit their Germanic aesthetic. Unfortunately, several authors' views were unclear. Hey's and Müller-Brunow's descriptions were so vague that it is impossible to infer the method they recommended.

Italian Roots

The German approach to respiration advocated by most German pedagogues was clearly rooted in Italian principles. These attributes include diaphragmatic-costal breathing, avoidance of unnecessary tension of the lower body, and adherence to the principles of *appoggio*. *Appoggio* is the technique in which the breath process is not viewed as separate but instead connected to other aspects of the singing process. For example, Italians made the connection between resonation and respiration (*imposto*). Sieber, Brun Martienßen-Lohmann, and Husler clearly advocated this method.

Silent Inhalation

Mannstein and Sieber spoke of the importance of silent inhalation, a key element of Italian technical approach.

Germanic Additions

Pancostal Breathing

Mannstein, like the young Lilli Lehmann, believed the most effective way to breathe for singing was to pull the abdominal muscles in firmly upon inhalation. As noted in Chapter 3, this approach was suggested in the belief that the tightened abdominal muscles aid the diaphragm in

propping up the rib cage.[419] This method, however, is not the most efficient approach for singing and contrasts with the Italian tradition.

Overexpansion

When discussing respiration in relation to singing, George Armin and Friedrich Schmitt endorsed a technique of increased muscular tension of the lower body and rib cage. Like the Italians, Armin and Schmitt supported an expansion of the thorax. However, their approach was extreme, being much more muscular than the Italian elastic approach. They believed that through this muscular expansion, the larynx would be relieved of tension.

In addition, Armin and Schmitt both felt extreme dilation of the lungs (to full capacity) was important in respiration for singing. Schmitt stated that if the singer felt he was not full from the initial breath, he should take two or three additional breaths until he felt a position of total expansion.[420] Armin expressed this tension as first being felt in the chest and then moving down into the lower body.[421] These two techniques deviated from mainstream thought of other German authors who were consistent with the Italian approach that less air was more efficient.

Resonation

German pedagogy diverged on the correct approach to proper resonation in two ways. Mannstein, Sieber, Bruns, Husler, Martienßen-Lohmann, Schmitt, and Hey adhered to an Italian *chiaroscuro* approach. In contrast, others supported a darker tonal aesthetic emphasizing the "rounding" of vowels to avoid the bright quality of forward vowels – e.g. [i] and [e] (Armin and Müller-Brunow).

Italian Roots

Chiaroscuro Tone

The *chiaroscuro* tone (a balanced tone consisting of light and dark qualities) is a hallmark of

419. Vennard, *Singing*, 24.
420. Schmitt, *Grosse Gesangschule für Deutschland*, 28.
421. Armin, *Das Stauprinzip*, 20.

the Italian method that Mannstein, Sieber, Bruns, Husler, Martienßen-Lohmann, Schmitt, and Hey adopted. Authors who advocated this type of tone described it as having a forward sensation that resonated in the upper vocal tract near the sinus cavities, i.e. sympathetic nasal resonance.

Scholars differed on the degree of nasality that should be present in the tone. For example, Mannstein and Sieber clearly differentiated a balanced tone with good nasal resonance from a tone that was strictly nasal, what they called a *Nasenton*. The *Nasenton* was a tone both authors believed singers should avoid.

In addition to the *Nasenton,* the other main type of faulty tone Mannstein and Sieber identified was the *Kehlton* (the throaty tone). They both saw the balanced tone as being between these two types of faulty sounds (i.e. *Nasenton* and *Kehlton*).

In contrast, it can be argued that Schmitt advocated for a tone that was actually nasal. He believed the nasal tone was the correct method to access the upper range, as he said the sound should flow through the nasal sinuses. Whether he was truly after a nasal tone or whether he was overemphasizing the sensation of nasal resonance is ambiguous. However, it is clear that Schmitt saw some form of this quality (nasality or nasal resonance) as important in equalizing the voice and developing carrying power.

To acquire a *chiaroscuro* tone, the majority of writers (Mannstein, Schmitt, Sieber, Hey, Martienßen-Lohmann, and Husler) followed the Italian tradition of acquiring the correct mouth and tongue position for phonation. Nearly all the German pedagogues supported a tongue position in which the tongue would lie flat in the mouth with the tip touching the roots of the front teeth. Some (Mannstein, Sieber, and Schmitt) also recommended an oval mouth position with a raised upper lip exposing the upper front teeth, thereby engaging the zygomatic muscles and soft palate to create more brilliance in the tone.

German Modification

Speech-Based Approach, Si canta, come si parla

The idea that correct placement for singing is derived from speech came from the Italian view of "s*i canta, come si parla"* (sing how you speak). While several authors adhered to this principle (Hey, Müller-Brunow, Schmitt, and Bruns), all but Bruns exaggerated the principle, believing articulation should be stronger than in the Italian tradition.

Rounding of Vowels

Armin and Müller-Brunow taught students to avoid high partial vowels ([i] and [e]) through modification to umlauted vowels ([œ], [ø] and [y]). Armin called this approach *Rundung* (rounding) to overcome the duality of bright and dark vowels. Through *Rundung* the "flat" nature of the forward vowels and the "cavernous" aspects of the dark vowels were unified. While use of mixed vowels can be helpful in acquiring a more balanced tone through blending higher and lower partial elements, Armin's view of a tense expanded lower body and a depressed larynx position suggested he was looking for a darker tonal preference. In the case of Müller-Brunow, use of umlauted vowels was strongly connected to the feeling of sympathetic nasal resonance, likely resulting in a brighter tonal quality. In fact, Armin claimed Müller-Brunow's technique caused his students' voices to sound thin, lacking body in their singing. Thus, it is likely that Müller-Brunow's tonal preference did not match Armin's.

Phonation

Two aspects of phonation were addressed by all German authors, these being laryngeal positioning and the onset.

Laryngeal Positioning

A comfortable low laryngeal position for singing was recommended by seven of the nine German authors reviewed. There were two exceptions - Armin favored a forced low laryngeal position and Schmitt supported a high laryngeal position.

Italian Roots

Comfortable Low Laryngeal Positioning

Many of the German scholars adopted the Italian view that the larynx should remain in a comfortably low laryngeal position (Mannstein, Hey, Müller-Brunow, Bruns, Martienßen-Lohmann, Sieber, and Husler). In addition, Martienßen-Lohmann and Husler promoted the idea the larynx is brought into a comfortably low position through proper diaphragmatic inhalation.

German Modification

Forced Low Laryngeal Positioning

A fabricated laryngeal position is the common stereotype of the German school of singing among pedagogues. However, only George Armin reflected this view in his *Stauprinzip*. Nevertheless, many of the German authors (Hey, Müller-Brunow, and Husler) placed more significance on laryngeal positioning than was made in the Italian tradition. While they were advocating for a comfortable low laryngeal position, this could have led to an exaggeration of this fundamental and may be the reason for the common English stereotype. Martienßen-Lohmann's discussion of a low laryngeal position confirmed this notion in her reflections on the teaching of Julius Stockhausen. She believed his emphasis on low-laryngeal positioning was exaggerated by his students and teaching assistants.[422]

High Laryngeal Position

Friedrich Schmitt was the only author who recommended a high laryngeal position for singing. His idea may have been an attempt to counteract a depressed low laryngeal position, but this is unclear. However, he did state that as one ascends to the upper range, the larynx should rise.[423]

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422. Martienßen-Lohmann, *Der wissende Sänger*, 168.
423. Schmitt, *Grosse Gesangschule für Deutschland*, 15.

Onset

Italian Roots

Balanced Onset

A balanced onset is a characteristic of the Italian technique. While pedagogues at the time did not understand the science behind this principle, all differentiated between a balanced, glottal, and breathy onset.

Coup de glotte

The majority of authors were critical of the supposed glottal attack (*coup de glotte)* recommended by the highly regarded teacher, Manuel Garcia II, believing it was harmful to vocal health. While it is unlikely that Garcia actually intended a glottal attack (he was likely advocating for a precise balanced onset), many German authors interpreted it as such and advocated strongly against it.

Three authors, however, Mannstein, Sieber, and Schmitt described correct onset corresponding closely to Garcia's views. They recommended an attack that was to be produced quickly and was to be exact. Schmitt described this onset as like the "stroke of the hammer."[424] Like Garcia, they were probably suggesting a balanced onset.

German Modifications

To prevent faulty onsets (breathy and glottal), several authors recommended using a consonant in connection with the attack (Hey, Müller-Brunow, Schmitt, Armin, Bruns, and Martienßen-Lohmann). Use of consonants is a modification of Italian technique, in which consonants are used to aid in phonation and balance resonance. Unlike the Italians, who recommended primarily practicing onsets solely with vowels,[425] Germans achieved a balanced onset with the help of a consonant. This was done in order to counteract the glottal-like nature of their native language.

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424. Ibid., 15.
425. Armin, *Das Stauprinzip*, 5-6.

Registration

There were two conflicting views as to how best to achieve balanced registration. Mannstein, Bruns, Martienßen-Lohmann, Husler, Sieber, and Schmitt recommended registers be unified from the top down, placing particular importance on head voice. Alternatively, Armin, Bruns, and Müller-Brunow ascribed to a view that registers be blended from the bottom up - the approach that the strengthening of chest voice was the correct method to bridge registers.

Italian Roots

Head Down Approach

Head voice or falsetto was a primary principle in the Italian technique for mastering registration. Early Italian writings valued building this register from the top down. Through agility exercises, and exercises that contrasted head and chest voice combinations at passaggio points, singers learned to trust a stronger head voice coordination. This, in turn, influenced and created a healthier balance with the singer's chest voice. This approach was advocated by the German authors Mannstein, Bruns, Martiennßen-Lohmann, Husler, Sieber, and Schmitt.

Gradual Adjustment at Passaggio Points

When creating an even scale, a gradual adjustment at passaggio points was taken from the Italian tradition and incorporated into German methods. Mannstein, Bruns, Husler, Sieber, Hey and Schmitt took the simple approach to registration, believing the singer should focus solely on the correct relationship between head and chest voice. Specifically, they said that for pitches above passaggio points, a head voice adjustment should be used, and below passaggio points, the chest voice mechanism should be used. On the other hand, Hey, Martienßen-Lohmann and Armin viewed the importance of vowel modification to achieve smooth register shifts. Use of both of these techniques corresponded to the Italian tradition.

German Modification

Bottom Up Registration

Another view of registration was that registers should be blended through strengthening of

the chest mechanism (Hey, Schmitt, Armin, and Müller-Brunow). Armin and Müller-Brunow believed the voice needed to be strengthened first in the modal register before the upper range could even be considered. Armin went so far as to say it was the strength of the chest voice that made head tones acceptable for performance.[426]

Hey and Schmitt also thought a strong chest voice was the key to creating an even scale, but they too believed incorporating head voice was important. For example, Schmitt valued falsetto as a tool to create freedom in the tenor voice, while Hey argued for various mixtures of head and chest depending on the sung range. In the upper range, Hey recommended an 80-20 balance of head/nasal resonance to chest resonance and in the lower range a 20-80 balance of head/nasal to chest resonance, and a 50-50 balance of head/nasal resonance in the middle register.

How German is the German Approach? A Matter of Degree

Although Germans would like to think they developed a singular, unique approach to singing, the German School of Singing that eventually evolved was based on early Italian ideas. As German singing technique developed, German pedagogues modified many well-accepted Italian principles, in fact, at times, completely rejecting some ideas such as the Italian influence of vocalism over diction. For example, Germans created a new approach called *Sprechgesang* or German *bel canto*. They also chose to override the elastic principles of Italian *appoggio*, replacing this technique with an exaggerated muscular expansion of the chest. Thus the German approach became a matter of degree to which pedagogues adopted Italian ideas, with some German authors designing a modified Italian approach while others deviating little from authentic Italian technique.

This analysis demonstrates that George Armin was most closely aligned with a German-only technique. Armin exemplified nearly all commonly held views of the German approach to singing - muscular tension of the respiratory muscles, overfilling the lungs with air, avoidance of high

426. Ibid., 61.

partial vowels, a fabricated low laryngeal position, overemphasis on diction, and approaching registers from the bottom up (strengthening of chest voice to make head voice viable). He strictly enforced both modifying and exaggerating existing Italian methods. Although Armin was authentically German in his approach, he was the one pedagogue most criticized by his German colleagues, particularly Bruns, Martienßen-Lohmann, and Husler,[427] who viewed his technique as astonishingly harmful to the health of the singer. Martienßen-Lohmann went as far to consider Armin's legacy as that of a "voice wrecker"![428]

Schmitt and Müller-Brunow, while less associated with a pure German approach than Armin, championed mainly Germanic principles by incorporating some key Italian elements. Schmitt chose a Germanic muscular approach to breathing and an overexpansion of the lungs, an approach later advocated by Armin. He differed from Armin in his view of a high larynx position and brighter tonal preference. The Italianate characteristics Schmitt selected were use of consonants to balance tone quality and aid in creating a brighter tonal quality. Nevertheless, this point is debatable as his choice for a "nasal" tonal quality leaves questions as to whether he was truly looking for sympathetic nasal resonance or an actual nasal tone.

Müller-Brunow used German principles to construct his ideas on diction, tonal preference, and strengthening of registers from the bottom up (importance of chest voice). The one Italianate idea he incorporated was a forward placed tone in connection with breath flow (*imposto*). However, his views on respiration are unclear since they were not thoroughly documented. Thus, his position on breathing for singing remains unknown.

Hey's Germanic legacy was also very significant. He emphasized increased diction over vocal line, building registers from the bottom up and use of a consonant in achieving a balanced onset, clearly a German approach. However, Hey does demonstrate some Italian influence, namely, his quest to develop a balanced resonant tone (*chiaroscuro*), what he called "the ratio of head and

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427. Bruns, *Minimalluft und Stütze*, 12-17; Husler and Rodd-Marling, *Singing*, 44-45; Martienßen-Lohmann, *Der wissende Sänger*, 365-366.

428. Martienßen-Lohmann, *Der wissende Sänger* 7-11.

chest resonance" in his students.[429]

Mannstein, Sieber, Bruns, Martienßen-Lohmann, and Husler were primarily proponents of Italianate methods. The earliest authors, Mannstein and Sieber, developed their aesthetics through direct lineage, while the later authors Bruns, Martienßen-Lohmann, and Husler came from the rekindled view that Italian principles did in truth achieve optimal function.

All German authors adhered to Italian characteristics, customizing these principles to their individual methods. There are seven hallmark Italian principles running through the design of German technique. These include diaphragmatic-costal breathing, elastic tension of the breath musculature, breath-resonance connection, chiaroscuro tone, importance of head voice in registration, use of consonants in balancing a tone, and a gestalt approach to vocal pedagogy.

Tables 14.1.and 14.2. summarize key attributes used by German authors in their approaches. Characteristics associated with the Italian tradition are listed in Table 13.1. German traits are noted in Table 14.2.

429. Hey, Hey, and Volbach. *Der kleine Hey*, 13.

Table 14.1. Italian Characteristics of the Castrati Tradition Applied to German Technique[430]

Author	Diiaphragmatic-costal breathing	Elastic tension of breath musculature	*Imposto:* breath resonance connection	Chiaroscuro tone	Registration from the top down (importance of head voice)	Use of consonants in balancing a tone	Gestalt approach
Mannstein		x	x	x	x		x
Schmitt				?	x	x	
Hey	?	x	x	x		x	
Sieber	x	x	x	x	x		x
Müller-Brunow	?	?	x			x	
Armin (not used)							
Bruns	x	x	x	x	x	x	
Martienßen-Lohmann	x	x	x	x	x	x	x
Husler	x	x	x	x	x	?	?

Table 14.2. Attributes of the German Approach to Singing

Author	Abdominal breathing – bauchausenstutze	Pancostal breathing	Muscular approach to respiration	Overfilling of lungs/ overexpansion of the chest	Darker tonal preference	Forced low larynx position	High larynx position	Blending registers from bottom up	Emphasis on clearer diction	Use of consonants in aiding a balanced onset	One method approach
Mannstein		x									
Schmitt			x	x			x	?	x	x	x
Hey	?							x	x	x	x
Sieber (not used)											
Müller-Brunow	?				?			x		x	x
Armin			x	x	x	x		x	x	x	x
Bruns									?	x	x
Martienßen -Lohmann										x	
Husler											?

430. In this table, I attempted to capture the views of each author as I interpreted the literature. For example, Schmitt viewed the expanded chest to be similar to the Italian model of a fixed chest position. My interpretation suggests Schmitt was suggesting a more muscular position of support. Notation in the table is as follows: An "x" corresponds to an author's view clearly expressed in the writing. A question mark corresponds to traits that are not explicitly stated, but the writing and other evidence support the author's recommendation. For example, Paul Bruns indicated clear diction is an important element, more so than Mannstein and Sieber. However, Bruns does not explicitly present his argument for clear diction, as for example, Hey does. Therefore, Bruns' idea is not ignored, but it also cannot be decisively confirmed.

Results of this research are important to singers and to teachers of singing. This compendium provides an in depth historical analysis of writings of those who developed and documented the German approach to singing as it advanced over time. Ideas about correct technique, both for singing and the teaching of singing, can be useful and successfully applied to teaching techniques for the modern pedagogue. Other techniques, particularly Armin's, are interesting to understand but are much less likely to be incorporated into today's teaching of singing. These alternate techniques may however be ideas that contemporary singers and teachers encounter and therefore are important to a comprehensive discussion of a German School of Singing.

The answer then to the questions posed at the outset --- *What is a German School of Singing? If and how did other singing traditions influence German singing, and if so, to what degree? Or was the German method created independently?* --- are found in the study of these German pedagogues. These authors document for us a modified German approach to traditional Italian methods that, in the aggregate, created a defined, fully matured German School of Singing.

Appendix: Glossary of Terms

- *Aperto* (*voce aperta*)
  - Italian term defined as "open voice" equates to the modern description of open timbre. Open timbre occurs when two or more harmonics remain below the first formant of the sung vowel.[431] This type of timbre, when taken too high, is often associated with the "call" of the voice or a "yell-like" timbre (open voice – *voce aperta*) that connotes "unskillful" singing in male voices.[432]

- *Appoggio*
  - Italian for "To lean upon", is a technique of breath control for singing and considered a hallmark of the international approach to singing. It consists of dynamic cooperation between the diaphragm and the muscles of the abdomen and thoracic cage. In addition, it cannot be separated from phonation and resonation. In the Italian view all of the cooperation of all these elements is a central part of *appoggio*. It is also called diaphragmatic-costal breathing.[433]

- *Ausgleich* (*Ausgegeglichen*)
  - German term for balance, equalized or adjusted. Armin used this term in his discussion of registration. He believed that achieving this balance (*ausgleich*) was the proper way to even out a singer's scale. This method demanded the singer retain the individual timbre characteristics of the head and chest registers and only lessen the contrast between them. This is in contrast to the technique of *Verschmelzung* (fusing), a method he felt was supported by many of his contemporaries. In *Verschmelzung* the head and the chest register become one unified register with no notable breaks.

- *Bauchausenstütze*
  - A German method of breath management, which literally translated means "stomach-outward-support." It is characterized by a collapsed chest and a distention of the abdominal wall.
- Bernacchi, Antonio (1685-1756)
  - Was a well-known castrato (mezzo soprano) and voice teacher. He was a pupil of the famous castrato Antonio Pistocchi (1659-1726) who also was a famous teacher and recognized as the source of the "Bolognese method of singing." Two authors, Mannstein and Sieber, included in this review draw their lineage to Bernacchi through their teacher Johannes Aloys Miksch (1765-1845).

- *Brustregist*er (Chest register)
  - Term used by voice teachers to describe the muscular adjustment and tone quality of the lower range. The name likely comes from description of sympathetic vibrations felt in the chest. Modern day terms for this register are the modal voice, heavy mechanism, and a thyroarytenoid-dominant tone.

431. Bozeman, *Practical Vocal Acoustics*, 111.
432. Miller, *Solutions for Singing*, 256.
433. Ibid., 249.

- Castrato
  - A male singer who was castrated as an adolescent in order to preserve his soprano or mezzo soprano voice. Much of the demanding operatic repertoire of the early 17th and the 18th century was written for these singers. They were known for their mastery of vocal technique.

- *Chiaroscuro*
  - A balanced resonate tonal quality consisting of an equilibrium between light (high spectrum) and dark (low spectrum) qualities.

- *Chiuso* (*voce chiusa*)
  - Italian term literally translated as "closed voice", corresponding to the timbre associated with the event of "turning over" in the male voice when moving to the upper register. It occurs when the second harmonic rises above the first formant frequency.[434]

- *Claire timbre*
  - A term used by Manuel Garcia II to describe open timbre. See *Aperto*

- *Coup de glotte* (stroke of the glottis)
  - Type of vocal attack advocated by Manuel Garcia II. While it literally means a glottal attack, many modern scholars view it as a precise coordinated onset.

- *Deckung*
  - A form of mechanical covering in which vocal timbre is altered and over-darkened in attempt to balance vocal registers.

- *Endbildung*
  - Term used by Armin to describe a fully balanced tonal quality, developed through timbre matching of the *Primärton* (primary tone), i.e. the vowel [œ].

- Falsetto
  - A tonal quality of the male voice imitative of the female voice.[435] This is cricothyroid dominate tone, but achieves less closure than in the mixed quality of head voice.

- *Falsettregister*
  - See Falsetto

- *Filar il tuono* (spinning of tone)
  - Italian term used to describe the way a singer uses the breath during phonation. It suggests the singer was to have the sensation that the tone was "drawn inwards", describing the balance between fully approximated vocal folds and breath pressure.

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434. Bozeman, *Practical Vocal Acoustics*, 106.
435. Miller, *Solutions for Singing*, 251.

- *Flach*
    - Term used by Armin to describe what he viewed as the "flat" or "thin" vocal tone quality naturally characteristic of closed vowels such [i]. *Flach* tones, in Armin's view, were the diametric opposite of *hohle* (cavernous) tonal quality (vowels such as [u]).
- *Freilauf*
    - Term used by Bruns to describe a coordinated balance between the phonatory and respiratory muscles. It reflects the myoelastic-aerodynamic theory of voice production where the breath plays a large function in fully adducting the vocal folds. Through the "relaxation" of the respiratory muscles and the use of a minimal amount of air, Bruns believed the voice could achieve optimal function resulting in beauty of tone and the creation of partial tones or carrying power.

- *German bel canto*
    - An approach to singing advocated by Julius Hey. In contrast to the Italian bel canto tradition where, in Hey's view, pure vocalism trumped text comprehension, Hey argued for a new method in which more articulation of the text would be heard. The aim, however, was not to destroy the influence of vocalism, rather to lessen it.

- *Gold'ne Brücke*
    - Term used by Julius Hey to describe the balance between head and nasal resonance to unify registers and create a balanced tonal quality.

- *Halt*
    - Literally translated as a "foothold", a term used by Julius Hey to describe a feeling of "support" or stability that a comfortably low laryngeal position gave to the singer.

- *Hohle*
    - Term used by George Armin to describe what he viewed as the naturally dark tonal quality of certain vowels such as [u] or [o]. This tonal quality opposed *Flach* (flat or thin) tonal quality (vowels such as [i] and [e]).

- *Idealton*
    - Term used by Julius Hey to describe a fully developed tonal quality. It was to be developed from the *Naturton* and the *Normalton*.

- *Kehlton* (throaty tone)
    - A tonal quality that lacked beneficial sympathetic nasal resonance, sounding to the listener as if the tone was "placed" in the throat.

- *Mezzo respiro*
  - This literally translates as a half breath also commonly referred to as a catch breath. In the bel canto tradition, it was to be used when the singer had to breath quickly in the middle of a phrase. The singer was to replace the air that was lost while maintaining expansion of the chest.

- Miksch, Johannes Aloys (1765-1845)
  - A well-regarded teacher and singer who was based in Dresden. Miksch drew his lineage to the Bolognese school of singing of Antonio Bernacchi through his studies with the castrato, Vincenzo Caselli. Miksch was the teacher of both Mannstein and Sieber.

- *Minimalluft* (minimal air)
  - *Minimalluft* translates as minimal air. It was the amount of air Paul Bruns believed was key to developing the best coordination for singing. This is in contrast to the practice of what he called "overfilling" the lungs advocated by some of his contemporaries.

- Myoelastic-aerodynamic theory of voice production
  - A theory of phonation in which the vocal folds approximate to the thought of pitch and are fully adducted through the air passing between them by the Bernoulli principle.

- *Nach-hinten-singens*
  - German phrase that translates as "singing towards the posterior" as a means to create space in the pharynx in order to "open the throat". Richard Miller noted that it was a method advocated by many German voice teachers.[436]

- *Nasenton*
  - A nasal tone. This tonal quality occurs when the soft palate is too low during phonation, opening the nasopharynx to give the sound a nasal quality.

- *Naturton*
  - The most natural and easiest tone a student can produce. It was the tone Julius Hey first sought when working with a new student. From this tone, the coordination leading to the *Idealton* can be developed.

- Neurochronaxic theory of voice production
  - Theory that phonation is controlled by the impulse of the recurrent nerve rather than breath as the motor.[437]

- *Normalton*
  - Term originating with Julius Hey, this tonal quality is a refined version of the *Naturton* but not yet a fully cultivated *Idealton*. See *Naturton* and *Idealton*.

436. Ibid., 68.
437. Vennard, *Singing*, 260.

- *Primärton*
  - Term used by Müller-Brunow and Armin to describe the easiest tone a singer could sing on a mixed umlauted vowel [œ, ø]. It was the basic tonal quality these teachers first sought to develop in their students and served as the basis for cultivating the rest of the voice.

- *Respiro*
  - A long slow inhalation that allowed the singer to take a full breath that would release the breath musculature. The result was a flexible expansion that best set the conditions for singing.

- *Rundung*
  - Term used by Armin to describe the balancing of vowel timbre. In *Rundung*, high spectrum vowels were mixed with low spectrum vowels to create a balanced tone.

- *Solita forma*
  - A set operatic form of the *bel canto* period used by composers from Rossini to Verdi.

- *Sombre timbre*
  - Term used by Manuel Garcia to describe closed timbre. See *voce chiusa*

- *Sprechgesang*
  - Term used by Julius Hey to describe the increased emphasis of diction over vocalism. See also German *bel canto*. This term differs from the technique used by the serialist composers (e.g. Schoenberg).
- *Stauprinzip*
  - A technique advocated by George Armin and later pedagogues to overcome the natural dualism of the voice. It consisted of storing the breath through extreme muscular expansion of the chest and lower body and damming it against firmly closed vocal folds.

- *Stelleinsatz*
  - German term for a balanced coordinated onset in which the vocal folds approximate to the thought of pitch and are fully adducted by the breath passing between the folds (Bernoulli principle). See also myoelastic-aerodynamic theory of voice production and *coup de glotte*.

- *Stimmbildung*
  - See *Tonbildung*

- *Stütze*
  - German term for "breath support". In many pedagogical views, this is a more muscular approach than in the Italian tradition.

- *Tiefgriff der Stimme*
  - Term used by Julius Hey to describe the importance of a low laryngeal position in singing. This position, in Hey's view, gave the voice a support point to enable it to function freely. See also *Halt*.

- *Tonbildung*
  - Approach to teaching singing using a mechanical-physiological method. It is devoid of the pure singing exercises (e.g. agility, *messa di voce*) of past pedagogical approaches.

- *Verschmelzung*
  - Term used by Armin to describe the fusing of registers. The two vocal registers, chest voice and head voice, lose their individual qualities and become one. The term is interchangeable with *voix mixte*. This was a technique Armin did not advocate, rather he believed registers should be "balanced" (*ausgeglichen)* retaining their individual characteristics.

- *Voix mixte*
  - French term for registers that are totally unified without any notion of register breaks. See *Verschmelzung*.

- *Wortbildung*
  - The cultivation and refinement of diction (i.e. correct coordination of vowels and consonants).

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