

Flute Vibrato in the 18th and 19th Centuries

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1. The Vibrato Techniques

Several techniques were used to make a flute vibrato, hence the plural in the heading title of this chapter.

1:1 *Flattement technique*

The *flattement technique* creates in most cases a pitch and a timbre vibrato; sometimes only the timbre changes. In addition to their descriptions, the methods by Hotteterre, Corrette, Mahaut, Tromlitz, Miller, Nicholson, Alexander, Wragg,¹ Weiss, Lindsay, Lee/Wragg, Fürstenau and Clinton provide instructive finger charts for *flattement technique*. It is technically impossible to apply the *flattement technique* on some notes, like e.g. the lowest notes on the instrument where there are no holes below. On some notes it is easier to perform the *flattement technique* beautifully than on others.

The *flattement technique* is executed almost as a trill downwards from the main note. The finger either partly covers the next hole down from the already covered holes, or fully or partly covers one of the holes further down on the instrument.

Jean Jaques Hotteterre writes in *Principes de la Flute Traversiere, ou Flute d'Allemagne, De la Flute a bec, ou Flute douce, et du Hautbois* from 1707:

The softening, or lesser Shake [flattement technique], is made almost like the usual Shake there is this difference that you always end with the finger off, except on D-la-fol re, for the most part they are made on holes more distant, and some on the edge or half the hole only, it participates of a lower Sound, which is contrary to the Shake.

Le Flattement ou Tremblement Mineur, se fait presque comme le Tremblement ordinaire: Il y a cette difference, que l'on releve toujours le Doigt en le finissant, excepté sur le Ré; De plus on le fait sur des trous plus éloignez, & quelques-uns sur le bord ou l'extremité des trous; Il participe d'un son inferieur ce qui est le contraire du tremblement.²

Johann Georg Tromlitz writes in 1791:

On the flute it [the flattement] is produced by repeatedly partially or halfway closing and opening the next hole down from the long note with the finger, or [by alternately closing and opening] another hole completely, according to the demands of the circumstances.

¹ Gerhold *Wragg* 147

² Hotteterre *Principes* 29 For the English translation, I have chosen the contemporary one printed in *Musick-Master* edited by Prelleur in 1730/1731. This quotation is from page 9 in the chapter about the transverse flute.

...Sie [die Bebung] entstehet auf der Flöte, wenn man mit dem Finger das der langen Note zunächst darunter liegende Loch ein wenig oder halb, oder auch ein ander Loch ganz, nach Erforderniß der Umstände, wechselweise bedeckt und öffnet.³

And, finally, Anton Bernard Fürstenau in 1844:

The *Klopfen* [the *flattement technique*] with a finger (which does not participate in the production of the tone currently played) on a hole (which takes also no part), where one lets the finger drop onto the hole repeatedly, as quickly as possible and flexibly, to create a vibration of the tone.

Das Klopfen mit einem - bei Hervorbringung des grade zu spielenden Tons nicht beschäftigten - Finger auf ein - ebenfalls dabei nicht betheiligtes - Tonloch, wobei man den Finger mehrere Male hinter einander möglichst schnell und elastisch auf das Tonloch niederfallen lässt, so dass ein Vibrieren des Tons entsteht.⁴

Not only Hotteterre make comparisons to trill performance. Antoine Mahaut writes in his *Nieuwe Manier om binnen korten tyd op de Dwarsfluit te leeren speelen* from c. 1759: "The fingered vibrato is a wavering of the tone which is slower than that of a trill,"⁵ and in the editions of *Wragg's Improved Flute Preceptor* from 1818 and after 1818, *vibration* is described as being similar to a trill, "but, being of a more tender and delicate character"⁶. George Washington Bown expresses himself similarly in c. 1825, writing in *The Flauto Instructive Companion or Preceptor for the Flute*: "it [the *vibration*] is characteristic of a shake, but is infinitely more tender and delicate."⁷ Thomas Lindsay says in 1828-30 that *vibration* is "in effect, a sort of false, or imperfect shake"⁸. John Clinton writes in *A School or Practical Instruction Book for the Boehm Flute* from 1846, that the beats "are made with the finger in a similar manner to the movement in the shake."⁹ The terms *Tremblement Mineur*, *lesser Shake*, *shake* and *close shake* that were used for a vibrato performed by the *flattement technique* also clearly show how it was looked upon as a trill with less *pitch change*.

Generally speaking, less and less fingerings with full holes were used over time. In the fingering chart by Hotteterre about half of the fingerings use a full hole. In the methods by Michel Corrette (from 1739/40) and Mahaut, less than half of the fingerings use full holes. Mahaut writes:

Some players execute the vibrato by extending the finger on a given hole and covering just the edge. Others execute it by covering a full hole or even two at once, according to the intensity of expression desired.

³ Tromlitz *Unterricht* 239 transl. 213-214

⁴ Fürstenau *Kunst* 81 transl. T. Skowronek

⁵ Mahaut *Method* 19 This method is printed with parallel Dutch and French texts. „De beeving, langsaamer slaagen, dan een triller, bevattende..." "Le flattement est un battement plus lent que le tremblement" Mahaut *Nieuwe Manier* 19

⁶ Gerhold *Wragg* 147

⁷ Bown *Preceptor* 59

⁸ Lindsay *Elements* 30

⁹ Clinton *School* 72

Quelques uns le battent sur l'extrémité ou bord des trous, en allongeant le doigt qui fait le battement, d'autres le battent sur un trou plein & même sur deux à la fois, selon la force & l'expression qu'on veut donner.¹⁰

Johann Joachim Quantz seems to think only about partly covered holes when he writes in *Versuch einer Anweisung die Flöte Traversiere zu spielen* from 1752 about: "making a vibrato with the finger on the nearest open hole."¹¹ The meticulous French translation of *Versuch* was issued in Germany in the same year as the German version, and under the supervision of Quantz.¹² There this sentence becomes "au trou ouvert le plus proche, flattement avec doigt".¹³ This indicates a *flattement technique* with half or semi-covered holes. The German preposition "neben" and the French "au" mean "beside", and by fully covering the nearest open hole, the *pitch change* for many fingerings would be the one of a trill, (a whole note). Unfortunately, Quantz does not print a fingering chart for the *flattement technique*. Tromlitz, however, does so in his *Ausführlicher und gründlicher Unterricht die Flöte zu spielen*, where he recommends the reader to cover a full hole in nine out of 44 fingerings. Tromlitz writes:

It is not possible to give a definite measurement for how much the finger should cover the hole. Since the note must tend alternately a little towards the low side and back up again and keep fluctuating, the ear will easily be able to decide how far with each movement the finger, stretched out and placed at the side of the hole, must cover it. With some of them it is only a quarter, with some half, even three quarters, and with several the hole is completely covered.

Ein gewisses Maaß, wie weit der Finger das Loch bedecken solle, hier beyzubringen, ist nicht möglich. Da der Ton bey der Bebung sich wechselswerte ein wenig unterwärts und wieder aufwärts ziehen und schwebend erhalten muß, so wird das Ohr leicht entscheiden können, wie weit bey jeder Bewegung der ausgestreckte und an die Seite des Loches gelegte Finger dasselbe bedecken müsse. Bey einigen wird nur der vierte Theil, bey anderen die Hälfte, auch wohl drey Viertheile, und bey manchem wird das Loch ganz zugedeckt.¹⁴

Edward Miller, who uses the word *close shake* for the *flattement technique*, writes in c. 1799 that one makes it "by either beating the finger immediately below on the SIDE of the Hole; or a distant Finger on a distant FULL Hole."¹⁵ Of the four fingerings he provides, two open a hole, and two cover a hole partly. The flutists of the Nicholson school covered full holes very seldom. In the fingering chart in *Nicholson's Complete Preceptor for the German Flute*, (1816), there are two fingerings for opening a hole, six that cover about half of a hole, two that cover a full hole, and three that make use of a key. In the text, Nicholson does not mention the possibility to cover a full hole, only half holes. He writes that *vibration* could be made by a tremulous motion of the finger/.../covering about one half of the Hole.¹⁶ Two years later James Alexander expresses himself similarly. He writes that *vibration* could be produced

¹⁰ "Sommige slaan het op de kanten van de Fluitgaaten, strekkende den vinger, die het werk doet, verder inwaarts; anderen, slaan het op een open gat, zelfs op twee te gelyk, naar maate van kracht en de uitdrukking, die men 'er aan geeven wil." Mahaut *Nieuwe Manier* 20. transl. 19

¹¹ „auch neben dem nächsten offenen Loche mit dem Finger eine Bebung machen“ Quantz *Versuch* 140 transl. 166

¹² Reilly *Preface* xxxv

¹³ Moens-Haenen *Vibrato* 110. I have as well consulted a Swedish translation from 1783? *, but it did not use any preposition

¹⁴ Tromlitz *Unterricht* 240 transl. 214

¹⁵ Miller *Instructor* 11

¹⁶ Nicholson *Complete* 22. For a contemporary German translation, see Grenser *Flötenspieler* 101

“by a regular shake on the note vibrated; but carefully observing that the shaking finger covers only the half of the hole.¹⁷ Alexander gives only fingerings where half the hole is to be covered apart from two that use a key. Wragg has a similar description of *vibration* in the editions of *Improved* printed after 1816.¹⁸ In Bown’s *The Flauto Instructive Companion or Preceptor for the Flute* from 1825 there are two out of nine fingerings that use a full hole, and Lindsay writes in 1828 that one way to produce a *vibration* is: “by shaking the finger on the said hole, but, in some instances, only half covering the hole, and thereby occasioning an alternate flattening and sharpening of the note.”¹⁹ In *A School for the Flute* from 1836 Nicholson provides only fingerings with partly covered holes. He comments the fingering chart for the *flattement technique* thus:

It will be perceived in the marks of fingering, that to some of the Vibrations it is only requisite in the Shake to cover half the hole, and to others, a much less portion, bringing the finger in contact with the edge only; but this must be regulated by the Ear.²⁰

In Lee/Wragg *New Flute Tutor. Bernhard Lee’s Edition of Wragg Improved...* from 1840 there are no fingerings with full holes. Only Anton Bernard Fürstenau and Clinton stand apart from this tendency. Fürstenau uses full holes in 14 out of 22 cases in the fingering chart in *Die Kunst des Flötenspiels* from 1844. In the fingering chart in Clinton’s *School*, 43 of the 51 fingerings are using full holes, and 4 semi-covered. Fürstenau writes that “The tone-hole may only be covered by half, as is shown in the appended table about the beating.”²¹

Corrette, Mahaut and Tromlitz make it clear, that the finger is supposed to be straight, which probably was the general practice. Corrette writes “The flattement is made with a finger which is well extended”²² Mahaut writes about “extending the finger,”²³ and Tromlitz about “the finger, stretched out and placed at the side.”²⁴ In this manner, it is not the fingertip that touches the instrument, but the part further in.

As seen in the quotation from Mahaut above, the *flattement technique* could sometimes be executed by using two fingers simultaneously. Fürstenau asks for the simultaneous use of two fingers in two fingerings in *Kunst*, and in Clinton’s *School* there are as many as 13 fingerings that employ more than one finger simultaneously.²⁵

One possible way to make the *flattement technique* which is not documented in the sources is with a curved finger, covering the far edge of the hole. This feels comfortable on the first and second holes on the flute.

¹⁷ Alexander *Preceptor* 30

¹⁸ Gerhold *Wragg* 147

¹⁹ Lindsay *Elements* 30

²⁰ *Ibid*

²¹ „Das Tonloch darf bei einigen Tönen aber nur zur Hälfte bedeckt werden, wie in der angehängten Tabelle für das Klopfen angezeigt ist., Fürstenau *Kunst* 81 transl. T. Skowronek

²² “Le Flattement se fait avec un doigt qu’il faut bien allonger » Corrette *Méthode* 30. transl. the present writer. Quoted in full in section 1.1.1

²³ See quotation above

²⁴ “der ausgestreckte und an die Seite des Loches gelegte Finger” Tromlitz *Unterricht* 240 transl. 214, quoted above

²⁵ The two wavy lines for c’’ in Alexander *Preceptor* 44 are alternatives.

A characteristic feature of the *flattement technique* is that the pitch of the note is only flattened. Hotteterre points this out,²⁶ and Tromlitz writes that “the note must tend alternately a little towards the low side and back up again and keep fluctuating.”²⁷ However, a small number of fingerings for the *flattement technique* that raise the pitch can be found in various sources. These are here listed in chronological order:

Hotteterre *Principes*: d'', d#'', d''' and d#'''

Corrette *Méthode*: d'' and an alternative on c'''

Mahaut *Nieuwe Manier*: one alternative on d''

Tromlitz *Unterricht*: d''

Miller *Instructor*: d'' and e''

Nicholson *Complete*: c'' and d''

Charles N. Weiss *A New Methodical Instruction Book* (c. 1824): f#'' and f#'''²⁸ (a misprint?)

Lindsay *Elements*: c''

Alexander *Preceptor*: c'' and d'''²⁹

Alexander *Improved*: c'' and d''

Nicholson *School*: one alternative on c''

Lee/Wragg *Improved*: c'' and one alternative on c#''

Fürstenau *Kunst*: one alternative on bb'' and one alternative on d#'''

Clinton *School*: e''

So, in the 18th century treatises the *flattement technique* executed on d'' most often raises the pitch. In the treatises that belong to the Nicholson school the fingerings for the *flattement technique* on c'' most often raises the pitch. The three French treatises from the first half of the 18th century all point out that the player should end the *flattement* with the finger off, except on d''. Hotteterre writes in *Principes*: “The softening, or lesser Shake, is made almost like the usual Shake there is this difference that you always end with the finger off, except on D-la-fol re,”²⁹ Corrette agrees; the *flattement* is finished with the finger off, «except on d in the second octave.»³¹ And Mahaut writes:

The finger that plays the vibrato should stay up when the ornament is finished, except in the case of d'', where the finger stays down after the ornament is played on the second hole.

Le doigt qui fait le battement, doit rester relevé en finissant, excepté au second Ré où le doigt reste abaissé, quand on le fait sur le second trou.³²

The reason is to always end on the *central pitch*. Supposing this was the aim also in later periods, the conclusion becomes that in all fingerings in the fingering charts where a hole is opened, one is supposed to finish with the finger down, or the key closed.

²⁶ See the quotation above

²⁷ “Der Ton bey der Bebung sich wechswerte ein wenig unterwärts und wieder aufwärts ziehen und schwebend erhalten muss,” Tromlitz *Unterricht* 240 transl. 214

²⁸ Dickey *Untersuchungen* 130

²⁹ Alexander *Preceptor* 44. the wavy line on the first hole on the fingering for c'' is a misprint. It should be placed at the first hole of the fingering for c#, as in Alexander *New ed.* 37

³⁰ « Le Flattement ou Tremblement Mineur, se fait presque comme le Tremblement ordinaire: Il y a cette difference, que l'on releve toujours le Doigt en le finissant, excepté sur le Ré » Hotteterre *Principes* 29 transl. 9

³¹ “excepté sur le second ré”. Corrette *Méthode* 30

³² „De beweegede vinger moet by het eindigen omhoog staan; uitgezondert by de middelste D; alsdan blyft hy leggen, wanneer op het tweede gat de slag voorkomt.” Mahaut *Nieuwe Manier* 20 transl. 19

I believe that the *flattement* fingerings for gb', gb'' and bb'' in the fingering chart in Mahaut *Nieuwe Manier om binnen korten tyd op de Dwarsfluit te leeren spelen/Nouvelle Méthode pour apprendre en peu de tems a jouer de la Flute*, which raise the pitch, are mistakes. Not only is Mahaut alone in giving this advice, but also these notes are fingered differently than their enharmonic counterparts, while the finger suggested for the *flattement* is (as I see it -by mistake) the same.

The use of the *flattement technique* continued when keys were introduced on the flute in the second half of the 18th century; the keys were also used for the *flattement technique*. The flutists of the Nicholson school use the D# key for on f, and sometimes f#. Fürstenau recommends opening the b key as one alternative on bb'', and likewise opening the g# key for one alternative on d#'''. He recommends closing the c#'' key for the *flattement technique* on a'''. Clinton on provides in 1846 an extended chart for *flattement technique* for the ring keyed flute; he uses a key for the *flattement technique* on d'', d#'', e'' d'' ' and d#''', and only the ring on g', g'', f#''' and g'''.

I have not found a fingering chart for finger vibrato for the Boehm model from 1847. * Technically it is fully possible to use the *flattement technique* on most notes on such a flute, so in my opinion the reason why it seems not to have been used must be sought after elsewhere.

1.1.1 The finger above the hole?

The flutists of the Nicholson school seem to articulate that sometimes the finger is not touching the flute. Nicholson writes in *Complete* from 1816:

the other way by which the same effect [the vibration] is produced, is by a tremulous motion of the finger immediately over the Hole, without coming into contact with the Flute by the same motion, and in some instances with the finger covering about one half of the Hole.³³

Alexander writes two years later, that "Vibration is produced in three different ways/.../ secondly, by shaking the finger immediately over the hole without actually touching the Instrument."³⁴ Lindsay writes in 1828, that "*Vibration* may be produced in three different ways:/.../ secondly, by shaking the finger immediately *over* the first or second open hole below the note sounded, without actually touching the instrument."³⁵ J. Wragg also describes this in a very similar way in the editions from 1818 and on of *Improved*.³⁶ In Lee/Wragg's *Improved* from 1840 we can read that "...[the vibrations] are produced by a tremulous motion with the finger over the hole."³⁷ Richard Carte writes in 1845 about *vibration* that it is "being

³³ Nicholson *Complete* 22. Carl Grenser translates in 1828 selected parts of James *A Word or two on the Flute*, for an article in *Allgemeine Musicalische Zeitung*. Where James is discussing Nicholson's *vibration*, Grenser translates the section about *vibration* from *Complete* for the German readers. The bolded sentence above becomes: "durch eine zitternde Bewegung des Fingers, unmittelbar über dem Tonloche, ohne dass man in Berührung mit der Flöte durch diese Bewegung kommt," Grenser *Flötenspieler* 101

³⁴ Alexander *Preceptor* 30

³⁵ Lindsay *Elements* 30

³⁶ Gerhold *Wragg* 147

³⁷ Lee/Wragg *Improved* 58

produced on the Flute by waving or shaking the finger over certain of its holes.”³⁸ Alexander, Wragg and Lindsay express themselves in such a similar way upon this matter to Nicholson that their texts can hardly be treated as independent sources.

To execute the *flattement technique* with the finger not touching the instrument is the only vibrato technique I encountered during this study which presented not only severe problems to me, it actually did not work at all. In my experiments on different flutes, the pitch, timbre or volume of the note does not change at all before the finger actually touches the instrument, whether the flute has big holes or small.³⁹ A vibrato technique that apparently does not produce any change of the note at all seems strangely superfluous.

Lee/Wragg’s *Improved* provide a fingering chart for *vibrations* where a figure indicates on which fingerings the finger is supposed to vibrate over the hole.⁴⁰ The figure is however applied to only two fingerings, c’ and c#’, which are the only cases when the vibrato is made by *opening* a hole. However, there still will be no fluctuation in either pitch or timbre, if the finger does not touch the flute at all in making the vibrato.

Nicholson, in *Preceptor* by Bown, the article about *vibration* also clearly shows the author’s knowledge of Nicholson’s *Complete* and Alexander’s *Preceptor*. But a single word in his text brings some light into the problem:

Shaking the Finger immediately over the Hole scarcely touching the Instrument, will likewise produce it [the *vibration*], so will also, a regular shake on the Note vibrated, with a special observance however, that only half of the Hole be covered by the Finger shaking.⁴¹

I believe that this is what also Nicholson means –the finger is *scarcely* touching the instrument. In *Complete* Nicholson expresses himself inexact, and Alexander, Lindsay and Wragg uncritically copy him.⁴² Bown formulates it more adequately.

There is an audible/significant difference when I try to move the finger as much “over” the instrument as possible, rather than directly covering a full hole. In the first way the finger touches the flute very gently and softly, it * creates a fluctuation of the pitch, similar to the vibrato created by covering holes partly; the second way the pitch changes more clearly and bluntly; it sounds more like a trill with smaller pitch change.

As stated above,⁴³ the fingering charts for the *flattement technique* in the Nicholson school show mostly fingerings with semi-covered holes. It is reasonable to believe that the vibrato made by a finger over the hole should sound similar to the vibrato created by using semi-covered holes. Touching the flute as softly as possible in the fingerings that covers full holes in the fingering chart in Nicholson’s *Complete* creates a similar vibrato to the one created with the other fingerings.

³⁸ Carte *Instructions* 24

³⁹ Unfortunately, I have not had access to a Nicholson type of flute, but I tried the technique on a ringkeyed flute made by J. M. Bürger (Strassbourg), and copies of flutes by Liebel and Grenser.

⁴⁰ Lee/Wragg *Improved* 58

⁴¹ Bown *Preceptor* 59

⁴² See section 2.6.1 about Nicholson’s influence on his contemporaries, particularly in the use of vibrato.

⁴³ in section 1.1

This smooth way of executing the *flattement technique* on full holes was asked for by other flutists a swell. Fürstenau writes that the finger that is used for the *flattement technique* should move flexibly,⁴⁴ and Corrette writes:

The softening is made with a finger which is well extended on the edge, or above the hole under the covered holes. One must observe the finger does not cover the hole on which the flattement is made, but that it is lowered softly

Le Flattement se fait avec un doigt qu' il faut bien allonger sur le bord, ou audessus du trou et audessous de ceux qui sont bouchés. Il faut observer que le doigt ne bouche point le trou sur lequel se fait le flattement, mais le baisse doucement⁴⁵

Haynes interprets this as a description of a finger vibrato without the finger touching the flute,⁴⁶ a view that is not shared by Moens-Haenen⁴⁷ and Dickey.⁴⁸

Gunn, who uses the term *sweetening* for “what the French call Flattement” in *The Art of Playing the German Flute* from 1793 also describe this smooth way of covering the hole:

...Sweetenings, made by approaching the finger to the first or second open hole, below the proper note that is sounded, and moving it up and down over the hole, approaching it very near each time, but never entirely upon it; thus occasioning an alternate flattering and sharpening of the note,⁴⁹

Dickey means that in this way, the finger actually does not touch the instrument, but he points out, that this technique causes only a tiny -if any- pitch change of the note.⁵⁰ Moens-Haenen doubts whether Gunn means that the finger does not touch the instrument.⁵¹ She writes that a minimal pitch change does not correspond very well with the likening of the vibrato to the *chevrotter*.

Thus the manner to execute the *flattement technique* with the finger *over* the (full) hole should be interpreted as making it with the finger *scarcely* and very gently touching the instrument.

1.1.2 Pitch changes

The deviation between the lowest point of the vibrato and the pitch of the unornamented note I here call the *pitch change*.

The pitch change of a note embellished with the *flattement technique* can be up to a half tone; sometimes there is no pitch change at all. The fingering charts are the most informative sources on the matter of pitch changes. In most of the preserved fingerings for the *flattement technique*, the ornament is made by partly covering a hole, where after the pitch change is to a

⁴⁴ Fürstenau *Kunst* 81. Quoted in section 1.1

⁴⁵ Corrette *Méthode* 30 transl. the author's correction of Farrar's in transl. 43

⁴⁶ Haynes *Fingervibrato* 404. The same technique is described in an anonymous recorder treatise named *Complete Flute-Master* from 1695.

⁴⁷ Moens-Haenen *Vibrato* 104 and 109

⁴⁸ Dickey *Untersuchungen* 93

⁴⁹ Gunn *The Art* 18

⁵⁰ Dickey *Untersuchungen* 93

⁵¹ Moens-Haenen *Vibrato* 109

great part regulated by the player by means of covering a larger or smaller part of the hole. But the fingerings where one is supposed to cover a full hole can give us more precise information. When using these fingerings on a flute of the kind that the fingering chart is made for, it is possible to determine the pitch change with fairly good certainty. But also the fingerings where a hole is covered partly can give much valuable information.

When I tested the fingerings with full holes in the charts by Hotteterre, Corrette and Mahaut⁵² I found big differences in the pitch changes between the different fingerings, ranging from no difference (timbral vibrato) to a half tone. In certain cases the pitch changes are commented in the accompanying text. In his fingering chart from 1707, Hotteterre uses the full second hole to make a *flattement* on c#'' (fingered with only the seventh hole - covered by the key- closed Corrette comments this fingering in 1739/40 when writing about *flattement* on c#'' : "The ancients did it on the 2nd hole, but it is worthless and lowers the note by a comma."⁵³ Corrette recommends vibrating on the 3rd hole, which gives less pitch change. Mahaut, writing in 1759, provides however the same fingering as Hotteterre. Mahaut writes about *flattement* in general, that it "produces an interval narrower than a semitone."⁵⁴ In his fingering chart there are a couple of alternative vibrato fingerings (for a'' and h'') that - on a period flute⁵⁵ - produce pitch changes of a half tone or almost a half tone. Mahaut encourages the player to use a *flattement* with larger pitch change for a more intense expression:

Some players execute the vibrato by extending the finger on a given hole and covering just the edge. Others execute it by covering a full hole or even two at once, according to the intensity of expression desired.

Quelques uns le battent sur l'extrémité ou bord des trous, en allongeant le doigt qui fait le battement, d'autres le battent sur un trou plein & même sur deux à la fois, selon la force & l'expression qu'on veut donner.⁵⁶

In the ten fingerings that use full holes in Tromlitz' fingering chart from 1791, the pitch changes are very different. Some fingerings result in no pitch change, while others creates pitch changes of up to more than a quarter note, notably those for bb' and b#'.⁵⁷ In general, Tromlitz' fingerings indicate similar pitch changes as Hotteterre, Corrette and Mahaut.

Quantz does not provide a fingering chart that would tell us about the pitch changes of his *flattement technique*. But he writes about using the hole closest to the ones already covered for the *flattement technique*,⁵⁸ which indicates pitch changes similar to those provided by the abovementioned authors. Quantz recommends the use of the *flattement technique* together with a *messa di voce*. Both Haynes⁵⁹ and Moens-Haenen⁶⁰ underlines that Quantz is not using

⁵² on a copy of a flute by J. J. Hotteterre by M. Skowronek and a copy of a flute by G. A. Rottenburgh by R. Tutz

⁵³ "les anciens le faisoient sur le 2e. trou mais il ne vaut rien et baisse le ton d'un Comma." Corrette *Méthode* 31.

⁵⁴ "wiens afstandt nog geen en halven toon bedraagt." "qui ne forme pas un intervalle d'un demi ton," Mahaut *Nieuwe Manier* 19. transl.19.

⁵⁵ Tried on a copy of a flute by G.A. Rottenburgh from c. 1750, made by R. Tutz and a copy of a flute by Oberlender from c. the 1740's or -50's made by G. Tardino.

⁵⁶ Mahaut *Nieuwe Manier* 20. The Dutch text in the original is: "Sommige slaan het op de kanten van de Fluitgaaten, strekkende den vinger, die het werk doet, verder inwaarts; anderen, slaan het op een open gat, zelfs op twee te gelyk, naar maate van kracht en de uitdrukking, die men 'er aan geeven wil." transl. 19

⁵⁷ On a copy of a flute by Grenser from around the 1790's made by R. Tutz.

⁵⁸ the passage is quoted in section 2.11

⁵⁹ Haynes *Fingervibrato* 405-406

⁶⁰ Moens-Haenen *Vibrato* 110

the *flattement technique* to make up for the rise in pitch caused naturally by a *messa di voce* on the flute. According to Quantz, the note has to be kept in tune with the embouchure or by turning the flute. Haynes and Moens-Haenen conclude that the average pitch of the note is only very slightly changed by Quantz' *flattement technique*. This, however, does not mean that the pitch changes necessarily are smaller than the ones described by Hotteterre, Corrette, Mahaut and Tromlitz. My experiments show that to make a note with a *messa di voce* in tune on a baroque flute, it is necessary to compensate (with the embouchure or by turning the flute) also if one makes a *flattement* with a pitch change like in the fingering charts of the abovementioned writers.

The notes g, a, and b are notes commonly decorated with the *flattement technique*, and they have the same fingerings on one-keyed and keyed flutes. Looking at the fingerings for the *flattement technique* on these notes in the tables reveals large/many similarities in fingerings, and therefore pitch change, between the 18th century writers Hotteterre, Corrette, Mahaut and Tromlitz. These authors recommend the 4th or 5th hole for making a vibrato on g, the 3rd or 4th on a and the 3rd or 4th (Tromlitz even the 2nd), for b.⁶¹ On the contrary, the fingering charts of the Nicholson school give the 5th or 6th hole for g, 4th or 5th for a' and 4th for b'. The deviations from the central pitch on these notes are therefore smaller, whereas they are bigger in the aforementioned 18th century charts. A practical examination of the fingerings for the *flattement technique* printed by Nicholson, Alexander, Wragg, Weiss, Bown, and Lindsay on a German contemporary flute models⁶² * check Liebel! gave only minimal pitch changes or none at all; the vibrato afflicted first and foremost the timbre. Spell (who has had the opportunity to play on flutes by Nicholson)⁶³ concludes/states, that Nicholson's *vibration* was timbral rather than pitch-related, with small or no pitch change.⁶⁴

Carl Grenser describes the same kind of *flattement technique* with very small pitch change that is described by the Nicholson school in an article in *Allgemeine musikalische Zeitung* in 1828. Grenser reprints the fingering chart for *vibrations* from Nicholson's *Complete*, and underneath he writes his own comment:

I just want to add for further clarity, that the *Bebung* consists in a slower or faster alternation of a bright and a muted sound of the same pitch, or very similar pitches.

Ich will nur noch zu mehrer Deutlichkeit hinzufügen, dass die *Bebung* durch die langsamere oder schnellere Abwechslung eines hellen und gedämpften Klanges von gleicher Tonhöhe, oder sich doch möglichst nahe liegenden Tonhöhen, besteht...⁶⁵

However, Nicholson and his followers also write about varying the pitch change during a note. When imitating a bell,⁶⁶ the difference of pitch in the vibrato diminishes with the sound.

Among the fingerings in *Kunst* by Fürstenau from 1844 that use full holes there are several that create big pitch changes —up to a half tone. Overall Fürstenau's fingerings give very audible pitch changes.⁶⁷ The fingerings given in Clinton's *School* from 1846 result in bigger

⁶¹ Covered full or partly. Possibly the *pitch changes* intended in Corrette *Méthode* are slightly smaller than the others - Corrette recommends the edge of the 4th hole on a, where Hotteterre and Mahaut use the full 4th hole. Tromlitz recommends the third hole, partly covered.

⁶² Copy of Heinrich Grenser with 9 keys made by R. Tutz

⁶³ Spell *Nicholson* 12-27

⁶⁴ *Ibid* 77-78

⁶⁵ Grenser *Flötenspieler* 101. transl. T. Skowronek. *Bebung* is Grenser's term for any kind of vibrato.

⁶⁶ described in section 2.6.1.2

⁶⁷ Tried on a copy of a Grenser flute with nine keys made by R. Tutz.

pitch changes than the ones given by the Nicholson school. Clinton frequently recommends the use of two fingers simultaneously.

I find that the pitch changes that result from all the investigated fingering charts are rather similar, apart from those provided by the representatives of the Nicholson school. The latter suggests fingerings that make none or very small pitch changes.

In the 18th century, the sharps were often fingered differently than the flats, making them lower in pitch than their enharmonic counterparts. When the pitch change of the *flattement technique* is considerable, the average pitch of the note is slightly lowered. But I have only found one example where the *flattement technique* is used to create a difference between enharmonic notes: in the chart by Mahaut, he recommends the same fingering for a#´ and bb´, but uses a “flatter” fingering for the *flattement technique* for a#´. Hotteterre and Corrette make no differences between the fingerings for the *flattement technique* for enharmonic notes; sometimes they are fingered differently. Tromlitz does not use the *flattement technique* to distinguish between sharps and flats; he makes this distinction very carefully with the ordinary fingerings. My conclusion is that even if the pitch change sometimes was considerable, the average pitch of the note is perceived as more or less the same with the *flattement technique*. My experience is that a trained flutist compensates the slightly lower average pitch on a note with the *flattement technique*, so that the perceived pitch remains the same.⁶⁸

1.1.4 The speed

A finger vibrato can be performed both slowly and very quickly, and it is easy to change the speed of the vibrato within a note. Fürstenau writes that the finger should move as quickly as possible, and the many likening of the *flattement technique* with a trill would suggest a fast performance. However, the article about *flattement* in Mahaut’s method from 1759 starts: “The fingered vibrato [the flattement] is a wavering of the tone which is slower than that of a trill.”⁶⁹ Tromlitz writes that the *flattement technique* can be performed slowly or fast.⁷⁰ Further on, however, he writes: “A very fast flattement is in my opinion a bad ornament.”⁷¹ Tromlitz also writes about combining the *flattement technique* and a chest vibrato. As Dickey concludes,⁷² the *flattement technique* then must have been executed slowly, since the chest vibrato was executed slowly at this time, and it is anyway technically hardly possible to coordinate the two techniques quickly performed. Hotteterre writes: “It is necessary to play them [the flattements], as with the trills and battements, more slowly or more rapidly, in accordance with the tempo and character of the pieces.”⁷³

⁶⁸ See also sections 2.10 and 2.11.

⁶⁹ Mahaut *Method* 19 “Le flattement est un battement plus lent que le tremblement” „De beeving, langsaamer slaagen, dan een triller, bevattende...” Mahaut *Nieuwe Manier* 19

⁷⁰ “...welche langsam, oder geschwinde/.../seyen kann.” Tromlitz *Unterricht* 239

⁷¹ “Sehr geschwinde Bebungen sind meines Erachtens, eine schlechte Zierde.” Tromlitz *Unterricht* 239 transl. 214

⁷² Dickey *Untersuchungen* 94

⁷³ “...il les faut faire aussi-bien que les tremblements et battements, plus lents ou plus précipités, selon le mouvement et le caractere des Pieces.» Hotteterre *Avertissement*. Transl. Robert Schenck. Tromlitz writes in 1786 that the trill should be made faster in a piece in a quick movement, and slower in a slower movement. Tromlitz *Abhandlung* 15

Both Leopold Mozart⁷⁴ and Louis Spohr⁷⁵ describe a vibrato that is accelerating in a *crescendo* in their violin methods. Fürstenau joins this tradition when he writes in *Kunst*, that the tempo of the *Klopfen* (his term for the *flattement technique*) should increase during a *crescendo* and decrease during a *diminuendo*:

Chiefly, [the *Klopfen*]... is applicable on long notes /.../ especially if these rise gradually from piano to forte, or in reverse, begin on a forte and gradually die away, or finally, if they are to be played with crescendo and⁷⁶ decrescendo. In the first case, one begins by beating slowly, gradually increasing the speed in relationship to the intensity of the tone, in the second case one starts quickly and slows gradually down, and finally, in the third case, one first increases and then decreases the speed of the beating [beats?].

Hauptsächlich ist ... [das Klopfen] bei lange auszuhaltenden Tönen /.../ anwendbar, namentlich wenn solche vom piano allmähig zum forte anschwellen, oder umgekehrt forte beginnen und allmähig wieder verhallen, oder endlich mit crescendo oder⁷⁷ decrescendo gespielt werden sollen, wo man dann das Klopfen im ersten Falle mit langsam aufeinander folgenden Schlägen beginnt, und im Verhältnis zur zunehmenden Stärke des Tons zu immer schnelleren Bewegungen steigert, im zweiten selbiges mit schnell auf einander folgenden Schlägen beginnen und nach und nach langsamer werden, im dritten endlich das Klopfen erst allmähig schneller und dann wieder langsamer werden lässt.⁷⁸

However, as will be discussed later, the typical shape produced by both the *flattement technique* and the chest vibrato described by the English 19th century flutists is an accelerating vibrato on a note with a *diminuendo*.⁷⁹

1.2 Martellement/Schwebungen

Martellement/Schwebungen is a finger vibrato that is only described by two writers: Ch. Delusse in *L'Art de la flûte traversière* from c. 1760, and Johann Justus Heinrich Ribock in *Bemerkungen über die Flöte* from 1782. Delusse gives the *martellement* a paragraph of its own, separated from his “vibrato”-paragraph headed *tremblement flexible*.⁸⁰ He writes: “Martellement is understood as a continuous finger movement on the hole, which produces almost the same effect as the vibrato which is customary on the violin;”⁸¹

Delusse provides a fingering chart for *martellement* for most notes from d'' and higher. The differences from the fingering charts for the *flattement technique* are amongst others that only full holes are covered or opened, and that in ten of these fingerings holes are opened, and only

⁷⁴ L. Mozart *Violinschule* 246-247

⁷⁵ For the relationship between *Kunst* and the Spohrs's *Violinschule*, see section 2.6.3

⁷⁶ The German preposition “oder” (“or”) is in all probability a misprint; the correct word would be “und” (“and”). Fürstenau here speaks about a *messa di voce*.

⁷⁸ Fürstenau *Kunst* 81. transl. T. Skowronek.

⁷⁹ see section 2.6.1.2

⁸⁰ The terminology is confusing. Mahaut uses the word *martellement* for a mordent starting from the note under the main note.

⁸¹ “Du Martellement.

Ce qu'on entend par Martellement est un mouvement de doigt continu sur un trou qui produit à peu près le même effet que celui qu'on met en usage sur le violon; » Delusse *L'Art* 10 transl. the author

in seven fingerings a hole is covered. Moens-Haenen writes⁸² that four of these fingerings (on f#'', g'', g#'' and a'') slightly lower the pitch, one (on b') raises the pitch slightly, whereas all the remaining ones only afflict the timbre. When I tried out these fingerings on five copies of period flutes, the result turned out slightly different.⁸³ Only one or two of the fingerings lowered the pitch, between 7 and 10 raised it, and between 5 and 8 of the fingerings resulted in no significant pitch change.

Thus, that in most cases there is no pitch change downwards in the *martellement* can be described as the biggest and most important difference between and the *flattement technique* and the *martellement*.

Bemerkungen über die Flöte by Ribock from 1782 is not an ordinary flute method; it deals more with technical improvements in flute construction than with flute technique.⁸⁴ But it includes a fingering chart for what Ribock calls *Schwebungen*. The chart is intended for a flute with 5 keys (for Bb—G#, F—Eb, D#⁸⁵). It meticulously provides fingerings for the *Schwebungen* for all notes from e' to a flat'', inclusive several alternative fingerings. This is the earliest fingering chart for finger vibrato for a keyed flute, but there are no indications that the use of keys had any impact on Ribock's vibrato technique. The similarities between *Schwebungen* and Delusses' *martellement* are:

1. Only covering or uncovering full holes makes a vibrato.
2. Vibrato is as often made by opening a covered hole (often with a key) as by covering an open hole.

This leads to different *pitch changes* than with the *flattement technique*. A test of these fingerings on a copy of a flute by H. Grenser from about 1790⁸⁶ provided with these keys apart from the eb key⁸⁷ gave the following results: Out of 47 fingerings, 14 made the pitch considerably higher, 20 made it slightly higher, 11 resulted in no noteworthy change of pitch and two a slight flattening of the pitch. This puts Ribock's *Schwebungen* in the same category as Delusse's *martellement*: It is a finger vibrato that raises the pitch rather than lowering it. Ribock points out that it is possible to make use of this slight rise of pitch for an easier intonation in a diminuendo:

Regarding the *Schwebungen*, it seems almost superfluous to mention expressly that, by opening the key that has to make the *Schwebung* in a sustained pianissimo or Smorzando, the proper pitch of the tone can often be rather comfortably retained. The E will anyway become clearer by this, and this clarity can, aided by the *Schwebung*, often be maintained even during a forte without insulting the ear through the high pitch; because a good embouchure can keep it almost low enough, already without the effect of the *Schwebung*.

Was die Schwebungen anbetrifft, so scheint es fast überflüssig ausdrücklich zu bemerken, dass durch Oefnung der Klappe, die die Schwebung machen soll, dem Tone die meistenmahle gar bequem seine richtige Höhe im haltenden Pianissimo oder Smorzando erhalten werden könne. Das E gewinnt ohnedem noch dadurch an Klarheit, welche selbst oftmahls, durch Hülfe der Schwebung, im Forte demselben

⁸² Moens-Haenen *Vibrato* 120

⁸³ See appendix 5.

⁸⁴ Moens-Haenen *Vibrato* 113

⁸⁵ The system of key notation used here originates from Powell *Terminology* xiv

⁸⁶ By R. Tutz

⁸⁷ This flute also has keys for c'', c', c# and a long f key, none of which affects the result of the test.

erhalten werden kann, ohne dass die höhe das Ohr eben beleidiget; denn ein guter Ansatz kann es, auch ohne die Illusion der Schwebung, fast tief genug halten.⁸⁸

1.3 *Shaking the flute*

Shaking the flute (Corrette and Mahaut use the word *ébranler*) is executed by shaking the flute by the right hand; the flute thus moves horizontally. It was used as an alternative to the *flattement technique* and chest vibrato during both the 18th and 19th centuries.

On d' and d#/eb' (the two lowest notes of the one-keyed flute) it is not possible to perform a *flattement* because there is no hole left to cover. Hotteterre writes about *flattement* on d':

...I say it must be done but by artifice because 'tis ye lowest Note, and you have no finger left unemploy'd to do it with, therefore must be done by shaking the Flute, which imitates a softening

...je diray qu'il ne se peut faire que par artifice. Comme l'on ne peut se servir d'unucun Doigt pour le faire, (puis'qu'ils sont tous occupez à boucher les trous,) on ébranle la Flute avec la main d'embas, ensorte que l'on puisse imiter par ce moyen le flattement ordinaire.⁸⁹

Corrette writes in 1739/40: "For low re', all the notes are covered, and one shakes the flute with the right hand."⁹⁰ Corrette recommends this technique also for other notes, as an alternative to the *flattement technique* on g#/ab', d#''/eb'' and g#''/ab'', and as the only way to vibrate from e''' and up. Mahaut describes in 1759 this technique not for d', but for d#/eb':

The flattement on d' sharp and e' flat can only be produced artificially. You cover all the holes and shake the flute with the right hand.

Le flattement du Re'Diesis & du Mi Bemol d'en bas ne se fait qu'artificiellement: tous les trous étant bouchés on ébranle la Flute avec la main d'en bas.⁹¹

In *School*, Nicholson mentions *shaking the flute* as one out of three ways to do a *vibration*. He uses it to replace a chest vibrato in an accelerating vibrato when the tempo gets too fast.⁹² Carte writes in 1845 about *shaking the flute* as an alternative to chest vibrato.⁹³ Clinton, writing in 1846, knows the method of replacing the *flattement technique* with *shaking the flute* on the lowest notes on the flute, though he does not seem to like the effect very much:

For the first four notes, [c' to d#'] the Vibration [the *flattement technique*] (if required) can only be produced by a tremulous action of the Flute, at the Embouchure, which

⁸⁸ Ribock *Bemerkungen* 20. transl. T. Skowronek

⁸⁹ Hotteterre *Principes* 30 transl.10

⁹⁰ Corrette *transl.* 43 " Pour le ré naturel d'embas, ..., comme tous les trous sont bouchés on ébranle la flute de la main droite" Corrette *Méthode* 30

⁹¹ Mahaut *Nouvelle Méthode* 20 "De beeving van D kruis en E mol, aan het hoofd staande, vereischt den konstgreep, dat men, alle gaaten gestopt zynde, de Fluit van onderen met den arm beweege." transl. 19

⁹² Nicholson *School* 71, see sections 1.6 and 2.6.1.2.

⁹³ Carte *Instructions* 23. Quoted in section 2.6.1.1.

however cannot be recommended for the lowest notes, it however may be applied to the middle and upper notes with good effect, if skilfully managed.⁹⁴

Thus, Clinton is willing to use it on any note, if well performed.

Since Hotteterre writes that *shaking the flute* is supposed to imitate the *flattement technique* the effect of the two techniques should be similar. *Shaking the flute* can be performed slow or fast, although not as fast as the *flattement technique*, and the speed can easily be changed. The pitch changes both upwards and downwards, which is the biggest difference between this technique and the *flattement technique*.

1.4 Tremblement flexible

Tremblement flexible is only documented/described in one book, *L'Art de la Flûte Traversiere* from c. 1760 by Ch. Delusse. He begins the article headed "Du Tremblement flexible" by writing that it is "...produced by rolling the body of the flute with the left thumb, increasing gradually the speed, without losing the embouchure.⁹⁵ This way, both pitch and timbre are influenced. (To turn the flute inwards or outwards is a way to influence the pitch on the flute.)⁹⁶ *Tremblement flexible* is a pitch-, intensity- and timbre-vibrato. Contrary to the *flattement technique* the pitch is changing as much upwards as downwards. This makes the *tremblement flexible* sound much more like a slow violin vibrato, or the breath vibrato also described by Delusse, than the *flattement technique*. This difference in pitch changes between *tremblement flexible* and the *flattement technique* is clearly audible. It is not convenient to make *tremblement flexible* on short notes. It is worth noticing, that Delusse's *tremblement flexible* is accelerating.⁹⁷ My experience is that the *tremblement flexible* can be executed slowly or relatively slow, trying to perform a very fast *tremblement flexible*, one ends up *shaking the flute*.

Tremblement flexible seems to be the "normal" vibrato for Delusse. He notates it with a wavy line, which was the most common way to notate a vibrato in his time, and therefore the way his colleagues notate *flattement*.

1.5 Lip and jaw vibrato

Jaw vibrato could be used to strengthen the chest vibrato, or alone as an alternative to other techniques. I have not found any reports about lip vibrato from the period, though Quantz has a couple of sentences in *Versuch* that sometimes have been interpreted as descriptions of lip vibrato:

The forward and backward motion of the lips makes the tone true and pleasing. In the second octave avoid advancing the upper lip beyond the lower.

Das Hin- und wiederziehen der Lippen machet den Ton zugleich schwebend und annehmlich. Man hüte sich, in der zweyten Octave, die Oberlippe der untern vorzuschieben.⁹⁸

⁹⁴ Clinton *School* 72

⁹⁵ Lasocki *Preface* ii "Pour l'exécuteur, il faut que le pouce gauche agisse par gradation de vitesse, en roulant le corps de la Flûte, sans perdre l'embouchure. Delusse *L'Art* 9

⁹⁶ See e.g. Quantz *Versuch* 50

⁹⁷ Delusse also describes an accelerating trill, *L'Art* 8

⁹⁸ Quantz *Versuch* 51 transl. 59

Moens-Haenen thoroughly analyses this quotation,⁹⁹ and clearly shows with help of the contemporary French text (among others), that Quantz is not referring to a lip vibrato. However, Lustig, who made the Dutch translation in 1754, interpreted these lines as a description of vibrato. It seems that Lustig was not keen on recommending this kind of vibrato to the Dutchmen, because he changed the text a bit. He instead warns against trembling with the lips in a way that would make the sound unpleasant and "wavering".¹⁰⁰

August Eberhard Müller recommends the use of the jaw to support a chest vibrato. He writes in his flute method from 1817: "Through a little motion of the chin, the execution of this ornament [chest vibrato] is made easy."¹⁰¹

Fürstenau recommends a jaw vibrato as a less good alternative to chest vibrato. In *Kunst* he writes that the *Bebung*: "is produced either by quick, successive pushes from the lungs—which is the best and most secure method—or is executed by putting the chinbone in motion during playing."¹⁰²

Personally, I find it very difficult to perform a lip vibrato on the transvers flute. However, I find the jaw vibrato possible, both together with chest vibrato and alone, as long as one does not press the flute too strongly against the chin. Jaw vibrato is related to *shaking the flute*, because in both cases the vibration is caused by a disturbance of the air flow in relationship to the embouchure hole. With the jaw vibrato, the flute moves vertically.

1.6 Slow and controlled chest vibrato

Or very slow <4 cps?? *

A chest vibrato -whether slow or fast - is a pitch-, intensity-, and timbre vibrato. Delusse writes in c. 1760:

There is yet another kind of Tremblement flexible, called Tremolo by the Italians, which, when used properly, adds a great deal to the melody. It is done only by "blowing" the syllables "Hou, hou, hou, hou, etc." actively with the lungs.

Il est encore une autre sorte de Tremblement flexible que les Italiens nomment Tremolo, qui prête beaucoup à la melodie, lorsqu'on l'emploie à propos. Il ne se fait que par un mouvement actif des poumons en soufflant ces syllables Hou, hou, hou, hou, &c.¹⁰³

The same kind of slow, counted (often four) vibrato waves on a long note are described in several 19th century books. Justin Heinrich Knecht¹⁰⁴ writes in *Allgemeiner musikalischer Katechismus* from 1803:¹⁰⁵

⁹⁹ Moens-Haenen *Vibrato* 111-113

¹⁰⁰ Ibid

¹⁰¹ Lichtmann Müller 112 "Durch eine kleine Bewegung des Kinns wird der Vortrag dieser Manier [*Bebung*] leicht." Müller *Elementarbuch* 31

¹⁰² "entweder durch schnell auf einanderfolgende Lungendrücke —was das *beste* und *sicherste* mittel ist—, oder dadurch ausgeführt wird, daß man während des Blasens die Kinnlade in eine zitternde Bewegung versetzt." Fürstenau *Kunst* 79. transl. Bailey *Schwedler* 175 Note that the word "zitternd" here means a slow movement, about four waves on a half note.

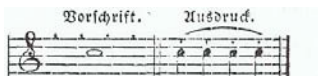
¹⁰³ Delusse *L'Art* 9 transl. Robert Schenck

¹⁰⁴ German music publisher, composer and organist 1752-1817, see Loewenberg/Rönnau *Knecht*

¹⁰⁵ publication year according to Loewenberg/Rönnau *Knecht*

„What is the *Bebung* [vibrato]?

”A slow trembling motion on one and the same note which is produced by the breath in singing and wind playing, by means of the tip of the finger on strings. One indicates the same by as many dots or Düpschen, which are seyt over a long note, as movements should be made.”¹⁰⁶



Was ist die *Bebung*?

Eine langsam zitternde Bewegung auf einem und eben demselben Tone, welche im Singen und Blasen mittelst des Athems, bey den Saiten aber mittelst der Fingerspitze hervorgebracht wird. Man zeigt diesselbe durch so viele Punkte oder Züpfchen an, welche über eine lange Note gesetzt werden, als Bewegungen gemacht werden sollen, wie z.B.¹⁰⁷

Müller writes in *Elementarbuch für Flötenspieler*, published in 1817:

The *Bebung*—the tremolo or breath vibrato is indicated either by the italian term tremolo (trem.), or through more or fewer dots above one note, according to whether this ornament has to be played more slowly or faster; for instance,



On the flute, this ornament can be produced only through a moderate increasing or decreasing of the air pressure that would have to be notated as the following



Die *Bebung* wird entweder durch das italienische Wort: Tremolo (trem.), oder durch mehrere oder weniger Punkte über Einer Note, je nachdem diese Manier langsamer oder schneller ausgeführt werden soll, angedeutet; z.B.

Auf der Flöte kann diese Verzierung nur durch einen mässig zu- und abnehmenden Druck des Windes hervorgebracht werden, der in der Notenschrift so angedeutet werden müsste; z.B.¹⁰⁸

It is worth observing how the notation by Knecht and Müller shows the number of vibrations/waves. Four waves on a half note is a slow vibrato, and if more dots were indicated over a note, it would still be a controlled and slow vibrato. In Koch's *Lexikon* from 1802

¹⁰⁶ Brown *Classical* 547

¹⁰⁷ Knecht *Katechismus* 53

¹⁰⁸ Lichtmann *Müller* 111-112

vibrato is described as a manner of playing (*Spielmanier*), predominantly used by string - and keyboard-players, and accordingly it is not written how to execute it on the flute. However, the notation is the same as Knecht and Müller describes.

To indicate this playing *Manier* [the vibrato] no common sign has yet been introduced. On the other hand, various composers are used to indicating it by dots above the notes, that is, with as many dots as the finger must make movements.

Zur Bezeichnung dieser Spielmanier [die Bebung] ist noch kein Zeichen allgemein eingeführt. Verschiedene Tonsetzer sind jedoch gewohnt, sie mit Punkten über den Noten, und zwar mit eben so viel Punkten zu bezeichnen, als der Finger Bewegungen machen soll.¹⁰⁹

In his *Methode pour servir à l'enseignement de la nouvelle Flûte* from 1838 Victor Coche describes the same kind of slow chest vibrato. He writes that it is practised on the flute as well as in singing, and gives the following illustration:¹¹⁰



In *Die Kunst des Flötenspiels* from 1844 A. B. Fürstenau writes that the chest vibrato is produced by quick, successive pushes from the lungs.¹¹¹ He writes that it must be limited to one single note, "...and even here should be limited again to three or four pulsations of vibrato - apart from the fact that a longer continuation of vibrato can be done only with difficulty."¹¹² Even if three or four pulsations on a long note can be considered as quick pushes from the lungs, it is a slow vibrato.¹¹³

Tromlitz advises against chest vibrato:

I remind you once again that on the flute the flatement may not be made with the chest, because if it is one can very easily get into the habit of wobbling, which results in a miserable execution. If however, one wished to use the chest as an aid, it would have to be done simultaneously with the finger's movement, strengthening the wind a little when the finger was raised and weakening it when lowered, and thus the flatement would become rather stronger and clearer.

Ich erinnere noch einmahl, daß man auf der Flöte die Bebung nicht mit der Brust machen möge, weil man sich sonst sehr leicht zum Zittern gewöhnen könne, woraus ein elender Vortrag entsteht. Wollte man aber doch die Brust zu Hülfe nehmen, so müßte es mit der Bewegung des Fingers zugleich geschehen, indem man beym Aufheben des Fingers den Wind ein wenig verstärkte, und beym Niederlegen nachließ, so würde die Bebung etwas stärker und deutlicher.¹¹⁴

¹⁰⁹ Koch *Lexicon* 229. transl. T. Skowroneck.

¹¹⁰ For the full quote see section 2.6.2

¹¹¹ "durch schnell auf einanderfolgende Lungendrucke" Fürstenau *Kunst* 79

¹¹² Bailey *Schwedler* 176 "...und selbst hier wiederum auf eine drei- oder viermalige zitternde Bewegung beschränken - abgesehen davon, dass eine längere Fortsetzung der letztern sich schwer gut ausführen lässt." Fürstenau *Kunst* 79

¹¹³ Fürstenau *Kunst* 79

¹¹⁴ Tromlitz *Unterricht* 240 transl. 215

When executing the *flattement technique* and the chest vibrato simultaneously in this way on period flutes, the effect sounds like a strengthened *flattement*. For technical reasons it has to be (as Dickey points out¹¹⁵) a slow vibrato.

Charles Nicholson describes chest vibrato in *Complete* from 1816:

The effect of Vibration is produced two ways, first by a regular swell and modulation of the breath, bearing some similitude to a state of exhaustion or panting, with a regular decrease or diminution of the Tone...¹¹⁶

This became a standard way of expressing it; Alexander writes in 1818 about “its [the *vibration*’s] faltering accent, as it were, imitative of a state of exhaustion” and that it is produced “...first, by a tremulous or panting motion of the breath.”¹¹⁷ Bown certainly had read these descriptions, when he wrote in c. 1825: “Its fault’ring accent is not in aptly [sic] compared to a seeming exhaustion, it is produced by a tremulous or panting motion of the Breath.”¹¹⁸ In 1828 Lindsay joins the choir when he writes about *vibration* as “a tremulous impulse given to any particular note, imitating a state of palpitation, or exhaustion.” and that it may be produced “first, by a tremulous or panting motion of the breath.”¹¹⁹ The same year Carl Grenser translates Nicholson’s text from *Complete* to:

Die Wirkung der Vibration wird auf zwey Wegen hervorgebracht; entweder durch ein gleichmässiges Anschwellen und verhältnissmässiges Stimmenverändern der Brust, was einige Aehnlichkeit mit dem Zustande der Erschöpfung oder des Atemzitterns an sich trägt, nebst einer regelmässigen Abnahme oder Verminderung des Tones;¹²⁰

Also Wragg compares *vibration* to panting in the “Second Appendix” to the 16:e edition of his *Improved*.¹²¹ Dickey suggests¹²² that the fact that Nicholson and Lindsay are likening the chest vibrato to panting tells us that it was slow.

In *School* Nicholson describes an accelerating vibrato to imitate a bell, which had been struck hard. The pitch changes successively gets smaller and when the tempo gets too quick (sixteen-notes!) the chest vibrato is replaced with *shaking the flute*.

If [the vibration is produced] by the breath; the moment the note is forced, subdue the tone, and on each succeeding pulsation, let the tone be less vigorous. When the Vibration becomes too rapid to continue the effect with the breath, a tremulous motion must be given to the Flute with the right hand, the lips being perfectly relaxed, and the tone subdued to a mere whisper. The following is an Example where the Vibration is produced by the breath. At the commencement of the semi quavers, the tremulous motion of the Flute will be requisite.¹²³

¹¹⁵ Dickey *Untersuchungen* 94 - 95

¹¹⁶ Nicholson *Complete* 22

¹¹⁷ Alexander *Preceptor* 30

¹¹⁸ Bown *Preceptor* 59

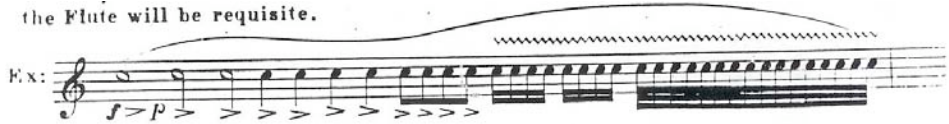
¹¹⁹ Lindsay *Elements* 30

¹²⁰ Grenser *Flötenspieler* 101

¹²¹ Gerhold *Wragg* 147

¹²² Dickey *Untersuchungen* 109

¹²³ Nicholson *School* 71



Apparently Nicholson did not use a fast chest vibrato.

According to Gärtner,¹²⁴ there is an upper limit for chest vibrato produced with the bigger muscle groups like the diaphragm, abdominal- and thorax muscles involved at about approximately 5,5 to 6 Hz. A faster vibrato can only be produced mainly with the vocal chords. For the slower vibrato recommended by the authors above, the involvement of the vocal chords would not have been necessary. A vibrato technique that did not make use of the vocal chords would explain Fürstenau's statement above that it is difficult to make more than three or four pulsations on a note, and Nicholson's manner to replace the chest vibrato with *shaking the flute* when the speed got too fast.

Dickey also observes that in the writings about chest vibrato from the 18th - and 19th centuries there are references to the chest or the lungs rather than the diaphragm.¹²⁵ Quantz describes a high breathing technique in *Versuch*,¹²⁶ as does Fürstenau in *Kunst*.¹²⁷ The first sentence of the quotation from *Versuch* below gives the impression that the chest muscles were regulating the air stream. This indicates that the air stream was regulated with the thoracic rather than the abdominal muscles, and so the chest vibrato was regulated from the chest, or rather the thorax muscles. However, it is technically fully possible to perform a slow chest vibrato controlled exclusively from the abdominal muscles, which would create what Gärtner calls a pure abdominal *martellato*. A mixed breathing and support technique would result in a thorax/abdominal vibrato or *martellato*.¹²⁸

My conclusion is that the chest vibrato recommended during the 18th and most of the 19th centuries was slow and controlled. The vocal chords were not necessarily involved.

The same kind of successive pushes of air from the chest without a tongue stroke that creates a chest vibrato was in the 17th, 18th and 19th centuries used by wind players for another purpose as well. In wind music there is sometimes an articulation notated with a tie, or a tie and dots over consecutive notes of the same pitch.¹²⁹ In the chapter "Of the Use of the tongue in Blowing upon the Flute" in *Versuch*, Quantz describes how to perform/execute these articulations:

If a slur is found above notes which are repeated (see Fig. 8), they must be expressed by exhalation, with chest action. If, however, dots also stand above such notes (see Fig. 9), the notes must be expressed much more sharply, and, so to speak, articulated from the chest.

¹²⁴ Gärtner *Vibrato* 79-83

¹²⁵ Dickey *Untersuchungen* 113

¹²⁶ Quantz *Versuch* 75

¹²⁷ Fürstenau *Kunst* 10

¹²⁸ Gärtner *Vibrato* 73-75

¹²⁹ Moens-Haenen *Vibrato* 137. A good example for flutists is in the aria *Zerfließe mein Herz* from the St. John's Passion by J. S. Bach from 1727.

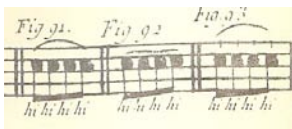


Wenn über Noten die auf einerley Tone stehen, ein Bogen befindlich ist, Fig. 8; so müssen selbige durch das Hauchen, mit Bewegung der Brust, ausgedrückt werden. Stehen aber über solchen Noten zugleich Punkte, Fig. 9; so müssen diese Noten viel schärfer ausgedrückt, und so zu sagen mit der Brust gestoßen werden.¹³⁰

Quantz here describes two manners: with the dots the notes are separated, without dots they are not; in neither case the tongue is used. After using these techniques both in practising and concerts, I have come to the opinion that in the softer manner here described, the notes are not separated. This is technically identical with a slow and controlled chest vibrato.

Lorenzoni expresses it similarly in *Saggio per ben Sonare il Flauto Traverso* (1779):
My transl.: *

If there are consecutive notes of the same pitch with a slur above; they are expressed/performed by blows which come from the chest (fig. 91). When the same notes stand under a slur with dots; or the opposite -a slur above the signs (Fig. 92); so they are performed with more distinct blows, or, to say it better, with the stoss of the chest (pushes from the chest), pronouncing the something like the syllabe hi (fig. 92. 93.).



Se si trovano più note unisone con una legatura sopra; queste si esprimono con de' soffi, i quali non vengono che dal petto (fig. 91. Tav. III.). Che se queste stesse note avessero inoltre sotto la legatura de' punti; oppure invece della legatura, sopra il segno (Fig. 92. Tav. III.); allora si esprimono con de' soffi più distinti, o, per meglio dire, con de' colpi di petto, pronunciando quasi la sillaba hi (fig. 92. 93. Tav. III.).

If there are many figures of similar notes, which follow (each other) immediately, of which the sole first figure is noted either with slurs or with lines, all those which follow are intended to be signed in the same way.

Se vi sono molte figure di note simili, che si seguano immediatamente, delle quail la prima sola figura sia segnata o con legaturee o con tratti; tutte quelle che seguono s' intendono segnate nella stessa guisa.¹³¹

Bordet interprets a slur with dots under as an articulation without separation between the notes. Under the figure:



¹³⁰ Quantz *Versuch* 65 transl. 75. In the translation there is also printed the last words of the French text: "par des coups de poitrine".

¹³¹ Lorenzoni *Saggio* 57 transl. *

in his *Méthode Raisonnée* from 1755 Bordet writes:

Only the volume of each dotted note included under this sign should be increased; they should not be detached at all.

Il faut seulement augmenter le son sur chaque note pointée comprises sous ce signe et ne les point détacher.¹³²

This means that before chest vibrato was discussed in the flute methods, flute players used an identical technique, albeit for another purpose. But the chest vibrato as described by Delusse and the 19th century writers above was an ornament, which was added by the player on single notes.

A passage from Quantz's *Versuch* has sometimes been interpreted as the earliest 18th century recommendation of chest vibrato on wind instruments:

You can also considerably improve the tone quality through the action of your chest. You must not use a violent, that is, a trembling action, however, but a calm one. Otherwise the tone will become too loud.

Mit Bewegung der Brust kann man dem Tone in der Flöte auch viel helfen. Sie muß aber nicht mit einer Heftigkeit, nämlich zitternd; sondern mit Gelaßenheit geschehen. Thäte man das Gegentheil, so würde der Ton zu rauschend werden.¹³³

This can - at a first glance - look like a recommendation to use chest vibrato as wind players do today, i.e. for the benefit of sound quality. This quotation is from the second last paragraph in the chapter about *embouchure*, and not something from the sections about ornament or musical taste. The three preceding paragraphs deal with intonation, like the following paragraph. In the contemporary French edition this quotation begins: "The movement of the chest also contributes significantly to a good intonation on the flute".¹³⁴ With *intonation* instead of *Tone* the meaning of the sentence is fundamentally different. Moens-Haenen has satisfactorily compared this quote with other passages in *Versuch* and the French and Dutch translations as well as the similar passage in the flute method by F. A. Schlegel from 1788.¹³⁵ I agree with her conclusion that the passage is not referring to a vibrato, but to breath support.

1.7 Chest vibrato involving the vocal cords

As Gärtner shows, the vocal cords are involved to some degree in the flute vibrato of today. Most often, the abdominal muscles, thoracic muscles or diaphragm are also active.¹³⁶ The earliest technical description of the vocal cord vibrato is in Schwedler's *Katechismus der Flöte und des Flötenspiels* from 1897. There it says:

¹³² Bordet *Méthode* 6 transl. Robert Schenck.

¹³³ Quantz *Versuch* 51 transl. 59

¹³⁴ "Le mouvement de la poitrine contribue aussi beaucoup à la bonne intonation sur la Flute;" Quantz « Essai d'une methode pour apprendre à jouer de la Flute traversiere » p. 52, quoted in Moens-Haenen *Vibrato* 112

¹³⁵ Ibid 112-113

¹³⁶ Gärtner *Vibrato* 59-83 and 126

The wind player, like the singer, however, produces vibrato through a bodily organ which is much more refined and which furthers the development of a more satisfying beauty of sound, [than the fingers used by string instrumentalists and guitar players] namely the vocal cords.

Der Bläser wie der Sänger erzeugen die Bebung aber durch ein viel vornehmeres, die Entfaltung gesättigter Tonschönheit mehr förderndes körperliches Organ, nämlich durch die Stimmbänder.¹³⁷

The vibrato described by Schwedler is not as pronounced as the one described e.g. by Fürstenau or Coche; Schwedler writes: “indeed vibrato should be nothing other than an imperceptible bleating using the syllable e or ä.”¹³⁸ The likening of the vibrato to bleating, and the use of the vocal chords point to a faster vibrato than the one described in the previous section. Schwedler’s vibrato can be heard on recordings. In a Minuet by Mozart (recording date unknown, early 20th century) he uses a fast vibrato.¹³⁹ The vibrato that can be heard on recordings from the early 20th century by other flutists corresponds well to Schwedler’s description in *Flötenspiel*.

Also new is Schwedler’s opinion that the vibrato contributes to the sound, which is addressed in the following quotation:

Without it, the performance then shows not only a certain dryness, but the sound itself does not achieve the beauty, warmth and power that can be obtained with vibrato. The light pressing together of the of the vocal cords required for vibrato and the slight narrowing of the glottis creates sufficient tension to exert pressure on the air column coming from the lungs, making it firmer, more compact, and thereby enabling the strength of tone to become greater, showing more inner power.

Der Vortrag ohne diese zeigt dann nicht nur eine gewisse Trockenheit, auch der Klang selbst erreicht nicht die Schönheit, Wärme und Stärke, die mit der Tonbebung gemeinschaftlich zutage treten kann. Das zur Bebung erforderliche, wenn auch nur leichte Zusammendrücken der Stimmbänder und geringe Verengen der Stimmritze schafft Hemmnis genug, um auf die aus den Lungen hervortretende Luftsäule eine Pressung auszuüben, sie gewissermaßen zu einer festeren und dichteren zu gestalten und dadurch zu ermöglichen, dass die Tonstärke zu einer größeren, mehr innere Gewalt zeigenden wird.¹⁴⁰

On the next page (where he expresses concern about players pressing the vocal chords together in a static, cramped way, creating a thin and bad sound) he writes:

As has been previously brought out about vibrato, the glottis, by widening and narrowing in rapid alternation, is used for an essential ennobling and strengthening of the flute sound.

Wie vorhin über die Tonbebung hervorgehoben worden ist, dient die Stimmritze durch ihre *rasche* abwechselnde Erweiterung und Verengung zur wesentlichen Veredelung und Verstärkung des Klanges der Flöte.¹⁴¹

¹³⁷ Schwedler *Flötenspiel* 89 transl. 393

¹³⁸ Bailey Schwedler 394 „tatsächlich soll die Tonbebung auch nichts anderes sein als ein *unhörbares*, auf dem e- oder ä-Laute ausgeführtes Meckern“ Schwedler *Flötenspiel* 89

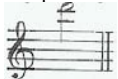
¹³⁹ *The Flute on Record* track 8

¹⁴⁰ *Ibid*

¹⁴¹ *Ibid* 90 transl. 395

Schwedler is remarkably forward-looking in describing how the vocal chord vibrato is made physically. He also goes into detail about how to practise vibrato, something that earlier writers never did:

one puts the flute firmly to his mouth, and while blowing a note, for example



, one holds it using the “bleating” vocal cord vibration. From the bleating there results a rapid narrowing and widening of the glottis and hence an interruption of the tone not unlike the tongue-stroke and executed almost like it. This exercise, which in this rough form is initially not beautiful and is tiring, will, the more easily and softly (more imperceptibly) one learns to execute the vocal cord vibration, resemble more and more the vibrato used by the well-trained vocal artist and, brought to full flowering with time, will be able to fulfill [sic] the same purpose.

Man setze die Flöte fest an, und indem man einen Ton, z.B. anbläst, halte man diesen unter Anwendung der „meckernden“ Stimmbandbewegung aus. Es entsteht durch das Meckern ein rasches Verengen und Erweitern der Stimmritze und dadurch ein dem Zungenstoße nicht unähnliches und fast wie diesem [sic] ausgeführtes Absetzen des Tones. Die in dieser rohen Gestalt anfänglich unschön wirkende und auch anstrengende Übung wird, je leichter und leiser (unhörbarer) man die Stimmbandbewegung ausführen lernt, sich auch mehr und mehr der wom wohlgebildeten Gesangskünstler verwendeten Tonbebung nähern und, mit der Zeit zu voller Blüte gebracht, auch denselben Zweck erfüllen können.¹⁴²

Schwedler does not however guarantee a successful achievement:

Producing vibrato is not easy for the wind player; at least I have often observed that there are wind players who, with all their other competence, do not have the ability to execute vocal cord vibrato.

Die Aneignung der Tonbebung ist für den Bläser nicht leicht, wenigstens habe ich mehrfach die Wahrnehmung gemacht, dass es Bläser gibt, denen bei aller sonstigen Tüchtigkeit doch die Fähigkeit abgeht, die Stimmbandtonbebung auszuführen.¹⁴³

Although it is not described in detail before 1897, the vocal chord vibrato was used and known earlier. Corrette, Bordet and Delusse wrote pieces wher the flute is asked for to imitate the organ *tremolo*.¹⁴⁴ Since these pieces contain eight notes, and the effect is supposed to be continuous through the piece, it has to be done with a faster chest vibrato technique. I assume that this was a vibrato technique involving the vocal chords because I find a continuous chest vibrato easiest to perform with the vocal chords. The vibrato that Tromlitz warns the reader from using in 1791¹⁴⁵ (and which therefore must have been practised among some players) is probably a vocal chord vibrato technique.

¹⁴² Ibid 90 transl. 394

¹⁴³ Ibid 89 transl. 393

¹⁴⁴ See section 2.3

¹⁴⁵ section 2.4.2

Contrary to Schwedler, the French school of the early 20th century had an aversion to discussing any technical aspects of vibrato production.¹⁴⁶ The modern flute vibrato is nevertheless strongly connected with Taffanel and his students. Gaubert on recording *

In the 1930's Schwedler had an animated discussion in *Die Musik-Woche* with Gustav Scheck, who had the opinion that the vibrato was produced by the diaphragm.¹⁴⁷ This discussion continued more or less through the whole 20th century.

1.9 Summary of part 1.

There are six documented techniques to make a vibrato on the flute from the 18th and 19th centuries: *flattement technique*, chest vibrato, *shaking the flute*, *martellement/Schwebungen*, *tremblement flexible* and jaw vibrato. Two of them are finger vibrati (*flattement technique* and *martellement/Schwebungen*); in the chest vibrato the speed of the air stream is changed, and in the three remaining techniques the vibrato is made by changing the angle between the airstream and the embouchure hole. Two of the techniques (*shaking the flute* and jaw vibrato) were only used together or as alternatives to another vibrato technique.

The *flattement technique* is in most cases executed almost as a trill downwards from the main note. The pitch change created is smaller in a trill: the finger either partly covers the next hole down from the already covered holes, or fully or partly covers one of the holes further down on the instrument. The simultaneous use of two fingers is also possible. Corrette, Mahaut, and Tromlitz write that the *flattement technique* is performed with straight finger. There are at least 14 fingering charts for the *flattement technique* in different flute methods made for one-keyed, multi-keyed and ring-keyed flute. The *flattement technique* can be performed fast or slowly, and the player can easily and quickly change the speed. There is a tendency over times that less and less fingerings with full holes are used. The pitch changes of the *flattement technique* described by the Nicholson school are very small or not existing. When it is written in the methods about the *flattement technique* performed "with the finger over the hole," it probably means that the finger just very slightly touches the instrument.

Martellement and *Schwebungen* are the same technique. The main difference from this technique and the *flattement technique* is that in *martellement/Schwebungen* holes are mostly opened, which in most cases creates pitch changes either slightly upwards from the main note or no significant/percievable pitch changes.

The chest vibrato that is documented in positived terms during most of the period of investigation was slow and controlled, typically four waves on a long note. It is the same technique that in the 17th and 18th centuries was used as an articulation. This vibrato technique does not necessarily involve the vocal chords. The earliest technical description of a vocal chord vibrato is in Schwedler's *Flötenspiel* from 1897.

Shaking the flute with the right hand was often used as a substitute to the *flattement technique* on notes where the latter was impossible or inconvenient to perform. *Tremblement flexible* is performed by rolling the flute with the left thumb. The pitch changes created are both

¹⁴⁶ Bailey Schwedler 179

¹⁴⁷ Bailey Schwedler 173-178

upwards and downwards from the main note. Jaw vibrato could be used simultaneously with a (slow and controlled) chest vibrato, or replace it. Moens-Haenen analyses a quotation from Quantz *Versuch* that occasionally has been interpreted as being about lip vibrato, and shows that that is not the case.¹⁴⁸ Thus, lip vibrato is not described in any of the methods I have seen.

2. The use of vibrato on the transverse flute, a historical overview/survey

The aim of this part is to depict where, and to what extent the flutists in the 18th and 19th centuries used the vibrato techniques described in the previous part.

2.1 Indications for the 17th century

The first treatise dedicated primarily to the baroque flute – Jean Jaques Hotteterre’s *Principes* from 1707 - writes about *flattement* as something established and in use. And indeed, we find the *flattement technique* described in recorder treatises from the 17th century. In a Dutch trill fingering chart from 1654¹⁴⁹ there are some alternative fingerings that make *flattements*. ?? really?? * check M-H !

The English recorder methods by Hudgebut (1679) and Salter (1683) also have fingerings for mordents (they use the term *shake*) for the notes d'' and g'' on the treble recorder, which technically speaking are for the *flattement technique*. So history shows the relationship between *flattement* and the mordent.

The waved line commonly used in the 18th and 19th century for vibrato also occurs in a collection of *Airs* probably from the 1690's for a melody instrument without bass by Lully and other composers.¹⁵⁰

The first absolutely clear description of the *flattement technique* appears in the anonymously edited recorder method *The Complete Flute Master*,¹⁵¹ which was printed for the first time in 1695 and reprinted up to 1765.¹⁵² The following advice for ornaments is added probably in 1699: “An open shake or sweetning is by shaking your finger over the half hole immediately below ye note to be sweetned ending with it off.”¹⁵³

¹⁴⁸ Moens-Haenen *Vibrato* 111-113

¹⁴⁹ *Onderwyzinghe Hoemen alle de Toonen en halve Toonen, die meest gebruyckelyck zyn, op de Hand-Fluyt Zal kunnen t'eenemaal zuiver Blaezen* by G. Van Blanckenburgh Moens-Haenen *Vibrato* *

¹⁵⁰ Haynes *Fingervibrato* 483

¹⁵¹ The word flute was in England at this time used for recorder.

¹⁵² Haynes *Fingervibrato* 404

¹⁵³ Moens -Haenen *Vibrato* 91

In France we find a description of *flattement* in Loulié's *Methode pour apprendre a jouer de la flute douce* from between 1700 and 1707. Loulié also uses the wavy line for *flattement*.¹⁵⁴

I conclude that baroque flute players probably used the *flattement technique* already in the 17th c. There are no documentation of the use of chest vibrato on the flute from this early period, which does not necessary exclude that it could have been used.

Descoteaux and Rebeillé, who are the earliest famous baroque flute players we know of, were also famous singers, and there are strong indications that also their main repertory consisted of vocal music.¹⁵⁵ In spite of that, they seem to have used an established instrumental praxis to make a vibrato, not imitating the vibrato of the singers.

2.2 Early 18th century

The flute methods by Hotteterre (1707) and Michel Corrette (1739/40) describe two vibrato techniques: *flattement*, and for notes on which that technique is not possible, *shaking the flute* (*ébranler*).

Flattement was used extensively, that is on most long notes. Hotteterre devotes a chapter in his *Principes* to *flattement* and *battement*.¹⁵⁶

These Graces are not commonly set down in all pieces of Musick, but only in such as Masters write for their Scholars, observe the following.



'twou'd be hard to teach a method of knowing exactly all the Notes where on these Graces ought to be play'd, what can be said in general there upon is, that the softenings are frequently made on long Notes as on Semibreves, Minims, and pointed Crotchets /.../ we can give no certain Rules for placing these Graces; 'tis the Ear, and practice which must teach you to use them in proper Time, rather than Theory what I wou'd advise you to, is to play some time only such pieces of Musick as have these Graces markt, thereby to accustom your Self by little, and little, to use them to such Notes as they agree best with.

Ces agréments ne se trouvent pas marquez dans toutes les pieces de Musique, & ne le sont ordinairement que dans celles que les Maîtres écrivent pour leurs Ecoliers.

Au reste il seroit difficile d'enseigner á connoître précisément tous les endroits où l'on doit les placer en joüant; ce que lón peut dire la dessus en général, c'est que les Flattements se sont frequement sur les Notes Longues; comme sur les Rondes, sur les Blanches, sur les Noites pointées C, & c./.../

¹⁵⁴ Moens-Haenen *Vibrato* 95-96 and Haynes *Fingervibrato* 402

¹⁵⁵ Anderies *Vocal* 1-2

¹⁵⁶ The French term for mordent.

On ne peut guere donner de Regles plus certaines de la distribution de ces agréments, c'est le goût & la pratique, qui peuvent apprendre à s'en servir à propos, plutôt que la Theorie. Ce que je puis conseiller; c'est de jouer pendant quelque temps sur des Pieces où tous agréments soient marquez, afin de s'accoutumer peu à peu à les faire sur les Notes où ils reüssissent le mieux.¹⁵⁷

Hotteterre repeats this main rule in the preface to the second edition of his first book of suites for flute and bass from 1715: "You will take note that it is necessary to play flattements on almost all of the long notes."¹⁵⁸

Whereas Hotteterre treats *flattement* and *battement* together, Corrette discusses them next to each other in his method.

Pierre Philidor, one of Hotteterre's colleagues at court, notates *flattement* with a waved line in three books with suites that were edited in 1717 and 1718,¹⁵⁹ and in undated publication with trio suites for two melody instruments and bass. Philidor provides no ornament table, like e.g. Hotteterre does in his books with suites from about the same time, but a waved line is the common symbol for *flattement* in France during this period.¹⁶⁰ It is also clear from the musical context that Philidor's waved lines cannot mean anything but *flattements*.¹⁶¹ A hand-written version of the trio sonatas by Hotteterre contains incidental *flattement* signs.¹⁶² Corrette prints some tunes for the student as well as some preludes at the end of his method from 1739/40; all of the little pieces and six of the preludes contain waved lines for *flattement*. The later date of these musical examples compared to the music by Hotteterre and Philidor is stylistically easy recognizable, but Corrette indicates *flattements* similarly to his predecessors.

Among the viola da gamba players of the 17th century, vibrato was associated with a tender, passionate or wailing character.¹⁶³ Corrette agrees with that, writing that *flattement* is "extremely moving in tender pieces on long notes."¹⁶⁴ In the suites by Philidor a movement like the *Sarabande* of the *Septième Suite* contains many signs for vibrato.

¹⁵⁷ Hotteterre *Principes* 32-33. transl. 11

¹⁵⁸ "On observera qu'il faut faire des flattements presque sur toutes les notes longues." Hotteterre *Avertissement* transl. Robert Schenck

¹⁵⁹ Some of the suites are composed for a melody instrument (e.g. oboe, flute or violin) and basso continuo and some for two flutes.

¹⁶⁰ See section 4.1

¹⁶¹ Moens-Haenen *Vibrato* 229-230 and Castellani *Preface Philidor*.

¹⁶² Haynes *Fingervibrato* 483

¹⁶³ Moens-Haenen *Vibrato* 145 See also Moens-Haenen *Wellenlinien* 180-181

¹⁶⁴ "extremement touchant dans les pieces tendres sur des notes longues" Corrette *Méthode* 30 transl. 43



Among the movements without signs for *flattement* in the 18 suites by Philidor,¹⁶⁵ the gay or dance-movements are over - represented. A good example is the fourth solo-suite, where there are no *flattements* in the *Gavotte* and the *Paysanne*.

¹⁶⁵ The first book:

first suite: *Tres lentement*, *Rigaudon*, *Courante*, and *Fugue*.
 second suite: the two *Fugues*.
 third suite: *Lentement*
 fourth suite: *Gavotte* and *Paysanne*
 fifth suite: *Allemande*
 sixth suite: *Gavotte*, the two *Rigaudons* and *Gigue*.

The Trio book:

second suite: *Air en Suite* and *Rigaudon*
 third suite: *Allemande*, *Sicilienne* and *Second Overture*
 fifth suite: *Echos*.

However, the *flattement* signs occur approximately as frequently in pieces of moderate speed in Philidor's suites as in the slow movements. Hotteterre recommends the player to vary the speed of the *flattement* according to the character of the piece,¹⁶⁶ so apparently he imagines its use in pieces of different characters. Nine out of the ten pieces with *flattement* signs in Corrette's *Méthode* are joyful dance movements or Fanfares; only one is a *Sarabande*. However, in the latter piece, waved lines are frequent.

Moens-Haenen,¹⁶⁷ Dickey¹⁶⁸ and Haynes,¹⁶⁹ all have examined the suites by Philidor from 1717 and 1818. Moens-Haenen claims, that the *flattement* is often used to bring out syncopations and other rhythmically stressed notes e.g. in hemiolas. Syncopations form relatively long notes, therefore a more crass way of looking at it would be that Philidor uses *flattement* exactly like Hotteterre's recommendation from two years earlier—on almost all long notes. The waved lines in the pieces in Corrette *Méthode* also occur on long notes.

The four books with suites by P. Philidor contains the most carefully written-out vibrati of the 18th century wind repertoire, However, playing these suites on a "period" flute¹⁷⁰ suggests that the *flattement* - like other ornaments - is under-notated in some of the movements. The most striking example of this can be found in the third suite, where *flattement* is indicated in all movements except the first, which is the kind of tender, slow movement with lots of long notes that would suggest the use of *flattements*. It is difficult to imagine that Philidor wanted this movement to be played without *flattements*.

Philidor does not notate any *flattements* on final notes in his suites, although these are by far the longest notes. This is so consistently carried out, that though even if *flattement* is somewhat under-notated, there is reason to believe that Philidor intends the final notes to be played without them. It is difficult to know whether this reflects a standard practise of the time, or Philidor's personal taste. In the hand written version of the trio sonatas by Hotteterre, and in the exemples in Corrette's *Méthode*, *flattement* is regularly notated on final notes. Philidor often indicates *flattements* on the final notes of phrases that lead on to another phrase or a repetition, like in the *Rigaudon en Rondeau* in the *Neufième suite*. This same practise occurs in a collection of "Airs" by different French composers, probably from the 1690's. Here, *flattement* is used on final notes, but more often on the last note of a phrase, leading to another phrase or a recapitulation.¹⁷¹

The sign above the final note of the 1st movement of the 4th suite by Philidor marks the ending of the piece with a half-cadence on the dominant and the attacca-coupling to the following *Courante*. Though the sign looks similar to vibrato signs used by other writers,¹⁷² Philidor most probably would have used his vibrato-sign to indicate a vibrato. But this note should not be seen as a final note of the piece, but an ending of a phrase, followed by something else, which is a typical place for Philidor to indicate a vibrato. There is as well a feeling of *fermata* on this note, yet another typical place to execute a vibrato.¹⁷³

¹⁶⁶ Hotteterre *Avertissement*

¹⁶⁷ Moens-Haenen *Vibrato* 229-232

¹⁶⁸ Dickey *Untersuchungen* 96-97

¹⁶⁹ Haynes *Fingervibrato* 482-483

¹⁷⁰ A copy of a Hotteterre flute by M. Skowronek.

¹⁷¹ Haynes *Fingervibrato* 483

¹⁷² Knecht in 1803 and Müller in 1817. See also Haynes *Fingervibrato* 486.

¹⁷³ For the relationship between vibrato and *fermatas*, see section 2.13.



P. Pholidor: from the 4th suite, first movement, last bars.

A *flattement* was sometimes used instead of a trill on notes where the latter was difficult to execute nicely. After explaining different possibilities to make a trill on c''' in his method, Hotteterre writes that "A flattement is often done on this note instead of a tremblement."¹⁷⁴ Indeed, sometimes in the music by Philidor and Corrette a *flattement* is notated where one could easily imagine a trill. An example of this is in *Air en Musette* from the 4th suite by Philidor, where, as Moens-Haenen remarks, *flattement* is used as a programmatic effect.¹⁷⁵ A *flattement* never replaces a cadential trill.

Hotteterre does not give fingerings for *flattement* for b'', c#'', and any note above e''. Corrette writes that one should use the technique to *shake the flute* for the highest notes f''-a''. Both writers recommend this technique for the lowest notes d' and eb'/d#. In the books by Philidor, there are waved lines on any note below e' or above d''. These pieces never use the highest notes on the flute, in fact, even Philidor not very often move above c''.

I share Jane Bowers' view¹⁷⁶ that the waved lines in the *Double* by Michel de la Barre first published in 1702, indicate *battements*, not *flattements*.¹⁷⁷ The notes are too short for effective *flattements*, and another *battement* seems logical after what is in fact written out *battements*.

German and English woodwind playing at the beginning of the 18th century was strongly influenced by the French playing technique. Hotteterre *Principes* was well known in both Germany and England.¹⁷⁸ The flutists often played recorder as well, and if one assumes that same vibrato techniques were used on both instruments, it is worth noticing that a recorder method that describes the *flattement technique* was reprinted from 1699 up to at least 1765.¹⁷⁹ Thus, the conclusion is that the vibrato technique most known to and used by flutists in Germany and England in the early 18th century was the *flattement technique*.

¹⁷⁴"On fait souvent sur ce Ton un flattement, au lieu d'une Cadence" Hotteterre *Principes* 11. transl. 48 * kolla Preleur

¹⁷⁵ Moens-Haenen *Vibrato* 231. We also find this movement as a trio in the 4th suite in the books with trios (Philidor *Trio* 31). There it has the title "Muzette", and the *flattements* are notated in the same way as in the solo suite. In other French *Musettes* (e.g. by Rebel) trills are used for this effect.

¹⁷⁶ Bowers *Preface* IX

¹⁷⁷ de la Barre *Pièces* 32-33

¹⁷⁸ See "About the treatises discussed in the text and their authors."

¹⁷⁹ *The Complete Flute Master*. Moens-Haenen *Vibrato* 91.

In Johann Sebastian Bach's fifth Brandenburg concerto BWV 1050 there is a long waved line over the two whole notes in the flute part in the first movement (Allegro), bars 95 and 96. The violin part also has a long waved line over its two notes in those bars. Since the waved line was the most common sign for vibrato at this time, and the *flattement technique* the only described vibrato technique for the flute around the time this would indicate a vibrato made with the *flattement technique*. A possibility is that Bach intended the six bars 95 - 100 to form a long, big crescendo, not only in volume, but also in sound quality and pitch changes of the ornaments towards the tutti entrance. Bar 95 is marked *pianissimo*, a rare indication in this time. F'' is a note with a veiled character on the one keyed flute, with the flattement technique it becomes even more mysterious. Sometimes¹⁸⁰ trills are added to the whole notes in bars 97-100. Then the flattement technique changes to a half note trill (bar 97), a whole note trill with a crescendo to the second bar, where the flute note makes an interval of a seventh to the violin part (bar 98-99) and to a trill on g#'', which is a trill of more than a whole note on the one keyed flute, fingered according to the charts by Hotteterre and Quantz.

Moens-Haenen offers the hypothesis¹⁸¹ that the waved lines that start with trill signs in the sonata for flute and harpsichord by J. S. Bach in A major BWV 1023,¹⁸² third movement (Allegro) bars 126-127, 132-133, 136-137, 144-145 and 184-185 indicate vibrato or a trill with *glissando*. However, *t* or *tr* with a waved line was a common way to indicate trills at this time, so there is no real reason to speculate on different solutions. Vibrato was notated with only a waved line. I believe that the flute is meant to play the same as the harpsichord is doing in corresponding bars 128-129, 140-141 and 146-147, namely a trill, without *glissando*.

2.3 Around the middle of the 18th century

A great deal of flute music from about the middle of the 18th century is composed in the *galant*, or mixed style. In this style, vibrato seems to have been used alongside other essential graces.

Quantz does not write very much about vibrato in *Versuch* from 1752. In fact, he only mentions it twice, both times in the chapter about how to play an *adagio*. He lists it among the essential graces, using the French word *flattement*:

The Adagio may be viewed in two ways with respect to the manner in which it should be played and embellished; that is, it may be viewed in accordance with the French or the Italian style. The first requires a clean and sustained execution of the air, and embellishment with the essential graces, such as appoggiaturas, whole and half shakes, mordents, turns, battements, flattements, &c...

Man kann das Adagio, in Ansehung der Art dasselbe zu spielen, und wie es nöthig ist, mit Manieren auszuzieren, auf zweyerley Art betrachten; entweder im französischen, oder im italiaenischen Geschmacke. Die erste Art erfordert einen netten und aneinander hangenden Vortrag des Gesanges, und eine Auszierung desselben mit den wesentlichen Manieren, als Vorschlägen, ganzen und halben Trillern, Mordanten, Doppelschlägen, battements, flattements, u.d.gl.¹⁸³

When, a couple of pages later, he talks about shaping long notes with a *messa di voce*; he uses the German word *Bebung* for vibrato. However, he writes that it is made "with the finger on

¹⁸⁰ Like in the Bärenreiter edition from 1987

¹⁸¹ Moens-Haenen *Vibrato* *

¹⁸² Probably from 1736. Schulze *Preface* 17-18

¹⁸³ Quantz *Versuch* 136 transl. 162

the nearest open hole” which makes it clear that he refers to the same kind of *flattement technique* that Hotteterre and Corette describe.¹⁸⁴

Since Quantz does not indicate all the essential graces in either of the two adagios (in French and Italian style) that he prints for the student¹⁸⁵ we can not say much about where and how often he would have liked *flattement technique* to be used. However, both times he mentions the *flattement technique* in the text he does so in the chapter about how to play an *adagio*. This could an indirect sign that Quantz intends the vibrato to be used only in slow movements, or the advice above could be applicable also to long notes in fast movements. I have not found any notated vibrati in Quantz’s Caprices or—more surprisingly—in the *Solfeggi* (his notebook for Frederick the Great), though in the latter there are several places where the use of it might be expected.

The Danish flutist and composer Mårten Raehs indicates vibrato in all six sonatas in his set from 1748.¹⁸⁶ Vibrati is indicated in both slow and fast movements, up to five times in a movement.¹⁸⁷ It is typically indicated on long notes (in this complex style “long” could mean a quarter-note, eighth-note or even sixteenth-note in an *adagio*) with no other ornaments.



Raehs * s. 8

Since the *flattement technique* is the vibrato technique most often described by the writers around this time, my conclusion is that these wavy lines refer to the *flattement technique*. An alternative interpretation of this sign would be a trill, or some other vibrato technique. A short, somewhat sharp-edged wavy line was in this time used to indicate a (short) trill or a transient shake. In the manuscript of the sonatas by Raehs a trill is indicated with the common sign +. But in e.g. French music of the time there is music that uses these two signs for the trill: the + sign, and a short wavy line. This is for example the case in the *Gracioso* from *Sonata Seconda* by Dupuits,¹⁸⁸ the *Allegro* from *Sonata 1* by Guillemant,¹⁸⁹ and some of the duos in the French edition of Antoine Mahaut’s *Nieuwe Manier*.¹⁹⁰ In these pieces the short wavy lines often occur on notes where the *flattement technique* seems stylistically out of place and technically

¹⁸⁴ Quantz *Versuch* 140 A longer passage is quoted in section 2.11.

¹⁸⁵ Quantz *Versuch* tab. VI fig. 26 and tab. XVII. transl. 97 and 169-172

¹⁸⁶ or possibly 1747, Delius *Einführung*

¹⁸⁷ statistic see appendix 4.

¹⁸⁸ Dupuits *Sei Sonate* 5

¹⁸⁹ Guillemant *Sei Sonate* 1 compare also Carte ? * See also Bordet *Méthode* 44 and 57

¹⁹⁰ transl. 36,-37, 50-51, and 55.

awkward or impossible to perform, but where it feels easy and natural to make a trill.¹⁹¹ This applies for example to notes under a legato slur, notes before a final note, or very short notes. None of the 22 notes in the Raehs sonatas with a wavy line is such a note where the *flattement technique* feels not suitable to perform.

None of the wavy lines in the sonatae by Raehs are together with a *fermata*. Vibrato is not indicated on final notes, final notes of a phrase nor the note before a final note (which usually has a cadence trill). The note c''' is over-represented among the notes with wavy lines. In places like the example below, Raehs is possibly using the *flattement technique* instead of a trill on c''', just as Hotteterre recommends.¹⁹²

EX TAKT 18-21 Vivace ur sonata 5 RAEHS *



In the first movement (*adagio*) from the Sonata no. 5 by Raehs¹⁹³ there is a wavy line above two quarter notes in succession, b' and bb' in the penultimate bar:

¹⁹¹ In the short pieces in Delusse *L'Art* it is also difficult to tell the difference between the short wavy line for a short trill (*tremblement simple*), and a slightly longer line for the *tremblement flexible*.

¹⁹² See section 2.2

¹⁹³ Raehs *Sonatas* 53



Like in the 5:th Brandenburg concerto by J.S Bach this waved line indicates a vibrato made by the *flattement technique*. The waved line is placed above the two longest notes of the piece apart from the final note, and the second note is the harmonically most stressed note, being the minor nine in a dominant to the dominant chord. The bb' is the most expressive note of the movement, which is further brought out by the *flattement technique*. This is together with the bars in Brandenburg concerto the only place where I have seen vibrato indicated over two notes in succession. Contrary to the bars in the Brandenburg concerto I personally could imagine these notes performed with a *glissando* as well.¹⁹⁴

There are two waved lines for vibrato in a sonata by F. X. Richter from 1767/68 for violin and harpsichord.¹⁹⁵ The sonata is the second in a set with sonatas for violin or flute and harpsichord, but it is clear from the heading and the range of the top part as well as the doublestops, that this particular sonata is intended for the violin.

Francesco Geminiani is an early advocate of vibrato on the violin. He writes in 1747 in the preface to *Rules for playing in a true Taste* that "I have omitted also the Mark of the *Close Shake* which may be made on any Note whatsoever."¹⁹⁶ Thereafter he directs a paragraph to flutists, which begins:

It is not requisite to say much on the Article of the *German Flute* as what has been said already concerning the *Violin* will serve for the *Flute* also, except in the Article of the *Close Shake* which must only be made on long notes.¹⁹⁷

There are no indications that Geminiani refers to any specific flute vibrato technique with the term *Close Shake*.

¹⁹⁴ See the discussion in Moens-Haenen *Vibrato* 242-250.

¹⁹⁵ The waved lines are in the 1st movement (Andante), bar 2 and 55, page 4 in the violin part.

¹⁹⁶ Geminiani *Rules* preface

¹⁹⁷ *Ibid*

Among the Parisian writers, Toussain Bordet does not discuss vibrato in his brief *Méthode Raisonnée* from c. 1755, but Mahaut spends a whole paragraph on the *flattement* in his method from 1759. Mahaut also describes to *shake the flute (ébranler)* for notes on which the *flattement* is not possible to execute. The *flattement* is discussed among the ornaments, next to the *battement*, and Mahaut speaks about it as an ornament most used on long notes. Mahaut provides fingerings for *flattement* for most notes, as well for f'' - a'', who are absent in the charts by Hotteterre and Corrette. *Nieuwe Manier* contains a few easy pieces for the student, and also a collection of airs for two melody instruments, with no vibrato signs. Mahaut does not mention how the *flattement* is notated. Ch. Delusse does not mention *flattement*, but describes three up to then undocumented vibrato techniques. In *L'Art de la Flûte Traversiere* from c. 1760 he writes about the *tremblement flexible*:

When this ornament is continued, gradually swelling the sound and finishing with force, it expresses gravity, fright. Making it shorter, softer, it expresses affliction, languor. And when it is made on short notes it contributes to rendering the melody more agreeable and tender. You must put it to use as often as possible. For this reason it is never marked in the music; taste alone inspires it

Lorsque ce Tremblement est continué en enflant graduellement le son & finissant avec force, il exprime la gravité, la frayeur; le faisant plus court, plus doux, il exprime l' affliction, la langueur; & lorsqu'il se fait sur des notes breves, il contribue à rendre la mélodie plus agréable & plus tendre. On doit le mettre en usage le plus souvent qu'il est possible; c'est par cette raison qu'il n'est jamais marqué dans la Musique, le goût seul l'inspire.¹⁹⁸

Delusse's *L'Art* is strongly influenced by Geminiani's *The Art of Playing on the Violin* from 1751, which was translated to French, and printed in Paris in 1752.¹⁹⁹ The quotation above is basically a translation from Geminiani writing about the *close shake* in *The Art* and as well in *A Treatise of Good Taste in the Art of Musick* from 1749. In both these books, Geminiani writes:

...when it [the Close SHAKE] is long continued swelling the Sound by Degrees, drawing the Bow nearer to the Bridge, and ending it very strong it may express Majesty, Dignity &c. But making it shorter, lower and softer, it may denote Affliction, Fear, &c. and when it is made on short Notes, it only contributes to make their Sound more agreeable and for this Reason it should be made use of as often as possible.²⁰⁰

Delusse is the only writer from the 18th and 19th centuries to recommend vibrato on the flute on short notes and "as often as possible". His statement is the last written representation of the use of flute vibrato from the richly ornamented performing style of the middle of the 18th century. It is important to remember that Delusse here writes about the *tremblement flexible*. *L'Art* also contains an ornament chart, where both the *tremblement flexible* and *martellement* are included.

¹⁹⁸ Delusse *L'Art* 9 transl. Lasocki *Preface* ii

¹⁹⁹ Moens-Haenen *Introduction* IV-V

²⁰⁰ Geminiani *The Art* page 8 in the preface and *Good Taste* 3



Tremblement flexible is notated both above a half note and an eighth note, as if Delusse wants to point out that it can be used on shorter notes as well. In this case, is Delusse expressing his own view, or did he merely translate the passage from *The Art* and *A Treatise of Good Taste in the Art of Musick* without being aware of Geminiani's statement in *Rules*, that vibrato on the flute -contrary to the violin - must only be made on long notes?²⁰¹

Delusse apparently did not want to use the *flattement* common in France in this time as the equivalent to Geminiani's violin vibrato. Both Dickey²⁰² and C. Brown²⁰³ suggest that Delusse recommends *tremblement flexible* instead of *flattement technique* because of the impossibility to perform the latter as often as a conventional violin vibrato. But I find it not easier to vibrate often and on shorter notes with the *tremblement flexible* than with the *flattement technique*, even when taking into consideration that I have practiced *tremblement flexible* less. With the *flattement technique* the pitch changes mostly only downwards. In the techniques Delusse describes the pitch changes like with the violin vibrato both upwards as downwards (with the *martellement* mostly upwards or none at all). This is a clearly audible difference. Delusse writes about the *martellement* (which is the one of his three techniques that technically most resembles the *flattement technique*) that it produces almost the same effect as the violin vibrato. My conclusion is that Delusse was experimented with different techniques trying to imitate the violin vibrato.

In *L'Art* Delusse includes several short pieces and twelve *Caprices*. In *Caprice V* *tremblement flexible* is indicated once with a wavy line and in *Caprice X* twice.²⁰⁴ In two of the short pieces *tremblement flexible* is notated twice (each).²⁰⁵ In all cases *tremblement flexible* is indicated on long, sustained notes. Delusse writes about the *martellement*: "it must only be employed on isolated notes which do not incline to any other [ornament]."²⁰⁶ * to Philidor: This is different from how for example Philidor sometimes combines a *flattement* with other ornaments like the *battement* or a *port de voix*. Delusse notates the *martellement* with the "hook" on one note with a *fermata* in the second *Caprice*²⁰⁷ and on four eighth-notes in one of the short pieces.²⁰⁸ Unfortunately this is far too little material for making definite conclusions about its use. Almost ironically, three of these five notes with a notated *martellement* are d'', the only note with the same fingering for the *martellement* as in the charts for the *flattement* by Hotteterre, Corrette and Mahaut. Technically it is possible to make *tremblement flexible* and *martellement* on many more notes than notated in these pieces. Delusse does not notate *tremblement flexible* or *martellement* on any final notes.

²⁰¹ quoted above

²⁰² Dickey *Untersuchungen* 98

²⁰³ Brown *Classical* 524

²⁰⁴ Delusse *L'Art* 31 and 36

²⁰⁵ In piece XIX in bars 12 and 13, and in piece XX in bars 24 and 27. Delusse *L'Art* 20

²⁰⁶ Lasocki *Preface* ii "il ne doit être employé que sur des notes isolées qui n'inclinent sur aucune autre" Delusse *L'Art* 10

²⁰⁷ *Caprice II* Delusse *L'Art* 28

²⁰⁸ No. XXVIII. Delusse *L'Art* 24

Delusse also describes chest vibrato - which according to him the Italians call *tremolo* - as an alternative way to perform a vibrato. He writes that it contributes much to the melody, when it is used ad libitum.²⁰⁹ Delusse does not give any examples or further information on where to use it or notate it.

For Geminiani and Delusse vibrato is one of the means a player has to express or enhance different affects or characters. Hotteterre expresses the same aesthetic when he writes that one should make *flattements* as well as trills and mordents slower or quicker according to the character of the piece.²¹⁰ Delusse and Geminiani are only explaining it more specifically.²¹¹

As a special effect flute players in the 18th century sometimes were asked to imitate the organ *tremolo* with a continuous chest vibrato. In the sonata for flute and continuo no. 5 op. 13 by Corrette, composed c. 1735,²¹² there is an *adagio* with the comment; “This piece should be played in the style of the foundation stops of the organ, imitating a soft organ tremolo.”²¹³ Another example we find in a book with flute duets by Bordet, which contains two airs with recommendations to use this effect. The first of these airs has the title “Imitation du tremblant doux de l’Orgue, par Bordet”, The other bears the title “La Lanterne magique du même.”²¹⁴ and has the following advice:

To play this piece in the correct style, /.../you may also play it like the soft organ tremolo, as in the previous piece. This is accomplished by causing the air to pulsate as it leaves the chest and passes through the throat, creating an effect similar to that of an organ valve.

Pour jouer cette pièce dans son gout, /.../Elle peut aussi se jouer en tremblant doux d’Orgue, comme la précédente; ce qui se fait par la palpitation du vent en sortant de la poitrine pr passer par le gosier, qui forme l’effet de la soupape de l’Orgue²¹⁵



²⁰⁹ „qui prête beaucoup à la mélodie, lorsqu’on l’ emploie à propos „ Delusse *L’Art* 9

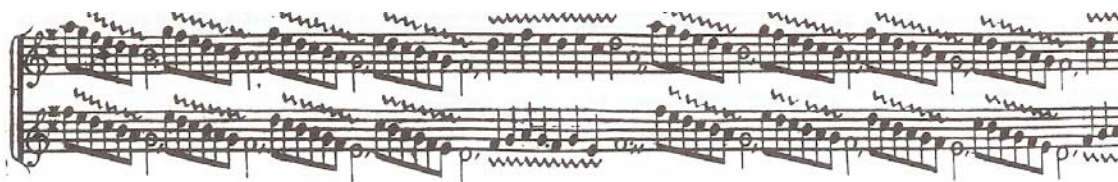
²¹⁰ See section 2.2

²¹¹ As well the violinist Löhlein hints in 1781 that the speed of the vibrato should be varied according to the character of the piece. Moens-Haenen *Vibrato* 241

²¹² Castellani *Preface Corrette*

²¹³ “Cette pièce se doit jouer dans le goût des fonds D’orgue en imitant le tremblant doux Corrette *Sonates* 24. transl. Robert Schenck. French organs at this time had two different tremolos, *tremblant doux* which was the normal/most common and *tremblant dure*.

²¹⁵ Bordet *Méthode* 30



Bordet comments these pieces:

The airs on pages 30, 31, 42 and 80, being of a very special type, have been included in this collection solely for the amusement of the player, and to demonstrate what the flute is capable of.

Les airs des pages 30, 31, 42, et 80, étant d' un genre singulier, n' ont été mis dans ce recueil que par curiosité, et pour faire connoître de quoi la flûte est capable²¹⁶

Delusse uses the same effect ("imitation du tremblant doux de l'orgue") in a duo for two flutes from c. 1751 for two flutes.²¹⁷

2.4 The late 18th century

C. Brown describes the reaction against what was seen as an overuse of vibrato as well as of other ornaments in the later part of the 18th century.²¹⁸ As he points out, this corresponds well with a general aesthetic change towards more simplicity and "naturalness" in music.²¹⁹ For the following discussion of vibrato use this turn towards simplicity is important to keep in mind; generally, musicians were expected to add fewer embellishments to the music. Apart from the musical examples in Miller's *Instructor*, I have not found any flute music with vibrato notated from this period.

2.4.1 France

The decreasing use of vibrato and other ornaments during the second half of the 18th century is most clearly noticeable in the French flute sources. Vibrato is not mentioned in none of the French methods after Delusse's *L'Art* that I have investigated; neither in the immensely influential *Méthode* by Francois Devienne (1792), nor in the methods by Giuseppe Cambini (1796) or Amand Vanderhagen (1799). This silence persisted far into the 19th century.²²⁰

I have searched for wavy lines or other signs that would indicate vibrato in French flute music of the time, without finding any. The wavy lines under the breves in the exercises on how to beat time in music in the method by Vanderhagen are signs for *simile*.²²¹ I believe that

²¹⁶ Castellani *Preface Bordet* transl. Robert Schenck

²¹⁷ "Six sonates pour la flûte traversière avec une tabulature des sons harmoniques" p. 31. Quoted in Castellani *Preface Bordet*

²¹⁸ Brown *Classical* 525, 528

²¹⁹ *Ibid* 526

²²⁰ See section 2.6.2

²²¹ Vanderhagen *Méthode* 27

the four eight notes with a waved line over them in bar 13 in Sonata III by Dothel²²² were played like notes with slurs with dots (that is with soft tongue strokes), not with a vibrato. The reason is that the waved line stands above four notes, albeit of the same pitch, but not over one long note.

Although vibrato apparently was not an issue worth discussing by the French flutists of this time, one naturally cannot rule out its occasional use. These French flute methods are the first to emphasize technical development, with an abundance (about half of the books) of practising material and etudes, at the cost of detailed texts.

2.4.2 England

In England, Luke Heron writes about the *flattement technique* (he calls it *shake*) to be used on prolonged notes in solo playing in his *A Treatise on the German Flute* from 1771.²²³ But in two others of the more important flute methods any discussion about vibrato is absent. Those are Lewis Christian Austin Granom: *Plain and Easy Instructions for Playing on the German Flute* (London 1766),²²⁴ and Samuel Arnold: *Dr Arnold's New Instructions for the German flute* (London 1787). As well, the editions from 1792 up to 1818 of the widely spread *The Flute Preceptor* by J. Wragg contain no information/nothing about vibrato. In 1793, John Gunn describes the change that had taken place in the taste about ornaments in general and the *flattement technique* especially; the latter was now looked upon as old fashioned.

The Modern refinements in the performance of music, however multifarious and complicated they might be thought, have certainly not increased the number of what may be called *graces*, but on the contrary, have considerably reduced their number, and greatly simplified them. The performers of the *old school* had much more of what may be called *the graces of the finger*, than the modern, which cultivates more expression and powers of the *bow*, and management of *tone*. There was formerly in use a numerous list of graces, some with and others without characters to represent them, and for the most part discontinued. Among these was the dumb shake, on stringed instruments, corresponding to what the French call *Flattement*, on the flute, and in our language, I think, called *Sweetenings*,/.../ like [in] the dumb shake, [the finger is] producing a trembling palsied expression, inconsistent with just intonation, and not unlike that extravagant trembling of the voice which the French call *chevrotter*, to make a goat-like noise; for which the singers of the Opera at Paris have so often been ridiculed.²²⁵

It is clear that Gunn considers the *flattement* as one of the-old fashioned ornaments, which no longer were in use; he is even uncertain about the English name for it. The term *chevrotter* refers to a trill or fast vibrato (sometimes badly) executed by singers.²²⁶

A different impression on vibrato use among flutists is given by Edward Miller, who writes about the *flattement technique* (he calls it *close Shake*) combined with *messa di voce* among other ornaments in his *Instructor*. Miller was Gunn's senior by about 30, but his flute treatise was published in 1799, six years later than Gunn's. Miller gives fingerings for *the flattement*

²²² Dothel *Sonates* 6

²²³ Heron *Treatise* 43. Quoted in section 2.12.

²²⁴ Moens-Haenen *Vibrato* 175

²²⁵ Gunn *The Art* 18

²²⁶ See Moens-Haenen *Vibrato* 32-34

technique for only four notes (g'', d''', d'' and e''), but writes that it may be used "to most of the Notes."

Miller also includes *airs* and *preludes* in his method. Three of the airs and four of the preludes have a wavy line for vibrato. In all three airs the wavy line occurs once within the pieces, towards the end but never on final notes. They occur on three e'', three g'' and one d''. None of the airs with a wavy line are particularly slow and tender in character. In all, Miller definitively treats the *flattement technique* as something in use.

2.4.3 Germany

J. J. H. Ribock was a doctor of medicine and an amateur flutist²²⁷ who wrote *Bemerkungen über die Flöte*, edited in 1782. Ribock writes about a vibrato technique that he calls *Schwebungen*. This is the same technique that Delusse calls *martellement*.²²⁸ There are however no indications that Ribock had read Delusse's *L'Art*,²²⁹ or in any other way was influenced by Delusse. The *Martellement/Schwebungen* is not enormously different from the *flattement technique*; it could very well have been used by other flutists as well alongside other techniques. Ribock does not write anything about where to use vibrato.

Johann George Tromlitz discusses vibrato in detail in his *Ausführlicher und gründlicher Unterricht die Flöte zu spielen* from 1791. He uses the term *Bebung*, and counts it among the *wesentlichen Manieren*, that is, the fixed (lit. essential) ornaments such as trills, appoggiaturas and the like. *Bebung* is Tromlitz' term for any vibrato, but he explains how to make it on the flute, and that is a description of the *flattement technique*. Tromlitz prints a fingering chart for *flattement technique* for all notes between d#' and a'', but then he writes: "Although not every note is used for flatterments, I have put them all down here so that you can use them if they come up."²³⁰ Tromlitz does not print any examples or pieces with vibrato indicated; he claims, that "examples of this technique do not lend themselves to being written down."²³¹ However, vibrato can be used "on held notes, fermatas, and on the note before a cadenza,"²³² which results in less frequent use than the way Philidor and Raehs indicate vibrato on longer notes within a phrase. Tromlitz warns the reader: "It is not advisable to use this ornament frequently."²³³ On the following page he stresses this point once more:

...I also remind you again to use this ornament only seldom, so that it will not fail to have its good effect, whereas on the contrary it will certainly arouse disgust if it appears too often.

²²⁷ *ibid*

²²⁸ See section 1.2

²²⁹ Which was not widely spread, see „About the treatises discussed in the text and their authors.“

²³⁰ „Obgleich eben nicht alle Töne zu Bebungen gebraucht werden, so habe ich sie doch hierher gesetzt, um sich bey vorfallender Belegenheit helfen zu können.“ Tromlitz *Unterricht* 240 transl. 214

²³¹ „Biespiele dieser Art lassen sich nicht wohl zu Pappiere [sic] bringen.“ Tromlitz *Unterricht* 239 transl. 214

²³² „Auf haltenden Noten, Fermaten, und auf der vor der Cadenz stehenden Note,“ Tromlitz *Unterricht* 239 transl. 214. Observe that the words "long notes" in the translation do not correspond exactly with "haltenden Noten" of the original text.

²³³ „Oft sich dieser Auszierung nicht zu bedienen, ist nicht anzurathen.“ Tromlitz *Unterricht* 239 transl. 214

Auch erinnere ich noch einmal, diese Auszierung nur selten zu gebrauchen, so wird sie ihre gute Wirkung nicht verfehlen, da sie hingegen gewiß Ekel erregen wird, wenn sie zu oft erscheint.²³⁴

Tromlitz warns/advises against the use of chest vibrato:

It [the flattement] 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,

Mit dem Athem macht man sie [die Bebung] auf der Flöte nicht, es macht keine gute Wirkung, es heult; und wer es thut, verwöhnt sich die Brust, und verderbet sein ganzes Spiel, denn er verliehret die Festigkeit, und dann alsdenn keinen festen und reinen Ton halten; er zittert alles mit der Brust heraus.²³⁵

On the following page, Tromlitz explains this again:

I remind you once again that on the flute the flattement may not be made with the chest, because if it is one can very easily get into the habit of wobbling, which results in a miserable execution./.../ A chief beauty of the flute is a firm, clean-cut and even tone; although it is difficult to bring about on this instrument, and is therefore rare, one must still try to achieve it, and in the attempt make the chest firm and strong so that it positively does not shake.

Ich erinnere noch einmahl, daß man auf der Flöte die Bebung nicht mit der Brust machen möge, weil man sich sonst sehr leicht zum Zittern gewöhnen könne, woraus ein elender Vortrag entsteht. /.../Eine vorzügliche Schönheit auf der Flöte, ist ein fester, körnichter und gleicher Ton; ob er gleich schwer aus diesem Instrument zu bringen, und also selten ist, so muß man sich doch bemühen, ihn zu erlangen, und dabey die Brust feste und stark gewöhnen, daß sie durchaus nicht zittere.²³⁶

These warnings remind us of a passage in the *Violinschule* from 1789 by L. Mozart, where he speaks about violinists who vibrates on all notes as if they had a fever.²³⁷

There is a letter from W. A. Mozart to his father where he writes about wind vibrato:

The human voice quivers already by itself – but in a way – [and] to such a degree, that it is beautiful – that is the nature of the voice. One imitates this [effect] not only on the wind-instruments, but also in the violin instruments and even on the clavichord – but if one exceeds the limits, it ceases to be beautiful – because it is against nature. Then it sounds to me just like an organ with a bumping [sic, or knocking or whatever, ask Sverker what he think] bellow.

die Menschenstimme zittert schon selbst - aber so - in einem solchen grade, dass es schön ist - dass ist die Natur der Stimme. Man macht ihrs auch nicht allein auf den blas-instrumenten, sondern auch auf den geigen instrumenten nach - ja so gar auf den Claviern - so bald man aber über den schranken geht, so ist es nicht mehr schön - weil

²³⁴ Tromlitz *Unterricht* 240 transl. 215. Contemporary violinists such as L. Mozart, Löhlein and Hiller expressed similar warnings. Brown *Classical* 526

²³⁵ Tromlitz *Unterricht* 239 transl. 214

²³⁶ *Ibid* 240 transl. 215

²³⁷ Mozart *Violinschule* 243-244

es wieder die Natur ist. da kömets mir just vor wie auf der orgl, wenn der blasbalk stost.²³⁸

Since the *flattement technique* according to the flute methods was the most common form of woodwind vibrato during Mozart's time, this quotation should refer to the *flattement technique*.

2.5 Other countries in the 18th century

Of course the flute was played in other western countries than France, Germany and England in the 18th century. However, the documented activity from these countries is considerably less. The important Dutch method from 1759 by Mahaut is in the French tradition; it was also published bilingual and in both Paris and Amsterdam. Apart from Mahaut *Méthode*, Powell *Bibliography* mentions only two out of thirty 18th century flute methods first published in other countries than Germany, France or England. These are a Spanish flute method, *Reglas y Avertencias Generales...* by Minguet y Yrol, which was published in Madrid in 1754, and Lorenzoni *Saggio* from 1779. *Saggio* echoes Quantz' *Versuch* on some subjects, but does not discuss any kind of vibrato. Mahaut's *Nieuwe Manier* was written in both in Dutch and French and edited in Amsterdam and in Paris, and reprints were made in both languages.²³⁹

Without specific documentation on vibrato use, a way to proceed is to look at general influences in flute playing. Some of the treatises discussed were translated into other languages than English, German and French,²⁴⁰ and flutists from other European countries often went to Germany, England or France to study. In America, flute playing was introduced by English as well as continental flutists in the mid-eighteenth century.²⁴¹

The flute music produced in the countries outside France, England and Germany does not differ enough from the music of these countries to suggest a different use of vibrato, with the possible exception of Italy. Especially the Italian flute music from the first half of the century (with Vivaldi as the foremost example) differs from the French style from the same time. It is therefore not unproblematic to apply the extensive French use of the *flattement technique* to Italian music from the same time. In other cases, the music does not have a clear "national" character that would imply a different use of vibrato. For example, the sonatas by the Danish composer Raehs discussed in the section 2.3 are very similar to contemporary German flute music, and there is no reason to believe the notated vibrato in them to be typical "Danish" or "Scandinavian", rather than being representative for the *galant* style of the time.

2.6 The 19th century

²³⁸ Moens-Haenen *Vibrato* 23

²³⁹ Hadidian *Preface* vii

²⁴⁰ Quantz *Versuch* was translated into Dutch and Swedish. See the appendix 4. "About the treatises and their authors"

²⁴¹ Powell *Flute* 114

Somewhere around the last decades of the 18th century national differences in flute playing evolved, which were to remain until the middle of the 20th century.²⁴² The playing styles in France, Germany and England developed separately in the course of the 19th century, and did not affect each other very much. Different types of instruments were favoured, and different sound ideals promoted.²⁴³ As will be seen below, vibrato was also used differently.

In the 19th century flute methods, vibrato is almost always treated next to the *portamento*.

2.6.1 England, the Nicholson school

Comment upon Spell's division in expression and embellishment? P. 70 *
Scanna in en melodi från en skola? *

In England Charles Nicholson made the vibrato a popular ornament again during the first decades of the 19th century. In fact, he based his great fame partly on his use of the *vibration*.²⁴⁴

The Nicholson school as well as William Nelson James in *Word*—and therefore also Louis Drouet in his English method—use the term *vibration* for vibrato in general. It could be produced with the *flattement technique* or by the breath, in the latter case it could continue by *shaking the flute*. The fingering charts used by the Nicholson school describe a *flattement technique* with very small *pitch change*, often only a timbral vibrato.²⁴⁵

Nicholson studied the flute with his father, and might have learned his vibrato from him.²⁴⁶ Anyway, though the *flattement technique* was less used in England around the turn of the century than earlier, it is clear from Miller's *Instructions* from 1799 (quoted above) that it was still known in England amongst some people. Needless to say, there were also contacts between England and Germany, where the use of both the *flattement technique* and chest vibrato in this time is documented. Although no English writer before Nicholson describes the chest vibrato, it was most probably known.

But far from everybody knew about these ornaments; an article in the *Quarterly Musical Magazine* from 1823 credits Nicholson with the introduction both of the *vibration* and the *glide*;

we must not pass over two new effects on the instrument, which he was the first to introduce - we mean that species of *vibration* which is particularly observable in the musical glasses, and which, judiciously used, has a very beautiful effect; and the still more important accomplishment of *Gliding*.²⁴⁷

How Nicholson performed both the *flattement technique*²⁴⁸ differs slightly from his predecessors. But this slight difference is not reason enough to call it a new effect that was introduced. Though neither the *flattement technique* nor the chest vibrato were invented or

²⁴² Powell *Flute* 241-242, 269. Bailey *Schwedler* 153-154

²⁴³ Bailey *Schwedler* 25-26, 47-48 and 162-172

²⁴⁴ Grenser *Flötenspieler* 101

²⁴⁵ Section 1.1.2

²⁴⁶ Spell *Nicholson* 73-74

²⁴⁷ *Quarterly* 86. The whole passage about Nicholson is also reprinted in Rockstro *Flute* 609-610.

²⁴⁸ With very small pitch change, see section 1.1.2.

introduced by Nicholson, he used them much more than his immediate predecessors, and “sold” them effectively to his audience. *A Complete Guide to the Art of playing the German Flute* by Beale from 1813 * check date! does not mention any vibrato, and neither does any edition of Wragg: *The Flute Preceptor* and *Wragg’s Improved Flute Preceptor* up to and including April 1818.²⁴⁹ Nicholson’s *Complete* was published in 1816. Its front page announces among other things “Instructions for the management of tone, articulation, double tonguing, gliding, vibration & other graces”. In the book Nicholson writes about vibrato ”This Expression on the German Flute is calculated to produce the finishing Grace or Embellishment on this favorite [sic] and highly esteemed Instrument.”²⁵⁰ As a consequence of this, there are added paragraphs about *vibration* and the *glide* in the second 1818 edition, and in all further editions of *Wragg’s Improved*.²⁵¹ James Alexander discusses ornaments in his flute method (first edited in 1818) when they occur in the progressive lessons. *Vibration* and *glide* appear in the last lesson, which bears no number (the others are numbered to 43). This lesson seems to have been added after the text had been completed, for the purpose of explaining these fashionable manners. In the methods by George Washington Bown from 1825, Thomas Lindsay from 1828, and Charles N. Weiss²⁵² *vibration* is also discussed in very similar terms as in Nicholson’s *Complete*.

The players of the Nicholson school seem to have used *flattement technique* and chest vibrato as much.²⁵³ Most methods describe both techniques. The methods by Nicholson, Alexander, Weiss (1821), Bown, and Lindsay also provide fingering charts for *flattement technique*.²⁵⁴ Typical for the *flattement technique* described by the Nicholson school is that it results in a very small *pitch change*.²⁵⁵ Nicholson’s *Lessons* from 1821 does not mention chest vibrato, which hardly means that it exclusively recommends *flattement technique*. This book was written for the advanced player, who presumably knew about the chest vibrato technique. Nicholson and Lindsay describe an accelerating vibrato on a note with a *diminuendo*.²⁵⁶

Like Miller, Nicholson, Alexander, Bown, Lindsay, and Lee in his edition of Wragg’s *Improved* do not only discuss vibrato in their texts, they also include tunes for the student with *vibration* indicated. These tunes are naturally a most valuable source of information.²⁵⁷ The most and also most interesting examples are to be found in Nicholson’s *Lessons*. In some of those pieces, all graces are extremely carefully notated, like in the famous melody ”Roslin Castle,” of which Nicholson writes:

The beautifully pathetic Air of “Roslin Castle” having been received at the Oratorios of Covent Garden and Drury Lane Theatres with the most enthusiastic applause, & been rapturously encored at both places, the Author has endeavoured to preserve the Embellishments &c exactly as he performed them on these occasions, and begs that the particular marks of Fingering and Expression may be carefully observed.²⁵⁸

²⁴⁹ Spell *Nicholson* 74

²⁵⁰ Nicholson *Complete* 22

²⁵¹ Spell *Nicholson* 74-75

²⁵² Spell *Nicholson* 75

²⁵³ Spell suggests that Nicholson had a strong preference for the *flattement technique*, because only that technique is mentioned in *Lessons*. * writetogether with about Lerssions above!

²⁵⁴ See section 1.1-1.1.2

²⁵⁵ See section 1.1.2

²⁵⁶ See section 2.3.1.1.

²⁵⁷ An analysis on the vibrato signs in se tunes are included in appendix 3.

²⁵⁸ Nicholson *Lessons* 65

Only one major method published in the decades after Nicholson *Complete* does not mention the vibrato, that is *Instructions for the Flute* from 1828 by Dressler. Dressler was an Austrian flutist who made a career in London as a soloist and teacher in the 1820's and early 30's. The book is thorough, and well-written, aimed for the English amateur student. It discusses the *glide* as well as the harmonics;²⁵⁹ it even announces these “graces” on the front page. Perhaps Dressler just forgot about the *vibration*.

The *vibration* was perhaps more important to Nicholson than to any other flute player in the 18th and 19th centuries. This view finds support in the introduction to *Lessons* from 1821, where he declares that: “The Author’s chief object will therefore be to elucidate its [the flute’s] *Peculiarities* in regard to Tone, Fingering, Articulation, Gliding, Vibration, and Harmonics;”²⁶⁰ In *School* from 1836, Nicholson writes that vibration is “an Embellishment deserving the utmost attention of all those who are anxious to become finished performers on the Flute.”²⁶¹ There he also argues that the flute model with big holes is better, partly because: “4th. The vibrations are more obvious from the decided improvement in the tone.”²⁶² *Vibration* is also given an unusually prominent place on the front page of Alexander’s *Preceptor*, where it says that the book includes a “complete scale of the vibrations”,²⁶³ as well as on the front page of Bown’s *Preceptor* from 1825, which on a separate line announces that it includes “The modern method of Single & Double tonguing, Gliding, Vibration &c.”²⁶⁴ Also outside England vibrato was connected with English players. C. Grenser writes about it as “die bey engländischen Flötisten vorzugsweise herrschende Zierde,”²⁶⁵ and von Schafhäutl writes in 1882²⁶⁶ about Nicholson: “his adagio was characterised by a peculiar vibrato in sustained tones, something like the fine tremolo in singing.”²⁶⁷

Nevertheless it seems that the English players of the 19th century used the *vibration* less frequently than the French flutists used the *flattement* hundred years earlier. In comparison with the tunes found in the methods of the Nicholson school, the suites by Philidor contain considerably larger amount vibrato indications. Several English 19th century writers stress that *vibration* has to be used sparingly; similar restrictive admonitions are not found in the earlier French sources. In the above-quoted article from *The Quarterly Musical magazine* it says that vibration should be judiciously used, and James writes in his book *A Word or Two on the Flute* from 1826: “I have spoken of vibrations on the flute, and think, when introduced judiciously and sparingly, they have an exceeding fine effect.”²⁶⁸ Two years later Lindsay writes that “It [*vibration*] should, however, be sparingly employed.”²⁶⁹ In the editions from 1818 and on of Wragg *Improved* the same view is expressed.²⁷⁰ Compared to Anton Bernard Fürstenau’s even more restricted use of vibrato²⁷¹ on the other hand, the English tunes show a freer and more generous application.

²⁵⁹ Harmonic fingerings (over-blowing a fingering of a lower octave) were popular in the *Nicholson School* because of the different sound colours they produced. They could also be used as help fingerings.

²⁶⁰ Nicholson *Lessons* 1

²⁶¹ Nicholson *School* 71

²⁶² *Ibid* 6

²⁶³ Alexander *Preceptor* front page

²⁶⁴ Bown *Preceptor* 1

²⁶⁵ Grenser *Flötenspieler* 101

²⁶⁶ Powell *Flute* 317

²⁶⁷ Welch *History* 406

²⁶⁸ James *Word* 100

²⁶⁹ Lindsay *Elements* 30

²⁷⁰ Gerhold *Wragg* 147

²⁷¹ sse section 2.6.3

The Nicholson school preferred the low and middle register for the *flattement technique*. Nicholson's *Complete*, as well as the methods by Alexander, Bown and Lindsay, include fingering charts for *the flattement technique* from f' to f'', though Bown adds as the last sentence in the paragraph: "Vibration may be performed on any Note an octave higher, Fingered as in the above Scale except the last F natural.²⁷² Weiss' method includes more notes (e' to e''); Lee/Wragg's *Improved* has e' to a''. Though in my experience it is considerably easier to execute the *flattement technique* well with certain fingers than others, it can be executed on more notes than the ones given in the charts. This is confirmed by C. Grenser, who reprints the fingering chart from Nicholson's *Complete*, with his own comment:

I just want/.../to advise anyone who wants to learn the skill of making good *Bebungen*, to look for better and additional [fingerings] than [the ones] indicated above, and he will find them.

Ich will nur /.../den Rath geben, dass Jeder, der sich in den Besitz der Geschicklichkeit, gute *Bebungen* zu machen, bringen will, wohl manche bessere und auch mehre, als oben angegeben sind, suchen mag; und er wird sie finden.²⁷³

Nicholson's *School* provides a fingering chart for the *flattement technique* from e' to b flat'' with the comment; "The succeeding Scale of notes, is one in which Vibration is the most effective, although by the aid of the breath and tremulous motion of the Flute, almost every note of the Instrument may be similar influenced."²⁷⁴ In *Lessons* Nicholson does not present a fingering chart for the *flattement technique*, but instead marks in the musical pieces the number of the finger that should perform the vibrato above the note. He writes:

The Author has deemed it most advisable to mark over each Note the finger with which the effect is to be produced, by which the Pupil will acquire it with greater facility than by a regular Scale.²⁷⁵

The notes with vibrato signs range from f' to a#'', which corresponds with the fingering charts in the other books. The fingerings in *Lessons* sometimes differ slightly from those in *Complete* and *School*.

My study of the pieces with vibrato signs in the English early 19th century methods shows that the notes with waved lines for *vibration* correspond remarkably well with the notes in these charts, even considering that the tessitura in the pieces is low.²⁷⁶ Vibrato signs are especially common on c'' in many pieces.²⁷⁷

Although the texts in the English method books do not specifically mention that vibration is used on long notes, their musical material confirms that this was still the case.²⁷⁸ Generally almost all of the waved lines for *vibration* in all the pieces are on long notes.

Vibration was considered most effective in slow pieces with a tender or "pathetic" character. Several writers support this:

²⁷² Bown *Preceptor* 59

²⁷³ Grenser *Flötenspieler* 101. transl. T. Skowronek

²⁷⁴ Nicholson *School* 71

²⁷⁵ Nicholson *Lessons* 5

²⁷⁶ See appendix 3

²⁷⁷ In Lee/Wragg *Improved*, Lindsay *Elements*, Nicholson *Preceptive*, and Nicholson *Complete*.

²⁷⁸ see appendix 3

Nicholson in *Complete*:

The effect of this Expression in Adagios and other slow movements when the Pupil has become familiarized with it, is inconceivably delicate and sweet, and as such worthy every attention.²⁷⁹

Alexander:

A *Vibration*/.../ is generally introduced in Adagios and other slow movements./.../ In its nature it is nearly allied to the shake, but being of a more tender and delicate character, should only be introduced in such pieces as are intended to be played with much pathos and feeling, and here if well managed the effect is sweet and expressive.

²⁸⁰

In the editions of Wragg's *Improved* that discuss vibrato the reader is recommended to use *vibration* in slow movements that need "much pathos and feeling."²⁸¹

Bown:

Vibration /.../is for the most part introduced into Adagio or slow movements: it is characteristic of a shake, but infinitely more tender and delicate, and as such strictly applicable to pieces where full scope is intended to be given to feeling and pathos.²⁸²

Lindsay:

...another means of infusing tenderness and pathos into a performance;/.../Being of an extremely delicate character, the Vibration - like the Glide - should only be applied to passages of great fervour and sensibility; but when so introduced, the effect is truly sweet and beautifully expressive.²⁸³

In Lee/Wragg's *Improved* one can read: "Vibrations have a beautiful effect in slow movements, particularly in plaintive airs."²⁸⁴ Also later in the century this opinion prevailed. Young writes in 1892 that vibrato "should only be used in very pathetic movements – such as Adagios, Andantes &c. where great pathos is desired."²⁸⁵

When comparing the statements above with the musical material in the flute methods,²⁸⁶ I found that only the pieces in the books by Lindsay and Lee/Wragg show a clear connection between slow, sad and/or *affetuoso* pieces and signs for *vibration*.

A popular habit of English 19th century flute virtuosi was to play folksy tunes (often called "Scottish", even when they were actually not) in concert, often together with the player's own variations. According to a report of 1828, Nicholson was "famed for performing slow national melodies in a highly interesting and expressive manner."²⁸⁷ The increased use of vibrato (and the glide) is connected with this tradition. Vibrato was more admitted in such pieces, which is also indicated by Drouet's statement that a *vibration* might be used in "trifling music".²⁸⁸ This

²⁷⁹ Nicholson *Complete* 22

²⁸⁰ Alexander *Preceptor* 30

²⁸¹ Gerhold *Wragg* 147

²⁸² Bown *Preceptor* 59

²⁸³ Lindsay *Elements* 30

²⁸⁴ Lee/Wragg *Improved* 58

²⁸⁵ Young *Modern Method for Students of the Flute*, 28, quoted in Toff *Flute* 111

²⁸⁶ see appendix 3

²⁸⁷ "Athenaeum," June 1828, 506, quoted in Eagle "A Constant Passion" 93, quoted in Powell *Flute* 134

²⁸⁸ Drouet *Method* 18. Quoted in section 2.6.2

is confirmed by the musical material in the treatises, where vibrato is a more frequently indicated use of in the folksy tunes in the pieces in Nicholson's *Lessons*, Lindsay's *Elements* and Lee/Wragg's *Improved*.²⁸⁹

The violinists also formed a source of inspiration for the use of vibrato. Miller wrote in 1799 "The close Shake and the Swell to a long note /.../ answers to what was called Giardini's close shake on the Violin."²⁹⁰ Bown writes about *vibration*: "This is precisely the effect of what is termed the close shake on the Violin."²⁹¹ And James writes:

The beat of a violin is justly considered one of its chief beauties; and the vibration of the flute, particularly in its lower tones, is very similar. This, however, as it is a beauty, so is it also exceedingly difficult to be produced: for if the note be not divested of all roughness, and blown very clear, the vibration will be imperfect.²⁹²

In Lee/Wragg's *Improved* it says: "...it [vibration] is intended to imitate the Violin players"²⁹³

All English 19th century flute methods that I have investigated discuss vibration in proximity to the *glide*, except in Lee/Wragg's *Improved* from 1840, where the *glide* is not mentioned.

Check fast flattement together with slow chest vibrato as accent signs spell 85-86 tromliyz???? *

2.6.1.1 England second half of the century

Richard Carte's *Instructions* from 1845, and John Clinton's *School* from 1846, were the first English methods for the (ring keyed) Boehm flute. Carte gives the *vibration* as the last item of his list of "the chief ornaments"²⁹⁴. He describes the same three techniques as the earlier English writers, namely making vibrato with the breath, *shaking the flute* and the *flattement technique*. However, his terminology resembles that of Fürstenau in that he separates them; Carte calls the two first techniques *tremolo*, and the *flattement technique* he calls *vibration*.

The Tremolo is a grace that consists in the wavering of a note. It is produced on the Flute either by giving a tremulous impulse to the breath, or by tremulously holding the Instrument. It is used in passages of pathos, and is indicated by the word tremolo, or is introduced at the fancy of the Performer.²⁹⁵

The next paragraph deals with the *vibration*:

This ornament consists also in the wavering of a note, but differs from the tremolo by its greater delicacy, and its being produced on the Flute by waving or shaking the finger over certain of its holes It gives a beautiful effect to sustained notes. /.../ This grace is generally introduced at the discretion of the Performer, but it is sometimes directed by the Composer.²⁹⁶

²⁸⁹ See appendix 3

²⁹⁰ Miller *Instructor* 11

²⁹¹ Bown *Preceptor* 59

²⁹² James *Word* 100

²⁹³ Lee/Wragg *Improved* 58

²⁹⁴ Carte *Instructions* 22

²⁹⁵ *Ibid* 23

²⁹⁶ *Ibid* 24

This advice is similar to Fürstenau's recommendations from 1844: the *flattement technique* is supposed to be used on sustained notes, and the chest vibrato "in passages of pathos".

According to R. Brown, Carte is more cautious about the use of vibrato in the 1878 edition of his *Instructions*.²⁹⁷

*

Clinton describes the *flattement technique*, and as an alternative *shaking the flute*. He uses the term *vibration*, and writes that it is notated with a wavy line. "When judiciously employed it considerably heightens the effect."²⁹⁸ Like Nicholson and Lindsay, both Carte and Clinton describe an accelerating vibrato on a note played *diminuendo*.²⁹⁹

In the musical pieces included in these methods vibrato is less frequently indicated than in the earlier English methods. Out of 32 tunes in Carte's *Instructions* (mostly folksy tunes or opera-arias) there is one with four signs for vibrato. In Clinton's *Instructions* one etude has wavy lines for vibrato on two notes.

Among later English 19th century Flute methods that do not discuss vibrato we find Pratten's *Flute Tutor* from c. 1860. Not surprisingly, Redmond's undated, short and elementary little book *Sixpenny Flute and Piccolo Tutor* does not discuss it either. Radcliff in his *School for the flute* from 1873. hitta den!!! * Richard Shepherd Rockstro does not discuss vibrato in his magnificent *The Flute* from 1890. Rockstro writes about Nicholson, and quotes a large section from the article in *Musical Quarterly* that praises Nicholson's playing.³⁰⁰ The quotation includes the passage about Nicholson's *vibration*,³⁰¹ but Rockstro does not comment upon it.

In an article in *Grove I* (1879-89) it is written about vibrato on wind instruments that "it is sometimes heard on the flute and cornet".³⁰² This comment is reprinted unchanged in *Grove II* (1904-10).³⁰³

Young³⁰⁴ gives the latest recommendation of finger vibrato I know about in his method from 1892. He rejects the chest vibrato for the same reason as Tromlitz, and according to Toff recommends only a vibrato produced by finger movement. Young writes about *vibration*:

if too frequently used, this effect becomes vulgarized and unpleasant. Some players produce the effect by a tremulous motion of the breath, which is inadvisable, as by its frequent use it endangers the production of a steady tone, which is far more desirable than any artificial effect.³⁰⁵

The English flutists Eli Hudson (1877-1919) and Albert Fransella (1865-1935) can be heard on recordings from 1908 and 1911 respectively. They both use no or almost no vibrato.³⁰⁶

²⁹⁷ Brown *Early Flute* 12

²⁹⁸ Clinton *School* 72

²⁹⁹ See section 2.6.1.2

³⁰⁰ Rockstro *Flute* 609

³⁰¹ Quoted in section 2.6.1

³⁰² Article by H. C. Deacon, IV, 260 quoted in Philip *Recordings* 110

³⁰³ *Ibid*

³⁰⁴ Author of at least two flute methods from the late 19th century, and according to Fairley *Flutes* considered the finest piccolo player of his day.

³⁰⁵ Young *Modern Method for Students of the Flute*, 28, quoted in Toff *Flute* 111

³⁰⁶ *The Flute on record* track 2 and 9

2.6.1.2 The Imitation of a Bell

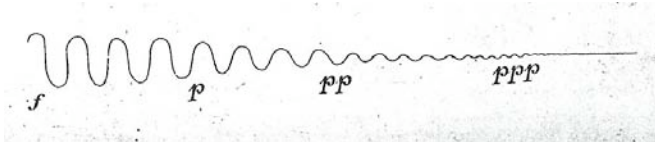
Vibrato was in the 18th and 19th centuries often associated with the sound of a bell, which had been struck hard. The violinists Giuseppe Tartini, Leopold Mozart³⁰⁷ and Louis Spohr use this metaphor;³⁰⁸ other images were a string struck hard or the sound of musical glasses. Several 19th century writers of flute methods also use these comparisons: Fürstenau writes in *Kunst* from 1844, that *Klopfen* (the *flattement technique*) is something that imitates the vibration of a bell that was struck hard,³⁰⁹ and in an article in *Quarterly Musical Magazine* from 1823 one can read about Nicholson's playing:

...but we must not pass over two new effects on the instrument, which he was the first to introduce—we mean that species of vibration which is particularly observable in the musical glasses, and which, judiciously used, has a very beautiful effect;³¹⁰

James writes in *Word*, first edited in 1826: “No bell, no musical glass, can exceed the clearness or correctness of its [the tone of Mr. Nicholson] vibration;”³¹¹

But Nicholson and the players that were influenced by him also imitated a bell in a more precise way. As Spell points out, both the bell and musical glasses produce vibrations through out-of-tune overtones, a gentle beating that accelerates while it dies away with the sound.³¹² Nicholson writes in *Lessons* from 1821:

Vibration on the flute ought to resemble that of a Bell or a Glass, the beats or pulsations of which are never rapid at first, but are governed by the strength of the Tone; for example, if your Tone is full and strong, the beat should be slow, but gradually increased in proportion as you diminish the Tone _
thus³¹³



15 years later he describes the same phenomenon in *School*:

...it [the vibration] ought to resemble the beats, or pulsations of a Bell, or Glass, which will be found to be slow at first, and as the sound gradually diminishes, so will the Vibrations increase in rapidity.³¹⁴

³⁰⁷ L. Mozart *Violinschule* 243

³⁰⁸ Gärtner *Vibrato* 30, Moens-Haenen *Vibrato* 80 and Brown *Classical* 549

³⁰⁹ „eine gewissermassen die Schwingungen einer stark angeschlagenen Glocke nachahmende Manier“ Fürstenau *Kunst* 81

³¹⁰ *Quarterly* 86

³¹¹ James *Word* 99-100. C. Grenser translates this in 1828 to: “Ist die Flöte in den Händen eines Meisters, so kann keine Glocke, keine Glasharmonika die Deutlichkeit oder Richtigkeit ihrer Tonschwingungen übertreffen”

Grenser *Flötenspieler* 101

³¹² Spell *Nicholson* 76-77

³¹³ Nicholson *Lessons* 5

³¹⁴ Nicholson *School* 71

In *School* Nicholson describes this executed by a chest vibrato that turns into *shaking the flute*.³¹⁵

Lindsay gives a very similar description in 1828:

The beats, or rather pulsations, should be comparatively slow, when the tone is full, but should increase in quickness as it is gradually diminished, until, at last, the vibration ceases, as if from extreme exhaustion, and the sound faintly expires on the ear.³¹⁶

Carte writes in 1845 that the *flattement technique* should be accelerating on a note with a diminuendo: “When the note is loud the waving should be slow, and as the sound diminishes it should become more rapid.”³¹⁷ Clinton describes the same execution of a long note with vibrato (*flattement technique*) in 1846:

The beats/.../may be commenced slowly, but with firmness (or even, force) then gradually increased in rapidity, and the force (or strength) of the beats gradually lessened, producing an effect in sound, somewhat resembling the following figure.



I see here descriptions of two phenomena. First a general comparison between the sound of musical glasses or a bell and a note (of whatever dynamic shape) with a vibrato, and second a vibrato that explicitly imitates a bell that has been struck hard, where the vibrato accelerates while the note is played diminuendo.

2.6.2 France

The absence of vibrato-related information in the French flute methods from the late 18th century persists far into the 19th century. The treatises by Mathieu Peraut (between 1800-1803) Hugo & Wunderlich (1804), Antoine Tranquille Berbiguier (c. 1818), Louis Drouet (The French/German method from 1827), Eugene Walckiers (1829?), Jean Louis Tulou (1835), Paul Hippolyte Camus (1839), Louis Dorus (c. 1840), Ph. Gattermann³¹⁹ (c. 1850), V. Bretonnier (n.d.), J. Duvergès³²⁰ (c. 1870), and Henry Altés (1880) are all completely silent about the matter. These well written methods (many of them used at the *Conservatoire* in Paris) had a huge influence on French flute playing and reflect the praxis of their time.³²¹

Drouet also wrote a method in English that was published in London in 1830. In the chapter entitled “On Style and Taste” we read:

³¹⁵ See section 1.6

³¹⁶ Lindsay *Elements* 30-31

³¹⁷ Carte *Instructions* 24

³¹⁸ Clinton *School* 72

³¹⁹ Brown *Early Flute* 12

³²⁰ *Ibid*

³²¹ Some of the French violin methods from the first half of the century did not mention vibrato, while others did. See Brown *Classical* 529-530.

I must recommend the pupil to be sparing in the use of embellishments, vibrations, glidings, &c. for they should be seldom or never used - Recourse should not be had to these tricks, for a pure style disallows them, because they vitiate rather than improve, good, compositions - He who attempts to improve HAYDN with an embellishment, MOZART with a vibration, and BEETHOVEN with a glide, injures these distinguished masters. In trifling music on the repetition of a phrase, an embellishment may find its place, a vibration may be used, and a gliding produce a pretty effect; but the frequent employment of those charlatanisms, are redundancies, which destroy the sense of a melody and make a caricature of it.³²²

I assume that Drouet is using the term *vibration* for any kind of vibrato, just as the English authors at this time. This passage, like others in the book can be interpreted as polemics towards the playing style of Nicholson.

In 1838, however, Victor Coche has an article about vibrato in his substantial *Méthode*. Coche describes a slow chest vibrato, and writes that it is used on instruments as in singing; to him it seems a perfectly normal thing. He does not discuss vibrato among the ornaments, but between fingerings for doppelschlag * and signs for *crescendo* and *diminuendo* (*filés*).

That which is called vibration of the voice in the art of singing, is equally practised on instruments. It is the action of producing the first sound with force, and the second much more sweetly. This kind of accent is recognizable in musical notation by the chevron placed above or below the note which one is supposed to vibrate strongly.



When the chevron is placed upon a single note, one must practise the same gradation of intensity as upon the two notes of the preceding example.³²³

EX. 1. 

³²² Drouet *Method* 18

³²³ Byrne *Tooters* 182-183

DU CHEVRON

Ce que l'on appelle vibration de la voix, dans l'art du chant, se pratique également sur les instruments. C'est l'action de produire le premier son avec force et le second beaucoup plus doucement. Cette sorte d'accent se reconnaît dans l'écriture musicale au chevron > placé au dessus ou au dessous de la note qu'on doit faire vibrer fortement.

Quand le chevron est placé sur une note seule, on doit pratiquer la même gradation d'intensité que sur les deux notes de l'exemple précédent.³²⁴

In this example, vibrato is indicated frequently, much more frequent than in Fürstenau's examples in *Kunst*, printed six years later.³²⁵ From this example one could get the impression that every accent mark is as well an indication of vibrato, which however is contradicted in the following pages of *Méthode*. Kolla detta batter med franskspråkig! *

A few pages later, though, Coche describes the *

I have not found any indications of the use of finger vibrato in any French flute method after Delusse's *L'Art*. However, the major French bassoon tutor by Jancourt from 1847 contains a description of finger vibrato,³²⁶ and also the bassoon tutors by Berr (1836)³²⁷ and Almenraeder (published in German and French in 1843³²⁸). Almenraeder's formulation suggests that it was used by all woodwind players.³²⁹ He writes that it is used on long, held notes, just as Fürstenau uses the *flattement technique*.

Thus, despite the absence of discussion about in most of the French 19th flute methods, both chest vibrato and finger vibrato (probably the *flattement technique*) was known to flutists in France as well.

I have not found any French music with vibrato indicated from this period. There are four quavers with dots and a waved line in the fifth bar in the Sonata 1 by Peraut,³³⁰ and three eight notes with the same notation in Romance no. 3,³³¹ that I believe were played like slurs with dots (that is with soft tongue strokes), not with a vibrato.

Almenraeder use the term *vibration* for vibrato.³³² However, in the flute methods this word is sometimes used about a vibrant or vibratory sound, not a vibrato. In the chapter about respiration Coche writes:

³²⁴ Coche *Méthode* 82

³²⁵ See section 2.6.3 below

³²⁶ Brown/ Sadie *Performance* 416

³²⁷ Berr appears to rule out breath vibrato in favour of finger vibrato when he writes "Lorsqu'on veut faire vibrer le son les lèvres ne doivent pas participer aux divers mouvemens des doigts". * Brown/Sadie *Performance* 416. For information on Berr see Weston *Berr*.

³²⁸ Langwill *Almenraeder*

³²⁹ Brown/Sadie *Performance* 417 According to Haynes also Neukirchner (1840) discusses finger vibrato Haynes footnote 13 407 *

³³⁰ Perault *Méthode* 52

³³¹ Ibid 33

³³² Brown/Sadie *Performance* 416

The rule /.../is to take in a large volume of air and compress it, in order to maintain - even in pianissimos - a pure tone and a vibration that is always distinct.

La règle /.../consiste à avoir à sa disposition un grand volume d'air que l'on comprime à propos pour conserver, même dans les *pianissimo*, un son plein, une vibration toujours distincte.³³³

At a first glance, this can seem like a reference to a chest vibrato used the way we encounter with the French flute players of the 20th century. In the section about Demi-respiration (where to breath) Coche writes:

The most effective means of obtaining an excellent tone quality and natural way of playing is to breathe in a manner that does not interrupt the direction of the phrases, no matter how long they may be, and always to have the energy to make the instrument vibrate suitably, as intended.

Le moyen le plus puissant pour obtenir une belle qualité de son et un jeu facile, c'est de respirer à propos afin de ne pas couper le sens des phrases, quelque longues qu'elles soient, et de trouver en toute occasion la force de faire vibrer l'instrument avec l'intention convenable.³³⁴

Tolou writes: "The flute should possess a mellow tone for piano and vibrant and sonorous tone for forte",³³⁵ and Altès writes about the "bad imitation of the vibrant sounds of the oboe."³³⁶ To create a sound, the air column in the flute has to vibrate. In the chapter about embouchure Coche writes "It should be noted that in order to produce the next octave, it suffices to double the intensity (energy, force) of the air stream, thereby creating two vibrations (frequencies) instead of one."³³⁷ Altès writes "when forcing the very high notes they become, because of their more frequent vibrations, hard and screemy."³³⁸

Check lexicon La Rousse! *

Paul Taffanel was professor at the Paris *Conservatoire* from 1894 to 1908.³³⁹ According to his student Georges Barrère, Taffanel was reputed to reject "endless vibrato",³⁴⁰ but Hennebains, another pupil, reports, "When he [Taffanel] spoke to us of notes with vibrato or expression, he told us with a mysterious air that these notes, forte or piano, seemed to come from within himself. One had the impression that they came directly from the heart or soul."³⁴¹

³³³ Coche *Méthode* 36 transl. Robert Schenck.

³³⁴ Ibid 85 transl. Robert Schenck.

³³⁵ Tolou *Method* 1

³³⁶ "une mauvaise imitation des sons *vibrants* du Hautbois" Altès *Méthode* 205, transl. in Brown *Early Flute* 46

³³⁷ "Il est à observer que pour obtenir les octaves il suffit de doubler la force du volume de vent afin d'obtenir deux vibrations au lieu d'une, » Coche *Méthode* 23 transl. Robert Schenck

³³⁸ "qu'en forçant trop les notes très aigües elles deviennent, en raison de leurs plus fréquentes vibrations, dures et criardes" Altès *Méthode* 206

³³⁹ Powell *Flute* 221

³⁴⁰ Byrne *Tooters* 314

³⁴¹ Moysé "The Unsolvable Problem: Considerations on Flute Vibrato" *Woodwind Magazine* 7 (1950), quoted in Toff *Flute* 111

Louis Fleury writes in his article about the flute in *the Encyclopédie de la Musique et Dictionnaire du Conservatoire* of 1926 about “the search for tone, and the use, for this purpose, of a light, almost imperceptible *vibrato*...”³⁴²

The modern vibrato use, seen as a quality of sound rather than as an ornament, has its roots in the Taffanel school of flute playing.³⁴³ Starting with the French players, vibrato in the 20th century became an integrated part of the sound, not something that the player added to a note.³⁴⁴

I refer to e.g. Bailey *Schwedler* 179-188. *

In *Méthode* by Taffanel and Philippe Gaubert (ed. 1923) there are strong argumentations against the use of vibrato in music by “classical composers,” in the chapter on style. In connection with a discussion about the slow movement of the sonata in b minor by Bach for flute and harpsichord it says:

With Bach as with all the great classical composers, the player must maintain the greatest simplicity. There should be no vibrato or any form of quaver, an artifice used by inferior instrumentalists and musicians. It is with the tone that the player conveys the music to the listener. Vibrato distorts the natural character of the instrument and spoils the interpretation fatiguing quickly the sensitive ear. It is a serious error and shows unpardonable lack of taste to use these vulgar methods to interpret the great composers. The rules for their interpretation are strict: it is only by purity of line, by charm, deep feeling and heartfelt sincerity that the greatest heights of style may be reached. All true artists should work toward this ideal.

Chez Bach, comme chez tous les grands maîtres classiques, l'exécutant doit observer la plus rigoureuse simplicité. On s'y interdira donc absolument le *vibrato* ou chevrotement, artifice qu'il faut laisser aux instrumentistes médiocres, aux musiciens inférieurs. La sonorité est la cause évocatrice de l'émotion musicale ou, si l'on veut, l'agent physique qui la transmet de l'âme de l'exécutant à celle de l'auditeur. Le vibrato, dénaturant le caractère naturel de l'instrument et faussant son expression, fatigue très vite une oreille délicate. C'est une faute grave, un impardonnable manque de goût que de traduire par des moyens vulgaires les pensées des plus hautes intelligences musicales. Leur interprétation doit s'imposer des règles sévères; c'est seulement par la pureté de la ligne, par la sincérité d'une émotion jaillie du cœur même que l'on peut s'élever jusqu'aux sommets du style, idéal suprême auquel doit tendre le véritable artiste.³⁴⁵

Sometimes this passage has been interpreted as critic against vibrato use in general. In my opinion it only refers to the « classics ». The same opinion (that you should not use vibrato in playing the “classics”) are also expressed by e.g a violinist named Winram.³⁴⁶ *

³⁴² “La recherche du timbre, l'utilisation, dans ce but, d'un léger, presque imperceptible *vibrato*, relèvent bien plus d'un intelligent empirisme que de règles précises.” Fleury “Flûte” in A. Lavignac (ed.) “Encyclopédie de la musique et dictionnaire du Conservatoire” 2. Partie, Vol. 3, 1927, p. 1552 quoted in Gärtner *Vibrato* 40. Transl. Philip *Recordings* 111.

³⁴³ Toff *Flute* 111-112, Philip *Recordings* 111-112, and Gärtner *Vibrato* 39-40.

³⁴⁴ Compare e.g. track 8 (Schwedler) and track 10 (Gaubert) on *The Flute on Record*

³⁴⁵ Taffanel/Gaubert *Méthode* 186

³⁴⁶ In “Violin Playing and Violin Adjustment” from 1908, Brown *Classical* 533 * kolla I Classical!

Taffanel did not make any recordings, but several of his students did, including Gaubert. None of them play strictly without any chest vibrato, and some use an almost constant vibrato.³⁴⁷ It seems like Taffanel's students generally did not adopt the advice quoted above with a more restricted use of the vibrato in the classics. In a comparison made by Philip³⁴⁸ of recordings of Gaubert, Barrère, René le Roy and Marcel Moyse playing Debussy, Chopin, Gluck and Mozart, there is no difference in their use of vibrato in the pieces by Gluck and Mozart on one hand and the other composers on the other. Hennebains vibrates in a recording from 1905 of the *Badinerie* by J.S. Bach,³⁴⁹ and according to Toff, Gaubert's recording of Bach's fifth Brandenburg Concerto has a shallow, fairly rapid vibrato.³⁵⁰

2.6.3 Germany, first half of the 19th century

In Germany there is a documented continued use of the *flattement technique* from the 18th century and until far in to the 19th, and the chest vibrato is recommended from the beginning of the century and on. The reason why Tromlitz' *Klappenflöte* from 1800 does not mention vibrato is that it deals only with issues of the keys, fingerings and trill fingerings for the keyed flute. It does not discuss performance practice, which Tromlitz had carefully done in *Unterricht* from 1791. I have only found one indication of a decline of the use of flute vibrato in Germany in the late 18th and early 19th century. This is the first edition from 1802 of Heinrich Christoph Koch's *Lexikon*, that describes vibrato³⁵¹ as a "fairly/rather outdated/old-fashioned manner of playing which is mainly used on stringed instruments and the clavier."³⁵²

In Justin Heinrich Knecht's *Katechismus* from 1803³⁵³ *Bebung* is described as a slow and controlled vibrato, which by singers and wind players is produced by the breath.³⁵⁴

August Eberhard Müller counts *Bebung* to the essential ornaments (*wesentliche Verzierungen*) in his *Elementarbuch*, edited in 1817. Müller describes only chest vibrato.³⁵⁵ Unfortunately he does not mention where and how often the player is supposed to use it, only how it is notated. Lichtmann is of the opinion that Müller adopted the chest vibrato of the Nicholson school,³⁵⁶ but this seems unlikely, since Nicholson was born in 1795, and published *Complete* in 1816.³⁵⁷ Müller probably followed a continental practice with a chest vibrato as documented by e.g. Delusse and Knecht. Müller was also an accomplished organist, and as such familiar to the *Bebung* on the clavichord.

³⁴⁷ Philip *Recordings* 112-113, *The Flute on record* tracks 4, 5, 10, and 19

³⁴⁸ Philip *Recordings* 113

³⁴⁹ *The Flute on record* track 4

³⁵⁰ Toff *Flute* 111

³⁵¹ His term is *Bebung*.

³⁵² Philip *Recordings* 212 "Bebung, ital. Tremolo, ist eine ziemlich verjährte Spielmanier, deren man sich vorzüglich auf den Bogeninstrumenten und auf dem Claviere bedient." Koch *Lexikon* 229

³⁵³ publication year according to Loewenberg/Rönnau *Knecht*

³⁵⁴ see section 1.6

³⁵⁵ *Ibid*

³⁵⁶ Lichtmann *Müller* 298

³⁵⁷ For a discussion on when Müller wrote *Elementarbuch*, see appendix 4. "About the treatises and their authors"

In 1828 Carl Grenser³⁵⁸ presents an annotated translation of parts of *A Word or Two on the Flute* by James in a series of articles in *Allgemeine Musikalische Zeitung*. Grenser translates James' term *vibration* with *Bebung*. Because James does not describe how the *vibration* is supposed to be made, Grenser adds the above-quoted section about *vibration* from Nicholson's *Complete*,³⁵⁹ also the fingering chart for the *flattement technique*. Below that he comments the situation in Germany:

...Besides, some will remember to have already heard and seen this embellishment also from German flute players, sometimes good and sometimes bad; but nobody apart from Nicholson and James has, according to my knowledge, mentioned it in writing, after Tromlitz described it in his Flute tutor.

...Uebrigens wird sich Mancher erinnern, diese Zierde theils gut, theils schlecht auch an teutschen Flötenspielern schon gesehen und gehört zu haben; nur hat dieselbe, seit Tromlitz sie in seiner Flötenschule beschrieb, Niemand meines Wissens, ausser Nicholson und James wieder schriftlich erwähnt.³⁶⁰

Here Grenser probably refers to the *flattement technique*. It seems unlikely if he, as an educated man,³⁶¹ did not know about the descriptions of chest vibrato in Knecht's *Katechismus* and certainly in *Elementarbuch*, which was written by Müller (one of his predecessors in the *Gewandhaus* orchestra) and published in 1817. Interestingly, Grenser here confirms that in Germany the *flattement technique* was still in continuous use, though not described since 1791.

In 1826 the first flute method by Fürstenau, called *Flötenschule*, was published. Fürstenau does not mention vibrato in this book.³⁶² But in the larger *Die Kunst des Flötenspiels* from 1844 he discusses both chest vibrato and the *flattement technique* at length. Delius suggests that the reason for this was that they belong to a more advanced art.³⁶³ Fürstenau's descriptions of vibrato techniques are placed at the very end of *Kunst*; together with the section about *portamento* they form the end of the chapter about ornaments, and the headline is "*Einige willkührliche, aber seltene, jedoch bisweilen mit Vortheil anzuwendende Manieren*"³⁶⁴ Fürstenau begins:

After the embellishments considered in the previous section, some other special playing *Manieren* – as a whole less important, yet sometimes successfully applicable – may be mentioned which merely relate to the

³⁵⁸ flutist in the orchestra in Leipzig from 1814, teacher at the Leipzig conservatorium from 1843.

³⁵⁹ "Vibration. "Diese Ausdrucksart auf der Flöte ist berechnet, die vollendetste Grazie und Zierde in diess hochgeschätzte Lieblings-Instrument zu bringen. Die Wirkung der Vibration wird auf zwey Wegen hervorgebracht; entweder durch ein gleichmässiges Anschwellen und verhältnismässiges Stimmenverändern der Brust, was einige Aehnlichkeit mit dem Zustande der Erschöpfung oder des Athemzitterns an sich trägt, nebst einer regelmässigen Abnahme oder Verminderung des Tones; oder, was denselben Effect hervorbringt, durch eine zitternde Bewegung des Fingers, unmittelbar über dem Tonloche, ohne dass man in Berührung mit der Flöte durch diese Bewegung kommt, und indem man bey einigen Gelegenheiten nur ohngefähr eine Hälfte des Tonloches bedeckt. Da die Wirkung dieses Ausdruckes im Adagio und anderen langsamen Tempis ausserordentlich zart und süß ist, so ist er aller Aufmerksamkeit werth." Grenser *Flötenspieler* 101-102

³⁶⁰ Ibid transl. T. Skowronek

³⁶¹ Goldberg *Biographien* "Grenser" and Rockstro *Flute* 606 (probably the same source). See also the articles by C. Grenser in *AMZ*.

³⁶² Delius *Einführung* XXIV

³⁶³ Ibid

³⁶⁴ Fürstenau *Kunst* 78

performance of single tones, or their connection. These *Manieren* are not found indicated by the composers, but their application is completely up to the player.

Nächst den im vorigen Abschnitte abgehandelten Verzierungen mögten noch einige, im Ganzen weniger wichtige, aber hin und wieder mit Erfolg anzuwendende, besondere Spielmanieren, welche sich lediglich auf die Vortrags- und andererseits die Verbindungsart einzelner Töne beziehen, Erwähnung finden dürfen. Man trifft diese Spielmanieren vom Componisten nicht vorgeschrieben an, sondern ihre Anwendung ist ganz der Willkühr des Spielers überlassen.³⁶⁵

So, even in a period when the composers more and more started to prescribe all the ornaments in their music, the vibrato and the *portamento* remained a concern of the player/artist.

In a review of *Kunst* in *Allgemeine Musikalische Zeitung* from 1844 the author states regarding the *Bebung* and *Klopfen* (and also other ornaments such as trills and slurs), that both ornaments have never before been discussed so extensively and that much truly new [information] is presented.³⁶⁶ Further on in the same review Fürstenau's own playing is commented, also his use of the vibrato: "Bebungen, Klopfen, Ueberziehen der Töne [*portamento*], in general, everything that he treats in his school, is in every moment fully in his compass."³⁶⁷

Fürstenau discusses the *flatement technique* as extensively as the chest vibrato. He writes that it can have a beautiful effect in many cases,³⁶⁸ and that it is mainly used on long, held notes.³⁶⁹ He also prints examples on where to use it:

³⁶⁵ Ibid 78-79

³⁶⁶ "Bei den §§. /.../ von der *Bebung*, vom *Klopfen*, ...will Ref. der Raumensterniss wegen zu bemerken, dass sie noch niemals so ausführlich behandelt worden sind, und des wahrhaft Neuen gar mancherlei bieten. „*Allgemeine* 719

³⁶⁷ „Bebungen, Klopfen, Ueberziehen der Töne, überhaupt Alles, was er in seiner Schule dargestellt, steht ihm jeden Augenblick vollendet zu Gebote.“ Ibid

³⁶⁸ "welche in manchen Fällen von schöner Wirkung sein kann.“ Fürstenau *Kunst* 81

³⁶⁹ „Hauptsächlich ist sie bei lange auszuhaltenden Tönen /.../anwendbar.“ Fürstenau *Kunst* 81

Beispiele für das Klopfen.

Fantasie
über Themas au Oberon.

Adagio.

p *mf* *accelerando* *cresc.* *f* *rallent.*

p *f* *p* *mf* *veloce* *ritard.* *pp*

Adagio.

Divertissement
Op. 82.

Andante.

p *f* *p*

H moll Concert.
Op. 100.

All^o mod^o.

dolce *Cantabile.*

cresc. *tr* *im Adagio.* *pp*

tr *cresc.* *f* *p*

B dur Concert.
Op. 127.

Adagio.

dolce.

tr *tr* *tr*

f

A dur Concert.
Op. 33.

Adagio.

dolce *p* *mf* *rallent.*

Adagio zu Variationen
über ein Thema aus Figaro.

Adagio.

cresc. *p* *cresc.* *f* *p*

mf *p* *f* *pp*

Fürstenau indicates the *flattement technique* very much like Tromlitz recommends—on long notes, *fermatas* and the note before a cadenza. In *Übungen für Flöte* published together with *Kunst* there are also symbols for both chest vibrato and the *flattement technique*. Both ornaments seem a bit under-notated, but the notation follows the same principles as in the examples: the *flattement technique* is often indicated on final notes, and in three out of four cases on notes with *fermatas*.

Fürstenau writes about chest vibrato (*Bebung*):

Letting a note shake or shiver is an imitation of the expression of this type in the human voice when singing, since as the revelation of a passionate inner emotion and excitement it is often natural and therefore of gripping effect on the listener./.../ But true, deep feeling felt by the performer must be connected with it, if this ornament is to achieve its goal, and it must not appear as mere external imitation; otherwise it becomes ridiculous, since anyway the true charm of the human voice in such a regard can always only be approximately achieved by an instrument; and then even in a piece of music where there frequently occur passages of passionate emotion; by far not used everywhere, but only where this emotion is expressed most strongly, and when there are similar passages which are immediately repeated, probably either only the first or second time, since only too easily the excess of this ornament comes off as sick oversensitivity, its constant use becomes a pathetic whine which naturally is of the most disastrous effect; therefore vibrato must, if it is to be completely certain of its aesthetic success, limit itself every time to one single note: the one which contains the culmination of passionate feeling,...

Das Beben oder Erzitternlassen eines Tons ist die Nachahmung eines derartigen Ausdrucks der menschlichen Stimme beim Gesange, wie er als Offenbarung einer leidenschaftlichen inneren Bewegung und Aufregung oft natürlich und deshalb von ergreifender Wirkung auf den Zuhörer ist./.../

Es muss aber, soll diese Manier ihrem Zweck entsprechen, wahrhaftes, selbstempfundenes, tieferes Gefühl damit verbunden sein, und sie darf nicht als blosse äusserliche Nachahmung erscheinen, widrigenfalls sie lächerlich wird, da ohnehin der eigentliche Reiz der menschlichen Stimme in solchen Beziehungen immer nur annähernd von einem Instrumente erreicht werden kann; und dann auch, selbst in einem Musikstücke, wo häufig Stellen leidenschaftlicher Bewegung vorkommen, bei Weitem nicht überall, sondern nur da, wo jene Bewegung am stärksten sich ausspricht, und bei sich unmittelbar wiederholenden Stellen derselben Art, etwa nur das erste oder Zweite Mal angewandt werden, da nur zu leicht die Häufung dieser Manier wie krankhafte Empfinderei sich ausnimmt, der fortwährende Gebrauch derselben aber gar zu einem kläglichen Gewinsel wird, welches natürlich von höchst widerlicher Wirkung ist; dabei muss die *Bebung* endlich, soll sie des ästhetischen Erfolgs ganz gewiss sein, sich jedesmal auf einen einzigen Ton, und zwar denjenigen, in welchem der Culminationspunkt des leidenschaftlichen Gefühls enthalten,...³⁷⁰

Here I sense a transformation in the view upon the chest vibrato. Although it is still an ornament, the emphasis on its expressive qualities is much stronger. Instead of expressing certain affects with the vibrato, as described by e.g. Delusse and Geminiani, Fürstenau speaks about passionate (inner) emotion and expression in general.³⁷¹ This reflects a general difference between the musical aesthetics of the 18th and the 19th centuries. C. Brown writes

³⁷⁰ Fürstenau *Kunst* 79 transl. Bailey *Schwedler* 175, corrected by the present writer. There is another English translation in Brown *Classical* 530

³⁷¹ For comparisons to e.g. Lepold Mozart, see Brown *Classical* 529

about vibrato in this period in general, “it was introduced more for its expressive qualities than as one among a host of ornaments with which an individual note could be enlivened.”³⁷²

BEISPIELE FÜR DIE BEBUNG. PRINT ALL EXAMPLES

In the examples above one notices a new praxis that differs from Fürstenau’s predecessors. The chest vibrato is applied at the emotional peak of a phrase. It is used on expressive, long notes, which are always preceded by a *crescendo*, and followed by a *diminuendo*. These notes are also often the highest notes of the phrase. In this way, the player uses chest vibrato to help shaping the phrases. In *Übungen für Flöte* the chest vibrato is also indicated in this way; it is notated on climaxes of a phrase or a section, and is always preceded by a *crescendo*. Spohr indicates vibrato in the examples in his *Violinschule*, though more restricted.

The experiences made in the artistic part of this dissertation supports the affinity between a long note preceded by a *crescendo* and the chest vibrato in this style.³⁷³

Fürstenau’s warns against a too frequent use of vibrato also in other places than in the passage about the chest vibrato quoted above. He writes about all three “willkürliche” ornaments:

Because these [*Manieren*], if they are not used after a careful selection of the appropriate places and very sparingly, result to a much higher degree [*than what?*] in misuse, or a bad sound * (since this is anyway a result of a frequent use of the embellishments), one must use them with utter care. Anyone who is not aided by a natural sentiment and a just taste should be completely and unconditionally advised against their application, rather than being encouraged, with the danger of seducing him into playing in a mannered and affected way.

For this reason also, I like to encourage the player only with reservations to familiarize himself with the *Manieren* that are now closer discussed, which are: the *Beben*, the *Klopfen* and the portamento.

Da aber selbige, wenn sie nicht mit ganz besonderer Auswahl der dazu geeigneten Stellen und höchst sparsam gebraucht werden, weit eher in Missbrauch ausarten, ja Übelklang erzeugen (da dies schon überhaupt die Folge eines häufigen Gebrauchs der Verzierungen ist), so hat man mit möglichster Vorsicht dabei zu verfahren, ihre Anwendung ist Demjenigen, dem nicht natürliches Gefühl und ein richtiger Geschmack zur Seite stehen, eher gänzlich und unbedingt zu widerrathen, als auf die Gefahr hin, ihn zu einem manierirten, affectirt klingenden Spiel zu verleiten, anzuempfehlen.

Aus dem Grunde mag ich auch nur bedingungsweise den Spieler veranlassen, sich mit den jetzt näher zu besprechenden Manieren, nämlich: des *Bebens*, des *Klopfens* und des *Überziehens* der Töne, vertraut zu machen.³⁷⁴

In the chapter about *the flattement technique*, he once again writes about the importance of a moderate use:

But also with this *Manier* [the *Klopfen*], which greatly helps to enliven the tone and the playing when applied sparingly, one must warn against an overly frequent use, which causes tedious monotony.

³⁷² Brown *Classical* 521

³⁷³ See “Notes to the performances” section ? *

³⁷⁴ Fürstenau *Kunst* 79. transl. T. Skowronek

Doch muss auch bei dieser Manier [Klopfen], welche sparsam angewandt, sehr zur Belebung des Tons und Spiels beiträgt, vor dem zu häufigen Gebrauch gewarnt werden, wodurch langweilende Monotonie entsteht.³⁷⁵

Carl Grenser writes that vibrato is more easily produced, and because of that used more and with greater success on string instruments than on wind instruments. He writes in 1828 about *portamento* (*Durchziehen*):

But the imitation of the human voice in this feature [*portamento*] can anyway be more easily executed on bowed instruments than on wind instruments, and hence it is used more often and more successfully by the former than by the latter. The same applies to the already mentioned *Bebung*.

Ueberhaupt ist aber die Nachahmung der Menschenstimme in dieser Eigenschaft [das Durchziehen] leichter auf Bogen- als auf Blas-Instrumenten zu machen, und darum auch häufiger und glücklicher auf jenen als auf diesen ausgeübt worden. Derselbe Fall ist es auch mit der schon erwähnten *Bebung*.³⁷⁶

And Fürstenau agrees; he writes that *Bebung* is “Especially common on string instruments and suited to them, this ornament can also be used to advantage in flute-playing.”³⁷⁷

Contrary to the English flutists of his day, Fürstenau means, that *the flattement technique* is mainly useful in the upper octaves.³⁷⁸ All four indications of *the flattement technique* in his etudes appear on notes in the third octave (f''-a''), which at least when playing on the kind of flute Fürstenau used is high. In the examples of *the flattement technique* in *Kunst*, it is used on notes between bb'' and a''. Fürstenau seems to have the same opinion about the chest vibrato, although he does not write it in the text. The five indications of chest vibrato in his etudes occur on notes in the third octave (f'' and g''), and in the examples for chest vibrato it is used six out of ten times on notes in the third octave.

2.6.3.1 Germany, second half of the 19th century

During the second half of the 19th century the vibrato continued to be used restrictedly. In the article about sound in *Chrysanther's Jahrbuch für musikalische Wissenschaft* from 1863 one reads, „a vibrated wind note is as impossible as a vibrated harmonic, and thus the wind instruments loose a means of expression, that the string instruments violin, viola and violoncello alone share with the voice.”³⁷⁹ In the 1865 revised edition of Koch's *Lexikon*, the author (Arrey von Dommer? *) seems to argue against this. Vibrato is:

A performing- or playing manner [eine Vortrags- oder Spielmanier] that is used on string-and some wind-instruments as well as in singing./.../ On many wind instruments, such as the oboe and flute, vibrato cannot merely be performed very well,

³⁷⁵ Fürstenau *Kunst* 81 transl. T. Skowronek

³⁷⁶ Grenser *Flötenspieler* 115 transl. T. Skowronek

³⁷⁷ Bailey *Schwedler* 175 “Besonders bei Streichinstrumenten üblich und dafür geeignet, lässt sich diese Manier [die *Bebung*] auch mit Vortheil beim Flötenspiel anwenden...” Fürstenau *Kunst* 79

³⁷⁸ “Hauptsächlich ist sie [das Klopfen sic!] bei lange auszuhaltenden Tönen vorzugsweise den in der *höheren* Octave anwendbar,” Fürstenau *Kunst* 81

³⁷⁹ „Ein *Bebender* Blaston ist so unmöglich wie ein *bebender* Flagoletton, und in diesem Sinne geht eben den Blasinstrumenten ein Ausdrucksmittel ab, das die Seiteninstrumente, Violin, Viola und Violoncell, allein mit der Singstimme gemein haben.” Hauptmann *Klang* 22

it makes also a very good impression; hence is the opposite claim of a recent essay about the sound based on an error, and it must at least be reduced to [the assertion] that on wind instruments it [the *Bebung*] is used only restrictedly, compared to earlier.³⁸⁰

However, compared to the first edition of *Lexikon* from 1802,³⁸¹ this is a much more positive attitude to wind vibrato.

In 1882 Karl Franz Emil von Schafhutl (a friend and collaborator of Theobald Boehm) writes about Nicholson’s “peculiar vibrato,”³⁸² as if vibrato was not a common effect to him. Vibrato is not mentioned either in Wilhelm Barge’s well written but rather elementary *Flotenschule* from 1880, or in the short section on flute playing in Boehm’s *Die Flote und das Flotenspiel* from 1871. Not surprisingly, it is not discussed in the shortened edition from c. 1890³⁸³ of Heinrich Soussmann’s *Grosse praktische Flotenschule* either.

In bar 97 of the *Intermezzo* in the *Undine sonata* * from c. 1885 by Carl Reinecke³⁸⁴ there is written the instruction “without any vibration of the tone.”³⁸⁵ The section is * long and consists of mainly? * long notes. It is marked *Piu lento, quasi andante*, and as well *p e misterioso*. * If the player would follow the praxis described in Furstenau’s *Kunst*, some of the long notes in this section would achieve a vibrato. The marking seems to refer to both chest - and finger - vibrato. The marking also seems to refer both to the slow and controlled chest vibrato described by Furstenau and Coche, and to the fast laryngeal vibrato described by Maximilian Schwedler.

Schwedler describes thoroughly a chest vibrato technique involving the vocal chords in his treatise from 1897. He does not discuss vibrato among the ornaments, but between chapters about practising scales and incorrect use of the vocal cords. For the first time, it is here written in a flute method that the vibrato is good for the sound quality and quantity,³⁸⁶ and contrary to Furstenau, Schwedler does not write that it has to be limited to single notes. Otherwise, Schwedler expresses a similar view on its use and purpose as Furstenau. He writes:

Vibrato is the means of the highest and most personal expression of feeling in musical performance. It is indispensable for intensity of expressive playing.³⁸⁷

It is supposed to be used “only where true, unforced passion is to be expressed.”³⁸⁸ Schwedler also has the same opinion as Furstenau about in which register chest vibrato is suitable: „On

³⁸⁰ „Bebung, Tremolo a) Eine Vortrags- oder Spielmanier, deren man auf Bogen- und einigen Blasinstrumenten sowie im Gesange sich bedient: /.../Auf manchen Blasinstrumenten, z.B. Oboe und Flote, ist die Bebung nicht nur sehr gut ausfuhrbar, sondern auch von sehr guter Wirkung, daher die in einer neueren Abhandlung uber den Klang ´ aufgestellte entgegen gesetzte Behauptung auf einem Irrthum beruht und mindesten darauf zu reduciren ist, dass man auf Blasinstrumenten nur noch einem gegen fruher eingeschrankten Gebrauch von der Bebung zu manchen plegt, Koch *Lexikon* ”Bebung“

³⁸¹ Quoted in section 2.3.6

³⁸² Quoted in section 2.6.1

³⁸³ See appendix 4. “About the treatises and their authors,” article “Soussmann” concerning this date

³⁸⁴ According to Bailey and R. Brown dedicated to Barge, according to Powell to de Vroye. Bailey *Schwedler* 103, Powell *Flute* 160, and Brown *Early Flute* 114

³⁸⁵ “ohne jegliches Beben des Tones” Brown *Early Flute* 114

³⁸⁶ See section 1.7

³⁸⁷ Bailey *Schwedler* 303. „Die Tonbebung ist das Mittel des hochsten und innigsten Gefuhlsausdruckes im musikalischen Vortrag. Sie ist zur Steigerung ausdrucksvollen Spieles nicht zu entbehren,“ Schwedler *Flotenspiel* 89

the flute, the notes of the middle and high octave are best suited to vibrato³⁸⁸ Schwedler makes several references to vocal vibrato. He writes that when the student through his exercise develops the vibrato, it more and more resembles that of an accomplished singer, and can fulfil the same purpose.³⁹⁰ Like so many others before him, Schwedler recommends a restrictive use of vibrato:

...its use must always be limited, since excessive use gives a flaccid character to the performance, and instead of expressing the soul and true sensitivity, it expresses whiny over-sensitivity. The listener considers it to be unnatural and feels repulsed.

...ihr Gebrauch muss aber stets beschränkt bleiben, da übermäßige Anwendung dem Vortrage ein weichliches Gepräge gibt und, statt Seele und wahre Empfindung auszudrücken, in weinerliche Empfinderei ausartet. Der Zuhörer hält eine solche einfach für unnatürliche Ziererei und fühlt sich abgestoßen.³⁹¹

And on the next page he writes: "By warning once again against frequent, unlimited and inappropriate use of vibrato..."³⁹² So, vibrato is still something one *uses*, it still has an ornamental character (note the words *unnatürliche Ziererei* above). Unfortunately, Schwedler does not include any musical examples with vibrato indicated.

However, some recordings of Schwedler's playing survive. On an undated recording of a Menuet by W. A. Mozart,³⁹³ he makes a fast vibrato on several of the longer notes, but many notes sound very straight, also because he is not phrasing them off. The vibrato is far from integrated in his sound. Additionally, I have analysed recordings of 18 flutists from 9 countries, recorded between 1902 and 1940.³⁹⁴ They all show the same kind of fast or medium fast laryngeal chest vibrato.

Swedler does not mention finger vibrato specifically in *Flötenspiel*, but writes:

I remark that I myself have always only executed the type of vibrato described here and do not consider any other methods described in older pedagogical methods to be suitable.

...ich selbst nur immer die hier beschriebene Art von Tonbebung ausgeführt habe und alle anderen, in älteren Schulwerken angegebenen Ausführungen für nicht zweckentsprechend halte.³⁹⁵

I interpret this, that with „any other methods” he includes both *the flattement technique* and the slow, controlled chest vibrato described by Fürstenau and Coche. Since no German writer

³⁸⁸ Bailey Schwedler 394 „und nur dort ihren Gebrauch empfehle, wo wahre, naturfrische Leidenschaft zum Ausdrücke kommen soll“ Schwedler *Flötenspiel* 90

³⁸⁹ Bailey Schwedler 394 „Auf der Flöte eignen sich die Töne der mittleren und hohen Octave am besten zur Bebung.“ Schwedler *Flötenspiel* 90

³⁹⁰ Bailey Schwedler 393-394 „Die in dieser rohen Gestalt anfänglich unschön wirkende und auch anstrengende Übung wird, je leichter und leiser (unhörbarer) man die Stimmbandbewegung ausführen lernt, sich auch mehr und mehr der vom wohlgebildeten Gesangskünstler verwendeten Tonbebung nähern und, mit der Zeit zu voller Blüte gebracht, auch denselben Zweck erfüllen können.“ Schwedler *Flötenspiel* 90

³⁹¹ Schwedler *Flötenspiel* 89 transl. 393

³⁹² Bailey Schwedler 394 „Indem ich nochmals vor zu häufiger, unbegrenzter und am unrichtigen Ort angewendeter Tonbebung warne...“ Schwedler *Flötenspiel* 90.

³⁹³ *The Flute on Record* track 8

³⁹⁴ *The Flute on Record*

³⁹⁵ Schwedler *Flötenspiel* 90 transl. 395

mentions the *flattement technique* after Fürstenau, I assume it went out of use. The reason is probably that the musical taste changed. The *flattement technique* is used for a finger ornament, flexible and versatile, appropriate for a conscious use, but less suited to a vibrato “as the revelation of a passionate inner emotion and excitement”.³⁹⁶ The *flattement technique* is impossible to use as the students of a Taffanel later used the vocal chord vibrato, as an integrated part of the sound.

According to Powell, the Berlin flutist Emil Prill was vehemently opposed to vibrato use, though his recordings betray traces of it.³⁹⁷ The only thing Prill writes about vibrato in his *Schule für die Boehmflöte* from c. 1898-1903 is a subordinate clause in the chapter titled “Interpretation”. It says: “and the most objectionable is the practice of using the tremolo inordinately much.”³⁹⁸ I have only listened to one recording with Prill of an Allegro from a concerto by Fredrik the Great, recorded in 1924. Prill plays on an old-fashioned flute and in a different style from what he does in recordings of 20th century music.³⁹⁹ In this recording, Prill’s use of vibrato is similar to Schwedler’s; the sound is straight, with a vocal chord vibrato on several of the long notes. There are no traces of Schwedler or Prill using vibrato on the note of the emotional peak of a phrase, like Fürstenau describes.

Different types of simple system flutes, ring-keyed flute and cylindrical Boehm flutes were used by the players during this period. I have not found any connections, however, between the different praxis in vibrato-use and the type of flute. Schwedler, who comes down to us as having the most modern approach to vibrato of the 19th century German players, used types of simple system flutes throughout his career, while Prill and Boehm used Boehm flutes.

2.7 Other countries in the 19th century

Like in the 18th century, there are fewer flute methods and related information preserved from the areas outside France, Germany and England. Of about 120 flute methods published in the 19th century listed in Powell *Bibliography*, about thirty are published in other countries than England (mostly London), France (mostly Paris), and Germany.⁴⁰⁰ 20 of them were published in USA, seven have Italian titles (published in Milan and one in Florence), one was published

³⁹⁶ Fürstenau, quoted above

³⁹⁷ Powell *Flute* 195

³⁹⁸ Bailey *Schwedler* 178. In the “völlig umgearbeitete und erweiterte“ edition with a preface from 1927, it says: „and the bad habit of constantly employing the tremolo, is to be discarded“. The German text there is „und recht verwerflich ist die Manier, übermässig viel zu tremolieren“. Prill *Schule* 18

³⁹⁹ Nelson *Booklet* 5

⁴⁰⁰ The authors, publication place and publication years of these methods are, in chronological order: Riley (New York) probably 1811, Hastings (USA) 1822, Robinson (USA) 1826, Firth & Hall (USA) between 1832 and 1847, Patterson (USA) 1836, Chapin (USA) c. 1840, Howe four methods (USA) between 1843 and 1872, Clinton (USA) c. 1860, Krakamp (Milan) 1847, Jewett (USA) 1850, Warren (USA) 1853, Winner several methods (USA) from 1854, Ciardi (Milan) c. 1860, Onerati (Milan) c. 1860, Haslam (USA) 1868, Galli (Milan) prob. 1870, Schuman (USA) 1870, Ryan (USA) 1872, Michelis (Milan) 1874, Franceschini (Milan) c. 1880, Pieroni (Florence) 1880, Prendiville (USA) 1881, Piazza (Milan) c. 1890, Howe (USA) 1892, Van Santvoord (USA) 1898. Ciardi (1818-1877) was born in Italy, but worked as solo flutist of the Imperial Opera in St. Petersburg as well as professor at the conservatory there. He was extremely well respected as a soloist; he was well received in London., and also renowned as a composer. He played a boxwood simple-system flute by Koch. Krakamp and Galli were noted Italian flutists. Howe, Riley, Firth, and Piazza were flute makers, but none of the other authors seem to have left other traces in the music history apart from their flute methods. Fairley *Flutes* 41, 47, 63, 69 and 96, Powell *Flute* 204 and 286.

in Glasgow,⁴⁰¹ one in Antwerp,⁴⁰² and one in Stockholm.⁴⁰³ Apart from Drouet's *Méthode*, which I treat as French, I have only had access to the Swedish method, which does not discuss vibrato.

Some methods were published in more than one place in the same, or about the same year. This was the case with Nicholson's *Lessons and School* and Dressler's *Instructions*, who were published in USA as well in London. Bretonnière's *Méthode* was published in Milan as well as in Paris. Many other methods were translated, reedited and published in other countries; I refer to the chapter "About the treatises discussed in the text and their authors."

It is beyond the scope of this work to describe the "facts on the ground" in the countries outside the ones that are treated. Powell's *Flute* contains some information about the situation in Italy.⁴⁰⁴ Flutists in Russia were often German or German-trained, and Dutch flutists like Drouet and Dorus were trained and active primarily in Paris.⁴⁰⁵ In USA, the German and French influences were strong.⁴⁰⁶ The influences on Swedish flute playing are discussed in e.g. a forthcoming dissertation by Anna-Karin Lundberg.⁴⁰⁷ *

The American flutist Frank Badollet (1870-1934) recorded with his flute trio from 1899. One of these recordings from 1902 depicts no or almost no vibrato.

The big differences between the various national schools of flute playing persisted well into the twentieth century. This was certainly true regarding the use of vibrato. The Germans only unwillingly adopted the French (more or less constant) vibrato. Even in France the matter was not without controversies. Moyses remembers a hostile reaction against flutists using vibrato in the early years of the century: "Vibrato? It was worse than cholera. Young vibrato partisans were referred to as criminals. Judgements were final with no appeal. It was ruthless."⁴⁰⁸

2.9 Orchestra playing

check Early Music 8 1980 !!!!!!! * Done Hittar inget. varifrån kommer referensen?

and Brown in Basler Jahrbuch 1993 *

There is no specific information on the use of flute vibrato in orchestra- or ensemble playing from the 18th century. The 18th century solo flute repertory is enormous, while the orchestra repertory—at least from the early part of the century—is comparatively modest. Of course, the players could have added vibrato to orchestra parts about as much as other ornaments. On

⁴⁰¹ Mitchison (Glasgow) c. 1840

⁴⁰² Drouet *Méthode*

⁴⁰³ Müller *Flöjt-skola*

⁴⁰⁴ on page 192-193

⁴⁰⁵ Bailey *Schwedler* 41-42

⁴⁰⁶ Ibid 43-45

⁴⁰⁷ Uppsala University *

⁴⁰⁸ Moyses "How I stayed in shape" 6, quoted in Toff *Flute* 112. For the spreading of the modern use of vibrato among the prominent flutists from Taffanel and his students I refer to Philip *Recordings* 109-118, Bailey *Schwedler* 183-186 and Powell *Flute* 219-224, 235-236 as well as early 20th century recordings.

the other hand, at lest the violinists were recommended to use less vibrato in ensemble playing, vibrato was an ornament mostly belonging to solo playing.⁴⁰⁹

In the 19th century, orchestra playing had become a large and important part of the tasks of a flutist. Fürstenau writes on the last page of *Kunst*, under the heading "Noch einige besondere Bemerkungen in Bezug auf das Orchesterspiel":

The orchestral play of a flutist differs from the playing of concerts in that the player is not independent but subordinate; /.../ The player must in this situation therefore refrain from adding trills, turns, appoggiaturas and the like, in short from everything that belongs to the **embellishment** of solo playing.

Das Orchesterspiel des Flötisten unterscheidet sich vom Concertspiel am wesentlichsten dadurch, dass der Spieler bei jenem nicht selbständig sondern untergeordnet ist; /.../ Der Spieler hat sich daher aller Zusätze von Trillern, Doppelschlägen, Vorschlägen und dergleichen, kurz alles dessen, was zur **Ausschmückung** des Solospiels gehört, hier zu enthalten.⁴¹⁰

Any kind of vibrato undoubtedly would count as ornamentation, and accordingly should not be used in orchestras. It is possible, that opinions like Fürstenau's existed also earlier.⁴¹¹

3. Characteristics/typical features of notes with vibrato

Naturally, vibrato was most often used on long notes. Most writers from Hotteterre to Fürstenau comment on that. It is not surprising either, that long notes often were performed together with a dynamical change.

One note could have more than one ornament. In the suites by P. Philidor, we find notes with a *port de voix* (*appoggiatura*) or a *battement* (mordent) and a *flattement*.⁴¹² In the melodies in Nicholson *Lessons*, the *vibration* is sometimes notated on a note with an appoggiatura and/or a glide.⁴¹³ But there are also recommendations not to combine vibrato with other ornaments. Delusse writes in 1760 that the *martellement* "must only be employed on isolated notes, which do not incline to any other [ornament⁴¹⁴]."⁴¹⁵

⁴⁰⁹ Bremmer writes in "Thoughts on the Performance of Concert Music" from 1777 "that when gentlemen are performing in concert, should they, instead of considering themselves as relative parts of one great whole, assume each of them the discretionary power of applying tremolos, shakes, beats, appoggiaturas, together with some of them slurring, while others articulating, the same notes; or, in other words, carrying all their different soloplayers powers into an orchestra performance; a concert thus rebellious cannot be productive of any noble effect." Leppert *Music* 11. See also Brown *Classical* 526, 528-529 and 552-554.

⁴¹⁰ Fürstenau *Kunst* 90 transl. T. Skowronek

⁴¹¹ For vibrato use in orchestra playing among flutists in the early 20th century, see Philip *Recordings*, pages *

⁴¹² Philidor *Troisième Oeuvre* 68 and 76.

⁴¹³ Nicholson *Lessons* e.g. 48, 57, 65 and 77, 79.

⁴¹⁴ Delusse counts *martellement* as one of the *agrémens expressifs*, together with e.g. trills and *tremblement flexible*. Delusse *L'Art* 7-10 and figures 9

⁴¹⁵ "il ne doit être employé que sur des notes isolées qui n'inclinent sur aucune autre. » Delusse *L'Art* 10

Surprisingly, the flute sources contain no information about the matter of whether the vibrato should occupy the whole length of the note or not.⁴¹⁶ In a *Gigue* by P. Philidor⁴¹⁷ the *flattement* is notated on the second half of the note, which feels natural to do, especially together with a *crescendo*. In the artistic part, many of the vibrato start after about half the value of the note.⁴¹⁸

2.10 *Crescendo* and *diminuendo*

During the baroque period, a note of some length was usually not performed straight, but with a *crescendo* or a *diminuendo* or both.⁴¹⁹ Notes with such dynamic changes were associated with vibrato far into the 19th century.

To combine the *flattement technique* with a *crescendo* has a practical advantage in flute playing. On woodwind instruments, the pitch tends naturally to rise during a *crescendo*, and here the *flattement technique* can serve as compensation. The primary reason for the connection is however not practical but esthetical, and has to do with expression. Quantz recommends the player to use the embouchure, or to turn the flute inwards to keep the note in tune.⁴²⁰

Also, there were connections not only between the *flattement technique* and *crescendo*; Mahaut writes in 1759: “This ornament [the *flattement*] is most often used on a long note on which you want to *crescendo* or *decrecendo*.”⁴²¹ Delusse writes in c. 1760 about *tremblement flexible*, that “when this ornament is continued, gradually swelling the sound and finish with force, it expresses gravity, fright.”⁴²² Nicholson writes in *Complete* from 1816 that the player makes a *diminuendo* on the note with a chest vibrato,⁴²³ and Coche does the same in his method from 1838.⁴²⁴ Fürstenau connects especially the *flattement technique* with dynamic changes; he writes in *Kunst* (1844):

Chiefly, [the *Klopfen*]... is applicable on long notes /.../ especially if these rise gradually from piano to forte, or in reverse, begin on a forte and gradually die away, or finally, if they are to be played with *crescendo* and⁴²⁵ *decrecendo*. In the first case, one begins by beating slowly, gradually increasing the speed in relationship to the intensity of the tone, in the second case one starts quickly and slows gradually down, and finally, in the third case, one first increases and then decreases the beating [beats?].

⁴¹⁶ However, writers on other instruments do provide such information. For advice for the violin and the cello, see Brown *Classical* 550. For advice for the keyboard, see e.g. C. Ph. E Bach *Essay on the True Art of Playing Keyboard Instruments* 156, and about singing Agricola “Anleitung zur Singkunst” p. 121, quoted in Moens-Haenen *Vibrato* 240. Bach and Agricola recommend to start the vibrato after the middle respective towards the end of the note.

⁴¹⁷ Philidor *Troisième Oeuvre* 79 (Douxième Suite: *La Parisienne*)

⁴¹⁸ See “Notes to the performances” * bar *

⁴¹⁹ See e.g. Quantz *Versuch* Tab. XVII-XIX with comments on p. 145-151. transl. 169-178

⁴²⁰ Quantz *Versuch* 140, quoted in section 2.11.

⁴²¹ “Cet agrément [le flattement] se fait le plus souvent sur une note longue quand on enfle ou diminue le son”. “Dit sieraadt [de beeving] gebruikt men doorgaans op lange nooten, als de klank, of aanwassen of afneemen zal.” Mahaut *Nieuwe Manier* 19-20 transl. 19

⁴²² Lasocki *Preface* ii. « Lorsque ce Tremblement est continué en enflant graduellement le son & finissant avec force, il exprime la gravité » Delusse *L'Art* 9

⁴²³ Nicholson *Complete* 22. Quoted in section 1.6

⁴²⁴ Coche *Méthode* 82. Quoted in section 2.6.2

⁴²⁵ Regarding this preposition, see footnote in section 1.1.3.

Hauptsächlich ist sie [das klopfen] bei lange auszuhaltenden Tönen /.../ anwendbar, namentlich wenn solche vom piano allmähig zum forte anschwellen, oder umgekehrt forte beginnen und allmähig wieder verhallen, oder endlich mit crescendo oder decrescendo gespielt werden sollen, wo man dann das Klopfen im ersten Falle mit langsam aufeinander folgenden Schlägen beginnt, und im Verhältniss zur zunehmenden Stärke des Tons zu immer schnelleren Bewegungen steigert, im zweiten selbiges mit schnell auf einander folgenden Schlägen beginnen und nach und nach langsamer werden, im dritten endlich das Klopfen erst allmähig schneller und dann wieder langsamer werden lässt.⁴²⁶

Fürstenau describes here the same relationship between the speed of the vibrato and dynamic changes (the vibrato getting faster in a *crescendo*, and slower in a *diminuendo*), as Spohr does in his *Violinschule*.⁴²⁷ Nicholson and his contemporaries achieve the opposite relation when imitating a bell, see below.

In his examples for the *flattement technique*,⁴²⁸ Fürstenau always applies vibrato to notes with a *crescendo*, a *diminuendo* or a *messa di voce*. In the etudes included in *Kunst*, the *flattement technique* is notated without any dynamic change on the note only one out of four times. The connection between dynamic changes on notes and chest vibrato in *Kunst* is weaker; the chest vibrato is in the musical examples typically applied between a *crescendo* and a *diminuendo*.

2.11 *Messa di voce*

A *messa di voce* - a *crescendo* and thereafter a *diminuendo* on the same note - was often connected with a vibrato - mostly, if not always, made by the *flattement technique*. In the latter part of the 18th century *messa di voce* began to be indicated (not surprisingly with this sign: \diamond), but well before that it was commonly associated with the vibrato. The first writer to report on this is Corrette, who writes in *Méthode* from 1739/40: "the softening [*flattement*] is done to swell and diminish the tone."⁴²⁹ A decade later Quantz connects the two:

If you must hold a long note for either a whole or a half bar, which the Italians call *messa di voce*, you must first tip it gently with the tongue, scarcely exhaling; then you begin *pianissimo*, allow the strength of the tone to swell to the middle of the note, and from there diminish it to the end of the note in the same fashion, making a vibrato with the finger on the nearest open hole. To keep the tone from becoming higher or lower during the *crescendo* and *diminuendo*, however (a defect which could originate in the nature of the flute), the rule given in § 22 of Chapter IV must be applied here; the tone will then always remain in tune with the accompanying instruments, whether you blow strongly or weakly.

Hat man eine lange Note entweder von einem halben oder ganzen Tacte zu halten, welches die Italiäner *messa di voce* nennen, so muß man dieselbe vors erste mit der Zunge weich anstoßen, und fast nur hauchen; alsdenn ganz piano anfangen, die Stärke des Tones bis in die Mitte der Note wachsen lassen; und von da eben wieder so

⁴²⁶ Fürstenau *Kunst* 81 transl. T. Skowronek

⁴²⁷ Spohr "Violinschule" 163 quoted in Brown *Early Flute* 112

⁴²⁸ printed in section 2.3.6

⁴²⁹ "Le flattement se fait pour enfler et diminuer le son" Corrette *Méthode* 30. transl. 43

abnehmen, bis an das Ende der Note: auch neben dem nächsten offenen Loche mit dem Finger eine Bebung machen..Damit aber der Ton in währendem Zu- und Abnehmen nicht höher oder tiefer werde, (welcher Fehler aus der Eigenschaft der Flöte entspringen könnte;) so muß man hier die im §22 des IV. Hauptstücks gegebene Regel in Uebung bringen: so wird der Ton mit den begleitenden Instrumenten in beständig gleicher Stimmung erhalten, man blase stark oder schwach.⁴³⁰

In § 22 of chapter IV, Quantz describes how to intonate with the lips, and by turning the flute during a *crescendo* or *diminuendo*. So, as Moens-Haenen⁴³¹ points out, Quantz is not using the *flattement technique* to counteract the raising of the pitch in a *crescendo*. For Quantz, the pitch-lowering effect of the *flattement technique* on a note is not enough to compensate for a *crescendo*; the player has to use the “ordinary” tools.

Tromlitz also writes that the *flattement technique* can be made on a note with a *messa di voce*. “The flattement /.../can be slow or fast, uniform or waxing and waning.”⁴³²

Miller strongly connects the *flattement technique* (which he calls *close shake*) with *messa di voce* in *Instructor* from c. 1799:

FIGUR * :
Swell

begin soft, increase,
then diminish the
Tone, the close Shake
may generally be added⁴³³

Further down on the page he writes:

The close Shake and Swell to a long Note has a beautiful effect on the Flute, it answers to what was called GIARDINI'S close shake on the Violin, /.../I believe this GRACE has not been mentioned or explained before in any modern Book of Instructions for the German Flute.⁴³⁴

To Miller, a “modern” flute treatise would be Wragg’s *The Flute Preceptor* from c. 1792, Gunn’s *The Art* from c. 1793, and Arnold’s *Instructions* from 1787, possibly also Heron’s *Treatise* from 1771. Quantz’s *Versuch*, that describes this combination, was to Miller probably not a “modern book of instructions for the German flute”, and Miller possibly had not read Tromlitz *Unterricht*, which was not widely spread.⁴³⁵ In an *Air* printed in Miller’s method, there is a note with a *fermata*, a waved line, and a sign for a swell. And among the preludes

⁴³⁰ Quantz *Versuch* 140 transl. 165-166

⁴³¹ Moens-Haenen *Vibrato* 110

⁴³² „Die Bebung /.../welche langsam, oder geschwinde, einförmig oder wachsend und abnehmend seyn kann.“ Tromlitz *Unterricht* 239 transl. 213

⁴³³ Ibid

⁴³⁴ Ibid

⁴³⁵ See appendix 4. “About the treatises and their authors”

from the same book four preludes have a vibrato sign, and three of them are together with the *messa di voce* sign.

Alexander combines *fermata*, the waved line for *vibration* and a *messa di voce*-sign four times in the Preludes in his *Preceptor*, and Lindsay has the same combination in several of the tunes in *Elements*. Fürstenau writes that the *flattement technique* is applicable on notes with a *messa di voce*.⁴³⁶ In the musical examples in *Kunst*, the *flattement technique* is three times out of nine combined with a *messa di voce*. (The other six times it is combined with a *crescendo* or a *diminuendo*.) In the etudes belonging to *Kunst*, totally four notes does have the *flattement technique* indicated; two of them also have the sign for *messa di voce*.

Many writers on violin playing in the 18th and 19th centuries also connect vibrato and *messa di voce*,⁴³⁷ C. Brown points out, that in 19th century violin music the “swell” sign for *messa di voce* is often as well an indication of a vibrato.⁴³⁸

No writer explicit describes a *messa di voce* combined with a chest vibrato.

2.12 Fermatas

Since vibrato was mainly used on long notes it is not surprising that there is a special/strong connection between *fermatas* and vibrato.

We find this connection even before composers started to notate/indicate *fermatas* in the music in the modern way. In the 9th solo suite by P. Philidor⁴³⁹ there is a long note tied over to the next bar with a *flattement* and the comment *On peut perdre la mesure a ces deux tenuës*.⁴⁴⁰

The connection between *fermata* and vibrato is also evident in general sources, like in Marpurg: *Der Critischen Musicus an der Spree* from 1750, where it says: “The held note in the vibration is called in Italian tenuta, in French tenüe.”⁴⁴¹

Where *fermatas* are written out in later pieces, a vibrato was often expected on that note. This is seldom explained in words, but many of the musical examples in the flute methods from Delusse and on show this connection.

Of the seven waved lines for *tremblement flexible* in *L’Art*, five appear on notes with *fermatas*.⁴⁴² The *martellement* in Caprice II is also together with a *fermata*, but not the *martellement* in exercise XXVIII.

In 1771, Heron describes a *fermata* introduced by the player with a *Messa di voce* and a vibrato (the *flattement technique*). He writes:

⁴³⁶ See the quotation in section 2.10 above.

⁴³⁷ e.g. L. Mozart, Corrette and Quantz.

⁴³⁸ Brown *Bowing* 118-119 and Brown *Classical* 552

⁴³⁹ Philidor *Deuxieme Oeuvre* 59

⁴⁴⁰ Loulié and Rameau also use the phrase *perdre la mesure* for a kind of *fermata* that was not notated, but introduced by the player. Wentz *Expression* 1-2

⁴⁴¹ “Der aushaltende Thon in der Schwebung heißt auf ital. tenuta, fr. tenüe” Moens-Haenen *Vibrato* 240

⁴⁴² Delusse *L’Art* 20 piece no. XX bars 24 and 27, 31 and 36 (twice).

A fine swell, with a shake arising in it, gradually increasing to its utmost extent of tone, then slowly decreasing into almost total softness, in the most striking parts of some airs, will have the most beautiful effect, and abundantly compensate for the loss of time.⁴⁴³

This is, according to Heron, only allowed in solo playing. He never uses the word *fermata*.

Tromlitz also connects *fermata* and the *flattement technique*. He writes that *Bebung* can be used “on held notes, fermatas, and on the note before a cadenza,”⁴⁴⁴ It is interesting to note that in *Abhandlung* (1786) he describes a *fermata* introduced by the player as one of the ornaments that should be sparingly used.⁴⁴⁵ In 1801 Dauscher quotes *Unterricht* almost word by word in *Kleines Handbuch der Musiklehre und vorzüglich der Querflöte*, writing that *Bebung* should be used “on held notes, and on the note before a cadenza.”⁴⁴⁶

Most of the English 19th century flute methods include music examples and tunes, where the authors notate vibrato for the benefit of the student. I have investigated the pieces in Miller’s *Instructions*, Nicholson’s *Complete*, Alexander’s *Preceptor*, Lindsay’s *Elements* Lee/Wragg’s *Improved* and Clinton’s *School* concerning the connection between the notated vibratos and *fermatas*.⁴⁴⁷ At least the pieces in the methods by Miller, Lindsay and Alexander confirm this connection. In all three airs in Miller’s *Instructions* the waved lines occur together with *fermatas*.

Music EXAMPLE Miller 47 Hark hark el. 39 Air * skanna

Fürstenau connects especially the *flattement technique* with the *fermata*. In his musical examples and etudes, none of the signs for chest vibrato are combined with a *fermata*, but of the signs for the *flattement technique*, 5 out of 9 in the musical examples, and 3 out of 4 in the etudes, are combined with a *fermata*. The fourth sign for the *flattement technique* in the etudes is on a very long note; here, a *fermata* would make no difference.

Clinton notates two waved lines (meaning the *flattement technique*) in one etude; one is together with a *fermata*, one without.

2.13 Expressive accents

With “accent” I here refer to the expressive accent, which was, if notated in the music, indicated with the sign >. According to C. Brown there was a general connection between vibrato and both metrical and expressive accents in the 19th century.⁴⁴⁸ Spohr writes in his *Violinschule* from 1832, that vibrato is particularly appropriate “in strongly accenting [sic!] notes marked with *fz* or >.”⁴⁴⁹ Also in two of the investigated flute methods a connection between accent and chest vibrato is seen. Most strongly in the method by Coche from 1838,

⁴⁴³ Heron *Treatise* 43

⁴⁴⁴ „Auf haltenden Noten, Fermaten, und auf der vor der Cadenz stehenden Note,“ Tromlitz *Unterricht* 239

⁴⁴⁵ Tromlitz *Abhandlung* 14

⁴⁴⁶ „auf haltenden Noten, und auf der vor der Kadenz stehenden Note.“ Dickey *Untersuchungen* 99. Similar views were expressed also for other instruments at this time. Löhlein writes about *Bebung* in „Anweisung zum Violinspielen“ from 1781: “Sie gehört über lange haltende oder Schluss-Noten...”. Moens-Haenen *Vibrato* 82

⁴⁴⁷ See appendix 3. ” An analysis of indicated vibrato in pieces from flute methods.”

⁴⁴⁸ Brown *Classical* 519

⁴⁴⁹ “This *tremolo* is therefore properly used in passionate passages, and in strongly marking all the *fz* or > tones.” Spohr “*Violinschule*” 175, quoted in Philip *Recordings* 208. Brown *Classical* 519 *

where he writes that “This kind of accent is recognizable in musical notation by the chevron [>] placed above or below the note which one is supposed to vibrate strongly.”⁴⁵⁰ Coche thereafter prints a musical piece⁴⁵¹ with many accent signs. In *Kunst* Fürstenau writes about chest vibrato that it must be limited to one single note at the time, “and where, according to the context, its effectiveness is significantly increased by an accompanying *crescendo* or *sforzato*.”⁴⁵² One of the notes with a waved line in the examples for chest vibrato in *Kunst* has a notated accent (*fz*).⁴⁵³ In the examples for *Klopfen* there are no notated accents. In the exercises in *Kunst* there are accent signs, mostly on short notes, but also on some long notes, but never together with a vibrato sign. I have not been able to identify a connection between vibrato and accents in the pieces in the English flute methods, often because there are no accent signs in them.

There is nothing in the texts about the *flattement technique* combined with an accent, neither have I found this combination indicated in a music example.

2.14 Summary of part 2.

Vibrato (executed with the *flattement technique*) was used also by 17th century woodwind players. The affinity between the mordent and the *flattement* is still recognized by Hotteterre, Corrette, and Mahaut, who write about these ornaments together or next to each other. Hotteterre writes in the preface to the second edition of his first book with suites that *flattement* should be made on almost all long notes. In his flute method he writes that it is usually not indicated, except for in pieces for students. In fact, throughout the period of investigation, writers⁴⁵⁴ point out that vibrato is rarely indicated. Pierre Philidor, however, indicates *flattements* in three books with altogether 18 suites from 1717 and 1718. Philidor uses the waved line, by far the most common way to indicate vibrato during the period of investigation. Philidor does not indicate *flattement* on final notes, though they are often the longest. In other sources (a handwritten version of the trio sonatas by Hotteterre,⁴⁵⁵ and in some of the small pieces in the flute method by Corrette), *flattement* is however indicated on final notes. Vibrato was associated with slow movements and tender and passionate affects. However, Philidor and Corrette both indicate *flattement* in Fanfares and Gígues. Generally, in the 18th century, vibrato, like other ornaments, was used to express a certain affect, to reinforce the character of the particular moment. Hotteterre, Mahaut and Delusse write about situations when the player is supposed to adjust the way vibrato is executed in accordance with the affect.

Raehs indicates vibrato in all six sonatas in a book from 1747, and on two notes in an undated sonata. Raehs indicates vibrato in both slow and fast movements, up to five times in a movement, typically on a longer note with no other ornament which is not a final note. Quantz mentions vibrato twice in his *Versuch*, both times in the chapter about how to play an *adagio*. The first time he calls it *flattement* and lists it among the French essential graces. A

⁴⁵⁰ See the quotation in section 2.6.2

⁴⁵¹ See section 2.6.2

⁴⁵² „wo dann ein, je nach den Umständen, damit verbundenes *crescendo* oder *sforzato* die Wirkung noch bedeutend erhöht.“ *Kunst* 79 transl. Bailey *Schwedler* 176. There is another English translation in Brown *Classical* 530

⁴⁵³ reproduced in section 2.6.3

⁴⁵⁴ e.g. Corrette, Delusse, Fürstenau and Carte

⁴⁵⁵ Haynes *Fingervibrato* 483

few pages later he writes that you make a vibrato on a long note with a *messa di voce*. Here Quantz use the word *Bebung*, but it is clear from his description of how to execute the *Bebung* that Quantz refers to the *flattement technique*.

Delusse does not mention either the *flattement technique* or *shaking the flute* in his treatise from 1760. Instead, he describes three other previously undocumented vibrato techniques: *tremblement flexible*, *martellement* and chest vibrato. Probably Delusse is looking for a technique that resembles the violin vibrato. With *tremblement flexible*, *martellement* and chest vibrato the pitch changes (like the violin vibrato) as much upwards as downwards, which is a characteristic difference between them and the *flattement technique*. Delusse is the only 18th century writer who writes about chest vibrato with a positive attitude.

In the late 18th century fewer ornaments were used. At least among French and English flutists, this included the vibrato. Gunn (1793) considers the *flattement technique* old-fashioned and ridicules it. Not much later, however, the *vibration* (executed as a chest vibrato as well as with the *flattement technique*) became one of the trademarks of the English 19th century flutists Nicholson. After the publication of *Nicholson's Complete Preceptor for the German Flute* in 1816, most English flute methods have a paragraph about the *vibration*. In some of the musical pieces for the student included in these English 19th century methods vibrato is indicated. Vibrato was still associated with slow and pathetic movements, especially folk songs, which were popular in the recital programs at this time. The same vibrato techniques continued to be used when the ring-keyed Boehm flute was introduced in England, Young discusses the *flattement technique* as late as 1892*.⁴⁵⁶ Vibrato is however less frequently indicated in the pieces included in the methods for ring-keyed flute by Carte and Clinton than in the methods of the Nicholson school.

Tromlitz warns the reader not to use vibrato too often, but writes that it can be used on held notes, *fermatas* and the note before a cadenza. Fürstenau's recommendations about where to use the *flattement technique* are similar to Tromlitz'; his view on the chest vibrato, however, indicates a new "romantic" aesthetic. It is used to create or enhance expressiveness and pathos, rather than to express different affects, and is typically applied to a climax note/emotional peak of a musical phrase, which was preceded by a *crescendo*. Barge does not mention vibrato in his method from 1880, but his colleague and successor Schwedler devotes almost two pages to the chest vibrato in *Flötenspiel* from 1897. On its use and purpose, Schwedler expresses a similar view to Fürstenau's, but the vibrato he describes is made with vocal chords. Schwedler is also writing that the (chest) vibrato is good for the sound quality and quantity. In an undated recording of a minuet by Mozart Schwedler vibrates on a few long notes.

Strikingly little information about vibrato appears in French flute methods from the late 18th and 19th centuries is most in the. Only two of the 15 methods between Delusse's *L'Art* and Taffanel/Gaubert *Méthode* that I have investigated contain a discussion of vibrato; this group includes very influential methods that were used at the Paris Conservatory. Drouet recommends a very sparing use of the *vibration*; it is tempting to interpret what he writes as a polemical reference to the playing style of Nicholson. However, Coche writes that (the slow and controlled) chest vibrato is used in flute playing. Coche prints a short piece with vibrato indicated with the same sign that was and is used for an expressive accent (>). In this piece vibrato is indicated very often. In the Taffanel/Gaubert method there is advice against using

⁴⁵⁶ Quoted in Toff *Flute* 111

vibrato in the classics such as J. S. Bach. There are no recommendations of the *flattement technique* in French flute methods after the method by Mahaut.

In the period of investigation, vibrato is often found together with a *fermata* or a *messa di voce*. It is also often combined with a crescendo or a diminuendo. Nicholson, Lindsay, Carte, and Clinton all write about a vibrato that accelerates on a note with a diminuendo. Fürstenau, however, describes the opposite relation: the vibrato accelerates in a crescendo and gets slower in a diminuendo. Typically, a *messa di voce* (more commonly discussed in the 18th century) is combined with the *flattement technique*, whereas there are only documentation on accent (common in the 19th century but not in the 18th) combined with chest vibrato.

The changes in the instrument that took place during the period of investigation did not affect the use of vibrato nor the techniques that were used. Vibrato use followed, rather, musical taste and style. The reason for the absence of fingering charts for the *flattement technique* for the cylindrical Boehm flute lies probably in a change of musical taste in the latter part of the 19th century, rather than in the instrument itself.

Of the vibrato techniques described in section one, the *flattement technique* and the slow chest vibrato were the most used during the period. A continuous vibrato is not mentioned in positive terms.

In the methods before Schwedler's *Flötenspiel* from 1897, there are no descriptions on how to practise any kind of vibrato, only explanations how to do it.

3.1 Symbols



is the most common sign for vibrato. It is used in all the music in the music listed in appendix 2, and by Hotteterre in *Principes*, Corrette in *Méthode*, Nicholson in *School*, Carte in *Instructions* and Young in *Modern Method for Students of the Flute*.⁴⁵⁷

In Fürstenau *Kunst* this sign means chest vibrato, with Nicholson, Lindsay, Alexander, Bown and Wragg it means a vibrato (*vibration*) of any sort,⁴⁵⁸ in Delusse *L'Art* it means *tremblement flexible* or chest vibrato and in the other methods *the flattement technique*.

When this line is short it can look very much like the sign for a transient shake.⁴⁵⁹ Cart observes this problem, writing in 1845:

Vibration [*the flattement technique*]/.../ is indicated by the same sign as that for the transient shake w. The performer is enabled to distinguish a vibration

⁴⁵⁷ Toff *Flute* 111

⁴⁵⁸ In *Lessons* Nicholson mentions only finger vibrato.

⁴⁵⁹ see section 2.3

from a transient shake by the nature of the passage; the transient shake being generally introduced in rapid passages, and the vibration on sustained notes.⁴⁶⁰

The same symbol was used to indicate vibrato for several other instruments, e.g. viola da gamba and violin.



is used by Fürstenau in *Kunst* for the *flattement technique* (*klopfen*)

..... is used by Knecht and Müller in their methods to indicate chest vibrato

trem. is used by Müller to indicate chest vibrato. Carte writes that *tremolo* (chest vibrato or *shaking the flute*) could be indicated by the word *tremolo*.⁴⁶¹



is used by Delusse for *martellement*

> (chevron) is used by Coche for chest vibrato. * ?

3.2 Glossary

Bebung (German) is used by Quantz for *the flattement technique*, Tromlitz for vibrato, Müller for chest vibrato possibly with the aid of the chin, Knecht for chest vibrato, Carl Grenser for vibrato, Fürstenau for breath- or chin vibrato, Schwedler for chest vibrato.

close shake is used by Geminiani for vibrato on the flute as well as on the violin, and by Miller, referring to *the flattement technique*.

flattement (French) is used by Hotteterre, Corrette, Mahaut, Quantz and Gunn.

Klopfen (German) is used by Fürstenau for *the flattement technique*.

lesser shake is used in Prellieur *Musick-Master* meaning *flattement*.

martellement (French) is used by Delusse (for a finger vibrato where most often the *pitch changes upwards from the main note, or the pitch does not change at all*).

Schwebungen (German) is used by Ribock (for the same technique as *martellement*.)

shake is used by Nicholson and Heron for *the flattement technique*.

softening is used in Prellieur's *Musick-Master* with the same meaning as *flattement*.

sweetening is used by Gunn referring to *the flattement technique*.

tremblement flexible (French, literally "flexible trill") is used by Delusse (meaning a vibrato technique where one turns the flute inwards and outwards with the left thumb.)

tremblement mineur (French), means "little (small) trill", is used by Hotteterre meaning *flattement*.

tremolo is used by Carte for chest vibrato or *shaking the flute*, and by Prill in the English text in *Schule*, meaning chest vibrato. Delusse writes that it is the Italian name for chest vibrato.

tremolieren (German) used by Prill in his German text in *Schule* meaning chest vibrato.

vibration is used by Nicholson, Alexander, Wragg, Drouet, Bown and Lindsay to mean a vibrating effect in general. (a vibrato produced in any way). Used by Carte, Clinton and Lee for *the flattement technique*.

⁴⁶⁰ Carte *Instructions* 24

⁴⁶¹ *Ibid* 23

Vibrato (German) is used by Schwedler (only in the third or second and third edition?) *

Appendix 1.

A collection of fingering charts for finger vibrato on the flute

Hotteterre (Hotteterre Principes (Tilman's ex))
Corrette (Corrette Méthode)
Mahaut (Mahaut Nieuwe Manier 19?)
Delusse (Delusse *L'Art* 12)
Ribock (Moens-Haenen Vibrato 114-115)
Tromlitz (Tromlitz *Unterricht* 239-240)
Miller (only four notes) 11
Alexander *Preceptor* 44
 " *Improved* 37
Bown *Preceptor* 59
Weiss (Dickey „Untersuchungen“130)
Lindsay *Elements* 31
Nicholson *Complete* 22
 " *School* 71
Lee Lee/Wragg *Tutor* 58
Fürstenau *Kunst* 82
Clinton *School* 72⁴⁶²

⁴⁶² For the Boehm ring-keyed system from 1832.

Appendix 2.

A list of flute music (including etudes and pieces for students) with vibrato indicated:

- J. J. Hotteterre** (1674-1763) handwritten version from 1738 of *Sonates en Trio* (Paris 1712)⁴⁶³
- P. Philidor** (1681-1731) *Premiere Oeuvre Contenant III Suites a II Flûtes Travers Seules* (Paris 1717)
Deuxième Oeuvre Contenant II. Suites a 2. Flûtes-Travers. Seules (Paris 1718)
Troisième Oeuvre Contenant une Suite a deux Flûtes-Traversieres seules... (Paris 1718)

Trio Premier Oeuvre Contenant six suites... (Paris s.a.)
- J. S. Bach** (1685-1750) *Brandenburgh concerto no. 5* (Allegro)
- M. Corrette** (1707-1795) In *Méthode* :
Menuet de Mr. Handel
Reveillez-vous belle en dormie
Menuet Italien
Rondeau
Rondeau
Gavotte de Dardanus
Sarabande
Fanfare
Fanfare de Mr. Dandrieu
Menuet de Dardanus
Brunette
19^e. Prelude
20^e. Prelude
21^e. Prelude
22^e. Prelude
23^e. Prelude
24^e. Prelude
- M. Raehs** (1702-1766) *VI Sonate*
Sonata 1

⁴⁶³ Haynes *Fingervibrato* 402 and 483

Sonata 2
Sonata 3
Sonata 4
Sonata 5
Sonata 6

M. Raehs *10 Solos...*
Sonata 5:ta (Adagio)

Ch. Delusse *12 Caprices from L'art de la flûte traversière* (Paris c. 1760):
(1723? - after 1774) Caprice II
 Caprice V
 Caprice X

Edward Miller *Instructions:*
(1735-1807) Prelude A major ?
 Prelude A major ?
 Prelude g minor ?
 Prelude e-minor 32
 Air 39
 Hark! hark! the Joy inspiring Horn 47
 Loch Aber

check Nicholson “13 Fantasias” and “15 airs”?! *

Charles Nicholson *Complete:*
(1795-1837) p. 35 Duetto XV
 p. 41 Duetto XXVII
 p. 42 Andante
 p. 75 Prelude No. 6
 p. 75 Prelude No. 9

J. Wragg *Improved, 16th ed.:*
The Blue Bells of Scotland⁴⁶⁴

Nicholson *Lessons:*
p. 10 ” Aileen Aroon” (two pieces)
pp. 11-12 ”The Plough Boy”
p. 18 ”No, twas neither shape nor feature.”
p. 25 ”Ar Hyd y Nos”
p. 26 ”Polacca”
p. 31 Prelude
p. 32 The Last Rose of Summer,
p. 35 Ex. III
p. 36 Ex V.
p. 40 ”Auld Lang Syne”
p. 48 ”Ah Perdona”
p. 55 Ex. IX,

⁴⁶⁴ Gerhold *Wragg* 148

p. 56 Capriccio
 p. 57 "within a Mile of Edinburgh Town"
 p. 60 The Yellow Hair'd Laddie
 p. 62 Introduction to 2nd Pot Pourri
 p. 63 Cease your Funning
 p. 64 Waltz
 p. 65 Roslin Castle
 p. 67 Capriccio
 p. 68 Nel cor più non mi sento
 p. 68 Charlie is my Darling
 pp. 70-71 "Sul margine d'un Rio"
 p. 75 Oh! Nanny, wilt thou gang wi' me?
 p. 77 "Shepherds, I have Lost my Love"
 p. 79 "Cease your Funning",
 p. 85 Prelude (Andante)
 p. 87 Prelude (Allegretto)

James Alexander

Preceptor:

p. 30 (in the other ed. 34) Romance
 p. 33 Preludes (G Major and G Minor) by I. Townsend
 p. 34 Preludes in D minor, B Major and C Major,
 p. 35 Preludes in C Minor, F Minor, Bb Minor, Eb Major, Eb
 Minor and Ab Minor

Georges W. Bown

Preceptor

p. 17 all twelve Preludes
 p. 60 Thema con Variatione

Lindsay

Elements

p. 124 The wounded Hussar
 p. 128 Roslyn Castle; Scottish Air
 p. 142 "John Anderson, my Joe;" Scottish Air
 p. 146 Donald; Scottish Melody
 p. 147 ex. 215 "Kinlock of Kinlock", ex. 217 "Here's a health to
 them far awa",
 p. 148 ex. 218, ex. 220 "Auld Robin Gray",
 p. 149 "The Groves of Blarney"

Lee/Wragg

Improved

p. 59 "Roslin Castle"
 p. 60 "Auld Robin Gray"
 " " "The Blue Bells of Scotland"
 " " "Sweet Home"
 p. 63 "Had I a Heart"
 p. 64 "My Lodging is on the Cold Ground,
 " John Anderson my Joe,
 " Black Eyed Susan"

A. B. Fürstenau

Kunst

(1792-1852)

Übung no. 1 *Andante*
Übung No. 5 *Allegro Moderato*
Übung No. 6 *Moderato*
Übung No. 9 *Allegro Moderato*
Übung No. 10 *Allegro Brillante*
Übung No. 11 *Larghetto*

Richard Carte
(1808-1891)

Instructions
Fra poco a me Larghetto page? *

John Clinton
(1810-1864)

Instructions:
Etude No. 7 p. 89

appendix 6.

Statistics of vibrato indications in the flute sonatas by Raehs

M. Raehs VI Sonatae per il Flauto Traverso (1748)
(1702-1766)

Sonata 1

Allgero Moderato	none
Andante	bar 2 and 3
Allegro	bar 23 and 25

Sonata 2

Allegro Moderato	bar 18
Adagio	bar 18
Postiglione	none

Sonata 3

Adagio	bar 4
Allegro Moderato	none
Adagio	bar 1, 3, 5, 11 and 25
Allegro	none

Sonata 4

Allegro Moderato	bar 2 and 31
Andante	none
Vivace	none

Sonata 5

Vivace	bar 1, 9, 18, 19 and 37
Andante	none
Allegro	none

Sonata 6

Vivace	bar 1, 5,
Adagio	bar 14
Moderato	none

M. Raehs 10 Solos à Flauto Traverso...

Sonata 5:ta

Adagio	bar 14
Allegro	none
Largo	none
Allegro	none

Appendix 5.

A practical examination of the fingering chart for the *martellement* in Delusse's *L'Art*

On a copy of a flute by A. Grenser from about 1760,⁴⁶⁵ 7 fingerings caused a slight rise of the pitch, two lowered the pitch slightly, and 8 resulted in no significant *pitch change*.

On another copy of a flute by A. Grenser from about 1760,⁴⁶⁶ 10 fingerings caused a slight rise of the pitch, two lowered the pitch slightly, and five fingerings resulted in no significant *pitch change*.

On a copy of a flute by G. A. Rottenburgh from the 1750's⁴⁶⁷ 7 fingerings gave a slight rise of the pitch, one lowered the pitch slightly, and 9 resulted in no significant *pitch change*.

On a copy of a flute by Oberlender⁴⁶⁸ from around the 1740's or 50's 8 fingerings caused a slight rise of the pitch, one lowered the pitch, and 8 resulted in no significant *pitch change*.

On a copy of a flute by Grenser from around 1790,⁴⁶⁹ 8 fingerings caused a slight raise of pitch, one lowered the pitch slightly, and 8 resulted in no or almost no *pitch change*.

⁴⁶⁵ By R. Cameron

⁴⁶⁶ By A. Weemaels

⁴⁶⁷ By R. Tutz

⁴⁶⁸ By G. Tardino

⁴⁶⁹ By R. Tutz