

Friedheim's Reservoir: A Failed Precursor to the Trombone Water Key

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The nineteenth century was a period of great innovation in brass instrument making. In addition to major breakthroughs that changed the course of musical history, such as the application of the valve to the trumpet and horn, there were also a number of minor inventions that have nevertheless made their mark. One of these was the water key, a device that allows the brass player to get rid of the moisture that accumulates inside the instrument easily and quickly. As simple, and ingenious, as the water key might be, its invention was apparently preceded by that of another device developed specifically for the trombone: Friedheim's reservoir.

According to the article on the "water key" in *New Grove 2*, the earliest known water key was applied to "the hibernicon, a contrabass bass-horn patented in 1823 by J.R. Cotter of Co. Cork."¹ It was two years prior to this, however, that Jⁿ. Friedheim announced his invention in a notice that appeared on page 1 of his *Trente-six Exercices Pour le Trombone* (Paris: author, 1821).² The announcement reads,

Notice

When one plays a piece of a certain length on the trombone, the water produced by the humid warmth of the breath collects at the bottom of the slide and produces a beating sound which especially makes the high notes disagreeable to the ear. To avoid this beating sound one must remove the slide in order to empty it. During this time, many measures elapse in which one does not play and the effect that the composer wanted to produce is spoiled, all the more so since this almost always affects fundamental notes of the chord, which are the responsibility of this instrument.

I have found a means of avoiding this inconvenience by adapting to the trombone a reservoir into which the water flows and from which it is then very easy to remove. The reservoir opens when necessary, and it takes at least a half an hour of playing to fill it. This reservoir can be adapted to all trombones at little cost; it does not make the instrument more difficult to play, and the sound is not altered in any way.

It is at Halary, maker of instruments, Rue Mazarin No. 37, Paris, that I recommend to have them fitted, as it is together with him that I developed [these reservoirs]. He knows better than anybody else their inner construction.³

The reservoir is depicted in the illustration on the cover of the volume (Figures 1 and 2). Needless to say, Friedheim's reservoir obviously did not catch on, and as far as I know none of these devices have survived.⁴

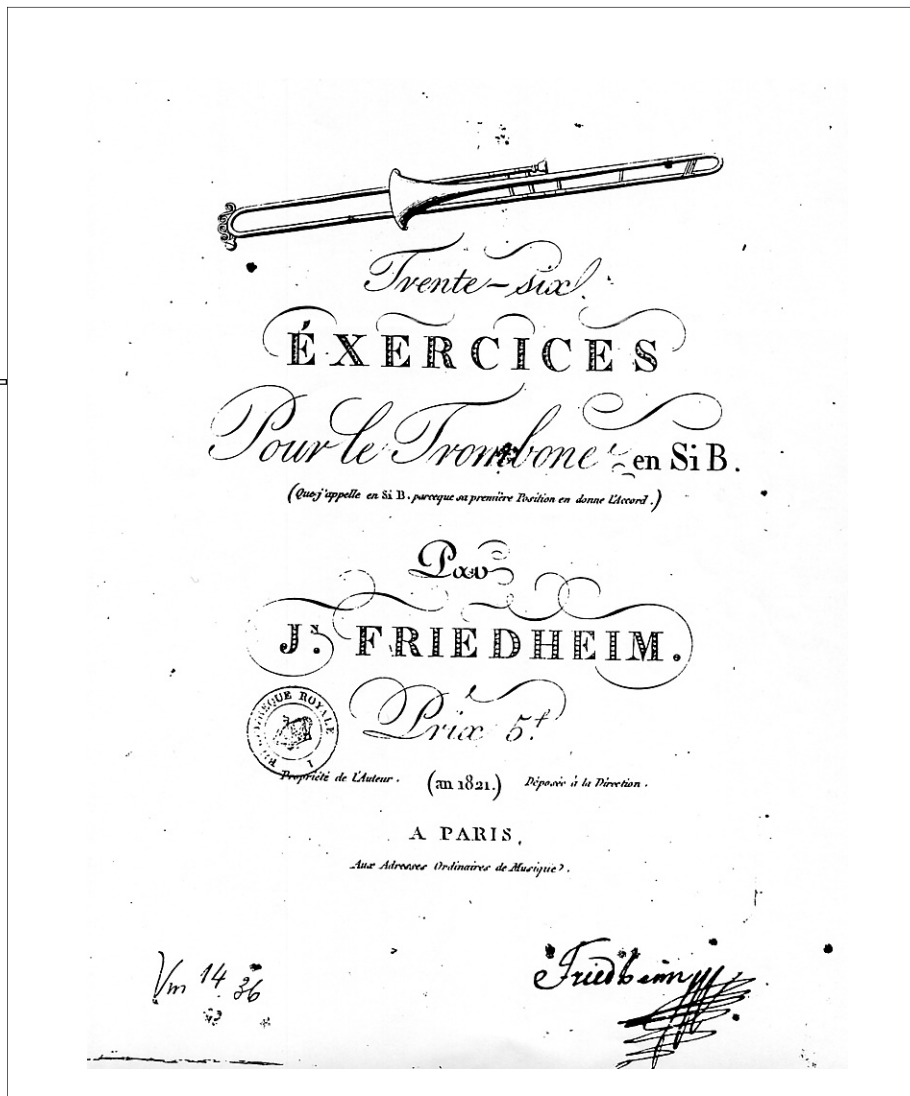


Figure 1

Friedheim, *Trente-six Exercices Pour le Trombone* (Paris, 1821)
(Reproduced by permission, Bibliothèque nationale de France).

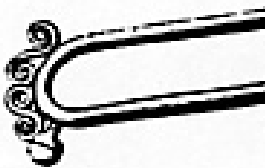


Figure 2
Detail of Figure 1.

Interestingly, Jⁿ. [presumably: Johann] Friedheim is not unknown in these pages. In an article that appeared in *HBSJ* 5 (1993), Clyde S. Shive, Jr. identified a John Friedheim as the composer of the earliest published music for brass band in the United States, the nine compositions in the *Series of Music for Two Bugles and Trombone* (Boston: Graupner, 1835).⁵ According to Shive, Friedheim arrived in Boston on 1 September 1834, and appeared as a clarinet soloist within a month.⁶ In naturalization papers filed in September 1849, John Friedheim stated that he was born “at Prag in the Kingdom of Bohemia on the seventh day of December in the year of our Lord seventeen hundred and ninety-two.”⁷

John Friedheim was very active in the Boston musical scene during the 1830s-40s, conducting the New England Band and the orchestras of the National and Lyceum⁸Theaters, in addition to composing and arranging. The volume of *Trente-six Exercices pour le Trombone* was not Friedheim’s only pedagogical work: In the early 1870s he published a method for double bass, *Instructions for Playing the Double or Contra Bass*, in which he described himself as “Professor and Teacher of Music.”⁹ Shive wrote in his article, “Although a John Friedheim was listed as eight years of age in the 1850 census, the brief phrase in the preface to this work—‘...the Compiler after an experience of more than fifty years...’—confirms that the author of *Instructions for Playing the Double or Contra Bass* was the elder John Friedheim.”

That the Parisian trombonist-composer-inventor Jⁿ. Friedheim and the Bostonian clarinetist-conductor-composer John Friedheim are indeed one and the same person can be seen by comparing the signature found on the title page of the *Trente-six Exercices* in the Bibliothèque nationale and that on J. Friedheim’s *Three Walses for the Spanish Guitar* (Boston: Graupner, 1835) in the holdings of the Library of Congress¹⁰ (Figure 3). The inventor obviously traveled much further than his invention.

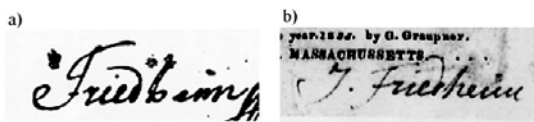


Figure 3
Friedheim’s signature a) on the *Trente-six Exercices*, b) on the *Three Walses* (Library of Congress).

NOTES

¹ *The New Grove Dictionary of Musicians*, 2nd edn., ed. Stanley Sadie and John Tyrrell (London: Macmillan, 2001), s.v. "Water key," by David K. Rycroft, Reine Dahlqvist, and Edward H. Tarr.

² Paris, Bibliothèque nationale, Vm¹⁴ 36.

³ "AVIS. Lors qu'on joue un morceau d'une certaine longueur sur le trombone ; l'eau produite par la chaleur humide du souffle, s'amasse dans le fond de la coulisse et produit un battement, qui rend surtout les tons du haut, désagréables à l'oreille : pour éviter ce battement on est forcé de retirer la coulisse pour la vider, pendant ce tems il se passe plusieurs mesures sans jouer, et l'effet que le compositeur à voulu produire est manqué d'autant plus que ce sont presque toujours des notes fondamentales de l'accord dont est chargé cet instrument.

"J'ai trouvé moyen d'éviter cet inconvenient en adaptant au trombone au réservoir dans lequel l'eau tombe et en est tres facile à retirer, le réservoir s'ouvrant à volonté ; et pour qu'il soit plein il faudrait avoir joué au moins une demie heure. Ce réservoir peut s'adapter à tous les trombones, à peu de frais, il ne rend pas l'instrument plus dur à jouer et le son n'en est aucunement altéré.

"C'est chez Halary facteur d'instrumens Rue Mazarine No. 37 à Paris que je conseille de les faire poser, comme c'est conjointement avec lui que j'en ai[?] fait l'experience il sait mieux que tout autre comment en doit être construit l'intérieur."

⁴ Friedheim's exercises are all in bass clef and of moderate difficulty and range (*E-g*). The structure of the volume is largely based on the circle of fifths, starting with the first exercise in C Major and going through the sharp keys (up to B Major), then the flat keys (up to D \flat major). These are followed by exercises in the minor keys, employing the same pattern (starting with E Minor). Much emphasis is given to the use of alternate positions.

The pieces in minor keys display a notational device that I have never seen before: the note that needs to be sharpened as the leading tone is indicated by an accidental placed at the beginning of each line of music *before* the clef. For example, in E Minor there is a sharp on the third line before the clef, in addition to the normal key signature of one sharp after the clef; in C Minor there is a natural on the second line in addition to the normal key signature of three flats, etc.

Another unusual device is the placement of an "s" above certain notes. This is explained on page 1 in a note below that describing the reservoir: "Nota: L'S qui se trouve au dessus des notes signifie qu'il faut rapprocher un peu la coulisse auprès de la position que la note suivant exige." ("Note: An "S" above a note indicates that one should move the slide somewhat closer to the position required to play the next note.") The notes so indicated are inevitably a semitone below the note that follows, for example, F \sharp moving to G, B \natural to C, G to A \flat , etc.

⁵ Clyde S. Shive, Jr., "The First Music for Brass published in America," *Historic Brass Society Journal* 5 (1993): 203-12. See also idem, "John Friedheim—Nineteenth-century Austrian-American Musician," in Wolfgang Suppan ed., *Kongressbericht Feldkirch/Vorarlberg 1992*, *Alta Musica* 16 (Tutzing, Schneider, 1994), 155-67.

⁶ *Ibid.*, 208.

⁷ *Ibid.*, 211.

⁸ Mentioned in the biography of John Philipp Pfeiffer at www.usna.edu/USNABand/biographies/PfeifferBio.htm (accessed 30 January 2005).

⁹ Shive, "The First Music for Brass," 212. An exemplar of Friedheim's double bass method is in the holdings of the British Library: John Friedheim, *Instructions for Playing the Double or Contra Bass* (Boston, 1875?), call number h.1125.

¹⁰ Call number: M1.A121 vol. 1 Case; Class: original bound volumes. Can be viewed at <http://hdl.loc.gov/loc.music/sm1835.010630> *Music for the Nation: American Sheet Music* (accessed 31 January 2005).