

# EARLY HORN MOUTHPIECES

Richard Seraphinoff

**T**he serious study of the natural horn has enjoyed a widespread revival in recent years. Thanks to the research of R. Morley-Pegge,<sup>1</sup> Horace Fitzpatrick,<sup>2</sup> and numerous players and instrument makers who have, over the years, learned to build fine instruments and refine their playing techniques, there is now good basic knowledge available. The instrument is being played very successfully on a professional level by a number of people. Still, there are many questions about the early horn that have not been fully explored.

In this article I hope to shed some light on the early horn mouthpiece. The information here comes mainly from my own experience as an early horn player and maker, and I hope it will be useful to other players.

We have come a great distance in the search for the most appropriate instruments for music of various types and periods. The days of playing on any sort of valveless instrument, without regard to bell size and shape, bore size, taper lengths and other crucial factors, are for the most part over. Horn players and

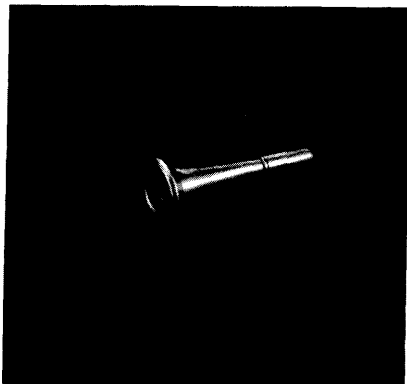
makers have begun the careful study of original examples, and good reproductions of Baroque and Classical horns are now becoming available.

Until recently, however, few players had considered, or been aware of, the significant differences in tone color and playing qualities that can result from playing on mouthpieces based on 18th-century designs as opposed to standard modern mouthpieces.

There would appear to be several reasons why hornists who have taken up the natural horn have not been terribly anxious to experiment also with mouthpiece reproductions. First, and probably most important, most hornists who perform

on the natural horn are also modern valve horn players, and the greater percentage do most of their playing on the valve horn. Under these circumstances, many players may feel uncomfortable enough just switching horns and might have continued to play on their modern mouthpiece simply because it is more familiar and gives more immediate results.

Another factor may be that, while there are many examples of instruments



A copy of a Classical horn mouthpiece.

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*Horn-maker Richard Seraphinoff teaches horn at Indiana University and performs with several early-music ensembles. He wishes to give special thanks to Louis Stout and Philip Farkas for their permission to measure and study the mouthpieces in their unique collections.*

from various periods in collections which can be dated with some degree of accuracy, mouthpieces are not as easy to identify, and seldom stay with the instrument for which they were made, making it difficult to know if the sound and response of a particular antique mouthpiece on a particular horn is indeed what the maker of the horn or its original owner had in mind.

As one ventures into the earlier years of the 18th century, it is particularly difficult to form a picture of the Baroque mouthpiece because there are so few surviving examples. The issue is further clouded by the fact that many early 18th-century players doubled on trumpet and horn.<sup>3</sup> They may have used a similar embouchure on both instruments, as changing the embouchure for each instrument would seem to make good control almost impossible. Did these players use mouthpieces that were designed for a somewhat different embouchure? Could a 20th-century horn player who plays only the horn produce the same type of sound on such a mouthpiece?

Moving into the Classical period of the horn's history, the modern natural horn player is confronted by yet another difficulty in playing on mouthpieces of the period. Horn players were, with very few exceptions, either high- or low-range specialists, and the mouthpieces they used reflected these differences. The second horn needed to be able to produce a full sound and be agile and secure in the low register and therefore used a mouthpiece with a relatively large inner rim diameter and large volume. This sort of design would favor the low range while making the upper range less practical. The mouthpiece of the first horn, on the other hand, had a smaller inner diameter and total volume, which favored the upper partials but made the lower end of

the horn less manageable.

The disadvantages of their respective mouthpieces were not problematic for the 18th-century first and second horn players as they seldom ventured very far into the other's range. Today's natural horn player, however, is often asked to play high and low parts from Bach and Handel through Beethoven and Brahms. Choosing one early design and becoming accustomed to it would be a simple matter if one could specialize in one range and period; we cannot afford to do so, however, and very few players feel comfortable switching back and forth among two or three different mouthpieces.

These are some of the factors that make experimenting with early mouthpieces a difficult task, but the preliminary work that a few horn makers have done has shown that the problem can be dealt with successfully and that it is worth our while to do so.

I began my own work in the area of the Classical mouthpiece, in particular the French mouthpiece of the late 18th and early 19th centuries. I chose this period and type of mouthpiece to work with first of all because the Classical horn reproduction that I make is copied from the horns of the Raoux family of Paris from this period (many of the best Classical horns being produced today, in fact, are patterned after instruments by Raoux, Courtois and other Paris makers). There are also many more extant Classical examples than those of earlier periods, making it easier to form an idea of range of sizes and shapes of mouthpieces in this period.

The French mouthpiece is also a good choice for those who must also play modern horns because, although the inner shape is very different, the diameter and thickness of the rims of many examples and the rim dimension recommended for

both first and second horn players by horn tutors of the period are very similar to modern rim dimensions, though they are generally flatter with a sharper inner edge, the effects of which will be discussed later.<sup>4</sup> Because the rim is the only part of the mouthpiece that is actually in contact with the lips, an early mouthpiece with different inner dimensions from the modern, but a similar rim diameter, would not be terribly upsetting to the valve horn player's embouchure, even when changing regularly.

### Physical characteristics of the French mouthpiece of the late 18th century

As can be seen in the wax cast pictured in Fig. 1, the inner shape of the Classical mouthpiece is that of a truncated cone, bearing little resemblance to the modern mouthpiece with its very definite cup, constricted throat and flaring back-bore. Some larger French examples appear to be almost straight-sided cones, while others, usually smaller (high horn) models, show some concaveness in the cup area, possibly intended to decrease the total volume in order to ease tone production in the upper range. The funnel shape generally extends the entire length of the mouthpiece, reaching its smallest point (corresponding to the constriction of the throat of the modern mouthpiece) at the very end.

Many early examples have no added shank, the end becoming so small that they do not fit snugly into even the smallest existing mouthpiece inlets of the period. This leads me to speculate that players may have wrapped paper or string around the shank to make an airtight fit and also to regulate the depth to which the mouthpiece would go into the inlet, which can affect resistance and response, and even fix "bad" notes that

one frequently finds on slow-tapering French crooks. When the added shank is present it is almost always smaller in diameter than a standard modern shank, to fit into the smaller mouthpiece inlet of the French instrument. The rim of the French mouthpiece can vary greatly in both inner diameter and thickness from example to example, but on the average it tends to be rather flat and a bit on the thin side of what is standard for modern mouthpieces. Recommended inner rim dimensions given in horn tutors by Duvernoy, Domnich, Dauprat and Gallay range from 16 to 17 mm. for the first horn mouthpiece to 18 to 20 mm. for the second horn, 17 or 18 mm. being average for the modern mouthpiece. Due to the fact that the entire body of the mouthpiece (see Fig. 4) is formed from one piece of sheet metal, the walls are much thinner than later types, which are turned from a solid cylinder of metal. The general opinion of players is that thinner walls in a mouthpiece will produce a more immediate response, though it can cut down on carrying power. Silver, brass and nickel silver were all used in mouthpiece making in the 18th and 19th centuries. In my experiments, identical mouthpieces were made in silver, brass and nickel silver. The silver seemed to produce a darker, more veiled sound, while the brass and nickel had brighter sounds that would appear to project farther and respond more quickly.

### Playing qualities of the Classical mouthpiece

The difference in sound between the early and modern horns is even further widened when an authentic mouthpiece is used. The modern horn mouthpiece is cup-shaped, like all other modern brass mouthpieces. Though it is deeper and all of the characteristics (constricted throat

and long backbore) are less pronounced than in other brass instruments, they are there nonetheless, making the horn very much part of the brass family.

The Classical mouthpiece bears much less resemblance to other brass mouthpieces, modern or Classical. It is essentially nothing more than a long funnel going into the instrument, reaching its smallest point about twice as far from the lips as in the modern mouthpiece, which has the effect of moving the point of resistance farther down the instrument. This has a softening effect on every aspect of the playing qualities of the horn. The tone is softer and less edgy, articulations are generally softer, though still clear, and slurs are smoother and less immediate. These qualities make it easy to understand why the horn was identified so much more with woodwind instruments than with brass in the 18th century. Horns very seldom played with trumpets until the late Classical symphony, and almost never with trombones. They were much more at home with the softer woodwind sounds of the Classical orchestra wind section, the wind band, or chamber music with strings.

On the other hand, the design does present some difficulties. The long, funnel-shaped mouthpiece seems to require

a bit more energy from the player, especially when the sound needs to project over other instruments. The softening effect it has on attacks and articulations makes it necessary for the player to be more precise and confident about note placement, though the tendency toward a sharper inner edge on the rim helps to give a cleaner, quicker attack. These difficulties probably contributed much to the shift to more cup-shaped mouthpieces later in the 19th and early 20th centuries as the size of orchestras and the technical demands of the music grew.

These perceived difficulties are greatly outweighed, however, by the beautiful, round, veiled sound and smoothness of articulations and the ability to blend well with other early wind instruments. As one works with early mouthpieces on the natural horn it becomes clearer that the design of the mouthpiece is almost as important as that of the instrument itself in re-creating a particular historical sound. Being removed by two centuries from the sounds we are trying to create, we cannot hope to come close unless we first of all study the performance practices of the period and learn how to put them to use, and secondly play on instruments that are as true to the instruments of the period as possible.



## Notes

1. Reginald Morley-Pegge. *The French Horn*. London: Ernest Benn, 1973.
2. Horace Fitzpatrick, *The Horn and Horn-Playing and the Austro-Bohemian Tradition from 1680-1830*. London: Oxford University Press, 1970.
3. Players such as Gottfried Reiche, the Leipzig Stadtpfeifer who played trumpet and horn for J.S. Bach.
4. The reason for the coming together of the extremely different high and low horn mouthpiece dimensions in France was the emergence of the "Cor-Mixt" player in the late 18th century. The ranges of both orchestral and solo writing were less extreme than they had been earlier, and many players chose to "specialize" in the middle range (G below the treble staff to G on top of that staff). One of the many side effects of this trend was the tendency of the technique and equipment of the first and second horn players to become less distinguishable from each other.

## Bibliography

### I. Tutors

Dauprat, Louis François. *Méthode de Cor alto et Cor Basse*. Paris: Chez Zetter et cie, 1824.

Duvernoy, Frédéric. *Méthode pour le cor*. Paris: Gravée par Mme Le Roi, 1803.

Domnich, Heinrich. *Méthode de Premier et de Second Cor*. Paris: Le Roy, 1808.

Gallay, Jacques-François. *Méthode complète pour le cor*. Paris: Schonenberger, 1847.

Anon. *The Compleat Tutor for the French Horn*. London: J. Simpson, c. 1746.

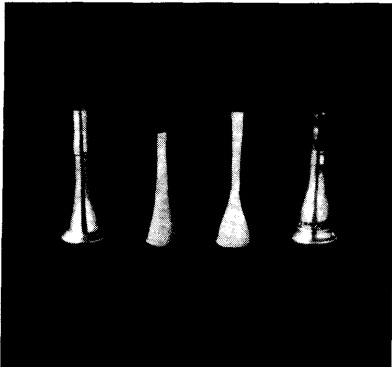
### II. Texts

Fitzpatrick, Horace. *The Horn and Horn-Playing and the Austro-Bohemian Tradition from 1680-1830*. London: Oxford University Press, 1970.

Morley-Pegge, Reginald. *The French Horn*. London: Ernest Benn, 1973.

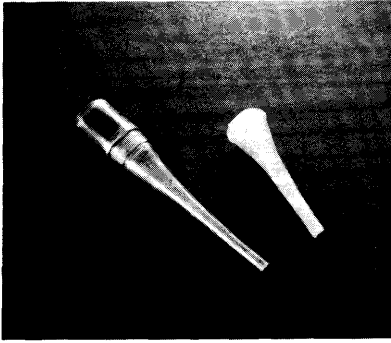
## HOW TO MAKE A CLASSICAL HORN MOUTHPIECE

Because of the unusual construction of the sheet-metal Classical horn mouthpiece, it may be interesting to outline the steps involved in copying one. The construction differs greatly from standard mouthpiece-making. The modern mouthpiece is made from a single solid cylinder of brass which is bored out and shaped on the lathe, resulting usually in a relatively heavy piece which is silver- or gold-plated. Though the practice of turning mouthpieces from solid metal or other materials was not unheard-of in the 18th century, forming from sheet metal seems to have been more common.



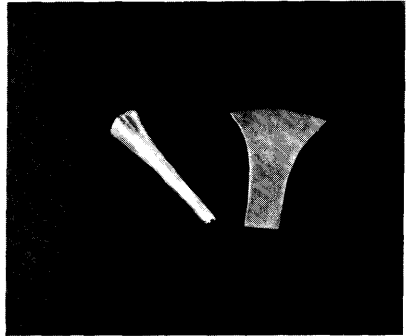
# 1

The dimensions are taken from the original by making a wax cast of the interior of the mouthpiece and measuring the inner and outer diameters and shape of the rim with calipers. These castings show the differences between a Classical (left) and modern mouthpiece.



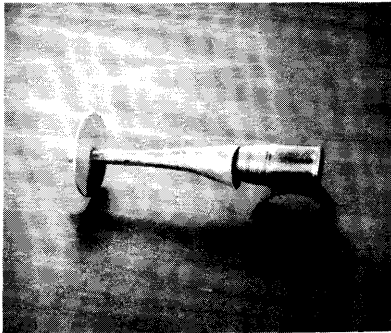
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The dimensions of the wax cast are used to make a steel mandrel on a lathe upon which the body of the mouthpiece is formed. At this point a pattern must be made which will be used to determine the shape of the sheet metal that is to be cut out to form the body.



3

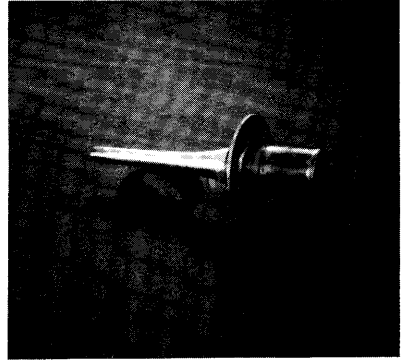
Once the pattern is made, it can be traced onto a sheet of metal (brass or silver) which is cut out and formed into a cone, and the seam joined with a high-temperature silver solder.



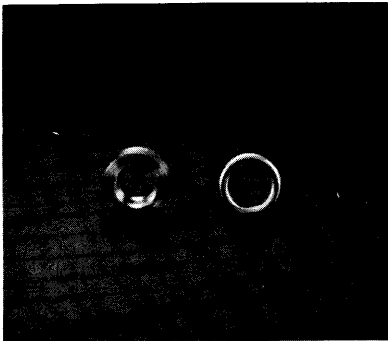
4

When formed and soldered, the cone is made to fit loosely over the mandrel (which requires some hammering or other form of persuasion as the cone is necessarily slightly curved when formed in this way).

## 5



The drawing process makes the tentatively shaped cone conform perfectly to the shape of the mandrel. The mandrel over which the cone has been placed is drawn or pushed, depending on the method used, through a soft iron washer, the hole of which is the size of the small end of the mandrel. As the mandrel and sheet metal cone are drawn through, the hole in the washer expands and the sheet metal, being softer than the washer, is compressed very tightly onto the mandrel, taking on its shape exactly. The fully formed cone is then trimmed on both ends on the lathe to the appropriate length and the outer surface polished to remove all marks and irregularities left from the drawing.

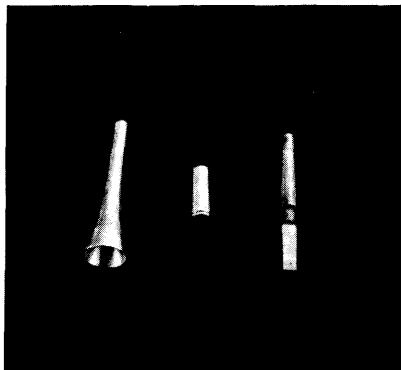


## 6

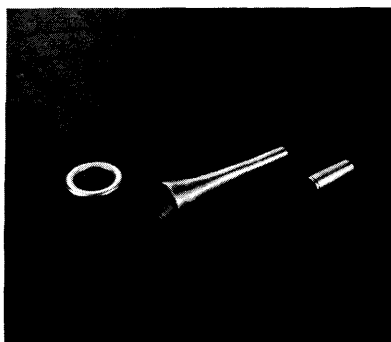
The rim is turned on the lathe from a thick disk cut from the end of a 1-inch diameter brass rod. The hole is then drilled through the disk, corresponding in size to the inside diameter of the large end of the already formed cone. The hole can be enlarged slightly about half-way through the disk so that the large end of the body can be inserted and meet flush with the original hole for an accurate fit and to give more surface contact for a good solder joint. The outside of the rim is then shaped on the lathe, establishing the roundness and inner and outer diameters. If silver is used, the rim can be cast in a mold closer to its finished shape to avoid wasting metal, then finished on the lathe.

There is also an alternative method of forming the rim, which is to make the initial cone longer on the large end, then form the rim by turning over the edge of this excess metal all around. This would involve much stretching of the metal. Though I have not used this method, it would seem to be more time-consuming and make it more difficult to obtain a round and uniform rim.

7



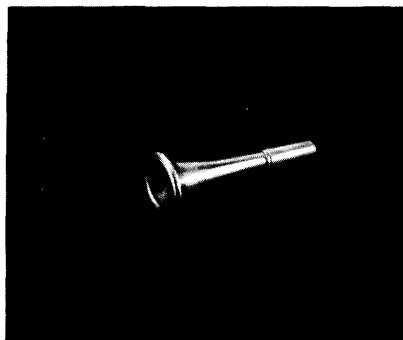
If an extra sleeve forming a shank was present on the original, it can now be made from a piece of tubing tapered on a small steel mandrel that matches the taper of the mouthpiece inlet of the horn. The sleeve is trimmed to the proper length and is ready to be slipped over the small end of the body and soldered into place.



8

The finished rim, body, and shank can now be soldered together with a lower-melting-point silver solder than that used to join the seam on the body, and given a final polishing.

9



The finished Classical horn mouthpiece.