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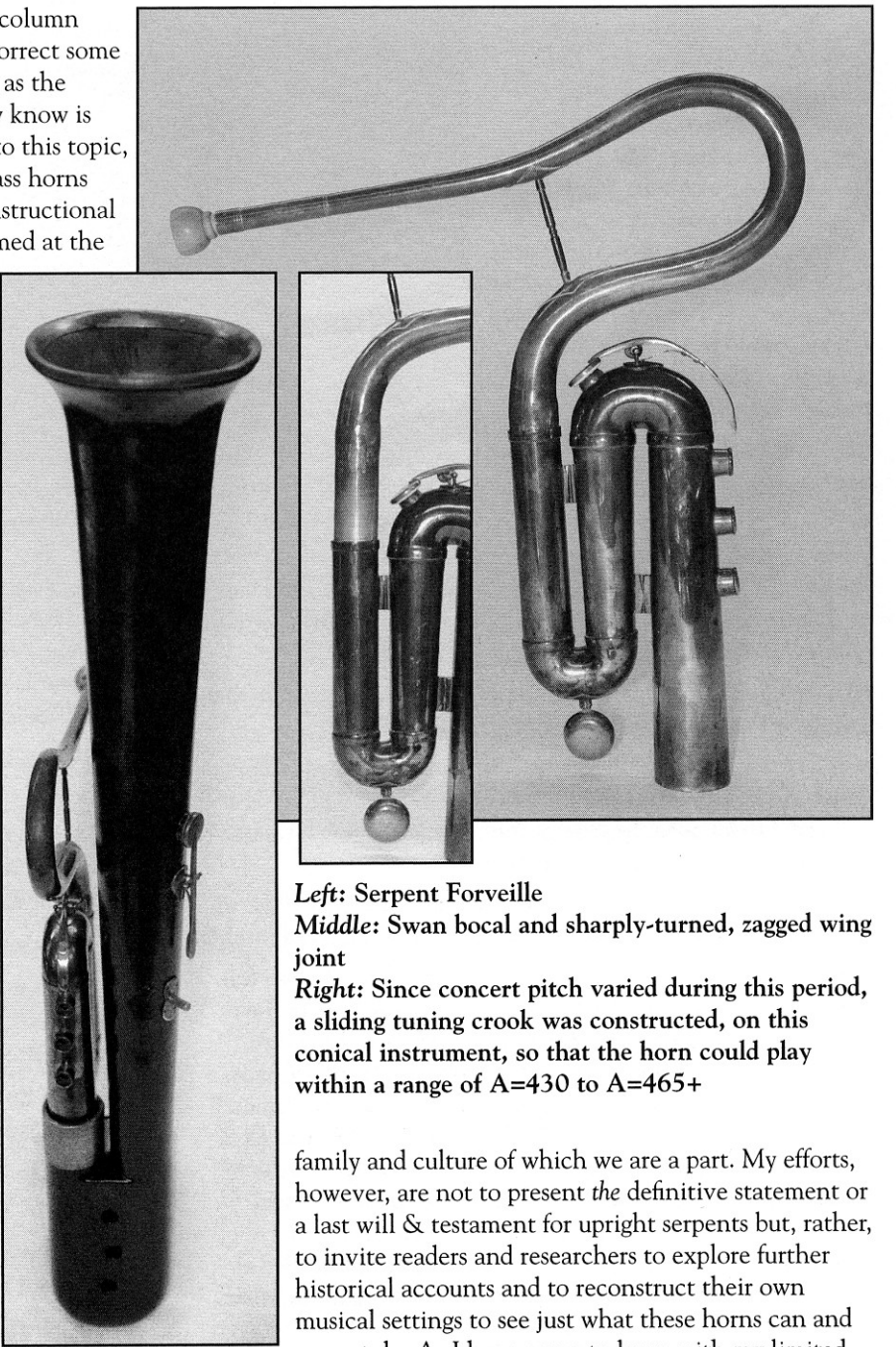
The Serpent Forveille:
"Perhaps the Best of All these Instruments for Sound"

Years back, I published a general account in this column describing upright serpents and attempting to correct some misconceptions about the basson russe (also known as the Russian bassoon . . . which, fortunately, readers now know is "neither Russian nor a bassoon"!). I wish to return to this topic, in part, due to the recent interest in serpents and bass horns (upright serpents) generated by the release of the instructional DVD, *Approaching the Serpent* with Douglas Yeo, filmed at the Utley Brass Collection of the National Music Museum. While organologists have continued in their efforts to understand upright serpents—straight instruments whose history seems to be so straightforward—the subject remains as complicated and convoluted as the appearance of any church serpent. Further, the various musical roles, fingerings, shapes, and sounds of English bass horns, German chromatic bass horns, ophimonocleides, bassons russe, serpent bassons, serpents a pavillon, serpents Forveille, and cimbassos—all upright serpents and bass horns—continue to confuse musicologists, organologists, and historical brass specialists.

For Adam Carse, one of the 20th century deans of organology, the upright serpent falls within that broad category of failed experimentation, yet some accolades are noted as he states "considering the short career of these instruments, it is surprising how many different shapes were tried."[1] In contrast to past notions of "the improvement of instruments" (and a sense of a Whig history's "march towards progress"), today's musicologists often reverse such research questions: rather than viewing the bass horn as inadequate and a mere transitional instrument for the yet-to-be-invented tuba, the issue becomes what strengths and unique characteristics did these upright serpents bring to the musical and acoustical worlds of *their* time. We now suspect that many of the bass horns more than fulfilled the musical expectations of the early 19th century and did so in a more able manner than was originally assumed.

During the next few years, I look forward to presenting informal introductions to these important-yet-overlooked instruments that have come to comprise the tuba family and culture of which we are a part. My efforts, however, are not to present *the* definitive statement or a last will & testament for upright serpents but, rather, to invite readers and researchers to explore further historical accounts and to reconstruct their own musical settings to see just what these horns can and cannot do. As I have come to learn with my limited exposure to these instruments, a closer examination of bass horns has helped to redefine our fundamental impressions of the



Left: **Serpent Forveille**
Middle: **Swan bocal and sharply-turned, zagged wing joint**
Right: **Since concert pitch varied during this period, a sliding tuning crook was constructed, on this conical instrument, so that the horn could play within a range of A=430 to A=465+**

serpent and early 19th century performance practices. So much more needs to be explored.

One bass horn that stands apart from the assortment of usual suspects is the serpent Forveille. As the (only?) upright serpent that warranted its own early 19th century instructional treatise, this instrument was introduced in 1823 at the Paris Exposition de l'Industrie by Parisian instrument designer and serpent maker Forveille.[2] Unlike other bass horns, a serpent Forveille is standardized in design and can never be confused with other instruments loosely identified among the conglomeration of upright serpents. While contemporary museum displays may classify any narrow, bass wooden wind instrument with a metal bell and cup-shaped mouthpiece as a cimbasso or basson russe, the serpent Forveille is rarely misidentified in exhibits and consists of three distinctly identifiable sections—a metal, swan bocal (or crook), a sharply-turned, zagged metal wing joint with three chimney fingerholes, and a J-shaped wooden bell column with three "cross-drilled" tone holes. Carse notes the serpent Forveille's "narrower tube soon forsakes the wooden butt, and performs some metallic contortions of its own before settling down to join the crook."[3] Perhaps no description does justice to the design.

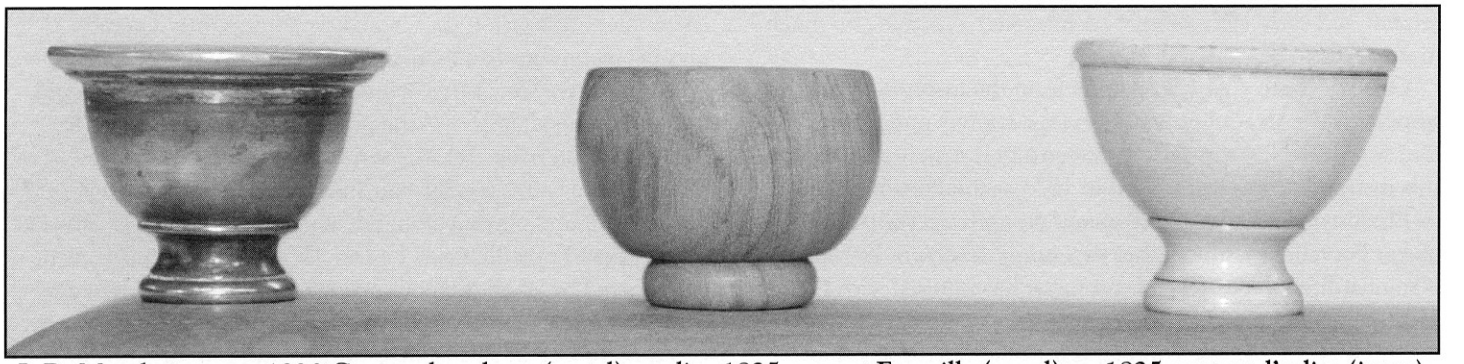
This instrument, while named after its inventor, was constructed by a variety of makers, notably Darche, Klemmer, and Turlot. Readers must not assume that all serpents Forveille were actually constructed by Forveille. Yet, much credit must be given to its creative designer whose inventions advanced not only the world of bass horns but also serpents. A signed 1821 serpent d'eglise (a standard church serpent, also called a serpent ordinaire) by Forveille displays the most imaginative keywork presently known on any serpent.[4] By using swallow-tail keys (with different lengths for the branches) Forveille allowed the serpentist to play in either a horizontal or vertical position (British or French style). While swallow-tail keys were common on other instruments dating back for centuries, this use of keywork on the serpent proves to be an ingenious invention in its own right.

The serpent Forveille treatise, prepared by Hermenge and published circa 1825, describes the instrument's design as a way to overcome the church serpent's major fault.[5] While most contemporary musicians would assume that problem was its intonation and tonal instability, Hermenge maintained the main difficulty of the serpent was playing the instrument while walking. Since we seem to have no iconographic evidence of walking serpent Forveille players, one must wonder just how much of a problem was solved by the introduction of this horn. Hermenge goes on to state that the serpent Forveille solves the serpent ordinaire's difficulties of sharpness of its tone in the third octave, again startling since this is a sonic area that is only partially explored by today's most virtuosic serpentists. The importance to smooth the pitch in the third octave proves surprising until one examines the method's caprice, etudes, and fingering chart that includes cadential trills and mordants in the third and fourth octaves and to the 10th harmonic. Most unfortunately, in his introduction Hermenge states that he "will not expatiate upon the [instrument's] advantages for the harmonics," a decision that now disappoints contemporary players, researchers, and enthusiasts.

For most readers of this column, intonation problems would be seen—immediately—as the primary if not sole content for such a method book. Yet, the serpent Forveille may be viewed as offering a true advancement for intonation in the serpent world (as I have found playing alongside an early 19th century bassoon on a serpent Forveille made by Darche and another instrument constructed by an anonymous maker). The horn's pitches, as described by Hermenge, are "equally true and clear." Yet, as is commonplace in this strange world of upright serpents, not everything is as straightforward as it seems. What I have come to discover in my own experimentation with the serpent Forveille is a remarkable difference in the fingering pattern between this instrument and the traditional serpent.

Please forgive the forthcoming detail, but bass horn fingering charts always prove quite confusing since not all instruments place the fingerholes on the descending stock column (in what represents the lower portion of the air column). With their V-shaped configuration, the bottom three fingerholes may be placed, much like a saxophone's, on the descending air column of the instrument or, as is the case with the serpent Forveille, cross drilled on the ascending column. Only by an examination of instruments, rather than viewing photographs, can one determine whether the tone holes are descending on one column or placed on both. Thus, on an English bass horn where the six fingerholes are conventionally descending, the sixth and lowest fingerhole is covered by the right-hand ring finger. On the serpent Forveille, this lowest tonehole is covered by the right-hand index finger. With all of this detail aside, what the serpent Forveille fingering charts display are quite peculiar if not remarkable: the primary notes rely upon forked-fingering through all octaves (which would not have been the case if the toneholes had been placed solely on the descending column). This is in marked contrast to Hermenge's fingering chart in his serpent ordinaire treatise where notes are fingered in conventional ascending patterns with half-hole fingering rather than forked fingering. Playing a serpent Forveille with a forked fingering pattern rather than a traditional church serpent fingering does, as I have found, truly lead to clear and stable pitches with greater evenness of sound.

Fingering patterns are just the beginning for this enigmatic bass horn; the sound of the serpent Forveille proves even more mysterious. Anthony Baines, in his legendary *Brass Instruments and Their History and Development*, describes the serpent Forveille as "perhaps the best of all these instruments for sound."[6] What this actually means to players and listeners, of course, becomes a matter of interpretation, aesthetics, and historical context. Ironically, Hermenge seems to differentiate little between the serpent and serpent Forveille in terms of tone quality, stating that the best trained ear could not determine a difference between the sound of the instruments. Such a historical comment is a remarkable contrast to much current wisdom that these instrument designers were experimenting with sound by varying the proportions of wood to metal of the air column. A standard military serpent's proportions are 80-88% wood to

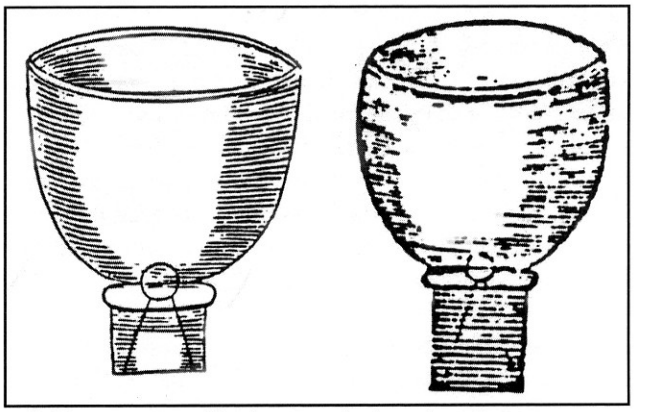


L-R: Mouthpieces: c. 1830 German bass horn (metal); replica 1825 serpent Forveille (wood); c. 1825 serpent d'eglise (ivory)

12-20% metal; a standard serpent Forveille is approximately 50% wood and 50% metal. (And an ophimonocleide consists of substantially more metal to wood and, of course, the English bass horn is all metal.) Wouldn't one expect the sound to be different in some manner as the relation of the instrument's wood to metal changed? Not from Hermenge's comments.

Further, any bass horn "best for sound" to modern organologists and low brass players could vary considerably, one would think, from the sensibilities of early 19th century serpent Forveille players. Yet, this is where the modern researcher enters into unknown worlds and perhaps faces unanswerable questions. I must begin to wonder if this 19th century instrumentalist actually saw himself as a low brass player. Hermenge dedicated his serpent Forveille method to a "professor of bassoon at the royal conservatory of music in Paris" and, during this period, many of the serpentists at the Paris Conservatoire were also bassoonists. Early 19th century harmoniemusik would have typically coupled the serpent Forveille with bassoons, a role seemingly essential as noted in the landmark essay by acoustician D. M. Campbell who described the unique acoustical properties of serpents to supplement the lower harmonic range and low frequency pitches of the early 19th century bassoon, an instrument much less forceful than today's models and in great need of volume to expand the sound of the bass part within the military or chamber wind ensemble.[7] Ultimately, I have come to question whether the serpent Forveille would have produced what we now construe as "a brass sound."

One other dimension of the instrument—perhaps the most important pertaining to sound—has caused me to reexamine my original assumptions about the serpent Forveille: its mouthpiece. Aligning historical mouthpieces with instruments has proven quite difficult for museum curators, and Arnold Myers has done much to further our understanding of low brass mouthpieces from his meticulous research.[8] Fortunately, Hermenge's early 19th century treatise also provides invaluable insights, in part, because he depicts and describes a serpent Forveille mouthpiece and places this drawing in juxtaposition with a traditional period mouthpiece for serpent. Hermenge is most adamant about the exterior shape—concave rather than the more curved-shape of serpent mouthpieces. While allowing the diameter size of the rim to be determined by the preference of the player (yet another startling comment for today's conventional wisdom), Hermenge insists upon a narrow, extremely-thin, external edge, certain to



L-R: serpent ordinaire mouthpiece drawing, serpent Forveille mouthpiece drawing; from Hermenge's *Méthode Elémentaire pour le Serpent-Fourveille* [sic]

bring some dismay to contemporary players who would bemoan how the horn feels upon their face. But seemingly one defining element for the sound of the instrument comes not from the width of the rim but, rather, from the sharp-throated cup. In the treatise, Hermenge includes a line drawing of the mouthpiece displaying this sharp edge in contrast to the curved, conical cup typical of today's low brass mouthpieces. (The sharp-edged throat is also a marked contrast to the conical ophicleide mouthpiece throat; however, there seem to be a few early 19th century trombone mouthpieces with an equally sharp-edged throat.) As I have found from using a Hermenge replica mouthpiece, this sharp-throated cup produces a more breathy or "reedy" edge to the sound and serves to blend wonderfully with bassoons (in a way that is quite difficult for tuba or euphonium). I must admit that I have yet to discern the benefits of the concave shape, but the sound is different from that produced by a conical cup and causes the serpent Forveille's pitches to sound even, stable, and "reedy" if not "airy" . . . perfect to merge with and enhance the bassoon.

Welcome to the complex world of bass horns.

As Christopher Monk, legendary 20th century serpent player and maker, once said, there is so much more we need to learn about the serpent Forveille. And there is so much that we will never be able to understand. With the confirmation of the serpent Forveille's sharp-throated cup and its effect upon sound, this straight-forward, upright serpent becomes more astonishing and perplexing. Further, there are other sharp-

throated mouthpieces presently attributed to brass instruments of the early 19th century wind ensemble that would, conceivably, alter the sound quite dramatically from what some have assumed was a full, "mellow" tone. With further explorations into the realms of other low brass instruments and entrances into other fields of study, perhaps we may be able to gather bits and pieces of information—impressions, historical accounts, military records, concert programs, and drawings & treatises—that can be aligned specifically with these various bass horns and other members of the tuba family. So much has been gathered during the past 20 years that has redefined our impressions of upright serpents as true musical instruments rather than mere failed experimentation. Isn't there so much more to learn and so much more to understand?

Endnotes

[1] Carse, A. (1939). *Musical Wind Instruments* (New York, Dover, 2002, 279).

[2] Bevan C. (2000). *The Tuba Family* (Winchester, Piccolo Press, 2nd edition).

[3] Carse, *Musical Wind Instruments*, 278.

[4] See www.berliozhistoricalbrass.org/serpent-by_forveille.htm

[5] Hermenge, *Méthode Elémentaire pour le Serpent-Fourveille* [sic] (Paris, circa 1825). 1835 has been ascribed as the publication date—thirteen years after the introduction of the instrument; however, I believe this year was "negotiated" by contemporary researchers. The fact that the publication was dedicated to Delcambe who, I assume, is actually Thomas Delcambre, a bassoon faculty member at the Paris Conservatoire from 1795-1825, led me to speculate that the dating could be placed as early as "circa 1825." Recently, I examined a collection of fingering charts at the British Library where Hermenge's serpent Forveille chart appears with a marginalia marking of "circa 1830." This is somewhat suspicious, however, because his *serpent ordinaire* chart, appearing in a method published in 1817, also includes an 1830 marginalia marking. I look forward to a future confirmation of the accurate publication date.

[6] Baines, A. (1976). *Brass Instruments: Their History and Development* (London: Faber & Faber, p. 199).

[7] Campbell, D. M. (2002). "Serpent and contrabassoon acoustics," The *ITEA Journal*, 29:4, 54-55. [see www.berliozhistoricalbrass.org/29-4%20Sum02.pdf]. Gillaspie, J. A., et. al., (1998). *The Wind Ensemble Catalog* (Westport, CT: Greenwood Press).

[8] Myers, A. (Ed) (1996). *Historic Musical Instruments in the Edinburgh University Collection: Large Mouthpieces for Brass Instruments*, Vol. 2, Part H (Edinburgh: Edinburgh University Collection of Historic Musical Instruments)

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