

1995

Woodwind Vibrato from the Eighteenth Century to the Present

Dwight C. Manning

Follow this and additional works at: <https://scholarship.claremont.edu/ppr>



Part of the [Music Practice Commons](#)

Recommended Citation

Manning, Dwight C. (1995) "Woodwind Vibrato from the Eighteenth Century to the Present," *Performance Practice Review*. Vol. 8: No. 1, Article 6. DOI: 10.5642/perfpr.199508.01.06
Available at: <https://scholarship.claremont.edu/ppr/vol8/iss1/6>

This Article is brought to you for free and open access by the Current Journals at Scholarship @ Claremont. It has been accepted for inclusion in Performance Practice Review by an authorized editor of Scholarship @ Claremont. For more information, please contact scholarship@cuc.claremont.edu.

Woodwind Vibrato

Woodwind Vibrato from the Eighteenth Century to the Present

Dwight Manning

Eighteenth Century Woodwind Vibrato

Only in the 18th century do we begin to find specific mention of woodwind vibrato production. In the treatises of Hotteterre (1707) and of Quantz (1752) a finger vibrato is recommended. Hotteterre explains in detail how to produce the finger vibrato on flute and oboe, which he calls *flattement*. Finger vibrato is produced by moving the fingers up and down over the holes at a distance from the last hole covered for any particular note.¹ Quantz also recommends the finger vibrato, but makes only very brief mention of it.² It is recommended exclusively by Tromlitz as late as 1791:

On the flute [a vibrato] is produced by repeatedly partially
or halfway closing and opening the next hole down from the

¹ Jacques-Martin Hotteterre, *Principes de la flûte traversiere, ou flûte d'Allemagne. De la flûte à bec, ou flûte douce, et du haut-bois* (Paris, 1707). Trans. David Lasocki as *Principles of the Flute, Recorder, and Oboe* (London: Cresset, 1968), 66-69.

² Johann Joachim Quantz, *Versuch einer Anweisung die Flöte traversiere zu spielen* (Berlin, 1752). Trans. Edward R. Reilly as *On Playing the Flute* (New York: Schirmer Books, 1966), 59.

long note with the finger, or [by alternately closing and opening] another hole completely, according to the demands of the circumstances. It is not done with the breath on the flute: this does not have a good effect, but makes a wailing sound; and anyone who does it spoils his chest and ruins his playing altogether, for he loses its firmness, and then cannot keep a firm and pure tone; everything wobbles out from the chest.³

As key work was added to woodwind instruments, however, the finger vibrato eventually fell into disuse and was not a normal part of performing during the 19th and 20th centuries.

Nineteenth-Century Woodwind Vibrato

Some woodwind players had apparently begun to experiment with breath vibrato during the late 18th century, but they met with some resistance, as is indicated by Tromlitz's strong statement favoring finger vibrato. This debate continued into the 19th century. In 1830 James Alexander described three ways to produce vibrato:

first with a tremulous or panting motion of the breath, secondly, by shaking the finger immediately over the hole without actually touching the instrument, and thirdly, by a regular shake on the note vibrated; but carefully observing that the shaking finger covers only one-half of the hole.⁴

Reference is made here to breath vibrato as well as to two types of finger vibrato, although Alexander does not express a preference for any particular type.

³ Johann Georg Tromlitz, *Ausführlicher und gründlicher Unterricht die Flöte zu spielen* (Leipzig, 1791). Trans. and ed. by Ardall Powell as *The Virtuoso Flute-Player by Johann George Tromlitz* (Cambridge: Cambridge University Press, 1991), 213-14. This passage is cited by Jochen Gärtner, *The Vibrato with Particular Consideration Given to the Situation of the Flutist*, as translated by Einar W. Anderson (Regensburg: Bosse Verlag, 1981), 28.

⁴ James Alexander, *Improved Preceptor for the Flute* (London, 1830). The translation of this passage appears in Thomas E. Warner, *Indications of Performance in Woodwind Instruction Books of the 17th and 18th Centuries* (Ph. D. dissertation, New York University, 1964; Ann Arbor, Univ. Microfilms, 65-1678), 237-8.

In 1844 the German flute virtuoso Fürstenau similarly listed three ways to produce a vibrato, except that here only one involved the fingers. He showed a clear preference for the breath types over the finger type.

On this instrument [vibrato] can either be produced by rapid alternation of lung pressure—as the best and most secure means—or by causing the jawbone to move in a trembling fashion while blowing . . . Tapping [*Klopfen*] with one finger which is not occupied in playing the note in question at the moment, on a tone hole which is also not in use for that particular note, in such a way that the finger falls many times in a row as rapidly and with as much elasticity as possible on the hole, so that a vibration of the tone is produced resembling that of a bell which has been struck sharply, [this] is a practice which in many cases can be of beautiful effect.⁵

The trembling of the jawbone referred to here is an early form of the lip/jaw vibrato adopted on occasion by some present-day clarinetists.

During the course of the 19th century, players and teachers moved away from the finger toward breath vibrato. But this brought with it a new question: exactly how was breath vibrato to be produced? The German flutist Maximilian Schwendler occupies an important position in this discussion, being among the first to proclaim that breath vibrato was to be initiated by the larynx (or throat).

Wind players, like singers . . . produce the vibrato by means of a bodily organ . . . namely the vocal cords. The acquisition of the vibrato by wind players is not easy . . . The very soft pressing together of the vocal cords and minimal closing of the glottis which is necessary for the vibrato creates sufficient resistance to compress the air column arising from the lungs and reshape it to some extent to a firmer and denser consistency and thereby to make possible a greater strength of sound, revealing more inner power.

. . . I suggest the following procedure: form a good embouchure, and blow a sound . . . and hold it out while

⁵ Anton Bernhard Fürstenau, *Die Kunst des Flötenspiels*, Op. 138. Ed. Rien de Reede, reprint of the original Breitkopf und Härtel edition ca. 1844 (Buren: Uitgeverij Frits Knuf, 1990), 79-81. Translated by Anderson from Gärtner's *The Vibrato* (see fn. 3), 32-34.

carrying out a "bleating" motion of the vocal cords. By using this "bleating" motion, one creates a rapidly alternating opening and closing of the vocal cords, with a resultant interruption of the sound very similar to that produced while tonguing. This exercise, while at the beginning sounding very ugly in its rough form and seeming most strenuous, can more and more begin to approach the vibrato used by well trained singers, as the player learns to move the vocal cords in an even lighter and quieter manner (almost inaudibly).⁶

This type of "bleating" or "quavering" throat vibrato, called *chevrotement* by the French, was disavowed by successors of Schwendler and his school. In consequence most woodwind players have rejected the concept that vibrato can be initiated in the throat. In its place they have most often spoken of producing vibrato by means of a rapid pulsation of the diaphragm (the primary muscle of inhalation).

Twentieth-Century Woodwind Vibrato

"Diaphragm vibrato" has been advocated by most 20th-century wind players. The diaphragm is said to produce a periodic alternating compression and relaxation of the air in the air column and is transferred to the instrument, thereby producing vibrato. At the same time they have spoken out against laryngeal or throat techniques as absolutely to be avoided. Arthur Weisberg is representative of 20th-century opinion regarding woodwind vibrato production, as for example in the following statement:

Experience has proved to the author that the diaphragm vibrato is far superior to any other type. Such a preference, however, cannot be sustained with scientific proof, it is a matter of personal preferences. At this time, this belief is very strongly held, and to the author represents a "truth." For that reason, diaphragm vibrato will be the only type to be discussed.⁷

⁶ Maximilian Schwendler, *Flöte und Flötenspiel*, 2nd improved and expanded edition (Leipzig: Weber, 1910), 81-82. Translated by Anderson from Gärtner's *The Vibrato*, 41.

⁷ Arthur Weisberg, *The Art of Wind Playing* (New York: Schirmer Books, 1975), 59.

Despite Weisberg's uncompromising personal preferences, a number of woodwind performers, especially European, have chosen not to accept diaphragm vibrato exclusively. Georg Müller, for example, differentiated between laryngeal or rapid (*kurzphasig*) and slow diaphragm-abdominal (*langphasig*) vibrato.⁸ And the Irish flutist James Galway believes that the muscles of the throat are responsible for controlling the fluctuating air pressure and that the diaphragm merely quivers in sympathy.⁹

Recent Scientific Experiments

What is the exact nature of modern woodwind vibrato? The question remains somewhat controversial. But in the last 30 years a number of experiments have been carried out using sophisticated medical equipment to determine the physiological production of woodwind vibrato. For instance in 1973 the bassoonist Christopher Weait began conducting experiments on himself using x-rays and video tape while playing. He concluded that vibrato originated and was controlled by the action of the laryngeal muscles.¹⁰ This type of laryngeal vibrato is not the hesitating *chevrement* described earlier, which totally closes the glottis (the space between the vocal cords) and stops the air flow. It is, in fact produced by slightly and periodically narrowing the glottis, but never completely closing it.

In 1963 Gärtner began experiments using electromyography to document electrochemical reaction of muscle groups in twelve performing flutists. A summary of results follows:

1. Vibrato does not originate in the diaphragm as previously stated.
2. Because of its manner of production, "diaphragm" vibrato should actually be referred to as "thoraco-abdominal" vibrato. The diaphragm is fixed in the sense of support. Alteration of tension and release of breath is brought about by a periodic compression and release of abdominal and thoracic muscles.
3. In every case the larynx is actively participating with muscular activity. Thus "thoraco-abdominal" vibrato is always a mixed type.
4. On the other hand, we were able to document purely laryngeal

⁸ Georg Müller, *Die Kunst des Flötenspiels* (1954), cited by Gärtner (translated by Anderson), 42.

⁹ James Galway, *Flute* (New York: Schirmer Books, 1982), 106.

¹⁰ Christopher Weait, "Vibrato Videotape," *Flutist Quarterly* 13 (Spring, 1988), 45.

vibratos without any participation by the abdominal muscles, thoracic muscles, or diaphragm.

5. "Thoraco-abdominal" vibratos tend to be of lower frequencies (under 6 Hz), and the highest frequencies (7 Hz) were produced by subjects with purely laryngeal mechanisms.
6. Laryngeal vibrato has the widest range of all vibrato types.
7. *Laryngeal vibrato was preferred in pp dynamic levels in all registers.*¹¹

Some of the most recent investigations into woodwind vibrato began in 1986 in Denton, Texas by a doctor of otorhino-laryngology in collaboration with Professors Charles Veazey and Mary Karen Clardy of the woodwind faculty of The University of North Texas. A number of physiological functions were studied using a fiberoptic laryngoscope connected to video and audio recording equipment with the following results:

... as expected, there was no laryngeal activity for clarinet ... since vibrato was produced by the jaw. Vibrato activity for flute, oboe, and bassoon varied greatly between individuals, but there was no doubt that the vibrato originated in the throat, not the diaphragm. Vibrato motion was apparent in the vocal folds, arytenoid cartilages, back of the tongue, and the posterior pharynx wall (constrictor muscles).¹²

Such experiments are currently changing conceptual and technical approaches to vibrato and will no doubt affect future performance practice. Curiosity about physiological functioning and various concepts of vibrato production which have occupied woodwind musicians for centuries should ideally serve the music we play and the audiences for whom we perform.

¹¹ Gärtner, *The Vibrato*, as translated by Anderson, 125-6.

¹² Charles O. Veazey, "Observations of Laryngeal Activity of Woodwind Instruments During Performance Using a Fiberoptic Laryngoscope," *Flutist Quarterly* 13 (Spring, 1988), 48.