Leslie Ross

The Influence of the Early Music Movement on Makers and Players of Historical Bassoons

What first brought me to making replicas of historical bassoons was a combined love of playing and exploring the early repertoire, along with my love of – simply put – tinkering and constructing. What has retained my interest for 30 years has been the puzzles presented by the large diversity of surviving instruments and their complexities, along with the challenges of tuning and balancing replicas, and a continued broad interest in sound exploration. This chapter is a personal account of how making replicas that are to function as viable playing instruments necessarily involves some degree of modification of the original (at least for wind instruments there is no such thing as "replicating" without simultaneously "creating"). It is also an account of the way in which I feel the early music movement, itself in a constant state of development, has begun to dictate more rigidly the focus and extent of such modifications.

In the late 1960s, the performance practice of early music broke away from the stricter, academic discipline of musicology to which it had hitherto largely belonged. In its first decades it was characterised by keen exploration and experimentation, both in performance and in instrument-making. Musicians worked hand in hand with makers (and were in fact often one and the same person); they uncovered treatises and repertoire; extant instruments were sought out to play, examine and measure; and there was a strong collective discourse about how to interpret these treatises, play these instruments, and perform this repertoire. For most of these years, early music on period instruments remained somewhat marginalised: an esoteric sub-culture of the classical musical world. This collective experimentation was not only about playing original instruments and the repertoire, but was also reflected in how many rehearsals were conducted, including those of large and well-known ensembles. With essentially every musician doubling as a musicologist, everyone had a voice and an opinion on phrasing that would often go well beyond their individual part. And even if, ultimately, the conductor might have the last say, rehearsals were a very democratic (and often chaotic!) forum where new understandings and interpretations were debated and worked out. My involvement in this was somewhat limited, but in the 1980s I gained first-hand experience by playing with several chamber groups and periodically working with the Studio de Musique Ancienne de Montréal and Les Arts Florissants.

Despite the big names of masterful players and groups, period instrument concerts had the reputation among the more mainstream classical audiences and critics of giving technically deficient performances. This was certainly sometimes the case, but when seen

in the larger context of exploration and trial – not just from the standpoint of playing new instruments at different pitches that were still in a state of development, but regularly experimenting with many different temperaments as well – obviously not all experiments could be expected to work out with precision. As with all things new, this was a learning process for everyone.

What these concerts did have to offer was literally a new sound, stemming as much from the instruments as from the interpretations. Along with a better understanding of the sheer scope of ornamentation and extemporising that was part of early music making, many performance practices were rediscovered. The reintroduction of the use of rhetorical phrasing, for instance, offered a transparency of texture which turned away from the big technique-driven sound and large sweeping gestures that characterised most classical music performances. And, I believe, it is also largely because of this fundamental difference in aesthetics that critics and institutions were so resistant and reluctant to recognise an appropriate place for period instrument concerts and schooling. Even though so many were also performing musicians, especially on wind instruments, the majority of instrument makers never quite worked together in a collective manner to the same degree that players did. This could largely be attributed to the fact that the process of making and developing instruments mostly takes place alone in a workshop, or occasionally in close collaboration with one or two musicians. The makers were, however, immersed in the same spirit of exploration and experimentation. Along with examining and measuring originals in varying degrees of precision – and playing them whenever possible – trying to understand what measurements were crucial for producing a reliable-sounding replica was unchartered territory.

Having to interpret what an instrument *might have been* at the time it was built, and combining this with how the instrument was found to play *now*, was a matter of part invented theory, part intuition for most of us. To make a replica required decisions about what measurements to use and how to interpret them.

This process constantly raised some of the same fundamental questions about the nature of our activity that performers were grappling with as well. We were clearly all enamoured with most of what was being discovered, from instruments to compositions to treatises. But, especially because we were so enamoured with all these fresh understandings, the question of how to account for our subjectivity when attempting to "re-create" by copying was also a frequent debate.

The complexities of interpreting measurements were particularly true with woodwinds, especially those with conical bores (this is my personal bias), because the bores of these instruments do not just shrink, but become oval – often a shifting oval with a changing axis. Nor is there any reason to suppose that bores shrink evenly, as it is reasonable to assume that upper joints go through a more extreme wetting and drying cycle

and so will shrink more than lower ones. Differences in wall thickness also affect the rate of shrinkage. A maker is left with the perplexing decision of either trying to adjust the bore to what it might have been before shrinking, or just working with the dimensions at hand. Decisions such as this are no less easy to make if the original is very much liked in its current state. Then there is the whole matter of pitch. Reed instruments were rarely complete, lacking both a reed and a designated bocal. When viewing and playing an original and arriving with an arsenal of reeds and bocals to try on the instrument, I feel that I can gain a good sense of the pitch of a particular instrument. This is based on playing several octave relationships and some specific intervals. Nevertheless, it takes a first prototype to confirm a pitch suspicion, and here too, in my experience, rarely does an instrument ever fall solidly in our current norms of historical pitch. This too was dealt with much more experimentally – from trying to broaden the number of available pitches so as not to have to scale (how many instruments would a player need to have? 392, 398, 405, 411, 415, 421 …), to scaling in varying degrees of modification, and then to not scaling at all but trying to make all pitch adjustments with bocals and reeds alone (this had some success in upper winds, but never with bassoons). And like experimenting with performance practice, some experiments failed and others needed repeated work and tweaking before we could achieve a better understanding.

Fallacy in the notion of a generic Baroque bassoon Like many makers, I have measured dozens of historical instruments – in my case dulcians and bassoons. With few exceptions, I have been impressed by their craftsmanship and intrigued by their individuality. Every instrument from a given maker was a world unto itself, an integral system with a specific timbre and its own aesthetics and bore geometry (the changing conical profile of the instrument). And these differences were very much reflected in how each maker's instruments played, sounded, and needed to be played. While this is also true of dulcians, my focus here is on bassoons. Because of their bore extension and narrower, much more complex cone, including comparatively cylindrical sections and counter-bores (reverse cones), I consider bassoons to be such a radical departure from dulcians that they can really be considered a new instrument.

The distinctiveness of a design and the bore geometry is also apparent in a second and third instrument of a particular maker's instruments. This confirms that what might have been considered anomalies in the bore in fact appear in some version in each of the instruments and were thus not mishaps but deliberate. This might have been merely a by-product of a maker having to work with the set of tools he had at his disposal, as opposed to a well-thought-out or inspired concept of bore permutations. Even so, when we consider straight edge reamers, we must consider that these tools had to be made at some point and so reflect a maker's decision about a particular taper at that time. I believe

it is all the more significant, and an indication that makers had clear intentions in their bore "profile", that bores are so similar on instruments in which modifications to a pilot bore were made with a multitude of short tapered reamers, or possibly scoop reamers. I also think it is unlikely that makers at the time based their work on measurements in the same manner that we do today, but instead relied more on an understanding of where parts of the bore needed to be opened up and others left alone, either when making an instrument or making corrections to one. Makers today, by the very nature of the replicating they do, are bound (at least initially) to recreate by means of comparison. And in our day and age, this has meant a reliance on calipers. However, most of us can still relate to how so much of our work is done by *feel*, rather than by strict, constant measuring, and that this can also be true of the experiments and modifications we undertake. As Jim Kopp has commented, it is possible for design to be pre-verbal or pre-numeric.[1] We can still only speculate about what concepts or theories influenced the approach taken by individual makers when adjusting and reaming their bores in the 18th century.

As much as we would like to construct generalities about instruments according to period and regional characteristics, I feel we can only do this in the broadest of terms. This is especially so of instruments through the 18th century. There was no generic Baroque bassoon. And when thought of in practical terms, how could there have been? The bassoon was a new instrument, first made in the late 17th century, and still in its first generation in woodwind-making shops in the early 18th century. Every maker was thus experimenting with his own idea of a bassoon. It might be argued that there are only subtle differences between them all. But for musicians and makers these subtleties make all the difference, as they influence all the essential qualities of an instrument: the scale and pitch, timbre, response and resonance. In my experience with making replicas, these differences in bore design meant that lessons learned on one instrument (e. g. tuning and octave relation corrections, bocal matching) were not directly transferable to another (e. g. from an 1800 Bühner & Keller to an 1800 Heinrich Grenser).

Case studies As examples of how each maker had his own concept of bore-geometry, I shall first compare two bassoons of Eichentopf (1710–1767), two of Scherer (1711–1776), two of Rottenburgh (~1700–1775) and one of Poerschman (1739–1766). For our purposes, I shall consider them all to be roughly contemporary, even if any one of these instruments could have been made fifty years before or after one of the others. I do think that the Scherer in the Metropolitan Museum of Art is a very early instrument, and I have my suspicions about which of the two Eichentopfs might have been made earlier. But I am nevertheless comfortable about grouping all these together because their bores demon-

1 Private correspondence.

strate features distinctive of each maker, regardless of whether they were made earlier or later.

The full bore graphs of the following examples are charted from the wing joint, starting with the bocal well at the bottom of the graph and ending with the end of the bell joint at the top of the graph. The sockets are omitted on the boot and on the bell so that the actual reamed bore is continuous, the wing joint to the narrow bore of the boot joining the wide bore going on to the long and bell joints. On graphs that only depict one instrument, the space taken up by the cork is indicated with a hatched rectangle. The tonehole placements, including angles at which they are drilled, are very roughly indicated. Of course, what is missing would be the appropriate bocal, the lengths and diameters of toneholes, and the possible gaps between joints in sockets – which can be a couple of millimetres on many instruments (see graph 1 on page 43).

With the graphs of two Eichentopfs, one in the Germanisches Nationalmuseum (Nuremberg) and the other in the Oberösterreichisches Landesmuseum (Linz), one can first note that the bocal well is a tapered counterbore[2] followed by three distinct stepped tapers with a flaring out at the end of the wing joint. For these three distinct sweeps I am assuming here and elsewhere that these are signs of individual reamers that would have been inserted in varying degrees, and in this case the increased taper at the end of the joint could have been a fourth reamer. With the two Scherer wings (one in the New York City Metropolitan Museum of Art, the other in the Bellerive Museum in Zurich) we can note that the bocal well is a socket well (ending in a step before the bore proper) and the bore a more steady taper through the first ⅔ (the very top of the Zurich Scherer had some rounding over/bore damage at the bottom of the bocal well), curving in to a less pronounced taper at the end.

The distinction between a tapered counterbore bocal well, as in the Eichentopf instruments, and the stepped socket well in the Scherer, is significant. In both cases the bocal is inserted about 35 mm deep on average. The tapered well places the narrowest point, or "choke",[3] in the bore much further down the instrument beyond the end of the bocal insertion point, and in the socket well distinct steps are created between the end of the bocal, a gap at the bottom of the bocal well (even on later instruments, the bocal is rarely inserted all the way to the end of the well) and the step to the rest of the bore of the

2 A conical bore instrument has a cone-shaped bore that gradually increases in diameter from the top of the instrument (e. g. the reed end for the bassoon or oboe, the mouthpiece end for the French horn or cornet) to the end (bell). Any part of the bore that reverses the direction of this cone towards the end of the instrument by getting smaller in diameter, rather than larger, is called a counterbore.

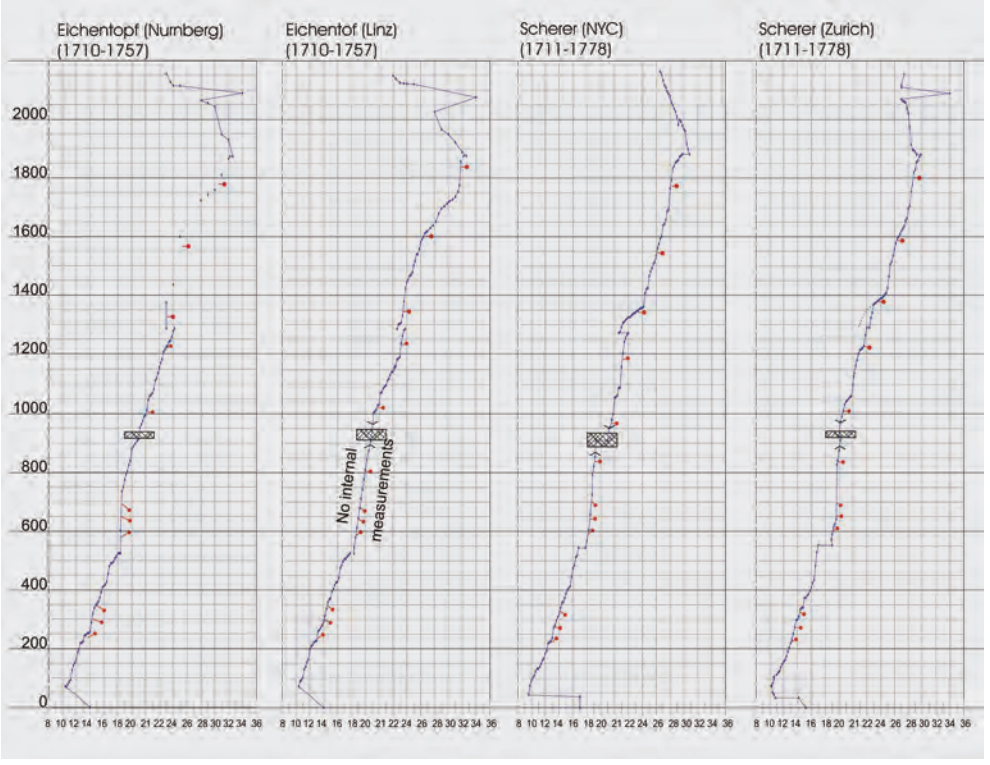
3 Borrowed from oboe terminology, the choke is the point of narrowest diameter at which the counterbore of the bocal taper meets the opening taper of the rest of the joint. Often, this narrowest diameter can be stretched into a short cylindrical section.

instrument. In some cases, socket wells can also be followed by short counterbores so that this narrowest choke point still falls further down the instrument, much lower than the end of the bocal.

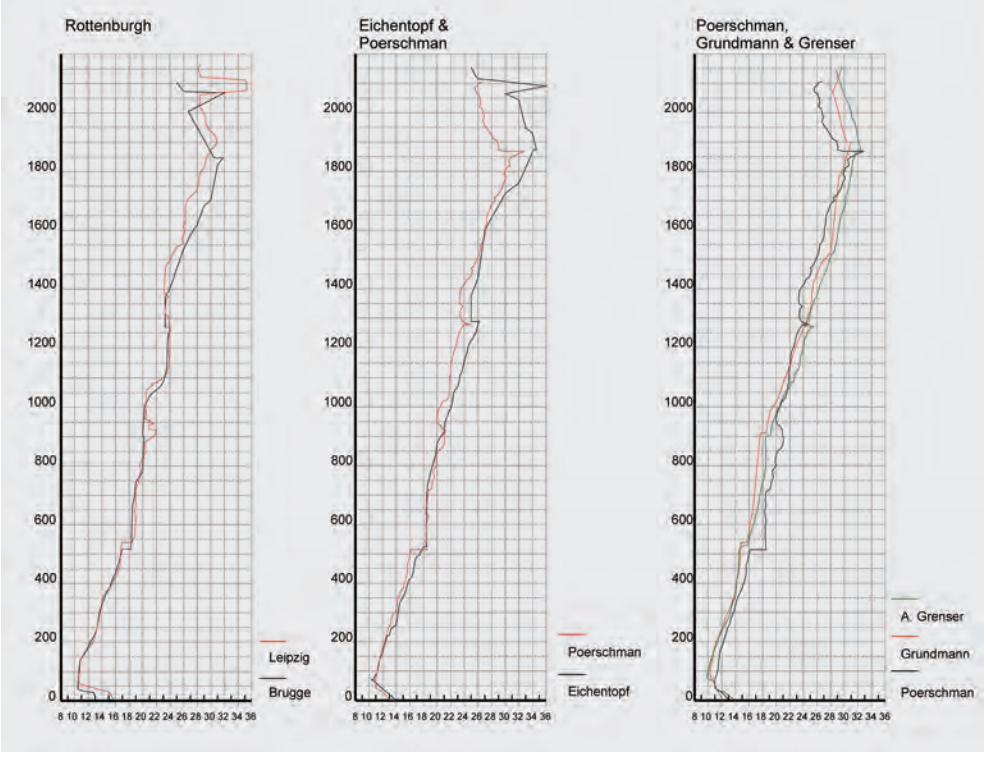
The shape of the Scherer wing can roughly be described as parabolic, placing a greater increase in rate of volume at the top of the joint than at the bottom. This is in contrast to the Eichentopf, which maintains a fairly constant taper with a steady volume increase, the rate increasing only towards the end of the joint with the flaring in the last 70 mm. Most wings from period instruments fall into either one of these two shapes, but some would be harder to define. For instance, the wings of the two Rottenburgh instruments are comprised of two parabolic steps following a long cylindrical choke area, placing two increased rates of volume at ⅓ and then ⅔ down the bore.

Some years ago, in a discussion with a fellow maker, it was pointed out to me that the flaring at the bottom of the first joint on oboes helped to focus and tune the ½ step above the last note of the joint. For the bassoon this note would be C♯, and, experimenting with this, I found it to be true on the Eichentopf. When placing less flare, the C♯ became problematic. One example of how lessons learned from one model do not necessarily translate to another was demonstrated when I tried this on one of my Scherer prototypes, as I felt that the C♯ could both be raised in pitch a little and made more focused. But, I found that instead of correcting the problem it started to add instability.

For the narrow bore of the Linz Eichentopf I unfortunately did not have the proper measuring tools with me, so the Eichentopfs cannot be exactly compared, except for the general statement that the cone of this bore has the slowest expansion rate of any other part of the instrument. Except for this, there are no striking similarities (or dissimilarities) between the two Eichentopf instruments. The two wide bores of the boots can generally be described as having a greater expansion rate taper than the narrow bore (not uncommon in many makers through the 19th century). For the Scherer wide bores we do see two distinct, slow tapers that flare quickly into each other at the end of the joint just before the socket to the long joint. Unlike the Eichentopf, the wide bore of the Scherers does not have as significant a difference in expansion rate to the narrow bore. It should be noted that there are signs that the boot of the New York instrument has been shortened. The long joints on the Eichentopfs are somewhat similar in how the lower portion has a steady slow taper through the first 10–15 cm, with the expansion rate gradually increasing into an inverse parabolic curve through much of the middle part of the joint before ending in the last 10–15 cm with a slower taper again. The long joint on the Zurich Scherer underwent some restoration in the 1950s or 1960s and the two tenons were completely replaced. The very wide taper that starts after the replacement piece and continues past the first tone hole under the D flapper key can however be interpolated as having originated at the base of the joint (marked as a dotted line in the graph) as it does on the Scherer



Graph 1 Eichentopf and Scherer instruments



Graph 2 Rottenburgh instruments (left); Eichentopf and Poerschman superimposed

in New York. The greater expansion rate or flare found in the top 5 cm of the New York instrument cannot be compared with the Zurich instrument, as the tenon replacement completely covers this section. The constriction[4] that results from the marked decrease in diameter between the end of the wide bore and the beginning of the long joint, followed by a rapid expansion rate at the beginning of this joint, is unusual. It can however also be noted to a much lesser degree on instruments of Haka, Palanca and less still on August Grenser instruments. What immediately stands out on all early bassoons, even through much of the 19th century, is the counterbore in the bell. On most of the earlier instruments the diameter of this reverse taper starts close to the end of the long joint and decreases through the full length of the bell, often also decreasing to the same minimum diameter of the long joint as well – but this over half the distance. There is often a bulb cavity near the end of the bell, carved not with reamers, but with either gouges or boring bars. On my graphs it is important to note that, while these cavities appear V-shaped, as I only have the maximum diameter displayed, this is not the case. These cavities are round or bulb-shaped. The two bells of the Eichentopf are fairly close and also follow the contour of the middle section on the long joint before the taper slows. The carved bulb cavities of the bells are of different lengths, though they have the same large diameter.

The Linz instrument has a circular discoloration and slight depression – clear signs that have been left, I believe, by the rubbing of a support or a steady rest on the outside of the bell. Normally, when work is turned on a lathe, it is supported at two ends: the headstock, which secures and turns the work, and the tailstock, which supports the centre of the piece at the other end. However, this method makes the bore inaccessible, so a steady rest must be used – not just for making adjustments, but also for preliminary drilling and reaming. The piece must already be turned roughly round for the steady rest to be used, as it basically works by creating a sleeve, inside which the piece can turn while being supported. Once the process of alteration, reaming or gouging is completed, the outside of the piece (or joint) can then be properly shaped and finished. The steady rest marking on the instrument implies that the bulb may have been turned after the instrument was finished, and this in turn opens up the possibility that the idea of a bulb cavity was a later revision to the full counterbore of the Baroque bassoon bell. For this reason, this might well have been the older of the two instruments. Contrary to expectations, my experience and experiments with trying to find a reason for this carved bulb cavity in the bell showed that it had little or no effect whatsoever on the overall tone of the instrument. It did, however, reveal specific gains on one model (e. g. it stabilised and reinforced both

4 This constriction is not to be confused with typical constrictions commonly found at tenons on upper woodwinds thought to be caused by string wrapping. Though steep, this is a steady and long taper that reaches well beyond the end of the tenon and past the first tonehole of the long joint.

octaves of G♯), but had either no effect or a different beneficial effect on another. This is yet another example of how singular was each maker's design.

The bells of the two Scherers have important differences. The New York bell does not have a bulb cavity, just the full counterbore. In the Zurich instrument, although the bell has a carved bulb, the taper is less severe and it has a reverse counterbore[5] after the bulb. If we take into account the supposition that the bulb cavity was a later addition along with the narrower taper and the reverse counterbore, which we usually start to see in the second half of the 18th century, there is a strong possibility that this is the more recent of the two instruments. In addition, the New York instrument is unusually massive in both keywork and the amount of wood left on the instrument, and it has a unique, elongated slope to the wing joint that stretches its full length. I find these to be further pointers to the instrument being an earlier one (see graph 2 on page 43).

Another example of the individualities of earlier makers can clearly be seen on the graph representing two bassoons of the Flemish maker Rottenburgh. One of these is in the Stedelijk Gruuthusemuseum in Bruges, the other[6] is in the Leipzig Musikinstrumentenmuseum. These are bassoons that I feel have some of the more extreme deviations from a straight or constant tapered cone. The wing has two distinct parabolic curves to the bore already mentioned earlier; this is much more pronounced in the Leipzig instrument but clearly also evident in the Bruges instrument. The boot joint is comprised of three stepped, relatively cylindrical sections, the middle of which actually straddles the narrow and wide bore as it continues from one to the other – here much more evident in the Bruges instrument. Possibly because of the different methods in measuring, it is hard to see what similarities might exist in the long joints, other than the fact that they both start with a short cylindrical section and end with more of a flared taper (see graph 2 on page 43).

Nor did makers within a given city produce like instruments. We can see this clearly by comparing the graphs of the Poerschman (in the Leipzig Musikinstrumentenmuseum[7]) and the Eichentopf, both made by highly regarded, well-established makers in Leipzig who also had strong family ties with each other.[8] Even when taking into account certain similarities in the wing and narrow bore of the boot joint and the differences in

5 If one characteristic of early bassoons is a counterbore that runs the full length of the bell, another which starts to predominate later in the 18th century is the reverse counterbore. In bells with full length counterbores the narrowest point is at the end of the joint. In bells with a counterbore followed by a reverse counterbore, the narrowest diameter (or choke of the bell) falls at some point in the middle of the joint.

6 Measurements courtesy of Mathew Dart.

7 Measurements courtesy of Mathew Dart.

8 See Mathew Dart's chapter in this publication.

curves resulting from differences in measuring technique, we can see that the differences between Poerschman and Eichentopf instruments are as different as between any other two makers. This is significant, as we tend to assume that makers within a region share regional characteristics. While this might be somewhat true for the exterior of the instrument, it is rarely true for the bore through most of the 18th century – and it is the bore that actually determines the sound and tone of the instrument.

The work of many other makers of this first generation – Haka, Denner, Bizey, Stanesby to name just a few – makes it evident just how much each maker represented a world unto his own at this time. However, we do start to see clearer lineages and regional similarities as we move into second and third generations of makers, such as August Grenser and Grundmann (graph 2c), who both apprenticed under Poerschman and then relocated from Leipzig to Dresden in 1744 and 1753 respectively. The one trait that they both retain is the slowed taper at the end of the wing joint (which we can describe as a delayed parabolic shape). Grundmann also retained the more stepped bore in the narrow bore of the boot and the segmented long joint comprised of a cylindrical section immediately followed by two stages of rapid expansion. To be sure, we are here making comparisons between only one instrument each of Poerschman and Grundmann, whereas with August Grenser there are several that can be compared – and in some of these, differences between them can indeed be identified.

Circuitous developments The anomalies in bore design between makers make it difficult to maintain our assumptions about the specificity of regional characteristics. Furthermore, many changes that took place over time were too complex for us to map them chronologically with any degree of clarity. One particularly slow and complex period of transition comprised the second half of the 18th and the early 19th centuries. In general terms, apart from the addition of the low D♯ and some tenor keys, the Classical instrument differed from the Baroque in that: a) the stepped socket bocal well became the norm; b) the cone was narrowed (the average wing can be 1–2 mm narrower at its smallest diameter and 2 mm narrower at the end of the joint, and long joints can be up to 4 mm narrower at their wide end); and c) the bell became more open, as it had less of a choke created by the full steep Baroque counterbore (the taper of the counterbore on a Baroque instrument can easily be 10 mm over the length of the bell) that was replaced with a less severe one through half the joint (a counterbore of 2 mm to the middle of the joint is common), followed by a reverse counterbore. But throughout this period we continue to see many of the wider bore instruments more characteristic of the "Baroque" period (see graph 3 on page 49).

The Wietfeld instruments, from the second half of the 18th century, are examples of later, wide-bore bassoons – and they are particularly interesting, since "in the Wietfeld

style" was referred to in an order list as late as 1788. Herbert Heyde describes a document with an order for 64 bassoons, including 32 "ordinary" bassoons and a further 32 "Wietfelter" bassoons[9] that were ordered with 3 or 2 wings, or simply referred to as "Wietfeld bassoons" without any additional specification.

The "Wietfelter" were also more specifically described as "model Wietfeld, with the D♯ key", which raises questions about the D♯ key reference. Is it a Wietfelter because it *has* a D♯ key, and if so, is this because Wietfeld was the first either to add or popularise this key? Is it a reference to the placement of the key (the instruments I have measured did not have D♯ keys)? Or are these particular orders to have the D♯ key simply as an option? And if this was only optional as late as 1788, does this mean that the key was not yet considered "standard" or essential? This could be an important consideration that has hitherto been ignored, as today this key is added on replicas of much earlier instruments more often than not. In any case, the specific reference to a "Wietfelter", as opposed to a "normal" bassoon, would have us suppose that there is something special or new about the instrument, and this is what is hard to understand when we compare the instrument to its contemporaries (to Grenser and Grundmann, already mentioned here, but also to Prudent, Porthaux, Palanca, Biglioni et cetera). Or perhaps what was special about a "Wietfelter" model was a more conservative style intended for an audience that was not yet ready or happy with the newer, narrow-bore models. The two instruments I have measured in private collections not only have much more in common with the earlier wide bore, thicker walls and heavier keys of the Baroque bassoon than with what we consider to be Classical instruments, but there are also many similarities with Rottenburgh, who created one of the more distinctive bores of his time.

These kinds of "quirk" similarities in the bore that are found between certain makers who are seemingly without any other connections are interesting and warrant further investigation. It would be hard to explain as purely coincidental the strikingly similar departures from a straight cone such as the two distinct parabolic curves in the wing, the stepped cylindrical sections in the boot joint, or the delayed parabolic curve of the long joint bore that are all shared by Rottenburgh in Brussels and Wietfeld in Burgdorf.

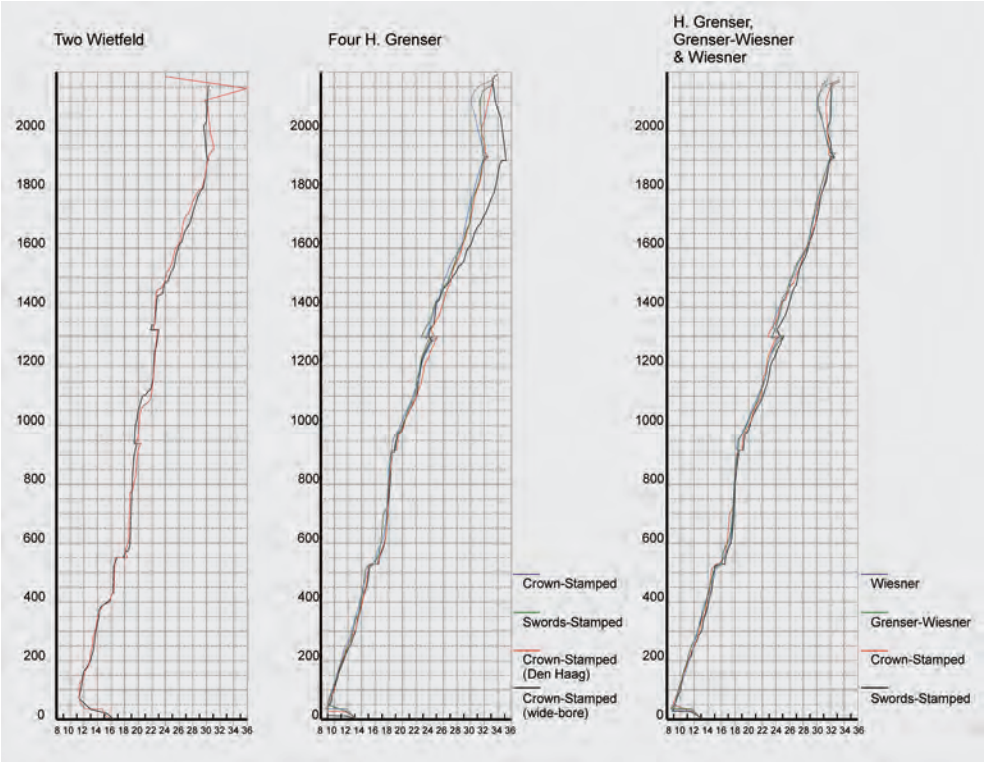
If we return to the comparison of instruments by August Grenser and Grundmann, we can see that the jagged permutations in the bore are somewhat smoothed out in comparison to the Poerschman or any of the other earlier instruments. This could

9 Herbert Heyde: Entrepreneurship in Preindustrial Instrument Making, in: *Musikalische Aufführungspraxis in nationalen Dialogen des 16. Jahrhunderts. Teil 2: Musikinstrumentenbau-Zentren im 16. Jahrhundert*, ed. Boje E. Hans Schmuhl and Monika Lustig, Augsburg 2007 (Michaelsteiner Konferenzberichte, Vol. 72/2), pp. 25–63.

possibly be attributed to a combination of better and smoother cutting reamers, more specific instrument-based reamers and some degree of increased mechanisation in the workshop, at least in the first stages of production. But again, I feel that there must have been deliberate decisions made about the specific deviations from a straight taper. The same type of smoothing out of bores can be seen in the instruments of other makers late in the 18th century (Bühner & Keller, Prudent, Savary et cetera), but they still have their own specific characteristic deviations from a straight taper (see graph 3).

We are fortunate that so many instruments survived from the workshop of Heinrich Grenser, who took over his uncle's shop in 1796 and could be considered a third generation maker. With data from these instruments it is possible to draw a clear image of his bore design while noting the couple that stand out as quite different – which is an indication of both his flexibility and knowledge, and of the more complex "customer demands" of the time. And in the case of those bassoons that are almost identical, we can note how very slight changes in what is essentially a uniform model affect how the instrument plays.

Many of the instruments by August Grenser were date-stamped, and all those by Heinrich Grenser can be assigned clearly to two periods: from 1793 to 1806 for those stamped with crossed swords, and from 1806 (when Saxony became a kingdom) until Grenser's death in 1814 for those stamped with the crown seal (though possibly until 1817 when Grenser's widow, Caroline Wilhelmine, married Wiesner). The instruments stamped Grenser-Wiesner spanned the period from either immediately after Grenser's death or from the time of Wiesner's marriage in 1817 to about 1826, when he received his trading license. It was at this point that Wiesner started to work under his own name stamp. When we view all the instruments chronologically within these clearly defined timeframes, we can also see (as with the Wietfeld) how changes in design were not so clearly demarcated. One good example of this is a crown-stamped instrument (placing it firmly after 1806) that stands out because of its steep and wide taper in the long joint and a complete counterbore in the bell – characteristics that better fit the parameters of a much earlier, "Baroque" design. In fact the long joint, starting off with a slow taper in the first 150 mm before progressing to a steep and slightly parabolic bore for the rest of the joint, is reminiscent of the Poerschman, Rottenburgh and Wietfeld instruments. This instrument was in fine playing condition, and I was so drawn to its sound that I made a first prototype with a view to putting it into production. The project was dropped (though I still have this first copy) because it clearly played at about A=421. More importantly, however, it was dropped because it had too much of a "chamber" sound (as did the original) for what musicians today desire and expect from a Classical instrument. As a contrasting example, there is an instrument with wooden keys that is stamped with crossed swords (meaning it was made prior to 1805), but in contrast to the later, wider



Graph 3 Two Wietfelds, superimposed; four Heinrich Grensers; H. Grenser, Grenser-Wiesner and Wiesner

bore, crown-stamped instrument just described, this instrument had a full, large and open sound with the most remarkable and easy tenor register up to D4 – just what we would expect of a much later instrument!

It can also be seen that repeated experiments were being made with the placement of some tone holes and keys, especially for the more troublesome notes (e. g. A♭ / G♯), and these do not follow any strict chronology. Depending on the instrument, we find that a given maker can drill the A♭ / G♯ tone hole in different positions into either the narrow or wide bore. Once again, in the case of Grenser and Grenser-Wiesner instruments, where we can rely on the stamps for dating, we do not find a uniform path of development for the placement of this particular tone hole.

The large-bore, crown-stamped instrument aside, some of the other Heinrich Grenser instruments can be seen to be uniform in their design and measurements (including the sword-stamped instrument with the strong tenor register). These originals were all in relatively good working order and it was possible to play them all. This was fascinating – that despite how similar they were in design, they were so very different from one another regarding tuning and scale adjustments that had to be made while playing, as was their response and timbre (see graph 3 on page 49).

I also find it interesting that the instruments from Heinrich Grenser and Grenser-Wiesner to Samuel Wiesner, which span the period from 1793 to 1850, remained extremely consistent throughout a period that was ripe with radical change and experimentation (this can be seen in the full bore graphs of four of these instruments when superimposed). This subject alone would benefit from a more in-depth study.

If such slight differences in a uniform design can affect how an instrument behaves, this highlights the importance of the differences between makers and adds particular significance to any scaling we do on an instrument, as well as to any transformation of it by "ironing out" design quirks that we feel are contrary to a "proper" bore design. From a practical standpoint, and in the light of such small differences affecting how any given instrument plays, it is easy to understand why today's contemporary makers stick to one design. We want our instruments to play "well" and in tune with themselves at any given pitch, and it has taken us all years to come to an understanding (rarely quite complete) of the parameters pertinent to a particular model.

But once we start work on a replica of a different maker, employing our understanding of what a "Baroque" or "Classical" instrument needs by adding one adjustment after another (because any isolated transformation never quite works), we are really transforming that second one into a version of the first. In my view, we are creating a brand new instrument based on our own personal idea of what a Baroque or Classical instrument is. And this type of new instrument is a very different one from the "new" instrument that we create by default when working on a replica of an original, whose qualities we found so particular and appealing and which we are committed to better understanding.

Aesthetic of ease and standardisation: At what expense? This brings us back to the topic of how changes in the early music movement have arguably affected the instruments we make. It is because of the commitment and thoroughness of musicians, instrument makers and scholars, along with the devotion of an excited and committed public, that early music survived and has earned its acceptance in the concert hall and academic world. It is now as institutionalised as other sub-specialties in classical music: opera, string quartets, symphony orchestras. And with a third and fourth generation still drawn to the sound of these early instruments and to interpretations of their repertoire, an increasing number of music schools – including those who were once outright hostile to the notion of playing period instruments – offer performance in period music on period instruments as a specialised degree choice. Years of ground-breaking experience have yielded a better understanding of performance practices, repertoire, instrument making and playing techniques, enriching the classical music landscape and resulting in a much more vigorous level of proficiency in performance and in instruments that are much more

reliable. It would be difficult to see these demands on musicians and makers as anything but a positive outcome of this new period of establishment and institutionalisation.

But the very nature of institutions is that they set norms – in every sense of the word. The academic discipline of early music can now be offered with an entire syllabus constructed around "textbook" material, no longer requiring the primary necessity of turning to, or hunting for source materials. Regulations and norms establish a framework that instruments and players have to maintain, but by the same token the performers are themselves shaped by this framework. I feel that this has come at the expense of open experimentation and of a loss of freedom in exploration. There is now a need to deliver a "polished" product, with the overall focus shifting from process-driven to product-driven. However, I feel this is not because we have exhausted or even merely charted all possibilities.

In some respects, I think that the earlier processes of exploration in early music, the return to source materials, treatises and instruments, the intense debates about performance practice and "authenticity", were all intended to justify trying something new – bringing experimentation into the highly structured, formalised, conservative field of classical music. This does not negate the great, intrinsic appeal of the new sounds. But their newness was also an end in itself – their fresh approach and their new means of interpretation. Today, the constraints of the institutionalisation of early music are partly a result of the practical considerations of earning a living (especially now, in increasingly difficult economic times) and of the expectations of a 21st-century period-instrument musician. Because of their personal choices, or because the field imposes it, players are today expected to navigate smoothly between modern and period instruments and from old to modern tunings, often all on the same day, and to do so perfectly and with minimal rehearsals.

I believe that these workplace-related demands, along with the broader impact of the standardisation of period instrument performance in academia – we are no longer experimenting with the sound, as we now have established what we are aiming for – have given way to a 20–21st century aesthetic of increased homogenisation. However much this may have been inevitable – what with a new field becoming more defined as institutions and practices are now in place to support, sustain and regulate it, and given the current climate of careerism and "professionalisation" – it is unfortunate that these "career" constraints, coupled with the pressures of the formalised academic track, have crowded out open exploration in early instrument making. Instrument makers, like musicians, need to support themselves, and their livelihood was always dependent on a certain amount of production work. But I do not believe that they today enjoy the freedom to investigate new models by allowing themselves the time to explore what might be characteristic of a particular instrument. As there is no longer a large pool of musicians who, free of

predetermined expectations, are willing to put in open, un-remunerated time, makers are expected to start working right away on 'fixing' the problems of a new model so that it is an easy-as-possible-instrument to pick up and play. There is no longer much space for the discourse about the nature of what it means to replicate an instrument, and our purpose is simply to make functional "copies" to meet industry and player standards, i. e. an instrument that inherently fits a new, conventional, pre-defined concept of what a Baroque or Classical instrument is supposed to be. And this instrument, which plays at a specific given pitch, must do so with recognisable ease, meaning that it must feel as similar as possible to all the other instruments a musician knows. When instruments become so interchangeable that they have the same feel for the player, they cannot in any way retain the distinguishing qualities that ought to set them apart. I feel there is still so much yet to be explored and understood and *played* with – explorations that would continue to tie musicians and makers to one another beyond the production line.

As understandable as it was, an early imposition on wind instrument makers was the need to conform to set pitches (415, et cetera). In my experience (one shared, I am sure, by most other bassoon makers), the majority of instruments has needed some degree of scaling to fit to these current pitch standards. But even when we try to do this by shortening/lengthening individual joints while respecting bore geometries of a particular model, we are well aware of how the timbre and balance of the instrument changes. We have indeed created a new instrument to meet contemporary demands, but this could so easily be considered just one version based on one model and not set as a blueprint for all instruments of a given period.

Without even touching on the fact that there is a multitude of different Baroque instruments that have been ignored for the stronger "name brand" ones (and the Eichentopf that I make is one of these), here is a specific example of how we can question the current norms in playing: how is it that players managed to play c, c♯ and d for 150 years without a whisper hole in the crook? Although Kopp has found references to the fact that as early as 1772 the teacher and bassoonist Felix Rheiner was playing an instrument with an "octave key"[10] and that Cugnier[11] referred to a whisper hole and key in 1780, most extant instruments and bocals do not show signs of either. If our supposition is that one of these notes at least will never be 100 % reliable without it, how are we to learn how we might need to play, or how our reeds need to be designed, if we don't simply try? This would require a commitment to a spirit of exploration that would carry us through all the times that these notes might jump or crack to the octave below, through all the experimentation in reed design, even if the resultant sound is not what we were originally

10 James B. Kopp: *The Bassoon*, New Haven 2012, p. 98.

11 Ibid., p. 88.

aiming for. Adding the whisper hole would seem like a small compromise if it weren't for the fact that it truly compromises *every single other note* on the instrument to some degree.

There is a general point here: since instruments in the Baroque and Classical periods were so different from each other, was it ever really possible to have a "unified", "blended" section sound? What would happen if we were to allow our ears to open themselves to a second player not having to blend into and under the sound of the first? And if it is possible that section-blending was not part of the aesthetic, would it not be possible that the group sound too was not expected to be as thoroughly blended as it is today? For instance, what would it be like if bassoonists were allowed to play out, and not asked to play as softly as possible, and dampen their "reediness", as is common today? In fact, Kopp mentions numerous references to different tonal aesthetics that co-existed side by side[12] in the 18th century, including a passage in Cugnier[13] (1780), who speaks of a desirable quality of *mordante* when playing in an orchestra – not a word that we would readily associate with softness or blending in. This would indeed change the texture of the ensemble and might bring into question some of our fundamental feelings about what we might consider "musical", but we already know how such considerations of "le bon gout" are purely subjective and contextual and how, when pushed, we can discover a new appeal and new contexts.

Regardless of the period, the repertoire or the performance practice in question, there is a physical dialogue between the musician and the instrument, whether it is modern or historical. They are engaged in a feedback loop that can be described as a push and pull, as a player learns from the instrument how it needs to be approached, how much he or she can push and control, how much can be learnt from the instrument's response, and what adjustments he or she needs to *embody* so that the musical intent can be comfortably relayed through the instrument. This is a clearer two-way relationship with a new, unfamiliar instrument, but to some degree this is always true. All players learn to make adjustments, even if minor, when there is a rise or fall in temperature or humidity, or in different acoustics or different ensemble configurations. This relationship with an instrument is an intensely physical one for most musicians, and changing instruments always requires a period of adjustment and embodiment, no matter how brief or long. We all know players who can pick up *anything* and make it play well, players who have a very particular setup which will not translate to any instrument other than their own, and most of us, who fall somewhere in between. For some, this process is as delightful as the

12 Ibid., p. 98 with specific reference to David Rhodes, but numerous source references throughout chapter "The classical bassoon", pp. 86–113.

13 Ibid., p. 90.

music-making itself, and for others it is a hurdle they must overcome to get to the music. In the current "professional" environment, with musicians needing to jump from instrument to instrument, often with minimal rehearsals (from dulcian 440 and 466 to Baroque 392 and 415, to Classical 430 to modern for many players), this dialogue has had to become much more one-sided. All musicians are expected to be able to control with immediacy any instrument that they pick up. In order to facilitate this process, it seems that historical instruments of all periods have come to resemble each other more and more. This streamlining, along with our modern, blended sound aesthetic, has removed one of the central appeals of working with historical instruments – that of their great diversity, not just from one period to another, but also within any given period.

As shown earlier, instruments by different makers were themselves very different, even in the same town, as can be seen in the case of Poerschman and Eichentopf. And where more than one instrument of a given maker survives, we can see that quirks in the bore were not accidental, since they are consistent with each of their instruments. It is these quirks and bore geometries that give an instrument its specific sound qualities. These unique physical and acoustic parameters dictate that each of these instruments needs – no matter how slight – to be approached and played in a different, individual way.

If I lament the current trend of product-driven homogeneity, it is not merely because it does not do justice to the Baroque, Classical or other periods, but because it has also straitjacketed us – makers and musicians alike. Even if our focus has turned away from replicating instruments so that they are as close as possible to an original and that our task is now to create instruments based on our own ideas of a particular period instrument, why is there such a conformist, generic spirit in these new creations? With musicians and instrument makers intrinsically tied to one another, it is ultimately up to us, musicians and makers alike, to define the environment in which we would prefer to work, and to challenge those trends that we find constricting or limiting.

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Herausgegeben von Martin Skamletz
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