



The Modern Pedagogical Potential of the Baroque Natural Trumpet

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THE MODERN PEDAGOGICAL POTENTIAL OF THE BAROQUE NATURAL
TRUMPET

By

Andrew Jay Roseborough

A DOCTORAL ESSAY

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Musical Arts

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BAROQUE NATURAL TRUMPET

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Due to a break in its practice and pedagogy during the Classical and Romantic Eras, many misconceptions regarding the Baroque natural trumpet remain today. As newly discovered instruments and pedagogical materials have become known and disseminated, a resurgence in the performance of the natural trumpet has occurred—but its practice is still often conceived as wholly separate from modern trumpet technique.

This study clarifies long-held misconceptions about the natural trumpet, describes its physical, pedagogical, and technical traits in comparison with the modern trumpet, and demonstrates that its concurrent practice with the modern trumpet is not only possible, but significantly beneficial. Qualities unique to the Baroque natural trumpet bestow upon it tremendous pedagogical potential for its simultaneous study with the modern trumpet. The possible benefits of this concurrent practice include increased embouchure strength, efficiency and endurance, the elimination of even badly entrenched negative habits, stronger fundamental abilities, and a better understanding of the performance of Baroque trumpet music. The plausibility of these pedagogical gains is evidenced by both modern and Baroque pedagogical literature, the scientific principles behind playing both types of trumpet, and the experiences of professional trumpeters who have demonstrated high levels of proficiency on both instruments.

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Chapter 1

INTRODUCTION

The performance of music with period instruments experienced an upsurge of interest throughout the twentieth century, but excluded the trumpet until much more recently. A significant disconnect from Baroque trumpet techniques that began in the Classical era caused the long-term exile of the instrument from soloistic performance. Even into the twentieth century, many trumpeters looked at the frighteningly high Baroque trumpet parts with wonder and skepticism. Some believed that performers in that period must have been privy to a now-lost precursor of the modern piccolo trumpet.¹ Others thought that the Baroque trumpet guilds “took to the grave” the secrets of high trumpet playing when the organizations crumbled in the Classical era.² Some people even assumed that the parts marked “clarino” were played by another instrument altogether—such as a soprano trombone.³

Research has put these myths to rest, and the modern trumpet community learns more about the instruments, techniques, and music of the Baroque with each passing day. Unfortunately, the natural trumpet is still regarded by many as little more than an inferior precursor to the modern instrument. This belief, too, is beginning to change as top-level

¹ D. J. Blaikley, “How a Trumpet is Made. II. The Natural Trumpet and Horn (Continued),” *The Musical Times* 51, no. 804 (February 1910): 82.

² Walter Morrow, “The Trumpet as an Orchestral Instrument,” *Proceedings of the Musical Association* 21 (1894): 135.

³ *Ibid.*, 136.

modern performers have demonstrated that Baroque trumpets and mouthpieces are actually superior to modern equipment in some ways, especially when concerning the performance Baroque literature.⁴

By most accounts, the Baroque trumpet is a difficult instrument to play. Recording artist Thomas Freas recalled that his mentor—the legendary symphonic trumpeter Armando Ghitalla—would react to Freas’s possession of the natural trumpet by exclaiming, “Don’t bring that thing in here! It’s the devil!”⁵ Nonetheless, the author of this essay proposes that the very qualities which make the Baroque trumpet such a difficult instrument also provide great pedagogical potential for the modern trumpeter.

The two trumpets undoubtedly require different techniques to play,⁶ but any differences in their respective embouchures must be compatible, as evidenced by the prowess on both instruments displayed by many modern performers.⁷ Professionals indicate that the natural trumpet demands more embouchure strength than the modern trumpet,⁸ so any effort to build technique on the natural instrument should transfer back to the modern trumpet in the form of greater efficiency and endurance. While one might assume that a trumpeter could achieve the same benefits simply by practicing the same music on the modern trumpet, the unique physical qualities of the natural trumpet enable

⁴ John Bowsher, Don Smithers, and Klaus Wogram, “Playing the Baroque Trumpet,” *Scientific American* 254, no. 4 (April 1986): 108.

⁵ James Reel, “Why Thomas Freas Values the Valveless, Devilish Baroque Trumpet,” *Fanfare—The Magazine for Serious Record Collectors* 30, no. 2 (November-December 2006): 61.

⁶ Barry Bauguess, e-mail message to author, February 19, 2010; Stanley Curtis, e-mail message to author, February 19, 2010.

⁷ John Irish, “Crispian Steele-Perkins: The King’s Trumpeter,” *International Trumpet Guild Journal* 27 no. 4 (June 2003): 18; Susan Williams, “The Natural Trumpet, a Natural Approach,” *Brass Bulletin—International Magazine for Brass Players* no. 118 (2002): 34.

⁸ Elisa Koehler, “Thoughts on Historic Brass Performance: An Interview with Stanley Curtis,” *ITG Journal* 32, no. 2 (January 2008): 25.

the physical use of the instrument to address more effectively many common issues that frustrate modern trumpet players.

Justification for this Study

An investigation into the pedagogical potential of the natural trumpet for modern trumpet performers is justified in that it will: (1) help trumpet players to understand the physical and performance-related differences between playing Baroque and modern instruments, (2) uncover new techniques for modern trumpet pedagogy, and (3) explore the possible effects of the concurrent study of modern and Baroque trumpets.

Value and Relevance

More in-depth research and literature regarding the Baroque natural trumpet is needed not only to learn about the techniques of our predecessors, but also to make them practical and useful for modern musicians. It is important for trumpet players to understand the ways in which the modern and natural instruments differ so that they can make informed decisions regarding the performance of Baroque music on any instrument. In addition, the perceived number and extent of differences between Baroque and modern trumpet techniques have shrunk as original sources are re-investigated. The accuracy of nineteenth-century ideas regarding Baroque performance practice had long been taken for granted, which resulted in the survival of misconceptions about Baroque technique well

into the twentieth century.⁹ It is therefore imperative that period sources are honestly and thoroughly re-evaluated.

Pedagogical Significance

A large volume of high-quality pedagogical resources are available to the modern trumpeter, but, as good as most of this material is, few practice options exist for players with firmly ingrained destructive habits. The best exercises in the world, or a clear description of “the perfect embouchure,” are useless to a player who is mired in a particularly bad habit.

Trumpet players who depend on some sort of forceful “bad habit”—a habit that procures the desired result, such as a high note or loud volume, but has restrictive effects—may not positively progress, no matter what method or book they use in practice. Technique and method books offer exercises that, when played properly, will help a trumpeter gain particular skills or strength—but, for example, if a student who primarily uses chest compression to sound notes attempts a strength-building exercise, it is likely that he or she will resort to employing the very problem that he or she wishes to conquer in order to avoid making mistakes in the music.¹⁰

Modern pedagogical materials are not responsible for this problem—and this investigation does not challenge their quality—but nevertheless, psychological aspects can render negligible the possible benefits of the use of these materials. The practice of the natural trumpet, in addition to requiring the building of embouchure strength, can

⁹ Leonard Candelaria, “An Overview of Performance Practices Relating to Seventeenth and Eighteenth Century Trumpet Music: Considerations for Modern Performance,” (DM dissertation, Northwestern University, 1985), 2.

¹⁰ Frank Campos, *Trumpet Technique* (New York: Oxford University Press, 2005), 65.

help a person who is mired in a bad habit replace it with one that is more beneficial.

Thus, the pedagogical application of the Baroque natural trumpet may offer almost any troubled trumpeter an effective and tangible practice option.

Existing Research

After an exhaustive search through modern trumpet pedagogy books, Baroque trumpet pedagogy books, historical brass literature, dissertations, and periodical search engines including JSTOR and IIMP, I found nothing directly related to the application of the natural trumpet for modern pedagogical purposes. Related literature deals with learning to play the Baroque instrument,¹¹ playing Baroque music on the modern trumpet¹² or else is purely historical in nature.¹³

Purpose of the Study

The purpose of this study is to suggest a novel pedagogical approach to deal with many problems faced by modern trumpet performers. The pedagogical use of the natural trumpet is not intended to replace any existing trumpet methods or instruction styles, but can be used to supplement almost any approach to teaching or practice. Via historical, scientific, and modern pedagogical research, this study describes potential benefits and

¹¹ Edward Tarr, *The Art of Baroque Trumpet Playing*, Vol. 1 (Mainz, Germany: Schott, 1999), 1.

¹² Leonard Candelaria, "An Overview of Performance Practices Relating to Seventeenth and Eighteenth Century Trumpet Music: Considerations for Modern Performance," (DM dissertation, Northwestern University, 1985), 3.

¹³ Don Smithers, *The Music and History of the Baroque Trumpet Before 1721*, 2nd ed. (Carbondale, IL: Southern Illinois University Press, 1988), 1-13; Anthony Baines, *Brass Instruments: Their History and Development* (London: Faber and Faber, 1976), 20.

drawbacks found in learning the natural trumpet, as well as ascertains the practicality of a modern trumpet player's pedagogical employment of the Baroque natural trumpet.

Research Questions

This essay aims to answer the following questions:

1. What physical differences exist between Baroque and modern trumpet equipment?
2. To what extent do Baroque and modern pedagogical literature overlap?
3. Is the embouchure necessary for Baroque trumpet playing compatible with modern equipment, and vice-versa?
4. What tangible benefits does practicing the Baroque trumpet offer to the modern trumpeter?
5. Is it possible to maintain proficiency on the modern trumpet while studying the natural trumpet?
6. Is the pedagogical application of the natural trumpet practical?

Chapter 2

REVIEW OF LITERATURE

Pedagogical Materials

A review of pedagogical materials from the Baroque through the present proved necessary to compare the compatibility of the Baroque and modern trumpets. Sources from the Baroque era included works by Cesare Bendinelli, Girolamo Fantini, and Johann Ernst Altenberg.¹⁴ Bendinelli's method, *The Entire Art of Trumpet Playing* (1614), contains performance instructions that include the first known direction on embouchure formation. Edward Tarr translated all three of these methods, and included authoritative pedagogical commentary in them.

Fantini's work, *Method for Learning to Play the Trumpet in a Warlike Way as well as Musically* (1638), primarily contains notated exercises for practice. Many of these exercises include syllabic directions (elaborated upon in Chapter 6) which can be directly compared to and correlated with modern pedagogical instructions regarding the manipulation of the oral cavity shape. Altenberg's *Essay on an Introduction to the Heroic and Musical Trumpeters' and Kettledrummers' Art* (1795) contains a

¹⁴ Cesare Bendinelli, *The Entire Art of Trumpet Playing*, trans. Edward Tarr (Vuarmarens, Switzerland: Brass Press, 1975); Girolamo Fantini, *Method for Learning to Play the Trumpet in a Warlike Way as well as Musically*, trans. Edward Tarr (Vuarmarens, Switzerland: Brass Press, 1975); Johann Altenburg, *Essay on an Introduction to the Heroic and Musical Trumpeters' and Kettledrummers' Art*, trans. Edward Tarr (Nashville: Brass Press, 1974).

comprehensive narrative summary of trumpet-related knowledge at the end of the eighteenth century. This source also provided a firsthand account of trumpet guilds and apprenticeship practices.

Modern commentaries on Baroque trumpet literature also presented a valuable resource for this study. Arthur Fromme highlighted most of the known Baroque literature for this instrument, and included some interesting conjecture about how to play the natural trumpet.¹⁵ *The Art of Baroque Trumpet Playing*, by Edward Tarr, provided modern professional insight into playing the exercises by Fantini, Bendinelli, and others.¹⁶ Tarr is the leading expert concerning Baroque trumpeting, so his contributions received particular consideration throughout this study.

Modern sources used to contrast literature from the Baroque with modern trumpet pedagogy included: *The Art of Brass Playing* by Philip Farkas, *Trumpet Pedagogy* by David Hickman, *Trumpet Technique* by Frank Campos, *Daily Fundamentals for Trumpet* by Michael Sachs, *Sound the Trumpet* by Joshua Harnum¹⁷, and *Teaching Brass: A*

¹⁵ Arnold Fromme, "Performance Technique on Brass Instruments During the Seventeenth Century," *Journal of Research in Music Education* 20, no. 3 (Fall 1972): 329-339.

¹⁶ Edward Tarr, *The Art of Baroque Trumpet Playing*, vol. 1 (Mainz, Germany: Schott, 1999).

¹⁷ Philip Farkas, *The Art of Brass Playing* (Atlanta: Wind Music, 1989); David Hickman, *Trumpet Pedagogy: A Compendium of Modern Teaching Techniques* (Chandler, AZ: Hickman Music Editions, 2006); Frank Campos, *Trumpet Technique* (New York: Oxford University Press, 2005); Michael Sachs, *Daily Fundamentals For the Trumpet* (New York: International Music, 2002); Jonathan Harnum, *Sound the Trumpet: How to Blow Your Own Horn* (Chicago: SolUt Press, 2006).

Resource Manual by Wayne Bailey, et al.¹⁸ I frequently consulted Farkas's book due to his reputation as a great brass pedagogue, and the high volume of pedagogical information in his work.

Michael Sachs presented in his book clear and specific directions regarding the playing of lip bends, which were essential for adequate comparison of modern and Baroque lip bending techniques in Chapters 6 and 7. *Teaching Brass* is a widely used and well respected brass instruction method for music education students. For the purposes of this study, its most useful information came in the form of an example demonstrating how modern band methods can accidentally—but easily—lead young trumpet players into forming bad habits. Frank Campos's book on trumpet performance is extremely detailed, and falls well in line with the information found in works by more famous pedagogues such as Farkas. Of particular value was Campos's consideration of the psychology of battling with unwanted habits.

Literature Regarding the History of the Trumpet

The Trumpet by Edward Tarr, *Brass Instruments* by Anthony Baines, and *The Music and History of the Baroque Trumpet Before 1721* by Don Smithers¹⁹ all contain a wealth of well-sourced, relevant, and authoritative information regarding the history of

¹⁸ Wayne Bailey, et al., *Teaching Brass: A Resource Manual* (Boston: McGraw-Hill, 2008).

¹⁹ Edward Tarr, *The Trumpet* (Portland: Amadeus Press, 1988); Anthony Baines, *Brass Instruments: Their History and Development* (London: Faber and Faber, 1976); Don Smithers, *The Music and History of the Baroque Trumpet Before 1721*, 2nd ed. (Carbondale, IL: Southern Illinois University Press, 1988).

the trumpet. These three books agree well with each other, and offer a comprehensive description of the history of this instrument.

Materials from the nineteenth and early twentieth centuries contrast with pedagogical information from before and after that period. *The History of the Trumpet of Bach and Handel* (1934), by Werner Menke,²⁰ was a valiant early effort to document the history of the trumpet, but the book contains a great deal of misinformation.²¹ Erroneous ideas from that time, (such as the advice to use varying mouthpiece pressure to control pitch), shed light on the disconnect that exists between Baroque and modern pedagogy.

Due to differing demands on the trumpet players, nineteenth-century pedagogy had evolved into something very different than what had been prescribed during the Baroque period. Early journal articles by Basset (1876) and Morrow (1894) paint similar pictures.²² Some of these ill-conceived ideas even trickled into Jean-Baptiste Arban's *Complete Conservatory Method*,²³ which is regarded as one of the greatest trumpet method books in existence.²⁴ An understanding of why these misconceptions existed is

²⁰ Werner Menke, *The History of the Trumpet of Bach and Handel*, trans. Gerald Abraham, 2nd ed. (Nashville: Brass Press, 1985).

²¹ Leonard Candelaria, "An Overview of Performance Practices Relating to Seventeenth and Eighteenth Century Trumpet Music: Considerations for Modern Performance," (DM dissertation, Northwestern University, 1985), 2.

²² Henry Bassett, "On Improvements in the Trumpet," *Proceedings of the Musical Association* 3 (1876): 140-144. Walter Morrow, "The Trumpet as an Orchestral Instrument," *Proceedings of the Musical Association* 21 (1894): 133-147.

²³ Jean-Baptiste Arban, *Complete Celebrated Method for the Trumpet or Cornet*, 3rd ed. (New York: Fischer, 1984).

²⁴ David Hickman, *Trumpet Pedagogy: A Compendium of Modern Teaching Techniques* (Chandler, AZ: Hickman Music Editions, 2006), 404, 405, 408, 409.

helpful when comparing the similarities and differences between playing Baroque and modern trumpets, and the pedagogical benefits of using the natural instrument.

Articles Which Describe Surviving Baroque Equipment

Due to the scarcity of authentic Baroque trumpets, surviving examples are studied extensively. Articles from *The Galpin Society Journal*, *Early Music*, and the *International Trumpet Guild (ITG) Journal* all contain valuable, detailed information on surviving natural trumpets and their modern copies. One particularly useful example came from a recent *Historical Brass Society Newsletter*, which describes an exceptionally well preserved and rare slide trumpet with an auto-return mechanism.²⁵ Evolutionary knowledge of the trumpet aids in understanding many of the technical performance differences between its modern and Baroque forms.

Scientific Information on Playing the Trumpet

Three articles by Thomas Moore, the columnist of the “*Science Desk*” section of the *ITG Journal*, proved to be particularly useful. These studies describe the physics of lip vibration, the effects of excess mouthpiece pressure, and the details of harmonic content within trumpet timbres.²⁶ Information from an article in the *Journal of*

²⁵ Sabine Klaus, “Some Ingenious Mechanical Contrivance: An Extraordinary Slide Trumpet from 18th-century England,” *National Music Museum Newsletter* 36, no. 1 (2009): 1, 5.

²⁶ Thomas Moore, “Science Desk: Can Mouthpiece Pressure Substitute for Embouchure Control?” *ITG Journal* 28, no. 3 (March, 2004): 67, 82; ———. “Science Desk: The Complicated Phenomenon of Buzzing Lips,” *ITG Journal* 29, no. 1 (October, 2004): 67, 69; ———. “Science Desk: Where do the Harmonics Come From?” *ITG Journal* 27, no. 4 (June, 2003): 66-67.

Experimental Psychology helped explain some complexities having to do with attention and learning,²⁷ which Frank Campos's book relates directly to trumpet pedagogy.

Additionally, a *Scientific American* article by Don Smithers and others describes in detail the performance-relevant physical properties of both modern and natural trumpets.²⁸

Information Regarding Current Natural Trumpet Availability and Sales

Knowing the practicality of the pedagogical use of the natural trumpet is vital to this study, I consulted two recent articles that list known makers and dealers of natural trumpets, including available models and prices.²⁹ These were supplemented by the manual documentation of internet-based price lists of popular natural trumpet dealers and makers by the author of this essay.

Information From Professional Trumpet Performers

Since the pedagogical application of the natural trumpet is subjective, I sought out firsthand accounts from professional trumpet performers. In addition to articles that contain interviews with natural trumpet performers Crispian Steele-Perkins, Susan

²⁷ Klaus Oberauer and Svetlana Bialkova, "Accessing Information in Working Memory: Can the Focus of Attention Grasp Two Elements at the Same Time?" *Journal of Experimental Psychology: General* 138, no. 1 (February, 2009): 64-87.

²⁸ John Bowsher, Don Smithers, and Klaus Wogram, "Playing the Baroque Trumpet," *Scientific American* 254, no. 4 (April 1986): 108-115.

²⁹ Fred Holmgren, "1996 Survey of Natural Trumpet Makers," *Historic Brass Society Newsletter* no. 9 (Summer 1996): 15-19; Nussbaum, Jeffrey. "A Survey of Trumpet Makers World-Wide," *Historic Brass Society Newsletter* no. 14 (Summer 2001): 12-19.

Williams, and Thomas Freas,³⁰ I gleaned information directly from Crispian Steele-Perkins, Stanley Curtis, Craig Morris, Barry Bauguess, and Allan Dean via personal correspondence. Since some of the ideas put forth in this thesis had little or no related information in existing literature, the input from these professionals proved to be invaluable.

³⁰ John Irish, "Crispian Steele-Perkins: The King's Trumpeter," *ITG Journal* 27, no. 4 (June 2003): 17-26; Elisa Koehler, "Thoughts on Historic Brass Performance: An Interview with Stanley Curtis," *ITG Journal* 32, no. 2 (January 2008): 24-25, 29; Susan Williams, "The Natural Trumpet: A Natural Approach," *Brass Bulletin—International Magazine for Brass Players* no. 118, 2 (2002): 34-38.

Chapter 3

METHODS

The methods for this essay are primarily research-based. Based on the hypothesis that the Baroque natural trumpet has unique abilities to address pedagogical issues in modern trumpeters, I undertook extensive research to uncover as much relevant information as possible. The first sources explored were those most obviously related to this essay's thesis. Larger works by Altenburg, Fantini, Tarr, as well as articles such as "Baroque Trumpet Study in the United States" and "The Natural Trumpet: A Natural Approach" suggested that the playing techniques between modern and natural trumpets are compatible, though different.³¹ In this early research, I found no reason to doubt the practicality of concurrent study of both natural and modern trumpets, so I began deeper investigation into literature relating to the performance of the Baroque natural trumpet.

After reviewing the above sources in addition to literature by Bendinelli, Menke, Don Smithers, and a large number of articles from *Early Music*, *The Historical Brass Society*, and *The Galpin Society Journal*, I sought to compare the techniques of Baroque trumpet playing described within them to modern trumpet and brass instructional materials. These included the books by Sachs, Vizzutti, Campos, Arban, Harnum, Hickman, and Farkas. This comparison revealed many of the most important differences

³¹ Susan Williams, "The Natural Trumpet: A Natural Approach," *Brass Bulletin—International Magazine for Brass Players* no. 118, 2 (2002): 34-38; Leigh Anne Hunsaker, "Baroque Trumpet Study in the United States," *ITG Journal* 29, no. 4 (June 2005): 37-43.

between the playing techniques of the two types of trumpet, including the necessary embouchure differences, and the divergent characteristics of the trumpets' timbres and tessituras.

At this point in the research, I collated the notes that had been taken on each source into one database for improved reference and comparison. This collation highlighted many similarities between Baroque and modern trumpet techniques, and consistently divergent (and incorrect by modern standards) trumpet instruction from the Classical and Romantic eras. The lineage and transformation of trumpet pedagogy became the theme for Chapter Six. The collation also pointed out ideas that lacked sufficient support. The writings of Frank Campos indirectly suggested significant psychological advantages to the pedagogical application of the natural trumpet,³² but nothing more conclusive. Additionally, while many writers and interviewees described subjective differences between playing the two trumpets, many questions about the causes and effects of these differences remained unanswered.

I undertook extra research into Campos' ideas via psychological journals, and easily found concrete scholarly support for the application of his ideas to my hypothesis. The questions about playing technique differences were answered through trumpet-themed scientific articles in *The ITG Journal*, and *Scientific American*, as well as information detailing the physical evolution of the trumpet gleaned from many of the sources. The physical evolution of the trumpet became Chapter Four, since a thorough comprehension of the Baroque and modern trumpets' physical differences and performance abilities aids in understanding their playing techniques.

³² Frank Campos, *Trumpet Technique* (New York: Oxford University Press, 2005), 26-27.

To gain authoritative opinions on the ideas in this essay, I emailed generic questions (in an attempt to avoid any bias) about experiences with modern and natural trumpets to professional trumpeters including Barry Bauguess, Stanley Curtis, Craig Morris, and Crispian Steele-Perkins. With only one slight exception (addressed in Chapter Ten), the returned correspondence added considerable weight to my hypothesis. The result of this large-scale analysis of trumpet literature is a large body of evidence in clear agreement with the hypothesis that great pedagogical gains lie in modern trumpet players' use of the Baroque natural trumpet.

Chapter 4

HISTORICAL EVOLUTION OF THE TRUMPET

An understanding of the historical evolution of the trumpet is essential in order for a modern performer to make informed musical decisions regarding music and instruments from the Baroque. Prior to the Renaissance, the trumpet had only four pitches available to play. This limitation relegated its musical responsibilities to little more than fanfares and military calls.³³ Sometime in the mid fifteenth century, artisans discovered how to bend and manipulate metal tubes, which led to the debut of new types of trumpets. As opposed to the straight trumpets that had been used for hundreds of years, the most popular new trumpet design was folded two times, resulting in a more practical physical arrangement. The enlarged playable register and more refined timbre of this instrument led to its inclusion in art music towards the end of the Renaissance period.³⁴

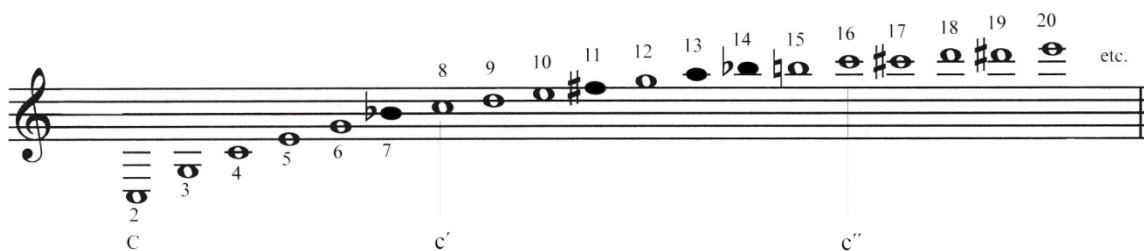
The twice-folded trumpet (henceforth referred to as the *natural* or *Baroque* trumpet) is capable of playing the tones in the harmonic series. The harmonic series is the spectrum of notes that can be produced by a vibrating column of air, based on the lowest possible sounding pitch, which is called the *fundamental*.³⁵ Different lengths of tube

³³ Edward Tarr, *The Trumpet* (Portland: Amadeus Press, 1988), 42.

³⁴ *Ibid.*, 19-29; Anthony Baines, *Brass Instruments: Their History and Development* (London: Faber and Faber, 1976), 43, 53-59.

³⁵ Don Smithers, *The Music and History of the Baroque Trumpet Before 1721*, 2nd ed. (Carbondale, IL, Southern Illinois University Press, 1988), 24.

produce different fundamentals, but notes that can be possibly sounded on any given length of tubing will always follow the same intervallic relationships.



Example 1: The Harmonic Series for a Natural Trumpet in C³⁶

After innovations in metal manipulation in the fifteenth century, instrument builders experimented with various methods to expand the performance capacity of the trumpet. Of these experiments, the slide trumpet was the longest lasting and most successful; its use continued well into the nineteenth century. The slide trumpet was constructed similarly to the natural trumpet, but with a telescoping tube that connected to the mouthpiece on one end, and fit inside the trumpet's first length of tubing (the equivalent of the modern *leadpipe*) with the other. A slide trumpet player held the tube connected to the mouthpiece with one hand and moved the entire trumpet with the other. This movement changed the overall tube length, which allowed for a relatively quick transition to other fundamental pitches.

With this ability, slide trumpet performers could access many more notes—although the slide trumpet still did not reach fully chromatic abilities, due to the large intervals between available pitches in the lower part of the harmonic series. The use of the slide trumpet, although widespread, was almost exclusively confined to small dance

³⁶ The first pitch of this harmonic series is C an octave below harmonic “2”; because it is unplayable for all practical purposes, it is not included here. Notes that are fully shaded lie significantly out of tune.

ensembles and town watchtowers due to the influence of politically powerful trumpet guilds. According to Don Smithers, the trumpet guilds—which professionally regulated trumpet duties, pay, and education in the Baroque—looked upon the new instruments “with disdain” and did not “[regard] them as proper trumpets.”³⁷

Through the Renaissance, the natural trumpet continued its traditional military role and became closely involved with courts across the European continent. Since the nobility prized trumpets for their exciting and triumphal sounds, the number and talent of the trumpeters of a court served as a yardstick for its power and prestige.³⁸ The involvement of the natural trumpet in art music also grew steadily, as improvements in instrumental construction allowed trumpet players to expand the abilities of their instruments.

The Rise of Natural Trumpet Performance

Cesar Bendinelli wrote the earliest surviving method for trumpet, dated 1614. His book contains pedagogical instructions, playing exercises, military calls, and solo trumpet literature. Included among these solos is a sonata that Bendinelli wrote for a wedding in 1584. Amusingly, the accompanying written directions describe the sonata as a communal drinking song, where the trumpeters would drink during their periodic rests—but far more importantly, this wedding song is the oldest known example of music composed for *clarino*.³⁹

³⁷ Don Smithers, *The Music and History of the Baroque Trumpet Before 1721*, 2nd ed. (Carbondale, IL: Southern Illinois University Press, 1988), 28.

³⁸ Edward Tarr, *The Trumpet* (Portland: Amadeus Press, 1988), 66.

³⁹ *Ibid.*, 72.

Although confusion over its meaning persisted for much of the twentieth century, the term *clarino* refers a special manner of playing the high tessitura of the natural trumpet.⁴⁰ Clarino playing utilizes the register upward from the eighth harmonic (*c'* on a trumpet with the fundamental an octave below *C*) and is characterized by a softer, sweeter, and more vocal timbre than its more powerful lower register,⁴¹ which is known as *principale*. As the harmonic series progresses higher, the distance between notes shrinks, and more pitches become naturally available. The natural trumpet can play diatonic melodies in this high register, a feature of which Baroque composers took great advantage.

Virtuosos such as Gottfried Reiche—J.S. Bach's illustrious primary trumpeter, for whom many of his most famous trumpet parts were written⁴²—expanded the scope of the natural trumpet by demonstrating for composers its new capabilities. According to Timothy Collins, the talent of Reiche appears to have had a direct effect on the compositional output of composers who heard him. As Collins affirms:

An examination of a sampling of early Leipzig church cantatas requiring trumpets, written by Schelle and his successor, Huhnau . . . would suggest that despite his status as a journeyman, Reiche may very well have played an influential role in the type of trumpet parts that were being written. Many characteristics that distinguish the later style of trumpet writing by Bach, and from which it is possible to establish some

⁴⁰ Leonard Candelaria, "An Overview of Performance Practices Relating to Seventeenth and Eighteenth Century Trumpet Music: Considerations for Modern Performance," (DM dissertation, Northwestern University, 1985), 37.

⁴¹ Anthony Baines, *Brass Instruments: Their History and Development* (London: Faber and Faber, 1976), 136.

⁴² Timothy Collins, "Gottfried Reiche: A More Complete Biography," *International Trumpet Guild Journal* 15, no. 3 (February 1991): 5.

degree of knowledge of Reiche's particular abilities, may be seen in many of these earlier works.⁴³

Based on surviving employment records and performance reviews, it seems that most Baroque composers had a specific trumpeter in mind for their most difficult compositions for clarino; known virtuosos included Reiche for J.S. Bach, Valentine Snow for Handel (and for whom it is thought that Leopold Mozart wrote his difficult clarino concerto), and John Shore for Purcell.⁴⁴ Because of the extreme skills required in many of the compositions, it was thought until quite recently that there were few Baroque trumpet players capable enough to play the clarino music written by these composers.⁴⁵

Although the range and technical demands of some pieces written for clarino probably required virtuosos to execute them, the large volume of surviving of compositional output suggests that there were many other performers capable of high-level clarino performance. From around 1650 to 1750, composers including Torelli, Telemann, J.S. Bach, Handel, Biber wrote dozens of difficult works for high trumpet. Their survival into the modern era attests to their past popularity and prevalence. In the late eighteenth century, Hertel, Molter, and Michael Haydn reached the technical limits of clarino performance with compositions that utilized the extreme upper register. Shortly thereafter, new solo works for the high natural trumpet witnessed a drastic decline.

⁴³ Timothy Collins, "Gottfried Reiche: A More Complete Biography," *ITG Journal* 15, no. 3 (February 1991): 10.

⁴⁴ Don Smithers, *The Music and History of the Baroque Trumpet Before 1721*, 2nd ed. (Carbondale, IL: Southern Illinois University Press, 1988), 125, 200.

⁴⁵ Walter Morrow, "The Trumpet as an Orchestral Instrument," *Proceedings of the Musical Association* 21 (1894): 135.

The “Gradual Decay” of Clarino Playing

Compositions for clarino had already grown scarce by 1795, when Johann Ernst Altenburg published his *Trumpeters' and Kettledrummers' Art*. Described by trumpet historian Anthony Baines as “by far the greatest literary work on trumpet,”⁴⁶ Altenburg’s comprehensive book demonstrated a wealth of knowledge based on his own trumpet playing experience, as well as that of his father—who was also a widely celebrated performer on the instrument. In the preface of his treatise, Altenburg wrote,

My only intention [was] to write a book in which the trumpeter’s . . . art would be taught more extensively than has been done so far. . . . Such instruction seemed all the more necessary since only very few practicing musicians themselves understand the whole scope of the art under consideration. This may be mostly the reason why presently it is scarcely honored and recompensed by anyone any more. I will pass over other causes of its gradual decay in silence.⁴⁷

Altenburg’s evasive and bitter description of this decline revealed his emotional attachment to the art. He witnessed the breakdown of the trumpet guilds, in which he was intimately involved,⁴⁸ and through his father, he was privy to the pinnacle of clarino playing before personally experiencing its descent into obscurity. Altenburg believed that the “misuse of the instruments,” was in large part responsible for the fall of the art, referring to guild rules about who should play which kind of trumpet, and when anybody was allowed to play the instrument.⁴⁹ A modern examination of the issue, however, reveals that two eighteenth-century developments most completely explain the

⁴⁶ Anthony Baines, *Brass Instruments: Their History and Development* (London: Faber and Faber, 1976), 121.

⁴⁷ Johann Altenburg, *Essay on an Introduction to the Heroic and Musical Trumpeters' and Kettledrummers' Art*, trans. Edward Tarr (Nashville: Brass Press, 1974), xiii.

⁴⁸ *Ibid.*, xiv.

⁴⁹ *Ibid.*, 48-52.

disappearance of clarino performance: the dismantling of European courtly society, and the new tonal and dynamic demands of Classical music.

In the Baroque period, European courts provided the primary performance venue for solo trumpet performers. Their dissolution drastically lowered both the number of new compositions for the clarino, as well as the number of steadily-paying employment opportunities for trumpet players.⁵⁰ These losses alone could easily have led to a decline in the art of clarino playing, but as significant as they are, the rise of Classical period music has proven to be the most influential factor.

The Classical era witnessed a growth in orchestra size, which necessitated louder dynamics from orchestral musicians. Compared to its lower principale register, the clarino style of playing in the upper register of the natural trumpet is quite soft.⁵¹ This quality made it a perfect chamber instrument in court music—but it was not compatible with the increase in ensemble size. Composers of this period also became more tonally adventurous than their Baroque predecessors, which required either constant changes of equipment by orchestral trumpeters, or simpler part writing. Don Smithers wrote of this Classical destruction of clarino performance in an *ITG* article “[The] new harmonic language required quicker methods of crooking . . . and the increase of dynamics meant shorter bores and smaller mouthpieces.”⁵² The best explanation for the downfall of clarino playing is that compositional advances in the Classical period demanded more

⁵⁰ Don Smithers, *The Music and History of the Baroque Trumpet Before 1721*, 2nd ed. (Carbondale, IL: Southern Illinois University Press, 1988), 171.

⁵¹ Timothy Collins, “Old Music and New Instruments: Baroque Music and the Modern Trumpet,” *ITG Journal* 26, no. 4 (June 2002): 15.

⁵² Don Smithers, “The Baroque Trumpet After 1721: Some Preliminary Observations. Part Two: Function and Use,” *Early Music* 6 (July 1978): 361.

volume than the comparatively delicate clarino style was capable of producing, and advances in tonality required the composition of simpler trumpet parts. Coupled with the loss of the courts, the decline of high trumpet playing was inevitable.

From the Baroque Natural Trumpet to the Modern Valved Trumpet

Solo trumpet performance did not completely disappear during the Classical and Romantic periods, even though modern performers might think as much based on the scant repertoire for solo trumpet composed between the late eighteenth and nineteenth centuries. Two significant developments in trumpet technology took place during that time: better slide trumpets, and the keyed bugle.

A more advanced slide trumpet was constructed with a clock-spring-powered “quick return” mechanism for its slide, which enabled faster movement and nearly chromatic abilities.⁵³ This mechanical slide trumpet met with great success in England, where a father-son pair of slide trumpeters, Thomas Harper Sr. and Thomas Harper Jr., used their musical talents and strong personalities to popularize the instrument on which they performed until the turn of the twentieth century. It seems that the two Harpers were single-handedly responsible for the persistence of the slide trumpet in England, even while the rest of Europe had been using the valved trumpet for forty years.⁵⁴

The second, more important advance in equipment was the late 1700s invention of the keyed bugle. This instrument represented the first successful attempt to create a fully chromatic trumpet. The bugle label was applied since it was comprised of around

⁵³ Sabine Klaus, “Some Ingenious Mechanical Contrivance: An Extraordinary Slide Trumpet from 18th-Century England,” *National Music Museum Newsletter* 36, no. 1 (February/May 2009): 5.

⁵⁴ Edward Tarr, *The Trumpet* (Portland: Amadeus Press, 1988), 151-152.

the same length of tubing as its namesake (approximately four feet). Its inventor, Anton Weidinger, was “greatly celebrated” after his unveiling of the instrument (for which Haydn and Hummel composed their famous concertos), “but later, somewhere from 1825 on, [Weidinger] played before half empty rooms; not until then did one note the inequality of the tone colour with open and closed keys.”⁵⁵

Although both instruments met limited success, neither attempt to expand the abilities of the trumpet was satisfactory. The slide trumpet was a capable orchestral instrument, but it was too clumsy in soloistic writing, and timbre differences between open and closed key combinations prevented the keyed bugle from becoming the predominate trumpet in use.⁵⁶

The eventual victors in the fight for trumpet supremacy were, of course, the valved trumpet and cornet. Composers greeted the first models of the valved instrument with disdain: the new trumpets had serious issues with intonation, and their timbres differed vastly from those of natural and slide trumpets. Brahms called the valved trumpet “a tin viola,”⁵⁷ but nonetheless, its construction and design improved quickly. With improvements, composers soon began to appreciate the tone of cornets and trumpets, as well as their ability to sonically cut through large orchestras.

François Dauverné recognized the potential of a fully chromatic instrument, and helped popularize the cornet in his home country. According to him, the opera *Macbeth* (1827) by a French composer named Hippolyte-André-Jean-Baptiste Chelard was the

⁵⁵ Edward Tarr, *The Trumpet* (Portland: Amadeus Press, 1988), 56.

⁵⁶ *Ibid.*, 53.

⁵⁷ *Ibid.*, 164.

first to specify parts for the valved trumpet.⁵⁸ Berlioz, Meyerbeer, and Rossini soon adopted modern trumpets and cornets into their compositions, and the era of valved brass began.

⁵⁸ Edward Tarr, *The Trumpet* (Portland: Amadeus Press, 1988), 163.

Chapter 5

PHYSICAL DIFFERENCES BETWEEN MODERN AND BAROQUE NATURAL TRUMPETS

Although modern valved trumpets descend directly from the Baroque natural trumpet, the physical differences between the two instruments are striking. The length of tubing used in the natural trumpet measures around eight feet, compared with four for the modern trumpet. The bell diameters of surviving Baroque natural trumpets vary, but they consistently average 15-25 mm less than their modern counterparts. Some Baroque trumpets had exponential bell flares similar to that found on the modern trumpet, while others possessed conically-shaped bells.

The bore size (the diameter of an instrument's cylindrical piping) is one of the few components that has remained consistent between the Baroque and modern periods: the bores of trumpets from both periods average around 11mm. Both trumpets are also composed primarily of brass, though the older alloys had different proportions of copper and zinc than most modern alloys. The older trumpets were hand-hammered from brass sheets, whereas modern trumpets—and most modern reproductions of Baroque trumpets—are machined for consistency.⁵⁹

⁵⁹ John Bowsher, Don Smithers, and Klaus Wogram, "Playing the Baroque Trumpet," *Scientific American* 254, no. 4 (April 1986): 115.

Of utmost importance are the differences between Baroque and modern mouthpieces.⁶⁰ Like their modern counterparts, Baroque mouthpieces vary widely in shape and size—but consistent distinctions dichotomize modern mouthpieces and their predecessors. Baroque trumpet mouthpieces invariably possess wider, flatter rims with bowl-shaped cups, as opposed to the concave cup shape of the modern mouthpiece.

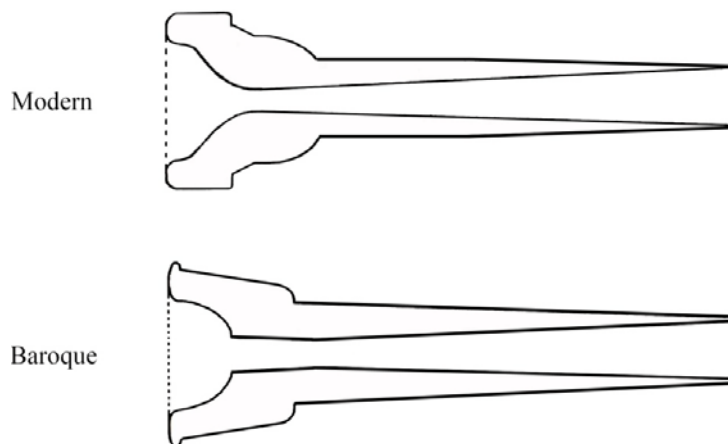
The cup depths of Baroque mouthpieces are, on average, much greater than those of present day; the shallowest Baroque mouthpieces have depths similar to those of the deepest modern mouthpieces.⁶¹ The point at which the cup of a mouthpiece meets the shank is referred to as the *shoulder*. The shoulders of extant Baroque mouthpieces are surprisingly sharp in comparison to their modern relatives: the angle is often near 90°. The differing physical attributes of the two mouthpieces can be examined in Example 2 on the following page.

One of the earliest modern attempts to play authentic Baroque trumpet equipment was undertaken by Eric Halfpenny in 1962. After attempting to play a newly discovered Baroque trumpet with a contemporary mouthpiece, Halfpenny tried playing the instrument with its original mouthpiece. He reported in an issue of *Early Music* that the wider mouthpiece rim and the sharp shoulder angle of the Baroque mouthpiece gave the trumpet an “opulent, sonorous and full-bodied [tone]” and that the greater rim diameter “in no way inhibit[ed] the fourth octave.” Though many modern trumpet players associate smaller, shallower mouthpieces with the extreme high register, qualities of the larger Baroque mouthpiece actually seem to aid its upper register. Halfpenny continued:

⁶⁰ Jeremy Montagu, “Choosing Brass Instruments,” *Early Music* 4, no. 1 (January 1976): 36.

⁶¹ Anthony Baines, *Brass Instruments: Their History and Development* (London: Faber and Faber, 1976), 125.

“The sharp inner edge of the rim appears to give greater support for the lips when playing in the clarino register than does a more conventional and modern type of mouthpiece.”⁶²



Example 2: Graphic Comparison of a Modern Mouthpiece (Top) and a Baroque Mouthpiece (Bottom)⁶³

Baroque mouthpieces contributed a great deal to the abilities of those who played them. Their qualities help explain why performers during later periods regarded Baroque techniques as “mysterious,”⁶⁴ since clarino technique was simply not practical on the smaller trumpets and mouthpieces that were employed after the Baroque period. The evolution of trumpet components from large to small agrees with the change in repertoire that took place between the Baroque and Classical periods; the shrinking of mouthpiece

⁶² Eric Halfpenny, “William Bull and the English Baroque Trumpet,” *The Galpin Society Journal* 15 (March 1962): 20-21.

⁶³ Leonard Candelaria, “An Overview of Performance Practices Relating to Seventeenth and Eighteenth Century Trumpet Music: Considerations for Modern Performance,” (DM dissertation, Northwestern University, 1985), 26. Illustrations are not to scale.

⁶⁴ John Bowsher, Don Smithers, and Klaus Wogram, “Playing the Baroque Trumpet,” *Scientific American* 254, no. 4 (April 1986): 108.

size is consistent with the louder, more piercing trumpet sounds generally demanded in the Classical era.⁶⁵

The Differing Fundamental Pitch Locations Between Baroque and Modern Trumpets and their Significance

The overall tube length of a trumpet determines its fundamental pitch. The bugle, for example, is a type of natural trumpet, but its usable range is far smaller than that of the natural instrument. The significantly shorter tube length of the bugle yields a fundamental around an octave higher than that of a Baroque trumpet. Similar in ability to the Renaissance bugles mentioned in Chapter 1, the range of the modern bugle is extremely limited. All modern bugle calls take place within the first five playable pitches: c' , g' , c'' , e'' , and g'' . Though it is physically possible to play a few notes higher on the bugle, the diatonic region of its harmonic series is far too distant to be usable.

The differing location of the fundamental of a natural trumpet gives it a vastly different timbre than its modern counterpart. In an ITG article describing how best to approach Baroque music on modern trumpets, Timothy Collins commented that the tone of the natural trumpet “may be characterized as robust and almost trombone-like in the lower register,” and “very vocal and soft, possessing a singing flute-like quality” in clarino territory. On the other hand, he wrote that the piccolo trumpet—the instrument most commonly used to perform Baroque works in the modern era—sounds comparatively “shrill.”⁶⁶

⁶⁵ Don Smithers, “The Baroque Trumpet After 1721: Some Preliminary Observations. Part Two: Function and Use,” *Early Music* 6 (1978): 361.

⁶⁶ Timothy Collins, “Old Music and New Instruments: Baroque Music and the Modern Trumpet,” *ITG Journal* 26, no. 4 (June 2002): 15.

In an interview on Baroque trumpet music, the much-celebrated soloist Crispian Steele-Perkins, who plays both natural and modern instruments, remarked that he personally prefers to hear or play far fewer ornaments on the natural trumpet than on the piccolo trumpet. The sole reason for this preference stems from the timbral differences of the two instruments. Steele-Perkins opined: “Being a high-frequency instrument . . . with a rather uninteresting sound . . . the piccolo trumpet does lend itself to ornaments,” which contrasts with playing the natural trumpet, where “it’s just not necessary; the sound is so beautiful you don’t want to mar it.”⁶⁷

While the larger mouthpieces from the Baroque are partly responsible for the timbral differences, harmonic science indicates that the natural trumpet itself is predisposed to a darker, richer sound quality. Physics professor and trumpeter Thomas Moore noted in his “Science Desk” series for the *ITG Journal*: “When you play a note on your trumpet, more than one note actually comes out of the bell. When playing any particular note, the harmonics of that note are also present in the sound. The addition of these harmonics is what gives the trumpet its beautiful sound.”⁶⁸ In other words, all of the frequency multiples of any given pitch (its harmonics) are also produced when a trumpet plays that pitch.

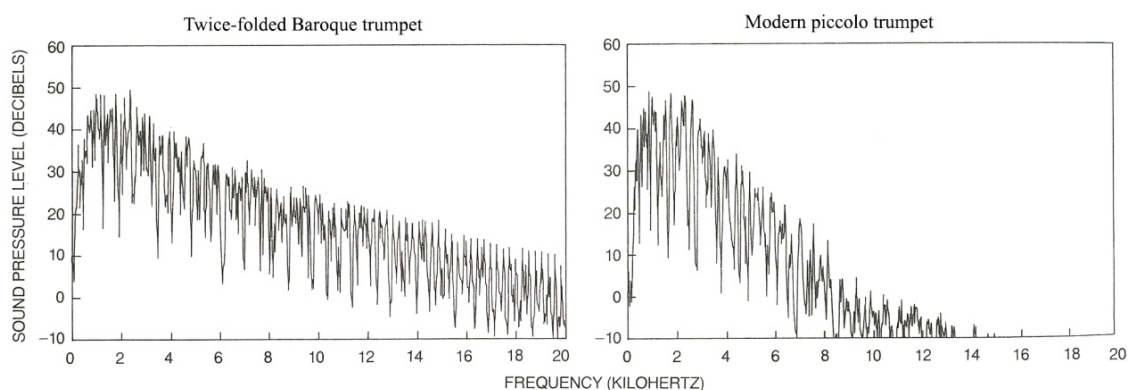
Based on this principle, the lower fundamental of the natural trumpet results in a more harmonically rich timbre. Given that the harmonic series of a particular natural trumpet lies an octave below a comparatively-pitched bugle or modern trumpet, the

⁶⁷ John Irish, “Crispian Steele-Perkins: The King’s Trumpeter,” *ITG Journal* 27, no. 4 (June 2003): 22.

⁶⁸ Thomas Moore, “Where Do the Harmonics Come From?” *ITG Journal* 27, no. 4 (June 2003): 66.

playable notes of the natural trumpet each possess a more immediately dense overtone series than a bugle or modern trumpet. By having a much lower fundamental pitch, the natural trumpet can produce more frequency multiples between any given pitch and the audible limit for most people, which is around 20,000hz.

The timbre difference is actually measurable; below, in Example 3, the frequency spectrum (the graph represents the average of a two-octave note array) of a twice-folded natural trumpet is compared with that of a modern piccolo trumpet. Measurements confirm that the natural trumpet produces a significantly more colorful, overtone-laden sound.



Example 3: Frequency Spectrums Present in Baroque Natural and Modern Piccolo Trumpet Timbres⁶⁹

The timbre of the natural trumpet, unlike that of the modern trumpet (or at least its ideal), is not even throughout its registers. Natural trumpet soloist Susan Williams wrote that to confront the clarino register of the natural trumpet, performers must “[let] go of our modern notion of producing every note in the range to be the same glowing and

⁶⁹ Source: Data and Illustration adapted from Don Smithers, et al., “Playing the Baroque Trumpet,” *Scientific American* (April 1986): 114.

powerful quality.”⁷⁰ A glowing and powerful nature of sound can certainly be heard in the principale register of the Baroque instrument, but its clarino register requires a lighter approach.

While the ability to play with an even sound throughout all registers is highly coveted by modern trumpeters, the qualities of a natural trumpet’s low and high registers—as well as the conceptualization needed to execute them—have always been disparate. The two styles of playing are so distinct that most Baroque trumpet players were either principale or clarino specialists. A famous example was Johann Caspar Altenburg, who was renowned for his ability to play extraordinary soft dynamics in the clarino register, but whose high-range talents were not matched in the principale register.⁷¹

Tests indicate that the principale and clarino registers may even require different lip surfaces to vibrate,⁷² which helps explain why the modern concept of using smaller mouthpieces to play higher does not hold true for natural trumpets. The larger mouthpieces used by Baroque natural trumpet players allowed the desired vibratory surface to be activated depending on which register the performer wished to play.⁷³ Military and tower trumpet players of the Renaissance and Baroque often sought out shallower mouthpieces, but the basic calls required of them did not ascend into the

⁷⁰ Susan Williams, “The Natural Trumpet: A Natural Approach,” *Brass Bulletin—International Magazine for Brass Players* no. 118 (2002): 34.

⁷¹ Johann Altenburg, *Essay on an Introduction to the Heroic and Musical Trumpeters' and Kettledrummers' Art*, trans. Edward Tarr (Nashville: The Brass Press, 1974), 148.

⁷² John Bowsher, Don Smithers, and Klaus Wogram, “Playing the Baroque Trumpet,” *Scientific American* 254, no. 4 (April 1986): 111.

⁷³ *Ibid.*, 108.

clarino register. In that time and place, shallow mouthpieces were valued for their brighter sound, and corresponding increase in volume.

A thorough understanding of the differences between Baroque and modern equipment can greatly assist anybody who aspires to play the natural trumpet. Although the playing techniques of these two instruments are similar, important distinctions—such as the difference in timbre between the clarino and principale registers of the Baroque trumpet—must be recognized in order to achieve all possible benefits from playing the natural instrument. It is especially important to know the differences between the two mouthpieces and of the disparate locations of the fundamentals, since both of these elements are crucial to the pedagogical application of the Baroque trumpet.

Chapter 6

TRUMPET-SPECIFIC PEDAGOGY FROM THE BAROQUE PERIOD THROUGH PRESENT DAY

A surprising ignorance of historical trumpet knowledge persisted throughout much of the nineteenth and early twentieth centuries. Although we now know of early trumpet music that ascends to the twenty-fourth harmonic,⁷⁴ an 1894 journal article states that “nothing [had] been written beyond the eighteenth.”⁷⁵ Another example of this lack of understanding appears in a 1910 article, which purported: “An instrument with [a] small bore and [a] small, shallow-cupped mouthpiece was known as the clarino or clareta, as distinguished from the tromba, or trumpet proper.”⁷⁶ Modern investigations have revealed *clarino* to refer to a particular style of playing the natural trumpet in the upper register, as opposed to a physical instrument. Twentieth-century examinations of Baroque trumpets and pedagogical writings have dispelled many of these misconceptions, and show the degree to which the Baroque trumpet was so recently misunderstood.

Original documentation related to the natural trumpet is scarce, so trumpet historians have also explored Baroque iconographical sources. Because Baroque visual

⁷⁴ Edward Tarr, *The Trumpet* (Portland: Amadeus Press, 1988), 143.

⁷⁵ Walter Morrow, “The Trumpet as an Orchestral Instrument,” *Proceedings of the Musical Association* 21 (1894): 134.

⁷⁶ D. J. Blaikley, “How a Trumpet is Made. II. The Natural Trumpet and Horn (Continued),” *The Musical Times* 51, no. 804 (February 1910): 82.

art valued realism, the images of the instrument that artists of the time portrayed sometimes contain useful information.⁷⁷ Elias Haussmann's famous portrait of Gottfried Reiche gives a clear visual representation of a *tromba di caccia*. Since only one authentic example of this instrument survives,⁷⁸ the painting has assisted modern instrument builders construct replicas of the coiled trumpet pictured with Reiche. This image is also solely responsible for the survival of the now-famous fanfare, *Abblasen*, pictured in the left hand of its composer.⁷⁹



Example 4: Copperplate Engraving of Haussmann's Gottfried Reiche Portrait⁸⁰

⁷⁷ Don Smithers, *The Music and History of the Baroque Trumpet Before 1721*, 2nd ed. (Carbondale, IL: Southern Illinois University Press, 1988), 34.

⁷⁸ Edward Tarr, *The Trumpet* (Portland: Amadeus Press, 1988), 101.

⁷⁹ Timothy Collins, "Gottfried Reiche: A More Complete Biography," *ITG Journal* 15, no. 3 (February 1991): 10.

⁸⁰ C. F. Rosbach, Copperplate Engraving of E.G. Haussmann's portrait of Gottfried Reiche, 1727, City Historical Museum of Leipzig; O.J.'s Trumpet Page, "Gottfried Reiche," <http://abel.hive.no/trumpet/bach/reiche/portrait.html> (accessed April 20, 2010).

Baroque artwork has not only aided the modern reproduction of Baroque equipment, but has also helped modern trumpeters piece together information about playing techniques from centuries past. From the many visual representations, it is evident that Renaissance trumpeters commonly puffed out their cheeks as they played. The fanfares and calls of fifteenth-century trumpet demanded a great deal of force and volume; the cheek-puffing tendency likely developed because it enabled very loud playing.



Example 5 (Left) and Example 6 (Right): Cheek-Puffing Technique Evidenced in Fifteenth-Century Paintings⁸¹

In 1614, Cesare Bendinelli cautioned against this technique: “[A trumpet player] should avoid puffing up his cheeks, as it is a terrible vice and deforms the player. He should learn then to lead his chin with the notes of each register—this is called ‘accenting

⁸¹ Example 5: Hans Memling, detail from *Christus Omgeven van Zingende en Musicerende Engelen*, ca. 1480, The Royal Museum of Fine Arts of Antwerp; Adelheid Rech, “Music in the Time and Paintings of Vermeer,” www.essentialvermeer.com/music/trumpet.html (accessed April 19, 2010). Example 6: Meister des Marienlebens, detail from *Coronation of the Blessed Virgin Mary*, ca. 1470, Old Pinakothek Museum of Munich; Wikipedia, “Master of the Life of the Virgin,” http://en.wikipedia.org/wiki/Master_of_the_Life_of_the_Virgin (accessed April 19, 2010).

the trumpet' and gives it elegance."⁸² His advice could be considered the earliest-known embouchure instruction, since a person must engage facial muscles—thus forming an embouchure—to play the trumpet without puffed cheeks.

The abovementioned quote appears in Bendinelli's *The Entire Art of Trumpet Playing*, which, due to its descriptions of trumpet technique and the rarity of other sources, remains one of the most important pieces of historical trumpet literature. Edward Tarr translated this method and offered insight into Bendinelli's instructions within his own book, *The Art of Baroque Trumpet Playing*. Tarr's work contains a comprehensive interpretation of all known pedagogical materials that relate to the natural trumpet. In it, Tarr clarified Bendinelli's quotation with the statement: "Behind the formulation 'leading one's chin' lies the simple truth that it is not possible to play a satisfactory low *c* without increasing the size of the mouth cavity by dropping one's jaw."⁸³

If Tarr's interpretation of Bendinelli's advice proves correct, then the basic technique of changing notes on the trumpet is essentially the same now as it was during the Baroque period. Bendinelli seemed to have instructed trumpet players to move their jaws, thus changing the internal shape of the mouth in order to play in different registers. Similar instructions from the modern era appear everywhere—from trumpet technique books⁸⁴ to music education texts.⁸⁵

⁸² Cesare Bendinelli, *The Entire Art of Trumpet Playing*, trans. Edward Tarr (Vuarmarens, Switzerland: Brass Press, 1975), 3.

⁸³ Edward Tarr, *The Art of Baroque Trumpet Playing*, vol. 1 (Mainz, Germany: Schott, 1999), 98.

⁸⁴ Frank Campos, *Trumpet Technique* (New York: Oxford University Press, 2005), 84.

⁸⁵ Wayne Bailey, et al., *Teaching Brass: A Resource Manual* (Boston: McGraw-Hill, 2008), 24.

The scientific principles behind the technique are well understood, as described in a 1983 *ITG* study of trumpet players. Videofluorographic equipment allowed researchers to view the tongue and oral cavity shape as professional trumpeters—including the great Maurice André—played. The results indicate that although the movements are mostly subconscious, the various shapes (formed by jaw and tongue placement) of the oral cavity are vital to pitch selection and the changing of registers.⁸⁶

More Baroque instruction of the “chin leading” technique can be found in a book from 1638, entitled *Method for Learning to Play the Trumpet in a Warlike Way as well as Musically, with the Organ, with a Mute, with the Harpsichord, and Every Other Instrument* by Girolamo Fantini. The first musical exercises in the book all have specific syllabic markings below many of the notes, including *te, ti, ta, ghe, da, la, le, no, ra, ru, tia, tiri*. Fantini did not consistently label particular notes with particular syllables, since the syllables also served memorization and phrasing purposes,⁸⁷ but different mouth shapes do correlate with different ranges. Lower notes are most commonly accompanied by open-mouth syllables such as *da* (dah), *te* (teh), or *tan* (tahn), while higher pitches often have syllables which necessitate a smaller mouth cavity, such as *ti* (tee), or *ri* (ree).⁸⁸ Although *ta* appears with notes in all ranges, syllables with an *ee* mouth shape were not written for notes beneath the tenth harmonic.

⁸⁶ Winick, Steven, “Tongue Arch: The Missing Link in Brass Instrument Pedagogy and Performance,” *ITG Journal* 8, no. 2 (December 1983): 25.

⁸⁷ Edward Tarr, critical commentary from *The Entire Art of Trumpet Playing* by Cesare Bendinelli (Vuarmarens, Switzerland: Brass Press, 1975), 11.

⁸⁸ Girolamo Fantini, *A Modern Edition of Girolamo Fantini's Trumpet Method (1638)*, ed. Ritchie Clendenin and William Clendenin (Boulder, CO: Empire Printing, 1977), 2-11.

Even though both Baroque and modern pedagogy instruct the changing of mouth shape to achieve changes in register, this technique was lost during most of the Classical and Romantic periods. Other techniques were also lost; evidence from nineteenth-century pedagogical sources suggests that wind technique during this time had grown remote from previous practice.⁸⁹ For example, Jean-Baptiste Arban's *Complete Conservatory Method for Cornet* (1894)—although regarded as the most comprehensive method book for trumpet—contains some of the most egregious errors in trumpet instruction that were common from the Classical era until the early twentieth century.

In his introduction to *slurring* (i.e., moving to another pitch without valve changes), Arban wrote that trills are accomplished by way of lip movement. Claude Gordon, a cornet virtuoso and the editor of the 1984 edition of Arban's book, clarified this fallacy with the statement: "it is now known that the trill is accomplished by a movement of the tongue."⁹⁰ Arban continued, saying that a trumpeter should slur by way of "tension of the muscles and also by pressure of the mouthpiece on the lips."⁹¹ Modern trumpet pedagogy recognizes the application of mouthpiece pressure as a viable method for note changing, but at great expense to the trumpeter's tone quality and lip health.⁹²

Werner Menke's *The History of the Trumpet of Bach and Handel* (1934) was one of the first efforts to describe the "lost" art of Baroque trumpet playing. It is now known that Menke made many of his assertions without strong evidence, so his claims should

⁸⁹ Edward Tarr, *The Trumpet* (Portland: Amadeus Press, 1988), 171.

⁹⁰ Jean-Baptiste Arban, *Complete Celebrated Method for the Trumpet or Cornet*, 3rd ed. (New York: Fischer, 1984), 37.

⁹¹ *Ibid.*, 37.

⁹² Hickman, *Trumpet Pedagogy: A Compendium of Modern Teaching Techniques* (Chandler, AZ: Hickman Music Editions, 2006), 113.

not be given authority.⁹³ Nevertheless, his work provides a valuable window into the Classical-Romantic school of thought regarding trumpet technique. Menke wrote that the non-harmonic tones in Fantini's method, and within Baroque music in general, must have been raised or lowered by means of pressure—as Arban had advised.⁹⁴ This idea was widespread; around 1850, François Dauverné, who was the trumpet instructor at the Paris Conservatory, also wrote that notes should be raised and lowered by means of the balance of pressure between the mouthpiece and the player's lips.⁹⁵ It was not until the 1920s that musicians began to reject the pressure-based note changing method.⁹⁶

Mouthpiece pressure was not the only pedagogical technique to change over time. Looking again at Arban's method, more disagreements with modern teaching appear. The first section of this book details many basic playing techniques. In the “*Breathing*” section, Arban wrote, “in inhaling, the stomach should not swell, but rather [it] contracts in proportion to the chest which expands.”⁹⁷ Now, on the other hand, modern teachers and performers profess that a proper breath will provoke an expansion of the abdomen, as the air-filled lungs displace internal organs. Relaxation of the chest and neck are key,

⁹³ Leonard Candelaria, “An Overview of Performance Practices Relating to Seventeenth and Eighteenth Century Trumpet Music: Considerations for Modern Performance,” (DM dissertation, Northwestern University, 1985), 2.

⁹⁴ Werner Menke, *The History of the Trumpet of Bach and Handel*, trans. Gerald Abraham, 2nd ed. (Nashville: Brass Press, 1985), 34.

⁹⁵ Anthony Baines, *Brass Instruments: Their History and Development*, (London: Faber and Faber, 1976), 33.

⁹⁶ *Ibid.*

⁹⁷ Jean-Baptiste Arban, *Complete Celebrated Method for the Trumpet or Cornet*, 3rd ed. (New York: Fischer, 1984), 8.

since chest expansion produces tension that restricts airflow and negatively affects tone quality.⁹⁸

As Edward Tarr wrote in his study of the early instrument, “[Baroque theorists] generally preferred non-explosive, singing articulations, even referring to the most explosive syllabic combination as rough . . . and undesirable.”⁹⁹ By “explosive” articulations, Tarr referred to the buildup and release of a large amount of compressed air at the beginning of a note. Modern and Baroque techniques both indicate that high-compression attacks—though sometimes necessary—should be avoided, since they are not conducive to beautiful trumpeting.

Tarr also explained that to play up to *c* and beyond, a sort of “falsetto” technique must be employed, and that “each new [ascending] note must not be preceded by a vacuum.”¹⁰⁰ The vacuum that Tarr forbade contrasts directly with the advice of Menke, who wrote, “the lungs are exerted far more in holding back the breath than puffing it out.”¹⁰¹ The stark contrast in pedagogy makes sense when the demands on trumpet players throughout the various musical periods are taken into account. Very little literature for the solo trumpet was composed during the Classical or Romantic periods, symphonic trumpet parts required louder playing due to the expansion of orchestras, and trumpet music only rarely ascended into the upper clarino register.

⁹⁸ Frank Campos, *Trumpet Technique* (New York: Oxford University Press, 2005), 41; Jonathan Harnum, *Sound the Trumpet: How to Blow Your Own Horn* (Chicago: SolUt Press, 2006), 61; David Hickman, *Trumpet Pedagogy: A Compendium of Modern Teaching Techniques* (Chandler, AZ: Hickman Music Editions, 2006), 27.

⁹⁹ Edward Tarr, *The Art of Baroque Trumpet Playing*, vol. 1 (Mainz, Germany: Schott, 1999), 115.

¹⁰⁰ *Ibid.*, 36.

¹⁰¹ Werner Menke, *The History of the Trumpet of Bach and Handel*, trans. Gerald Abraham, 2nd ed. (Nashville: Brass Press, 1985), 95.

Considering the physical disparity between Baroque and modern trumpets—coupled with the loss of Baroque trumpet pedagogy throughout most of the Classical and Romantic eras—it is remarkable that such a close connection between the Baroque and modern trumpet exists. That is not to say that the techniques of the two instruments are identical; as discussed previously in Chapter 5, the natural trumpet has two distinctly different tonal characters for its clarino and principale registers. Modern trumpet pedagogy, on the other hand, values the ability to play with a consistent tone in all registers. Moreover, the natural tendency for the sound of the Baroque trumpet to darken with increasing range seems foreign to most modern performers, since the opposite is usually true in their realm.

To play in the upper register, modern trumpet players rely on facial muscle strength to hold their lips at the appropriate tension level, move air through the lips at a high velocity, and shrink the size of the oral cavity.¹⁰² Clarino-range performance on the natural trumpet has the same basic foundation, which, as Altenburg suggested, consists of “a strong thrust of air and a tight drawing together of the lips.”¹⁰³ Though the two trumpets use fundamentally similar techniques for upper-register performance, pedagogical literature for the natural trumpet frequently describes clarino playing as vocal in nature,¹⁰⁴ suggesting that high natural trumpeting does demand something different than the modern upper register playing technique.

¹⁰² Frank Campos, *Trumpet Technique* (New York: Oxford University Press, 2005), 84; Jonathan Harnum, *Sound the Trumpet: How to Blow Your Own Horn* (Chicago: SolUt Press, 2006), 145.

¹⁰³ Johann Altenburg, *Essay on an Introduction to the Heroic and Musical Trumpeters' and Kettledrummers' Art*, trans. Edward Tarr (Nashville: Brass Press, 1974), 94.

¹⁰⁴ *Ibid.*, 96; Graham Nicholson, “Some Experience and Reflections on Playing the Baroque Trumpet,” *Historic Brass Society Newsletter* no. 18 (Winter 2005): 19.

Related to Tarr's "falsetto" description, Altenburg wrote that a clarinist should strive to imitate the human voice as much as possible.¹⁰⁵ Jean François Madeuf, a modern Baroque trumpet soloist, elaborated on the words of Altenburg in a 2005 *Historical Brass Society Newsletter*:

The resonator in [clarino playing] is the human body itself. . . . I have found that [this] is the key to security and the quality of sound and intonation. In order to experience this phenomenon, one has to play the natural trumpet imitating the way a singer uses the voice. Those who are aware of this phenomenon on the modern valve trumpet or vented Baroque trumpet just happen to be the best players. If you don't actively use this sensation on the natural (hole-less) trumpet, you will not be in a position to play difficult repertoire!¹⁰⁶

Recent studies have shown that the chambers both in front of and behind the lips (referred to as antevibratory and postvibratory) are very much interactive when a person plays a brass instrument. What happens on one side of the vibration affects what happens on the other side, since neighboring air pressure regions are necessarily related.¹⁰⁷ This relationship helps explain why mouth cavity shape is so influential to pitch selection. While the position of the tongue affects the speed and direction of the airflow, it also changes the antevibratory cavity shape, which impacts the frequency produced on the other side of the lips. A 1986 *Scientific American* article used this principle to describe how lip trills are possible:

Any skilled brass player knows that nimble manipulations of the tongue or the throat muscles, or both, on sustained notes make it possible to perform trills without recourse to any mechanical devices (valves or keys). Without necessarily understanding the underlying theory, the practiced artist thus alters the

¹⁰⁵ Johann Altenburg, *Essay on an Introduction to the Heroic and Musical Trumpeters' and Kettledrummers' Art*, trans. Edward Tarr (Nashville: Brass Press, 1974), 95-96.

¹⁰⁶ Graham Nicholson, "Some Experience and Reflections on Playing the Baroque Trumpet," *Historic Brass Society Newsletter* no. 18 (Winter 2005): 19.

¹⁰⁷ John Bowsher, Don Smithers, and Klaus Wogram, "Playing the Baroque Trumpet," *Scientific American* 254, no. 4 (April 1986): 110.

postvibratory resonances, which in turn control what is then heard from the player and his instrument.¹⁰⁸

Although modern trumpet players call this technique lip trilling, the action that produces the trill occurs before the air even reaches the lips. It is an extreme level of control over this internal action that is vital to playing in the clarino register of the natural trumpet.

Beyond the conscious use of different syllables when playing, oral cavity manipulation mostly takes place in the subconscious. Especially among high-level trumpeters, the adjustment of mouth cavity size is internalized to the extent that the performer makes minute and specific adjustments without any conscious thought or intention. John Haynie, the Professor of Trumpet at what is now the University of North Texas, carried out the aforementioned fluoroscopic survey of trumpet players. He wrote that “many of our subjects would swear that they did not arch their tongue, but they all did. Some had been taught not to arch the tongue, but they all did in some way.”¹⁰⁹

Surviving Baroque trumpet music and pedagogical writings indicate that accomplished trumpet players in the sixteenth and seventeenth centuries possessed even more effective and refined mouth-shape adjustment abilities than most modern trumpeters. A great deal of trumpet music from the Baroque included pitches that are either severely out of tune, or that do not fall in the harmonic series. These notes had to be “lipped” in tune or into existence by consciously adjusting the oral cavity shape. This technique, known as a *note bend*, is familiar to modern trumpet players and will be discussed in more detail in the following section.

¹⁰⁸ John Bowsher, Don Smithers, and Klaus Wogram, “Playing the Baroque Trumpet,” *Scientific American* 254, no. 4 (April 1986): 110.

¹⁰⁹ Winick, Steven, “Tongue Arch: The Missing Link in Brass Instrument Pedagogy and Performance,” *ITG Journal* 8, no. 2 (December 1983): 25.

Note Bending

By adjusting air speed, facial muscles, and mouth shape, a sounding note may be “bent” upward or downward in pitch. Modern trumpeters utilize this technique for warm-ups or warm-downs, to practice centering notes, and finally, for quick adjustments of intonation.¹¹⁰ Lip bending is a useful and beneficial skill for the modern trumpeter to practice, and it comprises a crucial part of natural trumpet performance. Baroque composers frequently included the severely out of tune eleventh and thirteenth partials in compositions, so period trumpet performers had to use lip-bending techniques to adjust the intonation. Before the natural trumpet became a part of the Western art music tradition, intonation was of small concern to trumpet players, since they only rarely played with instruments other than timpanis or other trumpets.¹¹¹ Yet, lip-bending techniques began to develop quickly once the trumpet entered into larger ensembles. Enterprising performers mastered note-bending techniques to the extent that they even used them to play some notes that fell outside of the natural harmonic series.

The presence of these extra-harmonic notes has, until relatively recently, caused great confusion to Baroque trumpet researchers. Although some have suggested that trumpeters must have employed a hand stopping technique to bend these pitches, this option is impossible on the doubly-folded natural instrument. Other authorities suspected that trumpet makers and players used carefully located holes in the tubing to obtain these

¹¹⁰ Michael Sachs, *Daily Fundamentals For the Trumpet* (New York: International Music, 2002), 37.

¹¹¹ Edward Tarr, *The Trumpet* (Portland: Amadeus Press, 1988), 86.

itches.¹¹² These holed trumpets are now commonly used, as the holes do make the extra-harmonic tones much easier to play, but the majority of evidence indicates that they were not in use when most of the compositions that contain extra-harmonic notes were written.¹¹³

Reading Girolamo Fantini's *Modo per Imparare* leads one to wonder why any confusion about non-harmonic tones ever existed. Indeed, Fantini clearly states that: "certain notes will be found which have not been listed at the beginning of [this method], [notes] which would be imperfect if you were to hold them, but can be accepted since they go by rapidly."¹¹⁴ These tones, even when "bent" in tune, have an inferior timbre, which is why Fantini suggests that they are acceptable, as long as they are not sustained. As evidenced by his own compositions, Fantini must have had quite a gift for playing these extra-harmonic tones. In the example below, from one of his many short trumpet sonatas, Fantini composed three extra-harmonic tones in one measure (marked with the symbol ^ in the Example 7 below).

Example 7: Measure 13 from Fantini's *Sonata no. 5, detta dell'Adimari*



¹¹² Don Smithers, *The Music and History of the Baroque Trumpet Before 1721*, 2nd ed. (Carbondale, IL: Southern Illinois University Press, 1988), 30.

¹¹³ Edward Tarr, *The Trumpet* (Portland: Amadeus Press, 1988), 87.

¹¹⁴ Girolamo Fantini, *Method for Learning to Play the Trumpet in a Warlike Way as well as Musically*, trans. Edward Tarr (Vuarmans, Switzerland: Brass Press, 1975), 3.

A controversy began after a concert featuring Fantini's trumpet playing after somebody reported that Fantini had "sounded notes impossible to attain on trumpet."¹¹⁵ A contemporary Italian periodical described these notes as "unnatural" and "spurious."¹¹⁶ It is unlikely that any controversy would have taken place had Fantini simply utilized hand-stopping; instead, people were shocked by his unique ability to lip into being notes that are not part of the natural trumpet's harmonic series. The technique of lipping non-harmonic tones into existence spread after Fantini, and—when used for short passing tones—became quite common in solo music for the trumpet.

Extra-harmonic tones became more troublesome as the Classical period unfolded since they were often composed for at volumes that made their performance extremely difficult. Playing loudly precludes the ability to lip notes since the force of air required by the volume "pushes" the note to where it naturally falls in the harmonic series. Compounding the problem, extra-harmonic tones sometimes appeared in sustained chords, and in unison with other instruments.

After hearing a 1784 performance of Handel's *Messiah* at Westminster Abbey, the notable music historian Charles Burney lamented the presence of extra-harmonic tones in the trumpet part. Referring to the trumpet playing in this concert, Burney wrote that "it is very much to be wished that this animating and brilliant instrument could have its defects removed by some ingenious mechanical contrivance."¹¹⁷ In the climax of the "Hallelujah" chorus in *Messiah*, the trumpet reaches and sustains a g' (the eleventh partial

¹¹⁵ Edward Tarr, introduction from *Girolamo Fantini: 8 Sonatas For Trumpet and Organ* (Wiesbaden, Germany: Musica Rara, 1971), ii.

¹¹⁶ Ibid.

¹¹⁷ Sabine Klaus, "Some Ingenious Mechanical Contrivance: An Extraordinary Slide Trumpet from 18th-century England," *National Music Museum Newsletter* 36, no. 1 (February/May 2009): 1.

on the specified trumpet in D) in unison with the sopranos. Burney “complained of the stress this caused, and not only to himself.”¹¹⁸ It is unlikely that his criticism was directed at the performer. The principal trumpet performer in this concert is known to have been a leading player of the time, whose performance in this concert Burney otherwise described as “extremely sweet and clear.”¹¹⁹

Note bending functioned as an integral part of Baroque trumpet performance, but fell out of favor as the dynamics required by ensemble trumpet playing increased. Virtuosos such as Fantini demonstrated that performers could play out-of-tune partials in tune and lip into being extra-harmonic tones, but trumpet technology simply could not keep up with orchestration and compositional advances in the Classical era. Clearly, it is essential that modern trumpet players who seek to explore Baroque instruments and music practice and acquire the lip-bending technique.

Differences Between Modern and Baroque Trumpet Instruction

The differences between modern and Baroque trumpet instruction is also worth consideration. The terrific amount of pedagogical material that currently exists can assist trumpeters of all levels who wish to further their studies. However, the techniques involved in modern trumpet playing are so numerous and complex that a beginner is easily overwhelmed, and young students can be quickly frustrated by the accumulation of bad habits including too much compression, excess mouthpiece pressure, or improper embouchure formation.

¹¹⁸ Anthony Baines, *Brass Instruments: Their History and Development* (London: Faber and Faber, 1976), 135.

¹¹⁹ Ibid.

Although their style of playing is presumably more difficult, aspiring trumpeters in the Baroque had an advantage over modern performers in that their performance roles were more specific, and their education was more personal. Most “town musicians” (trumpeters not sanctioned by the guild) who played the trumpet were able to perform comfortably in the *principale* range, which encompassed the various fanfares and calls required of them. Those that had a predisposition for clarino playing—or wished to expand their abilities—had a specific and well-established high-range technique to cultivate. Conversely, modern trumpet students are confronted with jazz, classical, and commercial playing styles, and all the sub-styles within them. Though there are many recordings and live performances worthy of imitation, there is no longer a single style to pursue.

More importantly, Baroque trumpeters who wished to attain status as clarino players (a position tightly regulated by the trumpet guilds) were required by law to study as apprentices for at least five years. Afterward, they had to serve three additional years as assistants to established trumpet masters.¹²⁰ While this teaching arrangement may resemble the modern musical conservatory system in some respects, it diverges in that Baroque musical apprentices were taught from the beginning extensively and exclusively by someone that the guild regarded as a master. The watchful eyes and constant input from these highly skilled master-teachers must have prevented many a bad habit, and the aural training instilled by the proximity to an established artist would have been invaluable.

¹²⁰ Timothy Collins, “Gottfried Reiche: A More Complete Biography,” *ITG Journal* 15, no. 3 (February 1991): 5-6.

Conclusions About Modern and Baroque Trumpet Pedagogy

Modern and Baroque trumpet techniques share many important qualities. The two styles of trumpet performance require similar embouchures, and both advocate the control of pitch through the manipulation of facial muscles and oral cavity shapes. On the other hand, modern high-register trumpet playing differs from advanced clarino technique in that the modern method utilizes a high-compression attack of the notes, rather than the “falsetto” playing of the Baroque era, and the two instruments produce markedly different timbres.

Additionally, the apprentice-based system facilitated the learning of Baroque trumpet students. In contrast, modern students are at a disadvantage since current instructional methods can be general and impersonal and lead to the formation of bad habits. Nevertheless, although significant differences between Baroque and modern trumpet techniques and instruction exist, none of them preclude a trumpet player from becoming proficient on both instruments. The remainder of this investigation will demonstrate that this dual proficiency presents great pedagogical advantages to a modern trumpet performer.

Chapter 7

THE APPLICATION OF THE NATURAL TRUMPET AS A PEDAGOGICAL TOOL

The difficulties inherent to learning the performance of the natural trumpet have resulted in widespread misconceptions about the instrument. Many people perceive Baroque trumpets as little more than historical curiosities¹²¹ or as inferior predecessors to those commonly in use today.¹²² These negative impressions are not surprising when one considers the substantial differences between modern and Baroque trumpets, but the rift separating their techniques is not as wide as most imagine. Many of the differences and difficulties that accompany the study of the Baroque instrument can actually ameliorate some otherwise difficult-to-address problems in modern trumpet performance, and build universally positive skills such as strength and efficiency.

The Effects from Playing on a Baroque Mouthpiece

Modern trumpet players frequently report that the natural trumpet requires more embouchure strength and endurance than its modern counterpart, which is due in part to

¹²¹ Leigh Anne Hunsaker, “Baroque Trumpet Study in the United States.” *ITG Journal* 29, no. 4 (June 2005): 37.

¹²² Graham Nicholson, “Some Experience and Reflections on Playing the Baroque Trumpet,” *Historic Brass Society Newsletter* no. 18 (Winter 2005): 18.

the physical differences between the Baroque and modern mouthpieces.¹²³ Although the wider rims of Baroque mouthpieces facilitate endurance and make clarino playing possible, the fact that the mouthpieces have a larger diameter presents challenges in range and endurance for modern trumpet players. The larger diameter mouthpiece requires facial muscles to be used in embouchure formation that are usually not employed by modern embouchures. These muscles will tire extremely quickly if a player is unfamiliar with a Baroque mouthpiece. Renowned natural trumpet soloist Crispian Steele-Perkins plays a great deal of both modern and Baroque trumpet, and wrote of the need to frequently practice both instruments in order to keep all of the necessary facial muscles in shape.¹²⁴ For a modern trumpet performer, the strengthening of these muscles from playing the Baroque trumpet translates to greater endurance and embouchure control.

The noticeable differences between playing Baroque and modern mouthpieces are of course subjective; natural trumpet soloist Susan Williams reported that her first notes on the natural trumpet “felt fantastic,” event after twenty years of performing Baroque music on the comparatively miniscule piccolo trumpet. “Since I had already a very ‘easy’ way of playing,” Williams continued, “my development on the natural trumpet was not a technical matter.”¹²⁵ She is undoubtedly not the only person to have such an easy transition, but such experiences are rare. Most modern trumpet players need at least three

¹²³ Elisa Koehler, “Thoughts on Historic Brass Performance: An Interview with Stanley Curtis,” *ITG Journal* 32, no. 2 (January 2008): 25.

¹²⁴ Crispian Steele-Perkins, e-mail message to author, February 21, 2010.

¹²⁵ Susan Williams, “The Natural Trumpet: A Natural Approach,” *Brass Bulletin—International Magazine for Brass Players* no. 118, 2 (2002): 34.

to six months to adapt to the physical differences when learning to play Baroque mouthpieces.¹²⁶

The difficulty met in this transition between mouthpieces depends on how similar a modern trumpeter's embouchure is to the facial set required to play a Baroque mouthpiece. Susan Williams had no physical trouble switching between the two instruments because her modern trumpet embouchure already functioned in the way necessary to play the Baroque equipment. Williams's easy transition between mouthpieces demonstrates that the embouchures required for the two types of trumpeting are not mutually exclusive, but the rarity of such smooth transitions suggests that the compatibility most often only works in one direction. The type of embouchure necessary for Baroque mouthpieces will likely work well with modern trumpets, but the converse is only rarely true.

Modern Performance Problems That the Natural Trumpet Can Specifically Address

Many modern performance habits and problems are more prohibitive on the natural trumpet than they are on the modern instrument. Stanley Curtis believes that the natural trumpet is less forgiving because it “demands an efficiency that is not required on the modern trumpet.”¹²⁷ Other professionals agree: Craig Morris, former Principal Trumpet of the Chicago Symphony Orchestra, indicates that the Baroque trumpet “doesn't respond as well [as the modern trumpet] to forceful playing, whether it be

¹²⁶ Elisa Koehler, “Thoughts on Historic Brass Performance: An Interview with Stanley Curtis,” *ITG Journal* 32, no. 2 (January 2008): 25.

¹²⁷ Stanley Curtis, e-mail message to author, February 19, 2010.

playing with excess mouthpiece pressure, excess lip tension, or tension in the air stream.”¹²⁸ Barry Bauguess, a highly sought-after natural trumpet soloist, reports that compared to the natural trumpet, “[a trumpet player] can ‘fudge’ things a bit easier to make the [modern] trumpet work if things aren’t going well.”¹²⁹

Excess mouthpiece pressure is one of the most common “fudging” techniques to which Bauguess refers. Some amount of mouthpiece pressure is constantly necessary to form a seal around the embouchure’s aperture—but the addition of too much pressure saps endurance, and causes physical damage to the lips of the trumpet player.¹³⁰

Pedagogues including the aforementioned Menke, Arban, and Dauverné in the nineteenth and early twentieth centuries advocated the conscious application of mouthpiece pressure to change pitches while playing the trumpet. Although there now exists a general awareness of the damage that this technique can cause, the habit is still widespread.¹³¹

Thomas Moore offered insight into why the destructive mouthpiece pressure problem is so common:

“Typically, players increase the pressure that the mouthpiece exerts on the lips because they want to reach a note that is higher than they can comfortably play. . . . pressing the mouthpiece against the lips serves to increase the lip tension. That is, instead of pulling the lips tighter using the muscles around the mouth, the player can just press the mouthpiece harder against the lips to increase the tension.”¹³²

¹²⁸ Craig Morris, e-mail message to author, March 16, 2010.

¹²⁹ Barry Bauguess, e-mail message to author, February 19, 2010.

¹³⁰ Frank Campos, *Trumpet Technique* (New York: Oxford University Press, 2005), 63.

¹³¹ Philip Farkas, *The Art of Brass Playing* (Atlanta: Wind Music, 1989), 53.

¹³² Thomas Moore, “Science Desk: Can Mouthpiece Pressure Substitute for Embouchure Control?” *ITG Journal* 28, no. 3 (March 2004): 67.

Even professional trumpet players use extra pressure as an occasional aid. If asked, “How much pressure do you use,” Philip Farkas reported that one of his orchestra’s best trumpeters would always reply, “Which end of the concert are you talking about?”¹³³ Crispian Steele-Perkins also admitted to the employment of excess pressure at times, such as during a session in which he recorded the Joseph Haydn and Michael Haydn concertos on the same day.¹³⁴ A 1986 test of professional trumpet players demonstrated that mouthpiece to embouchure pressure consistently increases with range and volume; the averages for all of the study’s participants are graphed in Example 8 on the following page.

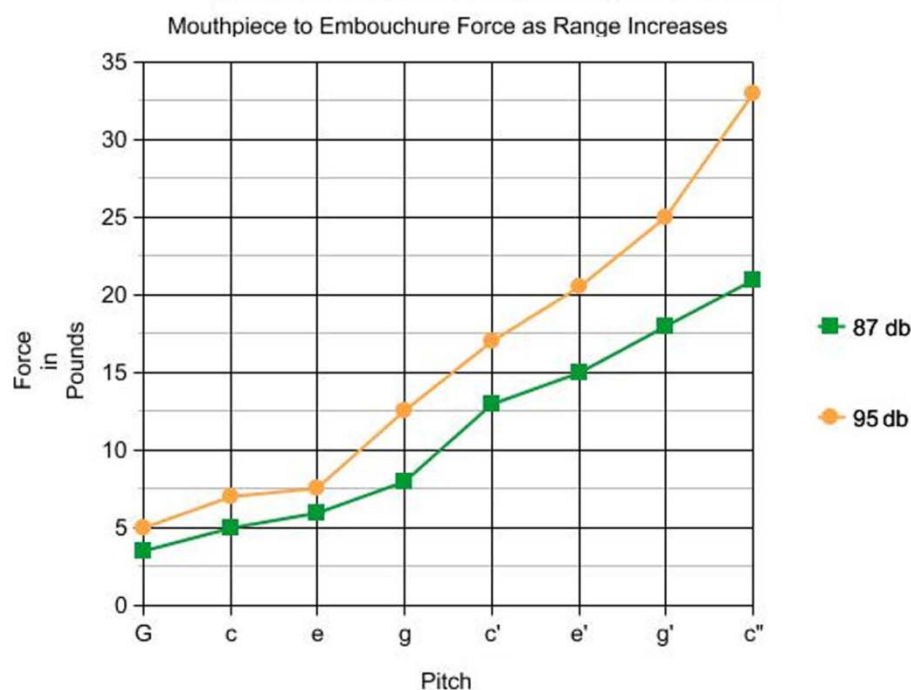
At any level, excess mouthpiece pressure is used when the strength of an embouchure is not enough to produce the desired pitches. Professional players use excess mouthpiece pressure only sometimes, and the technique is usually employed by them without causing significant damage. For other trumpeters, mouthpiece pressure becomes a constant, frustrating and damaging habit. Menke and Arban recommended the use of mouthpiece pressure to change pitches because it was demonstrably functional, and many beginning trumpet players instinctively use the pressure note-changing technique for the same reason.¹³⁵ Because of this, young trumpeters can quickly become stuck using the pressure technique to the point of habit.

¹³³ Philip Farkas, *The Art of Brass Playing* (Atlanta: Wind Music, 1989), 53.

¹³⁴ John Irish, “Crispian Steele-Perkins: The King's Trumpeter,” *ITG Journal* 27, no. 4 (June 2003): 24.

¹³⁵ Philip Farkas, *The Art of Brass Playing* (Atlanta: Wind Music, 1989), 53.

The excess pressure habit is easy to diagnose, but extremely difficult to correct; a habit is much harder to “unlearn” than it is to initially form.¹³⁶ Natural trumpets, however, actively discourage a trumpeter from resorting to the pressure habit due to the wide, flat rim used on Baroque mouthpieces since this design limits the effectiveness of mouthpiece-to-lip pressure as a note-changing benefit.¹³⁷



Example 8: Mouthpiece to Embouchure Force with Increasing Range, Graphed at Two Volume Levels¹³⁸

Trumpet players who are firmly ingrained in the pressure habit would have a very difficult time learning the natural trumpet, as doing so would require them to learn a different embouchure—but even slow progress on the natural trumpet would transfer to

¹³⁶ Frank Campos, *Trumpet Technique* (New York: Oxford University Press, 2005), 26.

¹³⁷ Edward Tarr, editorial commentary from *The Entire Art of Trumpet Playing* (Vuarmans, Switzerland: Brass Press, 1975), 12.

¹³⁸ J. C. Barbenel, P. Kenny, and J. B. Davies, “Mouthpiece Forces Produced While Playing the Trumpet,” *Journal of Biomechanics* 21, no. 5 (1988): 417-419, 421-424.

their modern trumpet skills by way of increasing embouchure strength and efficiency. Since many trumpeters do not realize that they are using excess pressure until much later in their playing careers,¹³⁹ employing the natural trumpet to build embouchure strength (thus negating the need for excess pressure), presents a tangible and effective practice option for somebody who desires to conquer the pressure habit.

The Extra Embouchure Efficiency Required to Play the Natural Trumpet

The degree of difficulty that a modern trumpeter will face when transitioning to the natural trumpet can be imagined in a spectrum. Susan Williams had to change very little about her embouchure to adjust to the older trumpet, so she is positioned at one extreme end of the spectrum. A trumpet player who relies heavily on mouthpiece pressure would have to build a great deal of embouchure strength over a long period of time, so he or she lies at the other end. The majority of trumpet players, however, are distributed throughout the middle of this spectrum, each requiring different adjustments with different corresponding difficulties.

The most promising aspect of the pedagogical application of the natural trumpet is its indifference to facial structures, techniques, and preexisting problems. The individual variability of brass players' embouchures is at once the reason why a tremendous variety of methods and techniques exist, and why such difficulty lies in the selection of material that can help a specific performer tackle any given problem. By building the skills necessary to play the natural trumpet, almost any modern performer can improve almost any aspect of their trumpet playing.

¹³⁹ David Hickman, *Trumpet Pedagogy: A Compendium of Modern Teaching Techniques* (Chandler, AZ: Hickman Music Editions, 2006), 115.

Even already masterful performers can benefit from the influences of the Baroque trumpet; in personal correspondence with the author of this essay, Professors Morris and Curtis both reported that their range and endurance noticeably improved after building skills on the natural trumpet.¹⁴⁰ Don Smithers, a figurative giant in twentieth century trumpet performance, wrote that he had to temporarily sacrifice his advanced modern trumpet technique in order to gain proficiency on the natural instrument, and that his embouchure went through a “physiological transformation.”¹⁴¹ While shortcuts such as mouthpiece pressure, chest compression, or excess lip pinching may be employed with at least limited success on the modern trumpet, Smithers suggests that the natural trumpet “forces the player to learn what it takes to play with minimal pressure and to achieve a truly relaxed and flexible embouchure.” He went on to say that the techniques he had to learn to play the natural trumpet were “of great assistance” as soon as he returned to playing modern trumpets.¹⁴²

The Power of the Natural Trumpet to Address Ingrained Habits

Nothing prevents modern trumpeters from building this stronger natural-trumpet-type embouchure to begin with, as evidenced by Susan Williams’ testimony—but the “path” to a person’s most efficient and effective embouchure is rife with misleading signage. On the modern trumpet, common bad habits tend to establish themselves by

¹⁴⁰ Stanley Curtis and Craig Morris e-mail messages to author, February 19, and March 16, 2010, respectively.

¹⁴¹ Don Smithers, “The Baroque Trumpet After 1721: Some Preliminary Observations. Part One: Science and Practice,” *Early Music* 5, no. 2 (April 1977): 179.

¹⁴² *Ibid.*

presenting immediate, seemingly positive results. These habits may go unnoticed for years, and most are accompanied by severe drawbacks.

Unless guided by a talented and observant instructor—and even that is no guarantee—a beginning trumpeter can easily learn to play with great chest compression, since doing so can produce volume and/or notes that a fledgling embouchure is not yet capable of creating via the “correct” method. Habits could also form in young trumpet players who find themselves thrust into a marching band, where they are expected to play loud and high while moving—a disastrous recipe for a musician building fundamental skills. Common circumstances such as these help explain why bad habits are so frequently observed in trumpet players, but even with diligent practice and quality instruction, nothing can guarantee their avoidance.

Once formed, many of these habits are not addressed until their owner seeks professional instruction, which often does not occur until the college level is reached. At these later stages of development, the degree of difficulty required to successfully correct bad habits sharply rises. Although legendary French horn performer and brass pedagogue Philip Farkas simply recommended the conscious use of less pressure when battling the excess-pressure habit,¹⁴³ the will to change a habit is often not enough to effect a change.

Frank Campos described this problem in *Trumpet Technique*:

When a habit has been identified as counterproductive to good performance, the average student usually begins trying to change it by sheer force of will. . . . However, it is extremely difficult to replace a habit in this fashion. Established players, whether good or bad, are automatic. . . . When the instrument is raised to the lips, the automatic behavior asserts itself, and a mighty struggle begins between the habit and the player’s will to change the habit. [Force of will] is not the best way to replace behavior.¹⁴⁴

¹⁴³ Philip Farkas, *The Art of Brass Playing* (Atlanta: Wind Music, 1989), 54.

¹⁴⁴ Frank Campos, *Trumpet Technique* (New York: Oxford University Press, 2005), 26-27.

Arnold Jacobs, Principal Tubist with the Chicago Symphony from 1944-1988, and a famed brass pedagogue in his own right, is said to have conquered the tendency for these pre-conditioned actions in his students by having them “do something familiar in an unfamiliar way,” which he referred to as “introducing strangeness.”¹⁴⁵ For students who wished to enact an embouchure change, he instructed them to practice solely with the mouthpiece for some time. Once the new embouchure was strong enough, the student would again be allowed to practice on the complete instrument, since the newly formed “good” embouchure habit would cognitively overpower the old one.¹⁴⁶

The modern pedagogical use of the natural trumpet is a perfect application of Jacobs’s “strangeness” teaching technique. The natural trumpet requires a different hand position, employs different but compatible facial muscles, and its significantly lower fundamental pitch and poor natural intonation create a distinct feel for the way the natural trumpet plays. By learning new habits on an instrument with these differences, a trumpet performer could replace even the worst bad habits.

The Value of Removing Valves From the Trumpet Playing Equation

The most obvious asymmetry between natural and modern trumpets is the former’s lack of valves. General understanding of the technique by which pitches are changed on the trumpet became muddled over the last century and a half due to the introduction of mechanical note changing aids: valves, keys, and holes. Stephen Winick

¹⁴⁵ Frank Campos, *Trumpet Technique* (New York: Oxford University Press, 2005), 27.

¹⁴⁶ *Ibid.*

suggested that while solely oral adjustments effected desired pitch changes before the invention of these contrivances, “the emphasis in technique [has since] shifted from control of the [oral cavity shape-defining] tongue arch to finger dexterity. . . . Brass players have not been nearly as aware of the function of the tongue arch as they were during the Baroque era.”¹⁴⁷

Consideration for the method by which the human brain processes sensory information, and takes action based on that information, reveals that the valveless distinction is as important to the natural trumpet’s application of the “strangeness” technique as any other factor. Our minds accomplish tasks by using information in the “working memory,” which retrieves and processes information from our short-term memory. With few exceptions, our brain can only conduct one cognitive operation at a time. Through the use of a technique commonly referred to as *chunking*, our working memory hierarchically arranges relevant bits of information into an efficient order, based on needs of the attempted task. On a basic level, this means that the idea of “multitasking” is a myth; human brains are physically incapable of focusing on two things at once.¹⁴⁸

Applying this information to trumpet pedagogy, it is impossible for a trumpet student to focus simultaneously on which valve combination a particular note requires, and which oral cavity shape best produces the note. Different valve combinations change the overall length of the trumpet, and each combination gives a different fundamental

¹⁴⁷ Steven Winick, “Tongue Arch: The Missing Link in Brass Instrument Pedagogy and Performance,” *ITG Journal* 8, no. 2 (December 1983): 23.

¹⁴⁸ Klaus Oberauer and Svetlana Bialkova, “Accessing Information in Working Memory: Can the Focus of Attention Grasp Two Elements at the Same Time?” *Journal of Experimental Psychology: General* 138, no. 1 (February 2009): 64, 83-85.

pitch with an accompanying series of available notes. Changing valve combinations produces the same result as changing crooks on a Baroque trumpet, or the movement of a slide trumpet. The valves have no responsibility for the pitch produced by the trumpet player other than making different notes available—but because valves are visually perceived, they are much more likely to be the primary focus of the working memory. Unless instructed otherwise, a beginning trumpet student may pay little or no attention to changing notes via air and mouth cavity manipulation. This is of course much less of an issue after the valve combinations have been committed to long term memory, but it is in the very early stages of development that bad habits are most likely to form.

A more experienced trumpeter may not have to think about valve combinations, but removing valves from whatever problem is being dealt with serves only to help the musician focus solely on the issue at hand. Without note-changing aids, or the possibility of bad-habit inducing “shortcuts,” an aspiring natural trumpeter has no distractions from the pursuit of a healthy and strong embouchure. Even many years after a trumpet player has learned a destructive tendency, the simplicity of the natural instrument can help a performer focus solely on the most fundamental aspects of playing the trumpet.

The Strength-Building Benefit of the Playing the Baroque Trumpet

One of the principal strength-building benefits of playing the Baroque trumpet comes from the increased demands placed on accuracy when compared to a modern instrument. Due to its low fundamental, a natural trumpet player can access the diatonic (and uppermost) part of the instrument’s harmonic series, as was described in Chapter 5. The modern trumpet can play chromatically by accessing different harmonic series

Smaller intervals between neighboring harmonics mean that each pitch bestows less forgiveness for inaccuracy in a performer's technique. The differences between the right and wrong embouchure formations for neighboring pitches are so slight that they are physiologically imperceptible—so a tremendous amount of strength, control, and finesse are required to play the natural trumpet accurately in the upper register. This same effect results in the very high precision with which a modern piccolo trumpet can play in the upper register.¹⁵¹ Though the timbre of the piccolo trumpet lacks the natural trumpet's harmonic richness, its accuracy allows for the frequent performance of works such as Handel's *Messiah*, and Bach's *Mass in B Minor*, despite the contemporary rarity of competent clarinists.

Subconscious and Conscious Embouchure Practice

In his trumpet pedagogy book *The Trumpet: Its Practice and Performance*, Howard Snell suggested that embouchures should only be given attention when something is very obviously wrong, and the vast majority of other teachers agree.¹⁵² There is good reason behind this thinking: a small problem can be made much worse by over-adjusting in an attempt to remedy it. This phenomenon is known as “paralysis by analysis,” which Frank Campos described as “a sense of confusion about the status and

¹⁵¹ Timothy Collins, “Old Music and New Instruments: Baroque Music and the Modern Trumpet,” *ITG Journal* 26, no. 4 (June 2002): 15.

¹⁵² Howard Snell, *The Trumpet: Its Practice and Performance*, 2nd ed. (Brighton, United Kingdom: Pen Press, 2005), 76; Steven Winick, “Tongue Arch: The Missing Link in Brass Instrument Pedagogy and Performance,” *ITG Journal* 8, no. 2 (December 1983): 23.

direction of the physical change one is attempting,” whereby the person “invariably [tries] to consciously control processes that are largely unconscious.”¹⁵³

Learning to play the natural trumpet largely avoids the “paralysis” problem since it offers no “analysis” to distract or confuse the trumpeter. Playing the natural trumpet does not necessarily increase pedagogical knowledge; its study can be much more closely compared to a physical workout regimen than any sort of method or pedagogical goal. A modern trumpeter practicing the natural trumpet need not think about the mechanism or know any particular concepts for the practice to be beneficial, since only true progress in the realms of strength and efficiency will bring about perceived progress on the natural instrument.

For those that are aware of problems with their embouchure, the Baroque trumpet also offers a method of directly applicable embouchure work. The skill of pitch bending, described in Chapter 3, is integral to the performance of the natural trumpet, and its practice builds tremendous strength. Pitch bending “requires you to fight with the trumpet and force it to play a pitch it is not designed to play,”¹⁵⁴ so time spent working on this skill translates to the healthy building of embouchure strength. Pitch bending is a frequently employed skill on the natural trumpet; its practice and corresponding benefits will undoubtedly accompany any serious effort to learn the Baroque instrument.

¹⁵³ Frank Campos, *Trumpet Technique* (New York: Oxford University Press, 2005), 29.

¹⁵⁴ Thomas Moore, “Science Desk: Why is it so Difficult to Bend a Note?” *ITG Journal* 32, no. 3 (March 2008): 55.

The Potential Use of the Natural Trumpet With Beginning Trumpet Students

Although the need of further research regarding the employment of the Baroque trumpet with beginning students pushes the idea beyond the reach of this study, some pedagogues foresee possible benefits from such instruction. Professor Morris has, in recent years, experimented with the use of the natural trumpet in his college-level students' lessons, and has been encouraged by some positive results. Hypothesizing on its use with beginners, he believes that the natural trumpet would

keep students keep focused on the basic elements of trumpet playing in the early stages, without being distracted by fingerings, scales, etc. So many young players don't ever fully develop in terms of sound, range, and endurance. I believe that a greater focus on these elements of trumpet playing at the early stages would greatly enhance the players' abilities as they get older and learn to add the valves and more musical complexity.¹⁵⁵

Professor Curtis, too, has had some of his students learn the natural trumpet: though he has not started any beginners on the Baroque instrument, he witnessed very positive results from applying natural trumpet instruction to young students after only a few years of modern trumpet instruction.¹⁵⁶

A possible benefit to beginners would be an earlier expansion of range. Most modern books for beginning trumpet players start with a very easy note—*c*, for example—and work outward by half-steps or whole-steps. Excluding its fundamental, the “easy” pitches on a natural trumpet are its first five notes, which together span a complete octave. Therefore, beginners who start with the natural trumpet would likely learn how to change registers much more quickly and with more efficiency than if they had begun with a modern trumpet in their hands.

¹⁵⁵ Craig Morris, e-mail message to author, March 16, 2010.

¹⁵⁶ Stanley Curtis, e-mail message to author, February 19, 2010.

Two significant issues could complicate the use of natural trumpets by beginners. Their inability to perform beginning band literature could meet with resistance from beginning band teachers, and it could be difficult to hold young students' attention and enthusiasm on the Baroque trumpet when they could not, at least at first, play diatonic melodies. Neither issue is completely prohibitive, but both would need to be taken into consideration. It is the hope of this author that the employment of the natural trumpet with beginning students may be thoroughly explored in the future.

Chapter 8

EQUIPMENT CHOICES FOR THE PEDAGOGICAL APPLICATION OF NATURAL TRUMPET

The modern performance of Baroque trumpet music has resulted in a great deal of controversy regarding appropriate equipment choices. Modern reproductions of Baroque trumpets are continuously improving as instrument makers and performers learn their complexities, but a constant, (usually) healthy debate still rages about the best construction method, physical design, and mouthpiece selection.¹⁵⁷

With the pedagogical application of the Baroque trumpet, the use of an authentic mouthpiece overshadows all other equipment issues; its wider rim width alone is responsible for many of the pedagogical advantages derived from playing the natural trumpet. Some professional performers, including Stanley Curtis and Crispian Steele-Perkins, began by using a modern mouthpiece with their Baroque trumpets—though they now agree with the consensus that doing so results in an inferior performance product.¹⁵⁸

Don Smithers, who was among the first modern trumpet players to explore Baroque music on period equipment, also first attempted to play the natural trumpet with a modern mouthpiece. He reported “very poor” results with this, after which he switched

¹⁵⁷ Leigh Anne Hunsaker, “Baroque Trumpet Study in the United States,” *ITG Journal* 29, no. 4 (June 2005): 41.

¹⁵⁸ Stanley Curtis and Crispian Steele-Perkins e-mail messages to author, February 19, 2010 and February 21, 2010, respectively.

to an authentic eighteenth-century mouthpiece. Smithers found tremendous value in using the older equipment: “It was not until the original mouthpiece was used that [the two lowest] notes became playable. And at this point I also noticed a vast improvement in the upper clarino register, including some remarkably reliable non-harmonic tones.”¹⁵⁹

Although most modern trumpet players associate shallower cup depth with increased abilities in the upper register, the rim of a Baroque mouthpiece is a greater contributing factor. Regarding cup depth, Johann Altenburg simply wrote that a trumpeter should select a mouthpiece with a cup deep enough to play both loud and soft dynamics. He had much more to say about choosing an appropriate rim: “A rim which is too wide hinders the embouchure somewhat, in that it reduces the freedom of motion of the lips and covers them too much. A rim which is too narrow, on the other hand, does not promote an accurate or enduring embouchure and tires the lips in a short time.”¹⁶⁰ In other words, the rim of a Baroque mouthpiece must be wide enough to allow the proper muscles to be used, especially in the upper register.

For pedagogical purposes, a modern mouthpiece combined with a natural trumpet offers only disadvantages, including a reduction in the “strangeness” factor, an unnatural timbre, the loss of strength-building effects from the wider rim, and reduced overall flexibility¹⁶¹. The initial use of a modern mouthpiece may help a trumpet player transition

¹⁵⁹ Don Smithers, “The Baroque Trumpet After 1721: Some Preliminary Observations. Part One: Science and Practice,” *Early Music* 5, no. 2 (April 1977): 178.

¹⁶⁰ Johann Altenburg, *Essay on an Introduction to the Heroic and Musical Trumpeters' and Kettledrummers' Art*, trans. Edward Tarr (Nashville: Brass Press, 1974), 79-80.

¹⁶¹ Leigh Anne Hunsaker, “Baroque Trumpet Study in the United States,” *ITG Journal* 29, no. 4 (June 2005): 40; Crispian Steele-Perkins, e-mail message to author, February 21, 2010.

from contemporary to Baroque equipment, but the authentic mouthpiece should be employed as soon as possible.

Worldwide, there are more than fifty makers of natural trumpets. Their instruments vary by key, type, material, construction practices, and expense. One who wishes to apply the natural trumpet pedagogically should select an instrument in a key of C, D, or Eb, since these are the most common keys found in Baroque trumpet music. The most historically accurate trumpets are composed of the same brass alloys that were employed in the Baroque, and are hand-hammered from large sheets of metal rather than machined. According to a *Scientific American* article that compared original Baroque trumpets and modern replicas of them, irregularities created in the hammering process actually help trumpets constructed in this way play better. As the author of the article explains:

The response of an instrument is almost entirely determined by what is called the *Q* factor, that is, by the smoothness . . . of the inner surface of the metal tube. . . . Modern reproductions [of Baroque trumpets with] consistently regular and smooth inner [surfaces create] resonances with much higher *Q* factors. . . . The modern instruments display less variability of pitch than the . . . originals, [and] as a result, it is difficult to play them in tune.¹⁶²

The inconsistent inner surface of a hammered natural trumpet's tubing allows a larger range of frequencies to resonate. More variability of pitch makes the instrument much easier to play, since so many of the notes available on the natural trumpet must be lipped in tune.

It is highly advantageous to acquire a hand-hammered natural trumpet—however, the rarity and cost of these instruments make them difficult to obtain. Since these

¹⁶² John, Bowsher, Don Smithers, and Klaus Wogram, "Playing the Baroque Trumpet," *Scientific American* 254, no. 4 (April 1986): 115.

traditionally constructed Baroque trumpets are often not an option, many modern replicas have been produced with holes located at special points in the tubing. By covering or uncovering these holes, the trumpet performer can adjust the pitch of some notes or remove some pitches from the playable series, resulting in easier note selection, and better intonation.¹⁶³ Modern professionals frequently use natural trumpets with holes in “authentic” Baroque performances,¹⁶⁴ even though the holes themselves are a modern addition.¹⁶⁵ Due to the increased ease and accuracy of this instrument, a two- to four-holed natural trumpet seems to be the best choice—other than a hammered instrument—for somebody who wishes to publicly perform with it.

Although natural trumpets that lack holes are usually unsuitable for ensemble playing due to their intonation problems, they still offer a greater pedagogical benefit. The lack of any mechanical note-changing aids conceptually separates the Baroque trumpet from its modern counterpart to higher degree than its holed siblings, creating more of Jacobs’s “strangeness” effect. In the words of Jean-François Madeuf, aspiring performers of the Baroque trumpet should begin with an instrument that lacks holes “because they would tend not to consider it as a part of the panoply of the modern trumpet but more as an instrument in its own right, meriting its own apprenticeship.”¹⁶⁶

In addition, the greater difficulty in tuning and pitch selection on a natural trumpet without holes offers further pedagogical benefits for the performer. The lack of holes

¹⁶³ Collins, Timothy, “Old Music and New Instruments: Baroque Music and the Modern Trumpet,” *ITG Journal* 26, no. 4 (June 2002): 16.

¹⁶⁴ *Ibid.*

¹⁶⁵ Don Smithers, *The Music and History of the Baroque Trumpet Before 1721*, 2nd ed. (Carbondale, IL: Southern Illinois University Press, 1988), 25.

¹⁶⁶ Nicholson, Graham, “Some Experience and Reflections on Playing the Baroque Trumpet,” *Historic Brass Society Newsletter* no. 18 (Winter 2005): 20.

prevents performers from taking shortcuts around the difficulties inherent in playing the Baroque trumpet, and it is by working through these obstacles that trumpet performers can most effectively improve their musical abilities.

Chapter 9

THE PRACTICALITY OF THE PEDAGOGICAL APPLICATION OF THE NATURAL TRUMPET

The cost of Baroque trumpets most seriously threatens the practicality of their pedagogical application. New, hand-hammered natural trumpets typically sell for \$3,000 to \$4,000.¹⁶⁷ The authenticity of these instruments makes their high prices worthwhile to a professional performer, but the cost is likely prohibitive to a trumpeter simply looking for pedagogical assistance. Machined natural trumpets vary widely in design, and can be purchased both in the United States and abroad for as little as \$700—although they typically cost \$1,000 to \$2,000.¹⁶⁸ Machined trumpets cannot match the playing abilities of their hammered equivalents, but their pedagogical potential remains intact.

Even the least expensive natural trumpets seem a high price to pay for solely pedagogical gains, but used natural trumpets can offer a far less expensive option, and the cost of natural trumpets should continue to drop as the production industry expands. Trumpet instructors who wish to use natural trumpets in their teaching can overcome their cost through the use of university funds; the acquisition of even a few university-owned instruments for use by an entire trumpet studio prevents students from having to

¹⁶⁷ Barry Bauguess, “The Baroque Trumpet Shop: Baroque Trumpet Models and Prices,” <http://www.baroquetrumpet.com/baroquetrumpet.htm> (accessed March 12, 2010); The Brass Brothers, “Naturtrompeten,” http://www.thein-brass.de/index_en.php (accessed March 8, 2010).

¹⁶⁸ Gerald Endsley, “Endsley Brass: Custom Mouthpieces and Trumpets,” <http://www.dmamusic.org/tromba/endsleybrass.htm> (accessed March 8, 2010); Finke horns, “Pricelist 2010,” http://www.finkehorns.de/Bilder/Preisliste_Dollar_2.pdf (accessed March 4, 2010).

shoulder the costs, and allows the trumpet professor to purchase the most appropriate instruments.

Another significant concern to be addressed is the potential deterioration of modern trumpet skills after a student begins practicing the natural trumpet. In a 1972 *Journal of Research in Music Education* article, Arnold Fromme conveyed doubt that trumpeters could keep their modern skills while simultaneously building technique on Baroque instruments.¹⁶⁹ The success of performers who are proficient on both modern and natural trumpets has shown this fear to be largely unfounded. Professional trumpeters Madeuf, Morris, Curtis, Bauguess, and Steele-Perkins all report little difficulty in maintaining skills on both modern and Baroque instruments.¹⁷⁰

While learning to play the natural trumpet, Don Smithers experienced more difficulties than the performers mentioned above, as noted in Chapter 7. Smithers's experience followed the logical progression of a trumpeter who, unlike Susan Williams, needed a modified embouchure to play the Baroque instrument. Smithers was forced to accept that his modern trumpet technique would not directly translate to the Baroque instrument, so he first had to study the natural trumpet at a very basic level. After he gained these fundamental skills, he found them to be of great assistance when he returned to playing on modern equipment.

Although there are only so many hours per day to practice, there is no reason why modern technique cannot be maintained while building Baroque trumpet skills. The

¹⁶⁹ Arnold Fromme, "Performance Technique on Brass Instruments During the Seventeenth Century," *Journal of Research in Music Education* 20, no. 3 (Fall 1972): 337.

¹⁷⁰ Nicholson, Graham, "Some Experience and Reflections on Playing the Baroque Trumpet," *Historic Brass Society Newsletter* no. 18 (Winter 2005): 20; Crispian Steele-Perkins, Barry Bauguess, Stanley Curtis, and Craig Morris e-mail messages to the author, February 21, February 19, February 19, and March 16, 2010, respectively.

application of the Baroque trumpet in modern pedagogy yields rewards great enough that any short-term sacrifices are well worth the long-term gains.

Chapter 10

CONCLUSIONS

A large body of evidence attests that natural trumpets can be effectively used as pedagogical tools by modern trumpet performers. The physical characteristics of the instrument—particularly its wider mouthpiece and lower fundamental—force its player to master the most fundamental skills of trumpet performance. Since the Baroque trumpet requires a stronger and more efficient embouchure than does the modern instrument, the pedagogical application of the Baroque trumpet can be effective in trumpet players at any age or performance level. No existing method can increase strength and efficiency in performers throughout such a wide range of development. The use of the natural trumpet as a pedagogical tool is not a “magic bullet,” and its performance is quite difficult—but there is a tremendous amount of skill-building potential for a modern trumpet player’s use of the Baroque instrument.

There will be some people who do not benefit, enjoy, or need to practice the natural trumpet to build competence on the modern trumpet. The recording artist and soloist Allan Dean attempted to learn the natural trumpet a number of years ago, but soon abandoned it. In personal correspondence with the author of this study, Dean reported that playing the natural trumpet felt uncomfortable, and that it was “too close to the modern trumpet and yet very far away.”¹⁷¹ Dean wrote that he has since picked up the

¹⁷¹ Allan Dean, e-mail message to the author, February 26, 2010.

cornetto—which demands a completely different technique—and has thrived on it. His success on it most likely is due to its further separation from trumpet performance; he could learn the cornetto as a new instrument, rather than as a variation of trumpet technique. Allan Dean’s modern trumpet embouchure was incompatible with the natural trumpet—but since he has been able to produce performance results of the highest caliber for many years, his physical technique can hardly be criticized. His experience demonstrates that nothing in music is universally applicable.

In the end, the natural trumpet can be an extremely valuable tool to help players at any level of experience replace bad habits, build strength and efficiency, and deepen their understanding of the performance of Baroque trumpet music. The difficulties and frustrations confronted by contemporary trumpet performers—especially regarding sound, range and endurance—have existed since the inception of the instrument. These problems have no easy solutions, and they will continue to plague students and professionals alike. However, with patience and diligence, these difficulties can be addressed, and the practice of the Baroque natural trumpet can help almost anybody in this endeavor.

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