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Forkel's Bach revisited

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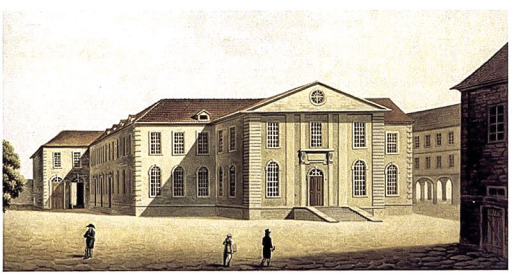
Introduction

Johann Nikolaus Forkel (1749-1818) (illus.1) was a learned organist and composer; he spent most of his life at Göttingen, where in 1778 he was appointed Director of Music in the University (illus.2). He collected manuscripts of J. S. Bach's works and significantly contributed to rescuing them from the relative oblivion into which they had fallen after the composer's death in 1750.

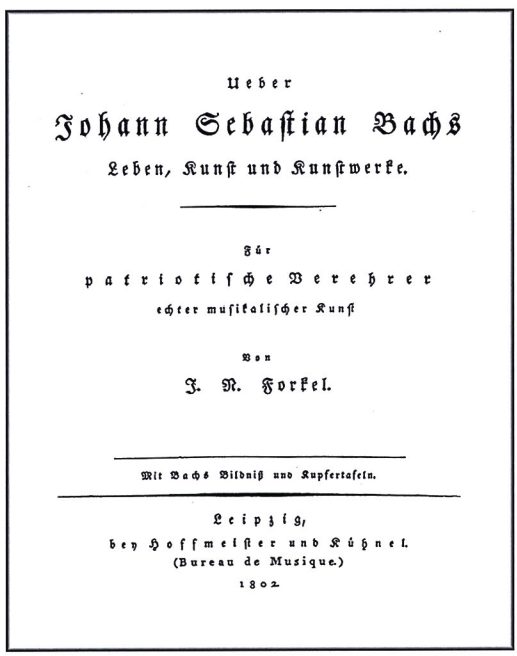
Illus.1 Johann Nikolaus Forkel, engraving by Christian Heinrich Schwenterley, Göttingen, 1790 (Note: all illustrations below are in the Public Domain, mostly from the Wikimedia Commons)



Illus.2 Göttingen: the University Library c. 1800

Forkel is today remembered for the first ever full study on J.S. Bach, *Ueber Johann Sebastian Bachs Leben, Kunst und Kunstwerke... 1802.*[1] In spite of its impressive title, this is a small book of 70 pages (illus.3). It is limited not only in size: its reliability has been put into question by virtually every single respectable Bach scholar ever since. Be this as it may, the 'Forkel debunkments' are partial and diverse, and many writers still deem Forkel 'an invaluable source of primary information'.[2]

Some 220 years having now elapsed since its publication, a fresh look at Forkel's Bach book is overdue, to ascertain its usefulness for the 21st century reader. Other than biographical anecdotes, we are here mainly concerned with Forkel's significant—and indeed unique—details about Bach as a performer at the keyboard. We will first quote opinions of some respected Bach scholars, and then collate statements from Forkel's book against extant evidence.


Ueber

Johann Sebastian Bachs

Leben, Kunst und Kunstwerke.

für

patriotische Verehrer

echter musikalischer Kunst

von

J. N. Forkel.

Mit Bachs Bildniß und Kupfertafeln.

Leipzig,

bey Hoffmeister und Kühnel.

(Bureau de Musique.)

1802.

Illus.3 J. N. Forkel, *Johann Sebastian Bach*, (Leipzig 1802), title page

Scholars' criticism of Forkel's Bach

This is a sample of opinions by renowned scholars across a full century:

Spitta (1880): 'Forkel's book ... we are startled by some evident inaccuracy, or the discovery that, under the most favourable interpretation, he has misunderstood his authority. Finally, it must be borne in mind that Bach's sons may themselves have made mistakes. For these reasons ... for due security we must accept none of its assertions without testing them'.[3]

Schweitzer (1905): 'Forkel ... almost all the Bach anecdotes go back ... to this biography ... This work ... is not correct on every point'.[4]

Terry (1920): 'He had the advantage of knowing Bach's elder sons, but appears to have lacked curiosity regarding the circumstances of Bach's career, and to have made no endeavour to add to his imperfect information, even regarding his hero's life at Leipzig, upon which it should have been easy for him to obtain details of utmost interest ... For the facts of Bach's life, and as a record of his artistic activities, Forkel admittedly is inadequate and often misleading ... Recent research, and in particular the classic volumes of Spitta and Schweitzer, have placed the present generation in a more instructed and therefore responsible position'.[5]

Basso (1979):[6] On Bach's first acquaintances with Vivaldi's works: 'Forkel ... this testimonial [is] very generic and ... appears to be contradicted by more consistent events ...'; 'The collection of the Six Sonatas (BWV 525-530) is extant in an autograph ... A tradition originating in Forkel purports that the collection was meant to be used by Wilhelm Friedemann and was especially composed for him ... Actually, Bach simply put together and re-elaborated a pre-existing material ...'.

Forkel on Bach anecdotes

Marchand: Forkel's account of the contest between Bach and Marchand (Dresden, 1717) includes suspicious details. For example, Forkel writes that the King of Prussia sent Bach *100 louisd'or* (sic).[7] Considering the different currencies in use at the time, it is remarkable to read, dozens of pages later,[8] that 24 years later Bach was paid by Count Keyserling for the Goldberg Variations exactly the same amount of 100 *louis d'or* (illus.4). To cast even more doubt on Forkel's account of the Marchand anecdote, a recent article observes that 'The early accounts of the keyboard contest ... are widely divergent, despite Birnbaum (1739), C. P. E. Bach and Agricola (1754), Adlung (1758), Hawkins (1776), Marpurg (1786), and Forkel (1802) all claiming the authority of either Bach or his sons'.[9]

Illus.4 A *Louis d'or* of Louis XV, France, 1717

Reincken: according to Forkel, after hearing Bach at the organ improvising variations on the chorale *An Wasserflüßen Babylon*, Reincken apparently said: 'I thought this art was dead, but I see that it survives in you'. I have failed to find any earlier source for this often-quoted sentence, which is listed online as a typical example of 'a well-known apocryphal anecdote'.[10]

Krebs: as observed by Igor Kipnis,[11] Forkel tells us that Krebs was so good that Bach said of him 'only one crayfish had been caught in the one brook' (*es sey in einem Bach nur ein Krebs gefangen worden*): this is a lovely pun indeed, but the earliest source for it was published in Berlin as late as 1796. Therefore this story is also most likely to be apocryphal.

Goldberg Variations: we have already noted the suspicious *100 louis d'or* detail. According to Forkel the Variations were meant to be played by Johann Gottlieb Goldberg (barely 14 at the time), and Count Keyserling's payment also included a golden goblet (*Goldenen Becher*) which, as observed by scholars, is not mentioned in Bach's death inventory. Anyway, all Bach scholars agree that this often-quoted story is completely spurious.[12]

Visit to Potsdam: as observed by Malcolm Boyd, 'In May 1747 ... Bach's ... visit to Potsdam, ... Accounts vary ... The earliest, and perhaps the most reliable, is in a report in a Berlin newspaper ... May years later Wilhelm Friedemann ... recalled the visit for Forkel's benefit. Some of the details in Friedemann's account [reproduced in Forkel] [13] conflict with the newspaper report just quoted ...'.[14]

Other debatable assertions by Forkel

Information from Bach's sons: Forkel declares in his Preface that 'I am indebted for my information to the two eldest sons of Bach himself ... I corresponded regularly for many years with both, particularly Carl Philip Emmanuel'. This is undoubtedly true and well documented. However, this does not demonstrate that every single bit of information in Forkel's book derives from Bach's sons and faithfully describes real facts of Bach's life: in some important matters this appears not to be the case, as shown below.

Tuning the keyboard: 'Bach ... tuned his Harpsichord and Clavichord, and was so skilful in the operation that it never took him more than a quarter of an hour'.[15] A few modern musicians have claimed to be able to perform such a feat, which is indeed possible on a small fretted clavichord and also, in a hurry, on a one-manual two-choir instrument with the early 18th century range GG/AA-d^3 (55 keys), with only 110 strings. However, it can be shown that for a typical two-manual German harpsichord of Bach's milieu, with three choirs of strings and a range FF/GG-d^3 (57 keys), therefore 171 strings, an accurate tuning requires 30 minutes if not more.[16]

Kirnberger and theory: When enumerating Bach's pupils, Forkel mentions 'Kirnberger ... We are indebted to him for the first logical treatise on harmony ... *Kunst des reinen Satzes*'. Here Forkel is ignoring the seminal treatises by Rameau [17] (who was indeed mentioned in Kirnberger's work), Tartini and others. This appears to be part of Forkel's 'German Risorgimento' (Terry's words), famously initiated by Goethe and given significant momentum in music by Weber. The evidence is in the last words of Forkel's book: *Und dieser Mann – der größte musikalische Dichter und der größte musikalische Declamator, den es je gegeben hat, und den es wahrscheinlich je geben wird – war ein Deutscher. Sey stolz auf ihn, Vaterland; sey auf ihn stolz, aber, sey auch seiner werth!!* ('And this man — the greatest musical poet and the greatest musical orator that ever existed and probably ever will — was a German. Be proud of him, Fatherland; be proud of him, but be worthy of him too!').

So far things do not look well for Forkel. Perhaps more significant is to dig into the evidence and find out how useful—or othewise—is Forkel about Bach's performance practice, of primary interest for us early keyboard players.

The clavichord in Bach's milieu

Forkel (elaborating on C. P. E. Bach) declares that the clavichord was Bach's favourite stringed-keyboard instrument. This assertion, often repeated nowadays, has been put in doubt by many scholars, and unfortunately no direct evidence is extant about the matter. 'During Bach's life most clavichords were fretted [thus unsuitable for some of the composer's *klavier/clavier* works]: this only changed around the time of his death'.[18] Different in-depth studies about the use of the clavichord in Bach's entourage have been published,[19] including a recent one by Joris Potvlieghe.[20] Some musicians believe that the latter provides conclusive evidence about Bach as a clavichordist, but it actually just shows that the clavichord (illus.5) was ubiquitous in Bach's milieu.

The question is: how ubiquitous? It is often said that most household keyboards in Bach's German lands were clavichords, yet Bach composed a significant proportion of his keyboard works specifically for the harpsichord. A good clue to resolve this conundrum is to look at the record of extant German instruments made after Bach's birth in 1685 and before the year 1742 (when Bach put together his last keyboard-specific work: the *Well-tempered Clavier*, Book II). The new Boalch-Mould Online[21] database allows to produce the following statistics: Harpsichords total 25 instruments, typically with a compass from either FF or GG up to either d^3 or e^3, while Clavichords total 22 instruments. However, if we disregard the instruments with bass short octave from C/E, thus unsuitable for Bach's main '*klavier* works' (the *Well-tempered Clavier*, Book I requires a fully chromatic C-c^3 compass), the suitable instruments are 24 harpsichords and 17 clavichords. Of the latter, four are now lost, 11 are fretted and only two are unfretted (although it has been shown that the fretting issue—especially with double-fretting—can be circumvented in many pieces).[22]

Admittedly, this statistic is a significantly biased sample: it is most likely that clavichords (of all ranges and fretting alternatives) were much more plentiful, but hardly more than a handful for every harpsichord—and certainly a far cry from the 20 or even 100 times some have recently claimed—otherwise such a huge imbalance would inevitably show up today in the extant instrument population.

Illus.5 Small fretted Clavichord, copy by Pierre Verbeek of an original by Israel Gellinger, 1670

Bach as a clavichordist

Forkel tells us that 'Bach preferred the Clavichord to the Harpsichord which ... seemed to him lacking in soul (*seelenlos*)'.[23] Were it so, why on earth would Bach compose some of his most involved stringed-keyboard works specifically for the two-manual harpsichord? And why would he only in them include *forte* and *piano* markings? Furthermore, different scholars have observed that the idea of instruments having a 'soul' is certainly far removed from Bach's baroque aesthetics. Anyway, the proof is in Bach's scores. The following account is abridged from a detailed analysis I first published decades ago,[24] and in an improved version more recently.[25] It is easy to classify Bach's main works for stringed keyboard into three groups:

(1) Works clearly labelled for the harpsichord: French Suites, Goldberg Variations, French Overture and Italian Concerto

(2) Other works for the harpsichord, as deemed by most scholars on account of range and other features: English Suites, Six Partitas and the Concertos by other composers transcribed

(3) Works for *klavier*: Toccatas, Fantasies, Inventions, the sets of Little Preludes and Fugues, the *Well-Tempered Clavier*, Books I and II (WTC) and the Art of Fugue.

Recently some musicians have again raised the question that for Bach *klavier* would have meant 'clavichord'. Such a belief runs straight against the agreement among scholars: *klavier/clavier/clavir* was Bach's generic term for any stringed keyboard, whether harpsichord, clavichord or even *manualiter* organ.[26]

Among these *klavier* works, good candidates for the clavichord are the Inventions and the Little Preludes and Fugues. The Toccatas are early works and exceed the short-octave and fretting prevalent in clavichords at the time. Finally, we have Bach's main *klavier* work, the *Well-tempered Clavier*, for which a detailed research was published three decades ago with the following outcome: 'For Volume I the range must be chromatic from C to c^3. This excludes the ubiquitous C/E-c^3 clavichords (with short octave) because they lack C#, E^b, F# and G#. There is no movement among the ninety-six preludes and fugues that does not make use of one or more of these notes. ... Volume II, however, requires a Chromatic range from A'[AA] to d^3.[27] Hardly clavichord music then: out of the above-mentioned 22 extant German clavichords from J. S. Bach's era, only a single one (the Hass 1728) goes below C.

Finally, it is worth remembering that the two of the most respected 20th century clavichordists, who devoted years to studying, playing and recording Bach on the clavichord, were adamant on the Bach-clavichordist controversy: 'the legend propagated in Forkel's book that the clavichord was Bach's favourite instrument',[28] and 'it is obvious that the clavichord had no part in the musical life of J.S. Bach. It was Forkel who gave diffusion to the myth of Bach clavichordist'.[29] More details on this matter can be found in more recent works.[30] Two very recent and authoritative articles, devoted to scrutinising the original clavichord repertoire, are consistent in not attributing any particular preference of J. S. Bach for the instrument.[31]

Summarising, the above-quoted clavichordists and the scholars appear to be in agreement: all the evidence shows that Forkel's purported preference of Bach for the clavichord is in contradiction with the evidence.

Fingering and the thumb

Proposals for the modern universal passage (crossing) of the thumb were first published around 1730 in France and England, but the new fingering only started its widespread diffusion in the 1740s, and only by the 1750s it became prevalent, as described by C. P. E. Bach in 1753. This said, when he acknowledged that his father J.S. Bach 'enlarge[d] the use of the thumbs ... chiefly in the difficult tonalities',[32] C. P. E. was most obviously referring to the use of the thumbs on accidentals. (When further on he advocated the universal passing on the thumb as preferable to the traditional finger crossing, he failed short of attributing this advance to his father). Arguably, this point was the only significant difference

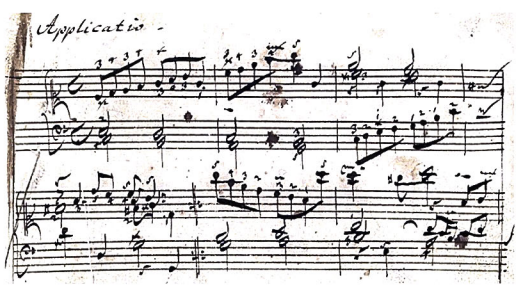
between the fingering techniques of François Couperin and J. S. Bach: the thumb on an accidental was a 'no-no' for Couperin in his treatise of 1716, but for Bach it became matter-of-fact ever since Book I of the *Well-tempered Clavier*, just six years later.[33] Note however that three decades later, C. P. E. Bach prescribes that when playing scales we should (in full agreement with Couperin) avoid the thumb on accidentals.[34]

Unfortunately, and again in stark contradiction with the evidence, Forkel ventures much beyond what C. P. E. Bach ever wrote in his treatise. Forkel claims that J. S. Bach was 'compelled to introduce a system of fingering better adapted ... and ... to challenge the [prior] convention which condemned the thumb to inactivity. ... Couperin's system differs materially from Bach's ... in Bach's system the thumb is the principal finger'.[35] This startling statement contains three gross fallacies:

(1) In Baroque technique—as described by Couperin—the thumb was far from inactive: it was employed either at the beginning or end of scales and when playing more than one voice with the same hand

(2) it has been shown that J. S. Bach's fingering system was actually most similar to Couperin's (illus.6)[36]

(3) in spite of Bach's more frequent use of the thumb, it certainly never became anything like Forkel's purported *Hauptfinger*.



Illus.6 Autograph fingerings by J.S. Bach, from the *Clavier-büchlein vor Wilhelm Friedemann Bach*, Cöthen, 1720, showing the traditional keyboard fingerings, in full agreement with Couperin

Bach's technique and the 'snap' (*schnellen*)

This term has been used both for an ornament and for a finger movement technique: we refer here to the latter. It has been shown that 'the earliest source for this finger movement is Quantz :[37] 'draw the tips of the fingers back towards yourself to the foremost part of the key, until they glide away from it ... the example of one of the greatest of all players on the keyboard ... [translator's footnote: In his index Quantz identifies this player as J. S. Bach ... Quantz ... was probably present when Bach performed for Frederick in 1747.]'. Actually Quantz is likely to have seen this movement as a component of the traditional finger-crossing: when a finger crosses over another, the 'crossed finger' leaves the key by curving inwards.[38] All the Baroque sources (up until c.1750) agree that, other than when crossed, a finger should normally leave a key rising up from it.[39]

Forkel's careful description of the 'snap',[40] and his attribution as the universal long-finger movement employed by Bach at the keyboard, is a significant elaboration over Quantz's account, later also found on C. P. E. Bach's *Versuch*. It is easy to demonstrate that if a long finger 'snaps', then a convolute movement is required for it to 'cross' over another long finger; therefore, playing scales with the snap requires the post-Baroque universal passing of the thumb. (And even so, 'Forkel was unable to demonstrate [the snap] convincingly to Zelter in Berlin in 1801'. [41]) Forkel is therefore in open contradiction with what we know about Bach's Baroque fingering technique. We can safely conclude, *pace* Forkel, that any snap Quantz saw J. S. Bach using, was only when a finger was being 'crossed' in the traditional finger-crossing movement.

Other details about Bach as a clavier player

Forkel criticizes C. P. E. Bach because his 'Essay ... does not elucidate the qualities that constitute a good touch'. True, the latter writes only 'some persons ... keep the keys down too long ... while other ... play too crisply ... The right method lies between the two extremes. But it would have been more useful had he told us how to reach this middle path. As he has not done so, I must try to make the matter as clear as is possible .... Bach [J. S.] placed his hand...' From then onwards Forkel proceeds giving for granted that father and son played the keyboard in exactly the same way.[42]

Also according to Forkel, 'Bach ... invented exercises ... in which the fingers of both hand were made to practise passages in every conceivable position...', and on the following page we read that 'he systematically employed every finger of each hand ... his fingering was so uncommon'.[43] This is hardly compatible with what we know about Bach's own fingering and the significant corpus of his compositions for the keyboard.

At this point we have checked almost every bit of the information Forkel provides in the few pages of his book devoted to J. S. Bach as a clavier player (*Joh. Seb. Bachs Art das Clavier zu behandeln*), and have everywhere found serious flaws.

Conclusion

Through Forkel's activity as a collector of Bach manuscripts during the second half of the 18th century, and mainly during the first decades of the 19th century thanks to the wide diffusion of his book on Bach, many of the composer's masterpieces were rescued from oblivion,[44] and for this Forkel can only be highly praised. Unfortunately, he included in his book thoroughly spurious anecdotes, and further it is hard to spot in Forkel any information that is not available from earlier—and more reliable—extant sources. Were this not bad enough, we get into real quicksand in the details about Bach as a performer at the keyboard: here most of what Forkel writes is pure fantasy.

To make matters even worse, modern times have witnessed a regrettable 'Forkel trend': quite a few scholars, from Spitta (1880) onwards, having explained in a publication why Forkel's Bach book is hardly reliable at all, a few pages later proceed quoting some of Forkel's assertions. A common excuse is that 'this is all we know about the matter', which unfortunately goes counter to scientific principles: it is far better to acknowledge what we do not know, and work from there (by formulating alternative hypotheses and searching for new evidence), than to follow half-truths, when not outright fantasies.

Which impression does Forkel make on present-day early-keyboard players? Some take 'Bach's first biographer with direct information from Bach's sons' at face value. Others have a more critical opinion, as in this online review from 2015: 'Well, I always knew that Forkel was not a particularly objective or even accurate account of the life of Bach, but having read it now, I can see that it really has very little value. We know so much more about Bach's life than Forkel did. He had a lot of strong opinions about music and these make it impossible to sift the truth from the fiction. So, all in all, I'm glad that I bought this cheaply because it simply is not worth much to me as a practising musician'.[45]

We conclude what scholars have always been aware of: Forkel's Bach has to be read with caution, as it induces the potential for gross errors. It is high time that we stop seeing Forkel being quoted as an authority or primary source about J. S. Bach.

Dr Claudio Di Veroli is a harpsichordist and musicologist. For decades based in Buenos Aires and later in Bray, he recently moved to Lucca. His many public performances and publications have been praised by leading musicians and favourably reviewed. Website http://harps.braybaroque.ie/biog.html.

Notes

1 Johann Nikolaus Forkel, *Ueber Johann Sebastian Bachs Leben, Kunst und Kunstwerke* (Leipzig, 1802). English version by Charles Sanford Terry (New York, 1920), currently available in an Amazon reprint.

2 Robert L. Marshall, 'Forkel, Johann Nicolaus', in Igor Kipnis (ed), *The Harpsichord and Clavichord, and Encyclopedia* (New York, 2007), p.181. This was a posthumous edition, as Kipnis died in 2002; he had been collecting the entries starting back in the 1980s.

3 Philipp Spitta, *Johann Sebastian Bach* (Leipzig, 1873-1880), Eng trans (London, 1889, r/ New York 1952), p.iii.

4 Albert Schweitzer, *J. S. Bach Le Musicien-poète* (Leipzig, 2/1905), pp.107-108, translation by the present author.

5 Terry (1920), Introduction.

6 Alberto Basso, *Frau Musika: la vita e le opere di J. S. Bach* (Turin, 1979), i, p.446; ii, pp.571-572.

7 Forkel (1802), p.7 (German), p.8 (English).

8 Forkel (1802), p.52.

9 Christopher Wiley, 'Myth-Making and the Politics of Nationality in Narratives of J. S. Bach's 1717 Contest with Louis Marchand', *Journal of Musicological Research*, xxxviii/3-4 (2019), pp.193-215.

10 https://www.paperrater.com/vocab_builder/show/apocryphal.

11 Igor Kipnis (ed), *Johann Ludwig Krebs: Six Preludes for harpsichord* (New York and London, 1985), p.viii, n.6.

12 Claudio Di Veroli, '1741: Three masterworks of diversity', *Harpsichord and fortepiano*, xxvi/2 (2022), n.3.

13 Forkel (1802), p.9 (German), pp.7-8 (English).

14 Malcolm Boyd, *Bach* (London, 1983), pp.185-186.

15 Forkel (1802), p.17 (German), p.24 (English).

16 Actually, 'most harpsichordists need in the region of 40 minutes … to tune a 3 stop 5-octave harpsichord accurately', as demonstrated in Claudio Di Veroli, *Unequal Temperaments: Theory, History and Practice*, eBook (Bray and Lucca, 5/2021), p.206. http://temper.braybaroque.ie.

17 Starting from Jean-Philippe Rameau, *Traité de l'Harmonie reduite à ses principes naturels* (Paris, 1722).

18 Bernard Brauchli, *The Clavichord* (Cambridge, 1998), p.145.

19 Richard Loucks, 'Was the Well-Tempered Clavier Performable on a Fretted Clavichord?', *Performance Practice Review*, v/1 (1992), article 2, http://scholarship.claremont.edu/ppr/vol5/iss1/2.

20 Joris Potvlieghe, 'The Clavichord in the life of J. S. Bach', *Clavichord International*, xx/2 (2016), pp.41-49.

21 *Makers of the Harpsichord & Clavichord*, BOALCH-MOULD ONLINE, https://db.boalch.org, accessed in June 2022.

22 David Ledbetter, *Bach's* Well-tempered Clavier, *the 48 Preludes and Fugues* (New Haven and London, 2002), pp.20-22. See also Loucks (1992).

23 Forkel (1802), p.17 (German), p.24 (English).

24 Claudio Di Veroli, 'Bach no fue clavicordista ni pianista' ('Bach was neither a clavichordist nor a pianist'), *Mediante*, iv/7 (1985), pp.4-7.

25 Claudio Di Veroli, *Playing the Baroque Harpsichord: essays on the instrument, interpretation and performance, with relevant topics for the clavichord and organ*. eBook (Bray and Lucca, 4/2022), sections 8.4 and 8.5, pp.202-207.

26 Peter Williams, 'J. S. Bach's Well-tempered Clavier: A new approach', *Early Music*, xi/1 (1983), pp.46-52 at 49; Ledbetter (2002), pp.14-15.

27 Loucks (1992), p.47.

28 Ralph Kirkpatrick, 'On playing the clavichord', *Early Music*, ix/3 (1981), pp.293-305 at 298.

29 *Bach: Die Kunst der Fuge*, Gustav Leonhardt (harpsichord), Harmonia Mundi (1979), sleeve notes.

30 See David Schulenberg, *The Keyboard Music of J. S. Bach* (New York, 2/2006), p.14; see Ledbetter (2002) pp.13-25 on the instrument for the WTC.

31 Terence Charlston, 'The *Orgelbüchlein* as pedal clavichord music', *Harpsichord & fortepiano*, xxvii/1 (2022), pp.11-15; Paul Simmonds, 'Identifying clavichord repertoire', *Harpsichord & fortepiano*, xxvii/1 (2022), pp.16-22.

32 Carl Philipp Emanuel Bach, *Versuch über die wahre Art das Clavier zu spielen*, Part One (Berlin, 1753), Chapter 1, § 7; English trans. (London, 1974), p.42.

33 Di Veroli (2022), p.xviii.

34 Bach (1753), Chapter 1, § 61; English trans. p.57.

35 Forkel (1802), p.15 (German), pp.22-23 (English).

36 Claudio Di Veroli, *J. S. Bach's Well-Tempered Clavier book I, with Baroque Fingerings and a Performance Guide*, eBook (Bray, 2022), section on 'Fingering and Bach', pp.xvi-xviii.

37 Johann Joachim Quantz, *Versuch einer Anweisung die Flöte traversiere zu spielen* (Berlin, 1752); 1789 edition, Chapter XVII, Section VI, § 18, p.232. Quoted from the English trans. by Edward Reilly (London, 1966), p.260.

38 This movement was described in full detail as far back as Fray Tomás de Sancta María, *Arte de Tañer Fantasía* (Valladolid, 1565), Part I, capitulo xvij, pp.38-39.

39 Abridged from Di Veroli (2022), section 2.1, 'Baroque finger mechanics', p.51.

40 Forkel (1802), pp.12-13 (German), p.21 (English).

41 Ledbetter (2002), Errata (2016) to p.135, para 2.

42 Forkel (1802), pp.12 (German), p.21 (English).

43 Forkel (1802), pp.14-15 (German), pp.22-23 (English).

44 Terry (1920), p.4.

45 https://www.amazon.com/Johann-Sebastian-Bach-Life-Work/dp/1470196344 , review by 'dsa10', accessed October 2022.