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ON OUR COVER

Beth McDonald fearlessly explores free improvisation and other creative outlets for tuba playing.

Photo Credit: Adam DeTour



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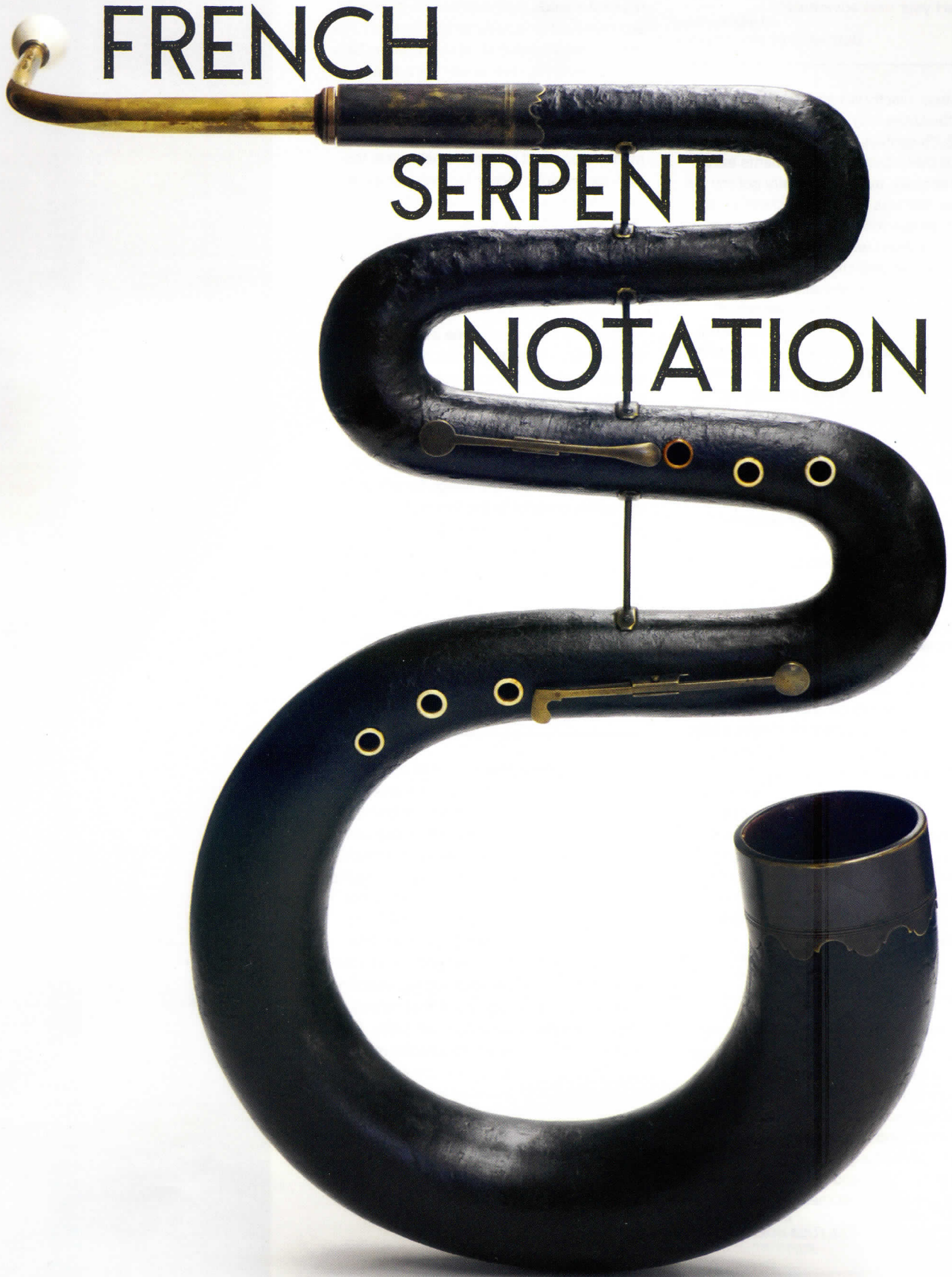
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French Serpent Notation: Part 2

Some peculiarities of pitch and abnormalities of notation

by Clifford Bevan



IT MIGHT BE C TO YOU, BUT IT'S MY . . .

PART 2: SOME PECULIARITIES OF PITCH AND ABNORMALITIES OF NOTATION

French practice assumed that the serpent was pitched in Bb and, consequently, composers and arrangers placed the notes on the staff a tone higher than they sounded. Elsewhere, the serpent has always been presumed to be pitched in the key of C. Possible reasons for this discrepancy were examined in the last Historical Instruments column, but did French serpent notation have any lasting effects?

In his authoritative treatise on orchestration, Berlioz confirms that this notation was identical to that used for the ophicleide in Bb. Occasionally, an orchestral composer might ask for a Bb ophicleide because its compass extended a tone below that of the C instrument (for example, in Mendelssohn's *Elijah*) or may score ophicleides in Bb and C to be used alongside each other (for example, in Berlioz's *Symphonie fantastique*). But it was more common for C ophicleides to be found in the orchestra and ophicleides in Bb to appear in bands. [Ex. 1] The reason is obvious to present-day brass players: the instrument pitched in C offered more convenient fingering when playing in the sharp keys often dictated by the comfort of orchestral strings, and the instrument in Bb was more convenient in the flat keys often chosen for band music. Tubists may choose to use their CC in an orchestra and their BBb in a band.

If you look at an orchestral or wind band score, you'll notice that music for the

higher instruments is written in such a way that the player can instantly use the correct fingering for every note. For example, a player of the Bb clarinet or Bb trumpet fingers C when a C is printed in the music. The part is already transposed so that, in these two cases, fingering a C actually produces a concert (sounding) Bb.

Lower down the score, where the deeper brass instruments appear, this is not the case. A tenor trombone and a euphonium, for instance, will give a sounding Bb if played with the slide in first position or without valves depressed. This is because, like the clarinet and trumpet, Bb is the natural pitch of the "open" instrument. But when the note C is printed on the bass staff part, unlike the clarinetist or trumpeter, the trombonist and euphoniumist need to finger the note one tone higher, a D, in order to sound a concert pitch C.

In Germany, various valved instruments of euphonium pitch, or lower, existed before the appearance of the *Baß-Tuba* in 1835 and the euphonium itself about 1843. One of the nineteenth-century German terms for euphonium was Tenor-Basshorn, showing a very clear understanding of the functions of the instrument. By playing notes in the octave higher than the tuba, it is a bass instrument rather than contra-bass. By playing notes in the octave lower than the trumpet, it is a tenor instrument rather than a soprano. Euphonium notations reflect this duality of function. While in wind bands euphonium parts are usually in bass clef at sounding pitch, in

British brass bands they are in treble clef written a tone higher than sounding. (The same also applies to trombones.) Solos may be in either clef, often determined by the compass of the piece.

Euphonium players become accustomed to effectively transposing up a tone when reading their bass clef parts or simply reading treble clef parts straight off: what you see is what you do. [Although some of the most frequently-played orchestral tenor tuba parts utilize the notation found in present-day French *harmonie* (wind band) parts, where bass clef music is written a tone above sounding pitch, exactly as Berlioz describes in the case of Bb ophicleide parts. Repertory examples include Richard Strauss's *Don Quixote* and *Ein Heldenleben*; but this is coincidental: it is an accepted notation for tenor Wagner Tuba, for which these parts were initially conceived. See more below.]

All of this is child's play compared with the lot of a tubist. Tuba parts are printed at sounding pitch bass clef, but it is the player's choice whether to use a tuba in F, Eb, BBb or CC, or even a French tuba in C, built an octave higher than the latter. The player then effectively transposes as required.

Adolph Sax's patents for the saxhorn family are pivotal in considering brass notation. Here the entire group, from a midget an octave above the Bb cornet to a giant an octave below the Eb tuba, were organized in alternating pitches of Bb and

E♭. The patents were taken out in the 1840s, and a decade after that for Wieprecht's *Baß-Tuba*. In his own detailed argument preceding the technical description of the tuba, Wieprecht does not refer to the reason for choosing the instrument's pitch of F, only mentioning that the tuba should "fill the place of the wanting contrabass" in military bands and that it can reach a depth three notes lower than the [string] double-bass. Although we know that it was conceived as a band instrument, a basic pitch of F is also useful for orchestral playing as it is a similar distance from both the sharp and flat sides of the circle of keys.

However, when Sax opted for pitches of B♭ and E♭ for his family of instruments, it was clear that he saw them as intended for the band rather than the orchestra. Why has band music tended to use flat keys rather than sharp? The answer may lie in the clarinetists' preferred use of the instrument pitched in B♭. From the early eighteenth century clarinets were available in a vast range of pitches, but those in B♭ eventually came to be preferred owing to considerations of tone and player comfort. Clarinets became the most important instruments in the band, influencing the keys chosen for the music and the pitches in which other band instruments were made.

For his saxhorn family, Sax rationalized notation in the same way that he subsequently used for the saxophones: whether a small instrument or a large one, players saw a given note and used the given fingering, identical in every case. This appeared to place every player in the same comfort zone traditionally enjoyed by the clarinets and trumpets towards the top of the score. But there was one serious flaw in this arrangement for low brass. Take, for example, a C of sounding (concert) pitch. In the part for the player of any saxhorn-family instrument pitched in B♭, this would appear ready-transposed as a D, which is fine for those playing cornets and baritones reading from the treble staff. But

FOR ME, THE ANTICIPATION OF PLAYING THIS WORK ON MY GERMAN FIVE-ROTARY-VALVED F TUBA, AS BRAHMS EXPECTED, WAS A JOY.

bass clef readers, euphoniumists and B♭♭ tubists, can find a problem when faced with a band part published in France, Belgium, or the Netherlands and written in bass clef. Although in those countries the note shown as bass clef D (fingered 1+3, or 4) is intended to sound like a concert C, elsewhere a bass clef D is fingered 1+2, resulting in its actually sounding like...a concert D! French serpent notation lingers on with a vengeance, and players will need to read their parts a whole tone lower if they are not regular members of a *harmonie* or *fanfare*.

Euphoniums in C, avoiding potential notation problems, were made around the beginning of the twentieth century in response to the instrument's common use in orchestras in France and the UK. The present-day orchestral euphonium repertory contains several pieces in which a C euphonium would ease fingering. A notable case is Henry Wood's *Fantasia on British Sea Songs* of 1905 which includes a renowned solo for the instrument in a lively tempo and an apparently unsympathetic key. [Ex. 2]

If notation remains to be standardized, surely we can be certain of basic pitch? The position of a note on the staff may not always have the same meaning in different countries, but can't we be certain that my note C is going to actually sound the same as your note C?

Pitch is actually what anyone wants it to be, despite the agreement of an International Pitch Standard of A=440 in 1939. [Fig. 1]

Orchestras specializing in the performance of works by baroque composers often tune to a pitch of A=415 (about a semitone below A=440) and some even A=392. Some years ago the writer was delighted to have the opportunity to play with a German orchestra which was touring without its tuba-player. (Surely not because the program included Brahms's *Deutsches Requiem*, with its F resting on two ledger lines above the staff?) For me, the anticipation of playing this work on my German five-rotary-valved F tuba, as Brahms expected, was a joy. Until I turned up for the rehearsal. Actually, tuned-up for the rehearsal would be more accurate, for I had not realised that in Germany the pitch commonly used is not the so-called "universal" A=440 but can be A=445 or even higher. Despite pushing in every tuning-slide to its full extent, the experience was not one of great joy after all, and the poor old lip was certainly abused that night.

Pitch and transposition cannot be separated because, in practical performing terms, one affects the other. But in Britain, in that hopeful year of 1939, a military band's A sounded almost a full semitone lower than the same note played by a brass band: the numerous

Ex. 1

Berlioz: *Symphonie fantastique* 'Dies Irae'

OPHICLEIDE in C

OPHICLEIDE in B♭ (originally Serpent). In modern editions both parts are printed at sounding pitch.

Ex. 2

Wood: Fantasia on British Sea Songs

EUPHONIUM

Fingering for C Euphonium

Musical notation for C Euphonium. The staff is in bass clef with a key signature of one sharp (F#). The music consists of a single melodic line with various note values and rests. Fingering numbers (0-2) are written above the notes. Below the staff, a series of numbers indicates the fingering for each note: 1/2, 2, 2, 1/2, 2/3, 1/2, 2, 1/2, 2, 1/2, 2, 0, 2, 1/2, 1, 1/2, 2, 0, 1, 1/2, 2, 1/2, 1/2, 1/2, 2, 1/2, 0, 2, 1/2, 0, 2, 1/2.

Fingering for B \flat Euphonium

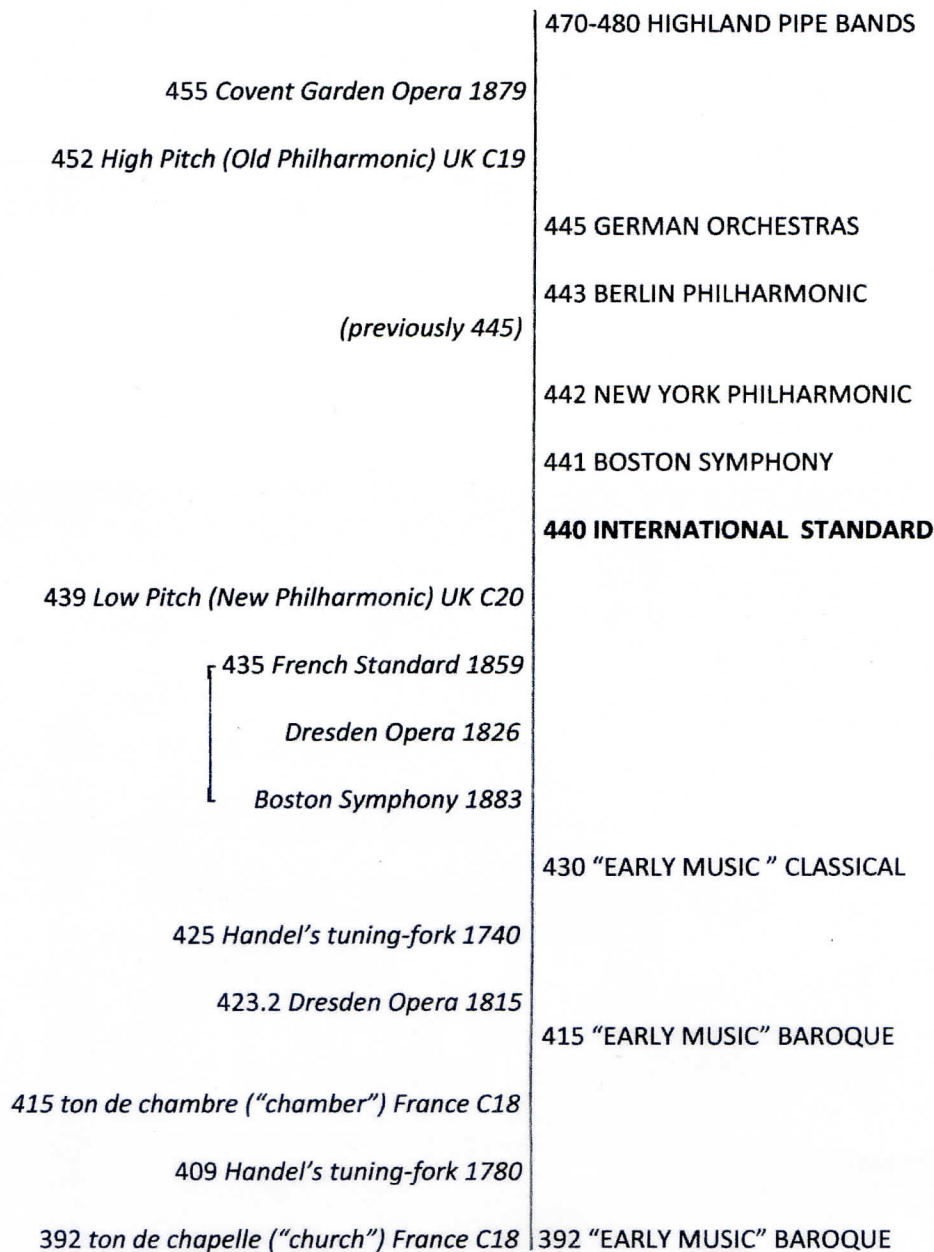
Musical notation for B \flat Euphonium. The staff is in bass clef with a key signature of two sharps (F# and C#). The music consists of a single melodic line with various note values and rests. Fingering numbers (0-2) are written above the notes. Below the staff, a series of numbers indicates the fingering for each note: 1, 2, 2, 4, 1/2, 2, 1/2, 2, 1/2, 2, 3, 1/2, 2, 2, 1/2, 2, 1/2, 2, 3, 1, 2, 2, 2, 1/2, 2, 1, 2, 2, 3.

Musical notation for C Euphonium. The staff is in bass clef with a key signature of one sharp (F#). The music consists of a single melodic line with various note values and rests. Fingering numbers (0-2) are written above the notes. Below the staff, a series of numbers indicates the fingering for each note: 1/2, 1/2, 1/2, 0, 1/2, 2/3, 2, 0, 1, 1/2, 2, 1/2, 2, 3, 1/2, 1/2, 1/2, 1/2, 1/2, 2, 3, 1/2, 2, 1/2, 2, 1/2, 1/2, 2, 2, 0, 0, 2, 2.

Fig. 1

Some Historical and Present-day Pitch Standards.

The tuning note in all cases is A on the second space of the treble staff.
 The higher the Hz. number, the higher the pitch of the note. (This will vary somewhat at different temperatures, a factor ignored here.) Present-day pitches are shown in CAPITALS, historical in *Italics*.



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amateur brass bands were accustomed to the 19th century High (or Old Philharmonic) Pitch of A=452. Even today the dreamt-of universal pitch standard of A=440 Hz is still no more than a dream. In addition to German orchestras, many in the United States also play to a higher pitch.

Bernard Fourtet has pointed out that in France, also, pitch tended to rise during the nineteenth century, although the matter was addressed in 1859 when a commission (which included Berlioz) settled on a pitch of A=435. In London, the singer Adelina Patti refused to perform at Covent Garden Opera in 1879, where the pitch had risen to a height of A=455. The orchestra had to transpose down. The Boston Symphony Orchestra adopted A=435 in 1883 and gradually this standard spread across the United States (with, it has to be said, exceptions).

Low Pitch of A=440 was first adopted at the London Henry Wood Promenade Concerts in 1895 for the benefit of singers and, in 1904,

the firm of Boosey & Hawkes manufactured the first complete set of instruments at A=439 for the Band of HM Grenadier Guards. Brass instruments continued to be made in High Pitch with Low Pitch main-slides provided for use when playing outside the brass band. The British army officially adopted Low Pitch in 1928, but it was not until 1964 that Boosey & Hawkes ceased making High Pitch instruments owing to the demands of brass bands.

One type of ensemble still uses its own much higher pitch: the Highland Pipe Band at 470-480 Hz. The music is notated in the key of A but sounds like Bb; so when preparing to play along with a wind band (in, for example, the popular arrangement of "Amazing Grace"), the pipe band normally tunes its A to a brass instrument's Bb.

"The best-laid schemes o' mice an' men
Gang aft a-gley."

(*To a Mouse* by Scottish poet Robert Burns)