The Ophimonocleide
Folly or Genius?

A bevy of bass horns: (L-R) ophimonocleide, basson Russe, German bass horn, serpent pavillon, cimbasso, serpent Forveille, English bass horn

This essay continues an ongoing review of the mysterious and perplexing world of early 19th century bass horns (also known as upright serpents). Thus far, I have discussed the serpent Forveille and English bass horn, and the (early) cimbasso and basson russe are on the horizon. [1] Now, the ophimonocleide is the focus of our attention, an instrument receiving little (positive) notice among the array of early 19th century brass. When carefully considered, however, the ophimonocleide represents a brilliant solution to a perennial intonation problem of all bass horns and serpents. I ask readers to remain patient with me since I wish to introduce this instrument not in a standard "here it is—show and tell" format but, instead, more as an example of creativity and experimentation during the pre-valve musical era.

Too often, instrument descriptions reflect a standard organology-"Dragnet" approach—"just the facts, ma'am"—concluding with a grand finale that typically judges the success and/or usefulness of the horn in relation to notions of progress. Such an historical approach—Whig historiography—is questionable at best when considering musical instruments from the past. Certainly, the tuba is an advancement over the serpent... in what may be the greatest low brass understatement ever uttered. Yet, any notion of success, usefulness, or progress is situational and highly constructed. The serpent blended with other wind and string instruments in ways that prove impossible for the tuba. When early 19th century bassoons greatly needed the strengthening of their lower register without being obscured or, when composers sought different registrations—"sonic ornamentation"—for repeated sections in their woodwind compositions, the serpent was indispensable. Success is difficult to ascertain when reconsidering what an historical instrument was

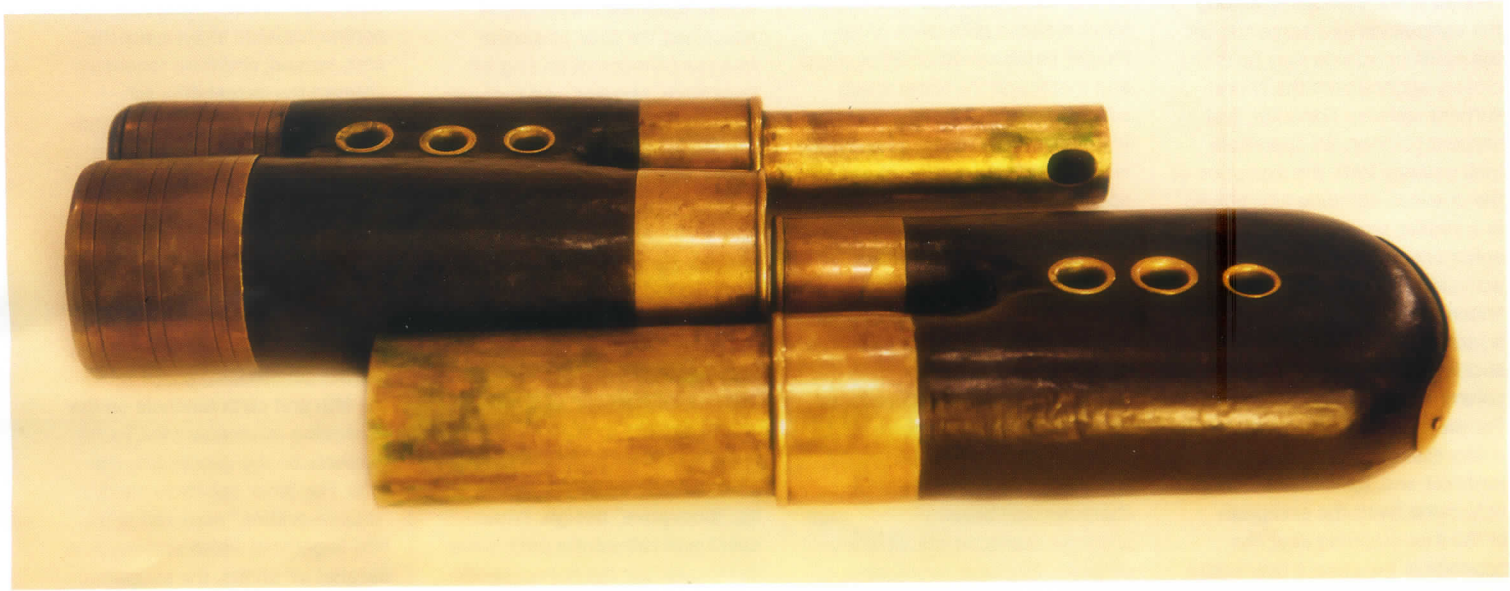
L-R: ophimonocleide and ophicleide

meant to accomplish during *its* time period—especially when an instrument's resurrection and "first hearing" is often staged by a well-meaning novice rather. Certainly, today's generally negative impression of the serpent would be much different if, seventy years ago, the instrument was introduced by tubists/serpent virtuosi Volny Hostiou, Michel Godard, Roland Szentpáli, or Patrick Wilbert. Instead, a British music generalist/instrument collector traveled England and the United States during mid-20th century implicitly displaying what could not be done on the serpent. [2]

Nonetheless, the ophimonocleide's life was indeed short, its popularity seemed limited, its reputation is now nonexistent...and success and usefulness do not come to mind when discussing the instrument's legacy. The ophimonocleide, however, offers an occasion for wonder—if only for a few moments—about historical low brass and the creativity of instrument designers who were all attempting to conceive of a bass wind instrument before the invention of valves. From this perspective and from the context of music making during the early 19th century, the ophimoncleide becomes a remarkable concept and, perhaps, even a remarkable horn.

The Ophimonocleide: Just the Facts

The ophimonocleide, a specific type of bass horn, is a member of the serpent family with a shape simi-lar to an ophicleide and with six open (i.e., uncovered) toneholes and one open free-standing key. The three toneholes at the higher position of the air column are covered with the fingers of the left hand, and the three lower toneholes are covered with fingers of the right hand—this being the traditional pattern for all serpents as well as most wind instruments. Invented by Jean-Baptiste Coëffet (1784-1863) of Chaumont-en-Vixin (northern France), the instrument was officially patented in 1828, appearing after the introduction of the ophicleide which was patented in 1821. Constructed by Coëffet as well as his son, Jules Modeste Coëffet (1816-1859), and other makers, ophimonocleides have a somewhat standardized shape among bass horns: a metal bell section (with the attached mono-key), a metal bocal, and a wooden shaft of two parallel columns with a wooden bow (U-joint). The percentages of wood-to-metal vary among the different upright serpents—the ophimonocleide, basson Russe, serpent Forveille, and others—as designers experimented with sound, fingering patterns, and the conical bore size. While the single free-standing key seems to have been the inspiration for the instrument's name, a unique feature of the ophimonocleide is its "pompe"—a double tuning slide that has been placed within the wooden columns between the two sets of fingerholes—permitting the horn to play at both *diapason de l'opéra* pitch and the lower *diapason de la cathédrale* pitch. [3]



Pompe; note the adaptation to the inner brass insert to permit the fourth fingerhole to be open when the pompe is in its closed position.

The mono free-standing key of the ophimonocleide

The Wonders of the Ophimonocleide

One would assume that the ophimonocleide is most closely related to the ophicleide among the various upright serpents; yet, the ophimonocleide may be more closely aligned with the church serpent, serpent Forveille, and serpent pavillon, all open-hole instruments. With the exception of the one free-standing key, placed in a similar position for both the ophimonocleide and ophicleide but activated by different fingers, the fingering patterns are quite different and the basic approach for shortening and lengthening the air column is diametrically opposed. For the open-hole ophimonocleide, a depressed finger closes a tonehole and, for the closed-hole ophicleide (with the exception of the free-standing key), the opposite is the case: a depressed finger opens a tonehole. The acoustics and tone of the two instruments are distinctive since the air column is lengthened on the ophimonocleide and shortened on the ophicleide, along with the other obvious difference of the former being constructed of wood and metal and the latter made totally of metal. The sound of the instruments is difficult to compare since, to my knowledge, there are no designated ophimonocleide mouthpieces in contrast to those that have been identified and confirmed as ophicleide mouthpieces and, as I have maintained, the mouthpiece's throat profile is a major factor in determining the characteristic sound of serpents. When used with an historical, sharp-throated mouthpiece, the ophimonocleide produces the characteristic breathy-reedy edge of sound characteristic of wooden serpents but, also, provides greater volume due to its larger bell and lower bore profile and a wider range of pitch for individual notes due to its larger toneholes. What does it actually sound like? A distinguished musicologist described the tone as similar to a combination of an English bass horn, serpent, and tugboat; however, I must add that the ophimonocleide has the ability to blend with other instruments...as well as, I assume, with tugboats, and is capable of providing great volume for any harmoniemusik bass section.

With the addition of the pompe, described by a leading organologist as one of the most stupid devices ever to have been in regular production, the ophimonocleide begins to display its "innovative" design. While opera and cathedrale pitch were designated for the horn, specific pitch among wind instruments was not standardized during this period. A first meeting of an early 19th century wind ensemble could conceivably find the oboes and clarinets pitched a quarter tone higher than the serpents or bassoons. Coëffet designed his instrument for the greatest pitch flexibility where the pompe could be adjusted up to five inches, thereby lengthening the aircolumn by 10 inches. With various mouthpieces and by extending fully the bocal's tuning slide, an instrument's pitch can be lowered a major second. Such tonal flexibility would have been a great advantage during the early 19th century since serpents were considered "stable-mobile" instruments and would be expected to tune to the pitch and temperament of those fixed pitch instruments in the harmonie ensemble. [4] In fact, the ophimonocleide's pitch flexibility surpasses all other serpents.

Of course, changing the length of the instrument changes the fingering patterns. But here, too, Coëffet and his fellow ophimonocleide makers were experimenting with intonation through the placement of toneholes. The placement of toneholes on bass horns varies, yet they are commonly grouped in two clusters of three fingerholes either both placed on the descending air column or one cluster (fingerholes 1-3) on the descending and another cluster (fingerholes 4-6) placed on the ascending column. Experimentation was taken to new levels with the ophimonocleide as typically the first, second, and third toneholes entered the descending air column, and the fourth, fifth, and sixth fingerholes were situated in various places and, at times, on different aircolumns. Some instruments were constructed so that the fifth tonehole entered the ascending column, thereby causing the right middle finger to activate the lowest tonehole. J.M. Coëffet constructed horns with the fifth and sixth toneholes on the ascending column and the fourth tonehole on the descending column. For other ophimonocleides, "double-drilling" occurred at the fifth fingerhole which entered both parallel air shafts, the ascending

and descending columns. [5] To what degree these atypical tonehole positions helped intonation is unclear since so many factors influence pitch—diameter of the surface toneholes (which seem larger than other bass horns) and the undercutting of the hole, the size of the mouthpiece and its effect on the harmonic series and, of course, the ability of the player. However, in their dictionary entry on "instrument hybrides" that portrays the limitless creative imagination of inventors, Adelaide de Place and Joel-Marie Fauquet describe the ophimonocleide as "the perfect serpent." [6]

A Solution to the Perennial Problem of all Serpentists

The ophimoncleide best addressed the most troublesome note on all serpents. Whether pitched in the key of D, C, or Bb, serpents have difficulty producing a centered, stable pitch immediately below the first, second, and fourth harmonics. For serpents in the key of C, these B naturals become the problem, and players must first produce the pitch of C and then lip the note down to B natural. This practice was common, and historical serpent methods designate identical fingering for both the C and B natural. J.B. Coëffet, carpenter, organ builder, maker of various upright serpents, and gifted instrument designer with various patents for this and other instruments, seemingly set out to design a bass horn that would resolve this "lipped-down seventh" dilemma. Other designers had added a (closed-hole) B natural key towards the top of the air column, activated with either the left index finger (calling for double duty) or the left thumb and, by the early 19th century, this key was commonplace and appeared on military serpents as well as on serpents Forveille, English bass horns, bassons Russe, and early cimbassi. The B natural key, when opened along with fingering for the B flat, would successfully raise the pitch to B natural, yet producing an airiness of tone that occurs when the six fingerholes (and the additional key) are all left uncovered.

Coëffet conceived of an instrument that would reverse the process and draw upon the horn's acoustical length when all toneholes were closed. The ophimonocleide is the only bass horn that uses this method. Rather than lifting the pitch with an open hole, Coëffet's signature key, when closed, extended the air column and lowered the fundamental pitch of C to B natural. The tone is much more resilient and better centered and, I daresay, lush and vibrant since the lengthened air column has no openings. The importance of this single key extended beyond just centering B naturals; the position of the tonehole on the air column allowed the key to lower other pitches as well as to increase the clarity of the upper register of the horn. The free-standing key did not solve all difficulties for the instrument but, having played the ophimonocleide during the past years, I will be first to say that my horn (in the key of C at A=465) consistently produces a lovely full-tone, in-tune, centered B natural!

"The perfect serpent" OR "one of the most stupid devices"

I am certain I could formulate some grand, culminating pronouncement of the brilliance or the many faults of the ophimonocleide. I would rather merely acknowledge the instrument for what it is...as we understand it at this moment: a conceptual advancement and a now forgotten horn. Jean-Baptiste Coëffet's experimentations and adaptations to the bass horn certainly improved what we still consider a failed and flawed instrument. Yet, this may not be its final legacy. The ophimonocleide, as well as many other bass horns, is now waiting for a virtuoso to show us what the instrument can do...or, more precisely, what the instrument can do well and, as I suspect for this horn, what it can do *with* and *for* other instruments. Too often, we view bass horns outside of their natural habitat, openly exposed by themselves, when perhaps their greatest ability was to blend with other instruments in an harmonie ensemble. As Coëffet experimented with the design of the instrument, perhaps now is the time for us to experiment with the abilities of the ophimonocleide as we continue to attempt to understand our instrumental past. We await that contemporary virtuoso; however, I suggest that this person does not view the role as a sole source of employment!

Ophimonocleid

NOTES

1) These essays are available at the Historical Instrument Column's external website at www.berliozhistoricalbrass.org/itea.htm: "The Dawn of Exploration for the English Bass Horn?" *ITEA Journal*, Fall 2016, 44:1, pp. 28-33; "The Serpent Forveille: Perhaps the Best of All These Instruments for Sound," ITEA Journal, Spring 2012, 39:3, pp. 62-65.

2) For example, see the Youtube footage of Patrick Wilbert on serpent in Sonata n°1 Op.20 by Michel Corrette (1707-1795) at https://www.youtube.com/watch?v=t9mB72TC8Kw, or listen to recordings by Hostiou, Godard, and Szentpáli. After hearing the virtuosity and aesthetic grace of the serpent—yes, grace—armchair critics must now be more careful with their glib puns and remarks.

3) See Clifford Bevan, *The Tuba Family*, 2nd edition (Piccolo Press, 2000); Herbert Heyde, "The Bass Horn and Upright Serpent in German," *Historical Brass Society Journal*, Volume 27, 2015, pp. 21-39; Volume 27, 2016, pp. 97-119; Volume 27, 2017, pp. 13-45

4) I thank Bruce Dickey for describing stable-mobile instruments. While the serpent would certainly never be identified within a fixed pitch genre, certain notes do lock into place with little pitch variation, even though the serpent's reputation has been more defined by those single fingerings where an interval of a fifth may be produced.

5) I wish to thank Bruno Kampmann for informing me of tonehole placements on his ophimonocleides. Rene Pierre, "Jean Baptiste Coëffet (1784-1863) inventor of the ophimonocléïde and manufacturer of ophicleides, Russian bassoons etc," 2011; http://rp-archivesmusiquefacteurs.blogspot.com/2011/

6) Adelaide de Place and Joel-Marie Fauquet, "Instrument hybrides," *Dictionnaire de la musique en France au xix siècle*, edited by J.M. Fauquet (Fayard, 2003), pp 617-620.

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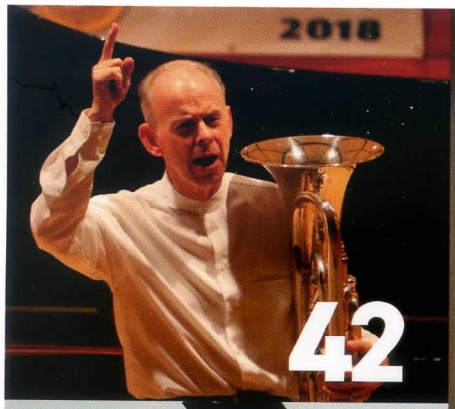
CONTENTS



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