

The Historical Causes of Modern Horn Transposition Playing

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Abstract

The transposition of modern horns is one of the necessary abilities of every professional horn player. In this paper, by sorting out the development history of the horn in different periods, combined with the analysis of the structure and pronunciation principle of the horn instrument, this paper makes a more detailed discussion on the formation process and causes of the modern horn transposition performance. As a horn player, while strengthening his playing ability, he should have a deep understanding of the rich historical and cultural connotations contained in the instrument itself.

Keywords: Modern Horn, Natural Horn, Transposition Playing, Horn History

Introduction

Horn, also known as French horn, has undergone a long historical development, and today, it has formed a complete performance system. In terms of playing techniques, it includes basic skills such as breathing, mouth shape, and pronunciation etc., as well as special skills such as lip trills, hand stops, and double tones etc. In terms of musical style, it spans from the Baroque - classical - romantic - modern period, and various works run through the entire important stage of the development of Western music. The role of the horn in solo, ensemble and ensemble has also been continuously strengthened and developed.

To be a qualified horn player, one must possess a variety of playing skills and musical performance abilities. Among them, there is a necessary ability for a professional horn player, which is the transposition of the horn.

Research Objective

For many beginner horn players, transposing playing seems to be a strange phenomenon, and the most common question is, why are many original scores not in the key of F (Horn in F)? For such questions, we need to find clues from the historical development of the horn.

To contemporary horn learners, transposing modern horn playing seems like a strange paradox, the most common question: "Why is so much of the original score not in F?" "Why does horn score need transposition?"

For such questions, first, we need to define the concept of modern horn transposition performance, analyze the characteristics and difficulties of horn transposition performance,

and clarify the importance of transposition performance in modern horn performance. Second, we need to investigate the development history of horn art, look for the formation process of transposition in horn performance, especially analyze the transposition performance in the natural horn stage, and sort out the historical formation process of horn transposition performance. Third, we also need to analyze the transposition performance of the modern horn stage, and have a clear understanding of the transposition performance of the modern horn transposition performance.

Through the above three aspects of research, we can form a clearer understanding of the past and present life of horn transposition performance. In the process of research, on the one hand, we need to examine the historical documents of the horn, including relevant documents and musical scores; on the one hand, we need to examine the instrument structure and performance characteristics of the horn in different historical periods; analyze. Through literature research, musical score analysis, combined with my own horn playing experience, I have formed a more comprehensive and systematic understanding of the historical causes of mode

Research Question

Based on the above research purposes, our research mainly focuses on the following research questions:

What is horn transposition playing? Specifically, what is the concept of transposition in music? And what are the characteristics of the transposition of the horn? Why is the transposition of the horn so difficult?

How many historical stages are there in the development of the horn? In the process of development and formation, which stages have formed an important influence on the formation of horn art?

Why is the natural horn transposed? How is the natural horn transposed?

How did the modern horn transposition problem come about? How are modern horns transposed?

What is the transposition of the horn?

The concept of transposition

In music theory, transposition is not complicated. Transposition is restating music at a different pitch level. Transposition can restate the music higher or lower than the original. It preserves the exact intervals present in the original (Dike, 2021). In terms of composition and conducting, there are all kinds of transposing instruments in the band. How to write the instrument parts correctly and how to read the symphony score quickly is also a very common problem.

Therefore, in terms of music theory, transposition is not such a difficult problem. However, transposing in horn playing is different.

Frequent occurrence of horn transposition playing

The modern horn is based on the key of F (Horn in F), and the center of F key is formed in the performance, that is, the F sound on the piano is used as the C of the horn, and it is also notation in the key of F when notation.

But at the same time, in addition to the standard horn score in the key of F, we often encounter many non-F horn scores in various solo works, chamber music works and orchestral works, such as Horn in Eb, Horn in A, Horn in D, Horn in C and other kinds of transposition scores, all kinds of keys are available, and the number of such transposition scores is not small. Regarding the types of transposition of modern horns, we can refer to Bruce Hembd's article, a very complete overview of the types and methods of transposition of modern horns (Hembd, 2008).

For other musical instruments, transposition notation also appears, but it is often relatively simple in terms of tonal types, and the solution is relatively simple, just replace the corresponding musical instrument directly. For example, clarinet, there are two commonly used, one is the Bb clarinet, one is the A clarinet. And such as trumpet, there are three commonly used, one is Bb trumpet, one is C trumpet, one is Eb trumpet.

The immediacy of horn transposition playing

If the transposition score appears in a solo piece, the player can become familiar with the piece through practice, or by translating the score (moving the score to the key of F). But in the case of chamber music and orchestral works, when rehearsing these works, the performer often just sees the score, does not have enough time to become familiar with the score or mark it, and start playing immediately.

It can be seen from this that the difficulty of transposing playing is not how difficult the transposition itself is, but how to "translate" the transposition score in a timely, fast and effective manner (move the score to the pitch of F key), and played it perfectly.

The importance of transposing playing

For professional horn players, they often encounter the transposed score of the horn in various rehearsals and performances of the symphony orchestra. If the transposition ability is not good, it will affect their performance in the orchestra, which in turn affects the development of their musical careers. For learners, if they cannot master the horn transposition skills well, they often cannot become a comprehensive and qualified horn player.

Therefore, the transposing ability of the horn requires every player to pay full attention to it. In the usual practice, various kinds of transposition playing exercises are often carried out, and after continuous accumulation, can one have better transposition playing ability and become a qualified horn player.

Historical causes of horn transposition playing

There are deep historical reasons behind the so common phenomenon of modern horn transposition playing.

Sorting out the development history of the horn

The historical development of the horn has gone through a long process. It can be roughly divided into three main stages:

Ancient Horn Stage

From the earliest horns made of natural materials such as animal horns, conch, bark, wood, ivory, etc., with the development of metal smelting technology, simple horns made of bronze and brass appeared. Until the middle Ages and the Renaissance, this type of primitive horn was not widely used in music, and its practical purpose was more prominent. It was

often used for hunting, signaling and other purposes, and was also a symbol of noble status.

Natural Horn Stage

At this stage, brass, an alloy material mainly composed of copper and zinc, is widely used in various horns (lip-reed instruments) due to its excellent performance in physical acoustic vibration. Therefore, "Brass" is a word that has also become a unified name for various lip-reed instruments. With the improvement of the production process of musical instruments, the production of horns has become more complicated. By increasing the length of the horn and bending it into a spiral shape, the musical characteristics of the horn have been greatly improved. From the early hunting horn, by increasing the tube length and curvature, to the later natural horn, to the later innovation of the hand-plug playing method and the invention of crooks, the horn has become more and more widely used in music.

The natural horn stage has occupied a long time in the history of the development of the horn. It has experienced three key historical periods in Western music, from the Baroque, Classical, to Romantic middle period. As we all know, these three periods are the golden age of Western music history. There have been many great musicians and a lot of Western classics have been created. In the end, the horn established its basic position in Western music and became an important component in the Western art music system.

Valve horn stage

Western music entered the middle period of romanticism, and the tonal function system of music developed and expanded and gradually tended to disintegrate. Frequent inversions, ambiguous tones, polytonality and even atonality all present a higher challenge for natural horn playing.

The timbre difference caused by the hand-stop when playing the natural horn, and the inconvenience caused by the replacement of the crook, make the instrument manufacturers and players continue to try to reform the instrument. There were even horns with side-hole keys like woodwind instruments during this period, and in the end, the valve system became the most optimized solution and was widely used by various brass instruments (Herbert, Wallace, & Cross, 1997).

There are two types of valves with spring keys, one is a piston valve and the other is a rotary valve. From the earliest one key valve to three key valves and more, the horn was finally shaped as a rotary valve because of its soft and round tone characteristics. Since then, the horn has become an instrument that can be freely transposed and can perfectly play twelve well-tempered pitches. After that, the double horn with two rows of crooks in the key of F and Bb started with a wider range. At this point, the modern horn was finalized.

Through a brief review of the development of the horn, we can see that the finalization of the modern horn was relatively late, while the natural horn stage occupied a long time in the development of the horn. The natural horn stage spanned the three important historical periods in the history of Western music, from Baroque, classical, to mid-Romantic, and produced many important composers and important works. Today, the performance rate of these composers' works is very high, which has become the historical root of the modern horn transposition problem (Burkholder & Grout, 2014).

Analysis of natural horn transposition

How the natural horn is played

During the natural horn period, the performance of horn works was mainly achieved

Transpose notation of natural horn

Based on the above, the natural horn uses transposition notation. Due to the rich tonal changes in orchestral works, the natural horn notation has many keys. Several transposition notation methods, mainly F key (horn in F), D key (horn in D), Eb key (horn in Eb), E key (horn in E), etc., have been formed. In addition, there are other key transposition notations, and in general, almost all key transposition spectra are involved.

For example, Beethoven's Ninth Symphony, in the first movement, the first horn excerpt is notation in D.



In the second movement, the 3rd and 4th horn excerpt is notation in Bb.



In the third movement, the 4th horn excerpt is notation in Eb.



To sum up, the instrumental characteristics of the natural horn make composers need to use transposition notation when creating music. Moreover, there are many types of transposition, almost covering most of the key types.

Transposing the modern horn

The modern horn evolved from the natural horn, the main change being the replacement of various pluggable crooks with a three key valve system.

The principle of playing the modern horn

The basic principle is: when the key is not pressed, the horn can play a series of overtones with F or Bb as the fundamental tone, and the three key valves can reduce the pitch of these overtones.

The first key lowers the major second, the second lowers the minor second, and the third lowers the minor third. Then, through the combination of three keys, more interval relationships can be reduced. For example, the combination of two and three keys can reduce the major third interval, the combination of one and three keys can reduce the perfect fourth

interval, and the combination of one, two and three keys can reduce the augmented fourth (Tritone). As a result, the modern horn can finally play the twelve well-tempered pitch perfectly without resorting to hand stops. This greatly changes the way of playing the horn, the sound is more balanced, the control is more convenient, and it adapts to the tonal changes of Western music.

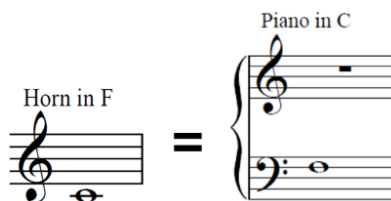
The modern horn is mainly evolved from two kinds of horns in the key of F and Bb. Later, people combined these two kinds of horns to form the most commonly used F/Bb double horn today, which makes the horn's range very wide.

The Formation of the F-key Center of the Modern Horn

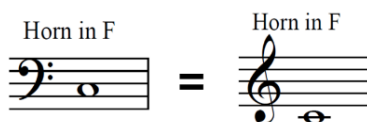
Modern horns capable of playing all chromatic scales, whether single row, double row or even triple row horns, are all in the key of F, so modern horns have gradually formed their own F key center.

The formation of the transposition notation rule in the key of F.

When the shape of the modern horn was gradually finalized, the transposition notation rule with the key of F as the center was also established. As a result, "Horn in F" will appear on today's standard horn staff, usually with a treble clef. The C of the "first line added below" in the horn score is equivalent to the F3 on the piano.



At the same time, because of the wide range of modern horns, some notes are also notated by the bass clef. The recorded pitch on the bass clef is one octave lower than the actual playing pitch of the horn, that is, the C of the horn bass clef, Equivalent to the C of the "first line added below" of the horn treble clef.



The formation of the modern horn fingering system in F key

The formation of the center of the key of F brings convenience to the modern horn playing, and as a result, the fingering system of the modern horn has also been established. There are three kinds of horn fingerings that are commonly used in the world today. The first is the "Bb fingering" played with the Bb crooks, and the second is the "F fingering" played with the F crooks. The third is a hybrid fingering formed by combining the advantages of the two fingerings of F/Bb in terms of pitch and timbre. Whether it is "F fingering" or "Bb fingering", the pitch played is the pitch of the key of F.

Horn in F																									
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Modern horn players gradually form a pitch hearing standard centered on the key of F

During their long horn playing career, all modern horn players, in terms of tonality and musical hearing, have developed a pitch hearing standard centered on the key of F. That is to say, when playing the horn, when the actual pitch is F3, the horn player will automatically respond to the C in the middle range of the horn in his mind, and play it according to the corresponding fingering.

After this F-key center is formed, the player is required to be able to convert between the "F-key pitch" (horn pitch) and the "actual pitch" (piano pitch). For example, in a band rehearsal, when the conductor asks to play a certain pitch (actual pitch), the horn player must immediately reflect the pitch that the horn should play.

The playing tradition of the original score

The F center of the modern horn establishes a stable system, which brings convenience to the creation and performance of horn music. However, as we all know, the phases of the natural horn spanned several very important historical periods in the history of Western music, from Baroque, Classicism to Romanticism, with a large number of works and a high frequency of performances (Burkholder & Grout, 2014).

When performing, whether it is a solo work or a band work, it is generally performed according to the standard original score, and the horn part in these scores still retains the notation rules of the natural horn. For modern horn players, after the center of F key is formed, all playing habits are based on F key. Once other keys are encountered, the score must be instantly transposed, which is very important for modern horn players. New challenges are presented, and new playing problems are formed.

Conclusion

To sum up, by sorting out the development history of the horn, analyzing the principles of natural horn and modern horn playing, combined with the playing tradition of Western music. We can see that the difficulty of transposing the modern horn is: when the key of F (key) becomes the standard key of the horn, modern horn players have to face a large number of original scores in various rehearsals and performances. These original scores are all produced in the natural horn stage, and there are many types of transposition notation. Thus, when the horn player's transposition ability is not good, there will be various unexpected situations. Therefore, improving the transposing ability of modern horns is an issue that every horn player needs to pay attention to. Only in this way can it be possible to become an excellent horn player.

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