

A Brief History of Musical Pitch in Europe

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The modern “original instrument” or “historically informed performance” (HIP) movement has settled into a situation in which three pitch levels are generally used: (1) $a = c.392$ Hz for “French Baroque”; $a = c.415$ Hz for “German Baroque”; and $a = c.430$ Hz for “Classical”. These pitches are ostensibly based on the historical conditions of the countries/epochs with which they are identified. In actuality, though, they represent nothing more than arbitrary modern agreements, adopted in order to facilitate the international trafficking of musicians who perform in “original” instrument ensembles. These “compromise historical pitch standards” have little or nothing to do with the real history of musical pitch in Western Europe over the last 500 years.

Much of the current misconception comes from the mythology created by late 19th and 20th century writers on the topic who were heavily influenced by the academic/scientific spirit of the times.¹ They felt a compulsion to find a clear line of development or “progress” in all fields of technological development. Therefore, we sometime read that Baroque pitches were “low” (usually assumed to be anywhere from about 390 Hz for French music to 415 for German), but began to rise sometime near the end of the 18th century. In the 19th century, pitch is supposed to have risen steadily, reaching scandalously-high levels of about 460 Hz near mid-century. We are told that this historical trend toward every-higher pitches, supposedly in the quest for “more brilliance”, was finally stopped by the eventual establishment of an international “compromise pitch standard”. Our modern idea of a “Classical” pitch is assumed to have been somewhere mid-way on this upward sloping path, thus the level of $a = 430$ Hz.

Written sources which clearly disprove this tidy little theory have been readily accessible for centuries, though curiously they have largely been ignored by many writers on the topic. Luckily, recent research has made great advances towards correcting the record. Studies of surviving instruments themselves has proven conclusively that pitch has varied greatly throughout Europe for centuries. Instead of a constant rise from the late 18th century onwards, the real story is more accurately described an inward contraction from both extremes of very high and very low, moving toward the more or less universally accepted modern standard of about 440 Hz.

Just over 300 years ago, Muffat, in the opening to his *Florilegium Secundum* (1698), described the relative pitch levels of French and German music as it was then:

The pitch to which the Lullists tune their instruments is generally a whole-step lower, and in theatrical productions even one-and-a-half steps lower, than our German pitch. The so-called Cornett-Ton seems to them to be quite too forced and piercing. If it were up to me, and there were no reason not to do so, I would select the so-called "old Chor-Thon" which is a whole-step lower, because of its liveliness combined with sweetness.²

Based upon a comparison of the pitch levels of surviving woodwinds with documentary sources, Bruce Haynes, in his monumental study on the history of pitch,³ has arrived at the following interpretations for the various pitch levels mentioned by Muffat, arranged in order from high to low:

¹ Unfortunately, this mythology still continues to be propagated by current authors who rely on outdated sources. See <http://www.mozartpiano.com/pitch.html> for an example .

² This quote, as well as the summary of Haynes’ pitch interpretation, is taken almost verbatim from the selection of Muffat excerpts translated and edited by David K. Wilson, published by Indiana University Press (2001)

³ Bruce Haynes, “Pitch Standards in the Baroque and Classical Periods” (Ph.D. diss., Universite de Montreal, 1995)

1. Cornett-Thon, c. 460-470 Hz. Called Cammer-Thon by Praetorius. The normal pitch for secular music in seventeenth century Germany, the pitch to which instruments and church organs were normally tuned. Called Chorton in Northern Germany in the 18th century.

2. Chor-Thon, c. 416 Hz. Recommended by Muffat because it combines the "liveliness" of the higher pitch with the "sweetness" of the lower. By the 18th century, it became known as Cammertone in northern Germany (Quantz and Walther), the pitch to which instruments were normally tuned for chamber music. The higher Cornett-Thon was also called Chorton, because that was still the pitch to which church organs were tuned. In southern Germany and Austria, where Muffat lived, this pitch continued to be called Chor-Thon well into the eighteenth century. This explains the often conflicting relative positions of these two levels found in later references.

3. Ton de chambre, c. 404 Hz. The normal French pitch for chamber music, "a whole-step lower than our German pitch." Used in France from about 1680 to 1800, as well as elsewhere in Europe.

4. Ton d'Opera, c. 393 Hz. From about 1660 to 1750, the pitch for opera in Paris, "one-and-a-half steps lower than our German pitch."

In addition to these four levels for northern Europe, many early Spanish wind instruments exist which indicate a pitch even higher yet, approaching 500 Hz. So the idea that "pitch has risen historically", while perhaps having some viability under extremely limited circumstances of time and place, has no basis in reality whatsoever in any larger sense.⁴

By the second half of the 18th century when *Hammerklavier* began to be made, this chaotic pitch scene had hardly improved, nor did it improve much as the 19th century began. Numerous references to different pitch levels separated by a half or whole tone (sometimes more, even as much as a minor third!) can be found in literature well into the 19th century. Even as late as 1827, one anonymous author described the pitch situation this way:

. . . a Babylonian confusion of pitches now reigns, and almost nobody can really say what "Chamber Pitch" means anymore. There are now as many different levels as there are major cities in Europe, each supposedly "Chamber Pitch", and furthermore, even in and the same city, different conflicting levels exist together.⁵

The idea that any given piano maker could design his or her instruments for a specific pitch level and then impose it upon all customers is simply not credible, given the highly competitive nature of the piano trade. Von Schönfeld, writing in 1796, already described how important the industry of piano making was for Vienna, and specifically states that locally-made instruments were exported far and wide.⁶ An exchange between Andreas Streicher and one of his clients in 1808 revolves around this very issue and shows the challenges for the piano maker in such an environment.⁷ Faced with such a situation, the piano maker had three options:

⁴ Some historical sources do refer to a rise of a specific pitch over a certain period in a certain place, for example, "the rise of Chamber pitch in Paris over the last 30 years." However, in any broader pan-European sense, the total range of pitch levels for which a piano or harpsichord maker would have to build instruments has not risen.

⁵ For this and other early 19th century quotes on the wide variety of pitch levels then at use in Europe, see the chapter on pitch in Michael Litcham's *The Stringing, Scaling and Pitch of Hammerflügel built in the Southern German and Viennese Traditions 1780-1820* (Munich 2000)

⁶ Johann Ferdinand von Schönfeld, *Jahrbuch der Tonkunst von Wien und Prag*, Vienna 1796 (r. Munich 1976), p.87

⁷ A complete analysis of the situation described in these letters is forthcoming on this website.

(1) Change the scale length of each instrument depending upon its destination. The Stuttgart piano maker Schiedmayer, in his 1824 reprint of his friend Andreas Streicher's 1802 booklet, specifically stated that the scale of each piano was designed in accordance with the pitch of the orchestra at the customer's location. Surviving instruments of some makers (Hofmann, for example) appear to have been built with scale lengths for two different pitch levels a semitone step apart.

(2) Provide the instruments with a sliding keyboard for transposing up or down one or more half steps. Surviving pianos by Silbermann are equipped with such a device, and others were described in the literature of the times.⁸

(3) Make all instruments with a scale short enough for the highest possible pitch level, and accept the poor tuning stability and sound of the understressed strings at lower pitch levels. While this would not have been an acceptable solution for the wide range of pitches encountered in the 18th and early 19th century, as the range of possible pitches narrowed and stronger steel wire became available, this is in fact what was done; a "modern" (late 19th century) Steinway has a scale length which leaves most of the strings as much as 6 semitones below their breaking tension!

Slowly, as the 19th century wore on, both the very high and very low pitch levels fell out of usage, and pitch generally settled into a range of a little more than a fat semitone centered around 450 Hz. This drift toward a more or less standardized pitch zone (if not a pitch level) was probably in no small way caused by the increased industrialization and mass production of musical instruments, especially wind instruments. Real standardization came quite late; J. Cree Fischer's book on piano tuning, published in Philadelphia in 1907, still gave two pitch levels as being "in vogue": "Concert" at 454 Hz and "International" at 435 Hz.

Today's modern "Classical Pitch" of $a = 430$ Hz. at least roughly approximates one of the three different pitch levels in use in Vienna around 1800, though a level of approximately 428 Hz often works better with many surviving wind instruments. The important point to remember is that there is nothing "authentic" about this pitch level, and owners of fortepianos should be willing to tune their instruments to anything from about 410 to 442 Hz should the instrumentation of an ensemble require. Most modern "reproduction" instruments can be safely tuned as high as 440 Hz, though the owner should always contact the builder before tuning any instrument to a pitch level higher than originally specified.

⁸ See Latcham, op. cit. p. 94