

4-11-2016

Coursing with Coils: The Only Orchestral Instrument Harder Than the French Horn

Sarah R. Plumley
Cedarville University, sarahplumley@cedarville.edu

[DigitalCommons@Cedarville](#) provides a publication platform for fully open access journals, which means that all articles are available on the Internet to all users immediately upon publication. However, the opinions and sentiments expressed by the authors of articles published in our journals do not necessarily indicate the endorsement or reflect the views of DigitalCommons@Cedarville, the Centennial Library, or Cedarville University and its employees. The authors are solely responsible for the content of their work. Please address questions to dc@cedarville.edu.

Recommended Citation

Plumley, Sarah R. (2016) "Coursing with Coils: The Only Orchestral Instrument Harder Than the French Horn," *Musical Offerings*: Vol. 7 : No. 1 , Article 1.
DOI: 10.15385/jmo.2016.7.1.1
Available at: <http://digitalcommons.cedarville.edu/musicalofferings/vol7/iss1/1>

Coursing with Coils: The Only Orchestral Instrument Harder Than the French Horn

Browse the contents of [this issue](#) of *Musical Offerings*.

Abstract

Playing the horn has become not only more sophisticated and accurate, but simpler and more efficient for the horn player. The natural horn, used in a variety of ways in early history, demanded an incredible level of skill and precision, more than our valved horn today in some ways because it required a more accurate ear, more embouchure dexterity, and the necessity of wrangling crooks for different keys. Thus, it required many practiced skills of the player that are no longer as necessary as they once were. This paper discusses each of these demands along with the history of the horn, its uses and popularity, and how it compares in construction to the valved horn.

Keywords

Natural, horn, French, hunting, music, coils, valves, orchestra, Britain, courts, trumpet, Waldhorn, Cor de Chasse, double horn, stopping, hand-stopping, instrument, stopped horn, crook, crooks, Corno, harmonic series, valved horn

Creative Commons License



This work is licensed under a [Creative Commons Attribution-Noncommercial-No Derivative Works 4.0 License](#).

Follow this and additional works at: <http://digitalcommons.cedarville.edu/musicalofferings>



Part of the [Ethnomusicology Commons](#), [Fine Arts Commons](#), [Musicology Commons](#), [Music Performance Commons](#), and the [Music Theory Commons](#)

Coursing with Coils: The Only Orchestral Instrument Harder Than the French Horn

Sarah Plumley
Cedarville University

The natural horn, used in a variety of ways in early history, demanded much more skill, precision, and dedication in some ways than our valved horn today because it required a more accurate ear, more embouchure dexterity, and the encumbrance of having to wrangle the crooks. It was in many ways less developed and therefore hard for the musician to achieve finesse. Thus, it required many practiced skills of the player that are no longer as necessary as they once were. Many horn players today do not have the endurance, control, or diligence needed to perform on a natural horn.¹ This paper will discuss these demands, the history of the horn, its uses and popularity, its comparison to the valved horn, and why it is no longer practical.

The natural horn has an iconic sound which relates to music from the early Greek and Roman hunting calls to the orchestral horn passages of Bach's, Haydn's, and Mozart's works. Before the seventeenth century, it was commonly referred to as the hunting horn and was employed to signal other hunters in a hunting group. The term "hunting horn" is used traditionally to describe the horn up until when it was brought to the court and professional orchestra settings in the middle of the seventeenth century. Through its role in European courts, it slowly gained acceptance in the orchestral world and was employed in a variety of ways in the horn parts of the Baroque composers. Its name then changed once again when valves were added to it, making it no longer a "natural horn," but just "the horn."

¹ Horace Fitzpatrick, "The Valveless Horn in Modern Performances of Eighteenth-Century Music," *Proceedings of the Royal Musical Association* 91 (1964-1965): 46.

The earliest hunting horns were simple conch shells or curved animal horns (ox, elephant, or ram).² Because of their limited length, only one or two different pitches could generally be sounded on them. The player just needed to learn how to produce one of the possible notes, and then adjust his/her embouchure (the shaping of the lips) to find the second pitch if possible. The player would tighten his lips to the sides for the higher pitch and loosen for the lower pitch. We generally don't think of these horns as having very much musical capability because their tone and pitch range was completely dependent on natural means. But because of their dependency on the player's embouchure control, playing these natural horns required not only a lot of lip dexterity but also a good ear to hear the correct pitch for which to aim.

Closer to the end of the seventeenth century, the straight horn became popular.³ It measured anywhere from nine inches to two feet and could be made out of copper or German silver or a combination of both.⁴ Clearer notes could be produced on straight horns than on a trumpet because their bells were funnel shaped. But the length of the horns also mattered. "From a very short Horn nothing but a discordant noise can be extracted."⁵ These horns were very short, and in comparison to the great length of tubing in today's modern horn, it was very hard for some people to learn how to produce a note at all.⁶ The method of producing a note on this straight horn, however, was just like how you would with the modern valved horn. The player needed hard lips that were flexible and not chapped, and strong teeth to brace the mouthpiece against.⁷ Cameron gives a good description of how to buzz in his book, *The Hunting Horn*: "Almost close the lips, pressing them back against the teeth. Place the mouthpiece firmly against the centre of the almost closed lips and half-blow, half-spit into the mouthpiece, when a clear note should be produced."⁸

² D. J. Blaikley, "The French Horn," *Proceedings of the Musical Association* 35 (1908-1909): 123.

³ Patrick Tröster, "More about Renaissance Slide Trumpets: Fact or Fiction?" *Early Music* 32, no. 2 (2004): 255.

⁴ Ludovick Cameron, "The Hunting Horn, What to Blow and How to Blow it," London: Köhler and Sons (n.d.): 6-7.

⁵ *Ibid.*, 7.

⁶ *Ibid.*, 11.

⁷ *Ibid.*, 12.

⁸ *Ibid.*, 11.

Often used for signaling other hunters during a hunt, these horns produced just one note, so different horn calls had to be created through a mixture of note lengths, frequencies, character, and repetitions. Reading the notation for this music was relatively simple since it didn't have to indicate where different pitches were located.⁹ The horn player just had to learn several symbols for note length and know where to take breaths.¹⁰ The music also didn't indicate barred measures since the performer didn't have to keep time while playing.¹¹ The horn player could however create a pseudo trill or shake to add variety to his playing by "agitating the Horn with the hand while blowing."¹²

This straight horn, or hunting horn was a useful instrument for signaling hunting parties in the thirteenth century but later became merely a sign of status in the medieval courts rather than of practical use.¹³ First employed in hunts in France and Britain (and Germany soon after) during deer hunts, wars, or chases, the hunting horns called the hunters together in the morning, to the slaughtering of their kill, and back home once the hunt was over.¹⁴ Later, however, natural horns were used more for giving instruction during recreational hunts. "The skill of playing the hunting horn became so closely integrated with the identity of the hunting gentry that it became an icon for it."¹⁵ Noblemen were expected to learn to play the horn just as they would learn to hunt and carry out their other expected duties. In fact, "For a long time its use, apart from military purposes, was reserved for kings and nobles, and trumpeters were the aristocracy of wind-instrument players."¹⁶ The English courts of King Edward III, King Henry VII, and Queen Elizabeth filled more than a quarter of their instrumentalists with trumpeters.¹⁷

⁹ Ibid.

¹⁰ Ibid., 9.

¹¹ Ibid.

¹² Ibid., 11.

¹³ Eva Marie Heater, "Early Hunting Horn Calls and Their Transmission: Some New Discoveries," *Historic Brass Society Journal* 7 (1995): 123.

¹⁴ Ibid., 124.

¹⁵ Ibid., 123.

¹⁶ Blaikley, "How a Trumpet II," 82.

¹⁷ Ibid.

By the early seventeenth century, natural horns started to take a different form. Inventors discovered that they could be created by manipulating conical metal tubing into a shape similar to but more precise than these animal horns.¹⁸ Making the instrument with metal and smaller tubing than the natural animal horn or shell created a more brilliant tone quality.¹⁹ And the metal tubing used could be made much longer in length than the animal horns, allowing these horns to play many more notes. But in order to retain the portable and manageable size, the tubing was coiled around itself instead of protruding straight from the mouthpiece. Four feet of tubing, coiled tightly around itself, could create up to six notes in the harmonic series.²⁰

Some horns had eleven complete coils around and measured seven inches across the coils with a bell also almost seven inches wide. The French introduced the Compassed Horn which could play twelve different pitches and was wrapped around the player's body (similar to a modern sousaphone).²¹ This horn, though more flexible in pitch, still relied on the dexterity of the player's lips to create the different pitches. And to make the musician's job harder, he now had to distinguish between six embouchure changes for each of the six possible notes in the harmonic series instead of just the one or two possible pitches from the animal horns. The horn player had to have an excellent ear to know which of the notes he was playing as he produced them because he had no keys to press as modern instruments do. Only the variation of his embouchure could give him a hint as to which pitch was which. In addition, the horn may not have even been able to produce good intonation depending on the quality of its production.

The *cor-de-chasse* came to England in the late seventeenth century from France and became known as the French horn there, even though it was originally from Austria and Bohemia.²² There in England, it was frequently seen in Louis XIV's court as a hunting instrument or giving life through its hunting fanfares in Lully's *La Princesse d'Elides* in 1664 and Morin's *La Chasse du Cerf* in 1708.²³ Artistic horn playing

¹⁸ Heater, "Early Hunting Horn Calls," 130.

¹⁹ D. J. Blaikley, "How a Trumpet Is Made. I. The Natural Trumpet and Horn." *The Musical Times* 51, no. 803 (1910): 15.

²⁰ *Ibid.*, 14.

²¹ Cameron, "Hunting Horn," 5-6.

²² Fitzpatrick, "The Valveless Horn," 48.

²³ *Ibid.*

came about through the patronage of Count Franz Anton von Sporck.²⁴ He was a Bohemian nobleman whose love for music was just as strong as his love for hunting.²⁵ After hearing the hunting horn at Versailles, Sporck created his own hunting band at home and became known as “the First Huntsman of Europe.”²⁶ These horn players then joined his house orchestra and led the way for the horn player tradition still evident today in Vienna and Prague.²⁷ Their place in the early court orchestras was the first time that horns appeared in an orchestra.²⁸ “By the close of the second decade of the eighteenth century a flourishing tradition of orchestral horn-playing had spread from Bohemia to virtually every musical centre of the Holy Roman Empire.”²⁹

The next development to the metallic natural horn was adding removable crooks.³⁰ Viennese trumpet-makers, Michael and Johannes Leihnamschneider, are credited with this advancement in 1718.³¹ These crooks changed the length of the horn and thus the key that the horn sounded in, depending on the length of the crook added. Changing the crooks of the horn gave the performer a new harmonic series to play in for each key, thereby expanding the number of possible chromatic notes. Where the earlier coiled horns could produce up to six notes, the crooks added almost unending higher harmonics to the natural horn. Orchestral horn players now also didn’t have to bring with them separate horns for each key that they would play in the program, but just the crooks needed for one single horn.³²

Natural horns from 1718 to the nineteenth century had six varying crooks.³³ Four of them were cylindrical and the other two were conical.

²⁴ Ibid., 49.

²⁵ Ibid.

²⁶ Ibid.

²⁷ Ibid.

²⁸ Tiffany N. Damicone, “The Singing Style of the Bohemians: Part 1 – A 300 Year Tradition of Czech Horn Playing,” *Horn Call: Journal of the International Horn Society* 44, no. 2 (2014): 95.

²⁹ Fitzpatrick, “The Valveless Horn,” 49.

³⁰ Michelle Luanne, “Natural Horn and Various Crooks,” www.pinterest.com/pin/456482112202000821.

³¹ Fitzpatrick, “The Valveless Horn,” 52-53.

³² Ibid., 53.

³³ W. F. H. Blandford, “Studies on the Horn. No. I: The French Horn in England.” *The Musical Times* 63, no. 954 (1922): 546.

These crooks let the player play in the keys from C alto to the D below by using just one or multiple simultaneously. The lower keys, however, required the player to use three crooks.³⁴ By the time all these crooks were added to the natural horn however, it became unwieldy and awkward for the musician to play.³⁵ So in an effort to improve upon this model and make it more accessible, the French created a horn that had separate crooks for each key.³⁶ Following suit, the English have been credited with producing horns with tuning-slides and calling them, “cors à l’anglaise.”³⁷

Four or five of these new horns, called the *Waldhorn* or *Cor de Chasse*, could now play a four- and five-part harmony horn call together.³⁸ This new and reimagined horn was finally fitting for the orchestra world of music and was performed constantly until the hand horn took its place in the middle of the eighteenth century. With the flexibility that crooks and the tuning slide gave, orchestral composers were able to write creative horn parts that could aptly enhance their music instead of being worried that the hunting horn sound would detract from the blend of the other instruments.

Around 1750, the horn became known as a solo instrument with the convocation of hand-stopping by Bohemian hornist and teacher, Anton Joseph Hampel.³⁹ When the right hand was inserted in the bell of the hand horn, it changed the intonation and pitch of the notes.⁴⁰ Since the hand closes off some of the air coming from the end of the bell, the conical form of the bell is altered, producing a different series of harmonics. Closing one’s hand toward one’s body makes the pitch more flat while opening it away from one’s body raises the pitch back to the natural intonation of the horn. The varying degrees at which you curve your right hand bridges “the gaps of the natural partial series.”⁴¹ If closed far enough, the horn’s pitch will rise an entire half step, and produce a very pinched, buzzy tone.

³⁴ Ibid..

³⁵ Ibid.

³⁶ Ibid.

³⁷ Ibid.

³⁸ Blaikley, “The French Horn,” 125.

³⁹ Blandford, “Studies on the Horn,” 546.

⁴⁰ Fitzpatrick, “The Valveless Horn,” 56.

⁴¹ Ibid.

Stopping the horn however requires an even better ear than playing the same notes open and without one's hand closing the air stream. Intonation is harder to discern and manipulate when the tone of the horn is compromised in this way. The possible notes that the horn player could produce also sky-rocketed, while still mainly depending on the flexibility of the lip without any valves or keys on the horn. So this new technique made horn playing the hardest and most complex it had ever been.

Having been dubbed “stopped horn,” this technique was primarily used as a way to play chromatic notes on the natural horn but still continues to be used in orchestral and solo music today to create special effects. Whereas before one had to play in the very high register of the horn in order to get the chromatic notes in the harmonic series, horn players could now produce chromatic notes in the lower, more comfortable range as well.⁴² This new tradition made horn playing even more flexible and adaptable to the orchestral sound. Composers no longer had to worry about writing their horn parts fully in arpeggios in the key of a specific horn or limiting themselves to a certain range of the horn which had the propensity to stick out from the rest of the orchestra in order to get a certain chromatic note.

The hand-stopping technique expanded the possible notes playable on the horn to an almost limitless range. Writing orchestral parts, let alone solo repertoire, became virtually independent of the capabilities of the instrument. Although not easily transported due to the necessary crooks still used, the hand-horn gives the musician the ability to adjust the intonation and tone of the horn while playing. This made the horn's tone no longer subject to the processes of the manufacturer in manufacturing it. It was once regarded as fit only for outdoor use because of its coarseness, but was now an instrument capable of the soft and sweetness of the human voice.⁴³

The trumpet and horn had often been viewed as substitutes for each other in their era since horn players often had to double on trumpet just to maintain their livelihood. The tone of the horn, however, remained unique amongst the other orchestral colors in the Baroque period, and

⁴² Ibid.

⁴³ Blandford, “Studies on the Horn,” 546.

with the commencement of the stopped-horn technique, personnel for professional orchestras now changed as well.⁴⁴

In addition to the music and personnel alterations, the physical aspects of the horn were even changed as a result of the stopped-horn technique. First, the throat of the bell of the horn was enlarged in order to accommodate the hand of the player. The mouthpiece was also shifted from the thicker rim to a thinner rim because players didn't need to press as hard to produce sound.⁴⁵ Before the advent of hand-stopping, horn players needed to use a lot of pressure to get the higher chromatic notes in the harmonic series to sound. If the mouthpiece was too sharp against the lips, it would have been very painful to play. But now that horns didn't need to play so high in their register, horn-makers could design thinner mouthpieces that gave the lips more sensitivity, and the sound of the horn a darker and gentler tone.⁴⁶ Low horn playing now became possible because the horn player could manipulate his lips without the hindrance of a thick mouthpiece.

Although the natural horn was initially thought of only as “an annoying noisemaker,” it was gradually added to the Baroque orchestra and popularized by composers in this era.⁴⁷ The difference between different composers' parts however is distinctive. During the time of Mozart and Haydn, natural horns could only play in one harmonic series, depending on the crook that the player had in the horn and stepwise motion in the parts had to be played by either hand stopping or “lipping” it, both of which were impractical for chromatic passages.⁴⁸ Their horn parts therefore are not as varied or interesting as horn parts today. Mozart wrote his horn parts to be relatively monotonous in pitches in order to accommodate the natural state of the horn at this time.

As mentioned before, interchanging crooks in the natural horn was a necessary and critical aspect of playing orchestra music in this era. Horn players kept crooks hanging on their arm until needed though it was not very convenient. Because of their cumbersome nature and perhaps for sake of efficiency, Classical composers would frequently write

⁴⁴ Fitzpatrick, “The Valveless Horn,” 54.

⁴⁵ *Ibid.*, 56-57.

⁴⁶ *Ibid.*

⁴⁷ Heater, “Early Hunting Horn Calls,” 124.

⁴⁸ Kent Kennan, “The French Horn,” in *The Technique of Orchestration* (Upper Saddle River, New Jersey: Pearson Education, 2008), 124.

for two horns in one key, and another two horns in a separate key. This allowed for modulations or scoring of important notes not in the original harmonic series.⁴⁹

Bach often wrote horn parts that were difficult and impractical for the natural horn because of his extreme demands on the horn player's range.⁵⁰ His music either required the musician to use a plethora of crooks or to create a "fake" note through hand-stopping or lipping it down.⁵¹ The latter of the two of these methods interrupts the horn's characteristic tone and asks the horn player to do extra work above and beyond creating a sound on the horn in the first place. And using an array of crooks, though inconvenient, was quite common for horn players to have to learn how to manage.

Blandford states in his article about the French horn in England, "The earliest parts were played on 'hunting horns,' but proper concert horns with crooks, enabling the key of the instrument to be changed, were soon introduced. Such horns appear to have originated at Vienna before 1718; and Bach had a set at his disposal at Cöthen if the inventory of the Capelle can be trusted."⁵²

Bach wrote his parts for "Corno" or "Corno da caccia," meaning the natural horn, in D, F, G, A, or C.⁵³ These parts could then ask for up to eighteen or twenty notes in the harmonic series along with a few notes outside the harmonic series that the player could produce by "forced resonance."⁵⁴ Many players have found Bach's parts easier to play on a horn in a different key than Bach originally intended.⁵⁵ By using a differently tuned horn, and then transposing the part, the horn player is better able to accommodate for the large range that would otherwise be difficult.

⁴⁹ Ibid., 126.

⁵⁰ Bertil H. van Boer, Jr., "Observations on Bach's Use of the Horn: Part II," *Bach* 11, no. 3 (1980): 10.

⁵¹ Ibid., 11.

⁵² Blandford, "Studies on the Horn," 545.

⁵³ W. F. H. Blandford, "Bach's Horn Parts," *The Musical Times* 77, no. 1122 (1936): 748.

⁵⁴ Ibid.

⁵⁵ Ibid., 749.

Bach wrote his parts in this way because he had incredible musicians whose primary instruments were the clarino trumpet.⁵⁶ These trumpeters were used to playing in the upper registers of the horn because the clarino's pitches were also up there. Bach was pivotal in shifting horn parts from low, hunting horn lines to "high, brilliant, sophisticated lines."⁵⁷ He heard the horn's potential as a solo instrument and its capability to mimic the human voice.⁵⁸

The first recorded use of the horn in the orchestra was in 1705.⁵⁹ Handel (Keiser's associate) later introduced the horn to English open-air music through his "Water Music" in 1715, but only added it to his orchestral music in 1720.⁶⁰ The horn parts for Handel's pieces were most frequently in G, F, and D, and a few times in B flat alto, A, or E flat.⁶¹ Handel also sometimes wrote four different horn parts, the top two parts being very challenging.⁶² Parts were often written as if for trumpet, leaving out the lower register, and covering only two octaves in range.⁶³ In contrast, Weber's Concertino for horn, written later in 1806, along with much of the solo repertoire written today covers a full four octaves. Modern advances in instrument technology and a change in customs for writing for horn have expanded the notes that the typical horn player is asked to play.

In 1737, Maurice Greene produced a unique operetta which had an accompanied French horn ritornello for thirty-four bars.⁶⁴ Since most parts for horn during this time could have been played on trumpets or similar instruments, the fact that Greene wrote "'French horns' in F" on the part was a noteworthy phenomenon.⁶⁵

⁵⁶ Boer, "Bach's Use," 17.

⁵⁷ Ibid.

⁵⁸ Ibid..

⁵⁹ Blandford, "Studies on the Horn," 545.

⁶⁰ Ibid.

⁶¹ Ibid.

⁶² Ibid.

⁶³ Ibid.

⁶⁴ Ibid.

⁶⁵ John Ericson, "Brahms and Modern Performance on the Natural Horn," *Horn Matters*, 2011, <http://hornmatters.com/2011/01/brahms-and-modern-performance-on-the-natural-horn>.

The concert horn was introduced in 1750 and later the first valved horn was made by Charles Claget in 1788.⁶⁶ The modern and most commonly used style of horn today originated in Germany and has a larger bore, rotary valves, and a larger bell.⁶⁷ Some composers have still written for the natural horn since the valved horn became the customary horn. Ravel arranged a specific hand-horn part for his *Pavane pour une infante défunte* in 1910, even though the valved horn had already generally replaced the hand-horn's popularity for thirty years.⁶⁸ Although performing the Beethoven Sonata or Mozart's concerti on the natural horn is done from time to time, it is hard to find a horn player today willing to put forth the effort to learn it. "The early parts, and particularly those of the Baroque period, are so difficult that only an accomplished professional player can meet adequately their technical demands."⁶⁹ Professional horn players today would find the natural horn especially challenging not only because of the difficult horn parts, but also because of the vast difference in technique needed for the different instrument and mouthpiece.⁷⁰ Modern horn players don't have to carry around a dozen crooks to each concert they play. The valves in today's horns provide just as much, if not more, flexibility in the harmonics. The pressure on the lips is also much less than what it was in the first natural horn and the modern mouthpieces give the player the freedom to play lower than ever before.⁷¹

Intonation and tone production is another area in horn playing that became significantly simpler since the valved horn was introduced. Horn players today don't have to adjust with their hand and lip up or down pitches to the extent that natural horn players did in the Baroque and Classical periods. The natural horn couldn't be depended on to be in tune or even have a beautiful tone like we expect of today's modern horns. Modern horn players do, however, still need to use their ear to adjust pitch and create the most beautiful tone possible. But this is made easier through the careful engineering of modern, rotary valved horns.

⁶⁶ Blandford, "Studies on the Horn," 545, 547.

⁶⁷ Harold Meek, "The Horn!" *Music Educators Journal* 57, no. 3 (1970): 9

⁶⁸ Blandford, "Studies on the Horn," 546.

⁶⁹ Fitzpatrick, "The Valveless Horn," 46.

⁷⁰ *Ibid.*

⁷¹ *Ibid.*, 57.

Because of the advances in the musical work, the natural horn has been eclipsed by the modern valved horn in efficiency, tone, intonation, and relative ease of playing. Modern horns, though still one of the most difficult instruments to learn, are far more streamlined and efficient for the musician than the original natural horns. Not very many players therefore are interested in going back in time and learning to play on a natural horn. Some of the original challenges and intended character of Mozart and Bach's pieces, however, are lost with the modern horn's fixed intonation and on-demand pitches. I think we would appreciate the intent and musicality of Mozart and his compatriots's compositions more if we saw and experienced first-hand the technical skill it required to play them. Though the notes themselves are not tricky anymore, the level of mastery that was demanded for the natural horn far exceeds what modern horn players even begin to contemplate when they pick up their horn and play a Mozart horn concerto.

Bibliography

- Blaikley, D. J. "How a Trumpet Is Made. I. The Natural Trumpet and Horn." *The Musical Times* 51, no. 803 (1910): 14-16. <http://www.jstor.org/stable/907490>.
- _____. "How a Trumpet Is Made. II. The Natural Trumpet and Horn (Continued)." *The Musical Times* 51, no. 804 (1910): 82-84. <http://www.jstor.org/stable/907450>.
- _____. "The French Horn." *Proceedings of the Musical Association* 35 (1908-1909): 123-134. <http://www.jstor.org/stable/765676>.
- Blandford, W. F. H. "Bach's Horn Parts." *The Musical Times* 77, no. 1122 (1936): 748-750. <http://www.jstor.org/stable/920457>.
- _____. "Studies on the Horn. No. I: The French Horn in England." *The Musical Times* 63, no. 954 (1922): 544-547. <http://www.jstor.org/stable/909883>.
- Boer, Bertil H. van, Jr. "Observations on Bach's Use of the Horn: Part II." *Bach* 11, no. 3 (1980): 9-23. <http://www.jstor.org/stable/41640105>.
- Cameron, Ludovick. *The Hunting Horn, What to Blow and How to Blow it*. London: Köhloer and Sons, [n.d.].
- Damicone, Tiffany N. "The Singing Style of the Bohemians: Part 1 - A 300 Year Tradition of Czech Horn Playing." *Horn Call: Journal of the International Horn Society* 44, no. 2 (2014): 94-102. *Academic Search Complete*, EBSCOhost.

- Ericson, John. "Brahms and Modern Performance on the Natural Horn." *Horn Matters* (2011): www.hornmatters.com/2011/01/brahms-and-modern-performance-on-the-natural-horn/.
- _____. "The Natural Horn," *The Arizona State University Horn Studio, Horn Articles Online*: www.public.asu.edu/~jqerics/play-natural-horn.html.
- Fitzpatrick, Horace. "The Valveless Horn in Modern Performances of Eighteenth-Century Music." *Proceedings of the Royal Musical Association* 91 (1964-1965): 45-60. <http://www.jstor.org/stable/765964>.
- "The French Horn." *The Musical Times* 50, no. 797 (1909): 465. <http://www.jstor.org/stable/907561>.
- Heater, Eva Marie. "Early Hunting Horn Calls and Their Transmission: Some New Discoveries." *Historic Brass Society Journal* 7 (1995): 123-41. [www.historicbrass.org/Portals/0/Documents/Journal/1995/HBSJ 1995 JL01 007 Heater.pdf](http://www.historicbrass.org/Portals/0/Documents/Journal/1995/HBSJ%201995%20JL01%20007%20Heater.pdf).
- Kennan, Kent, and Donald Grantham. "The French Horn." In *The Technique of Orchestration*. Ch. 7. Upper Saddle River, NJ: Pearson Education, 2008.
- Kodisch, Johann Carl, "Natural Horn," National Music Museum, <http://imgarcade.com/1/natural-horn-music/>.
- Luanne, Michelle, "Natural Horn and Various Crooks," <https://www.pinterest.com/pin/456482112202000821>.
- Meek, Harold. "The Horn!" *Music Educators Journal* 57, no. 3 (1970): 9. <http://www.jstor.org/stable/3392893>.
- Tröster, Patrick. "More about Renaissance Slide Trumpets: Fact or Fiction?" *Early Music* 32, no. 2 (2004): 252-268.