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LEARNING THE '48'

By: Francis Knights

"Let the *Well-tempered Clavier* be your daily bread.

Then you will certainly become a good musician"

—Robert Schuman

Introduction

Bach's *Well-tempered Clavier* is a work apparently more admired than performed, among early keyboard players. Although still a fundamental part of piano pedagogy, preludes & fugues from the collection appear in harpsichord recitals much more rarely than one might expect, with the exception of complete marathon performances from professional players, where it has (like the Goldberg Variations) become a "calling card" for top-level technical and musical expertise. As the variety of levels of difficulty within the two books are considerable, putting most of the preludes & fugues within reach of capable amateur players, the reason for this neglect may instead have something to do with modern notions of "completeness", partly driven by the post-war record industry. Although an 18th-century composer would have expected most players to select pieces from among larger collections - see, for example, the 22 suite movements of Couperin's massive *Ordre 2* (1713) - and that would certainly apply to the 48, and likely the Goldberg Variations too, performing "excerpts" now seems to get a bad press. One corollary of this seems to imply that players should learn and perform either the whole work, or none of it; if so, the 48 would be an especial victim of this attitude.

Nevertheless, to make the full musical, technical and aesthetic gain from studying the 48 does mean tackling it all, and this article is a guide as to how that goal might be achieved, carefully structuring the process and spreading the task over a period of years. It is possible to learn just one book at a time, but as much of the effort comes in achieving fluency in remote keys, it seems sensible to group these works from both books together. Although the scheme outlined here is mainly aimed at serious amateur players wanting to tackle the 48 complete, it may also be of use to student-level performers.

Background

One of the reasons why the 48 seems to be of more use to pianists than early keyboard players these days is that it provides them with a set of skills that they will need, but that harpsichordists may not. To that extent, Bach was ahead of his time, as few early 18th-century keyboard players would have needed the ability to play in all remote keys or modulate at will. For example, Bach's other keyboard music does not normally use key signatures outside four sharps or flats, although some of it does modulate very widely.¹ The rise of the free fantasia (which always had a greater modulatory element), the increasing compass of the keyboard, the increasing use of unfretted rather than fretted clavichords and

the increasing use of keyboard tuning systems that would make remote keys tolerable, made the idea of composing and performing in all 24 major and minor keys a reality in the later eighteenth century. The reasons for these changes are hard to disentangle, with a three-way chicken-and-egg relationship between composers, performers and instrument makers.

Bach's reasons for compiling the first collection are made clear on his 1722 autograph manuscript title page:

The Well-Tempered Clavier, or Preludes and Fugues through all the tones and semitones both as regards the tertia major or Ut Re Mi and as concerns the tertia minor or Re Mi Fa. For the Use and Profit of the Musical Youth Desirous of Learning as well as for the Pastime of those Already Skilled in this Study, drawn up and written by Johann Sebastian Bach. p.t. Capellmeister to His Serene Highness the Prince of Anhalt-Cöthen, etc. and Director of His Chamber Music. Anno 1722.

This showed the music was both to serve an educational purpose (both in terms of technique and compositional method) and for the pleasure of experienced performers. Listeners or music-lovers are not mentioned as such — this was well before the rise of the public keyboard recital. There are many extant manuscript copies from the Bach circle, showing the work was highly prized, but exactly *how* it was used for teaching purposes is not known; likely only the very best of Bach's pupils learned even the first set complete. Bach played through Book 1 for his pupil Heinrich Nikolaus Gerber on no fewer than three occasions,² which must have been a rare treat of the kind that built Bach's near-mythic status as a keyboard performer. There is some indirect evidence from musical references in the compositions of his sons and pupils that they knew (and had very likely learned) at least some of the pieces; Johann Ludwig Krebs' (1713-80) Prelude & Fugue in F# Major for organ is one example.

The idea for such a collection may have come via Bach's slightly older contemporary J. C. F. Fischer (c.1670-1746), whose near-comprehensive *Ariadne Musica* (1702) omitted only preludes & fugues in C# Major, Eb Minor, F# Major, G# Minor and Bb Minor. There are also continuo examples in all keys by Mattheson (1719) and a lost keyboard work by Kirchhoff including all the keys,³ so others were thinking along the same lines as Bach at about this time. In terms of musical ambition and technical demands, Bach vastly outstrips all the others.

The 48 was not something (in terms of length, commercial appeal or difficulty) that it would have been practicable for Bach to publish himself, and time was needed both for falling publication costs and Bach's rising posthumous reputation to allow that to happen, well after the composer's death. Even in manuscript, the work soon became a pedagogy achievement for gifted young keyboard players: Friedrich Wilhelm Rust (1739-96) had learned Book 1 from memory by the age of 13; and Beethoven played most of the 48 by the age of 11, and was regarded as a prodigy for having done so.⁴ Both were pupils of Bach

devotees, who must have been instrumental in building the composer's reputation among musicians. Curiously, no fewer than three published editions (by Forkel, Schwenke and Nägele) appeared in 1801, and since then it has been a canonical work for piano study, the "Old Testament" to the "New Testament" of Beethoven's piano sonatas, in the oft-quoted words of Hans von Bülow (1830-1894). As well as a performing tradition, it also spawned an important "all keys" compositional tradition, leading from Bach pupil Johann Gottlieb Goldberg's (1727-1756) 24 *Polonaises*,⁵ through Johann Wilhelm Hassler's (1747-1822) 360 *Preludes*, Op.47 (1817)⁶ and J. C. H. Finck's (1770-1846) *Exercises à deux Parties*, Op.67 (1821),⁷ to Chopin's 24 *Preludes*, Op.28 (1839), Shostakovich's 24 *Preludes & Fugues*, Op.87 (1952) and beyond.

Purposes for study

Aside from the obvious reasons Bach outlined in his Preface, which are still relevant today, the general point that these two collections contain some of the finest keyboard music from the Baroque can be supplemented by a view that for a performer the music also represents a technical compendium of almost everything an early keyboard player needs to be able to tackle successfully any pre-nineteenth century keyboard repertoire.⁸ As well as the obvious point about the ability to play fluently in every key,⁹ the other merits of complete study of the 48 include learning some excellent individual works which would otherwise be very unlikely study choices on the grounds of key alone; developing a fingering technique that is equal to any challenge;¹⁰ and an engagement with what is in effect Bach's keyboard "tutor", a systematic technical compendium.¹¹ Although some of these latter elements (such as the ability to distribute a third inner voice between the two hands, as required in the three-part Sinfonias BWV 787-801) are specifically taught elsewhere by Bach, they can as easily be acquired through the study of the 48. Individual technical skills needing to be learned include:

Interleaving of voices

Independent moving parts within one hand

Metrical arpeggiation and patterns

Reading double sharps and double flats

Instantaneous changes of hand positions

Clarity of trills and ornaments

Trills on weak fingers

Extended trills

Wide-range arpeggios

Wide leaps

Hand crossing

Hand rotation
Playing quickly
Complex chromaticism
Performing in the free fantasia style
Voicing large chords
Wide stretches
Cantabile and legato style
Consistent and clear articulation in fugue subjects
Overholding techniques (string keyboards)
Playing in up to five voices at once
Developing a working method to learn pieces efficiently

To this should be added the practical skill of learning to tune a keyboard *by ear* neatly and quickly; especially here, where learning to hear the finer gradations of chord and key is important, and where the practical and musical consequences of all non-equal temperament tunings are so apparent, from piece to piece.¹²

Editions

Although the survival of the composer's own fair copy of Book 1 (1722) means that there are relatively few source-critical problems with that volume,¹³ Book 2 about 20 years later never apparently reached final form, with the added complication that Bach seems to have made on-the-fly revisions in his pupils' copies which he did not then add to his own master-copy.

Nevertheless, some of the world's leading Bach editing experts have tackled this problem, and there are a number of editions that are satisfactory. Apart from the text itself, an edition needs to be elegantly printed on opaque paper, with a clear layout and sensible page turns. The other critical factor is fingering, or rather the lack of it. Much of the technical value of learning the 48 comes from developing a personal fingering technique that is suitable for a player's own hands, instrument(s) and musical ideas, and someone else's fingering choices are not necessarily of great value in that respect.

The original 1866 Bach Gesellschaft version is still available in a Dover reprint, but is too dated to be considered, and of the other non-fingered Urtext editions, the choice essentially comes down to between the Neue Bach Ausgabe (Bärenreiter)¹⁴ or Henle editions,¹⁵ both of which are state-of-the-art.¹⁶ The former carries a great deal of scholarly weight, being part of the complete Bach edition, but in this instance the Henle seems preferable: in a slightly larger format with fewer page turns,¹⁷ more elegantly printed on better paper, with a sensible distribution of the voices between the hands and a much more detailed critical commentary. It is also well worth adding the revised Associated Board edition¹⁸ as an additional reference

set. The fingering choices there may occasionally help when the student is faced with a particularly knotty voice-leading problem, and both the Editor's Preface and Donald Tovey's own guidance notes (from the original 1924 Associated Board edition, printed in an Appendix) are invaluable.

Instruments

Whether or not one subscribes to Peter Williams' belief that only the harpsichord is suitable for *all* of the 48,¹⁹ it is clear that the collection can be performed musically successfully on a variety of other early keyboards, and there are many recordings to prove this, including at least three on clavichord (Ralph Kirkpatrick, Michael Thomas, Jaroslav Tůma), five on organ²⁰ (Daniele Boccaccio, Robert Costin, Frédéric Desenclos, Bernard Lagacé and John Wells), one on lute-harpsichord (Wolfgang Rübsam) and even portions on fortepiano (Daniel Chorzempa, Robert Levin) — Peter Williams was one of the first to suggest the latter instrument as suitable, for parts of Book 2 at least. On record, some performers have tried to "match" the Preludes & Fugues to particular keyboard instruments (Daniel Chorzempa, Robert Levin) or chosen different sonorities for each book (Colin Tilney, clavichord then harpsichord), but the player studying the works on their own is obviously welcome to use whatever suitable instruments they have. It is worth noting, however, that what are optimal fingering choices for clavichord may sometimes be different for harpsichord or organ, for example. There are also moments where the use of an organ pedalboard can enhance the music, for those using that instrument.

Returning to the harpsichord, a single-manual instrument with a C-d³ compass and two 8' stops is sufficient for almost everything,²¹ and part of Bach's skill is to provide such musical richness and density while needing only the most modest of musical means. With respect to the four-octave double-fretted clavichord, likely the most common German domestic keyboard in the early eighteenth century, Edwin Ripin and John Barnes, for example, believed that almost everything from the 48 could fit comfortably such a keyboard, but Richard Loucks²² disagreed. In fact, the very real challenge of playing this collection on the clavichord is the problem of producing good tone in remote keys, where the different key balance points on the "black" notes make it more difficult.²³

Tuning and temperament

This matter has been endlessly debated for several centuries, with the word "Well" in the title *Well-tempered* remaining contentious.²⁴ Temperaments from as old-fashioned as Werkmeister III and as modern as Equal²⁵ have been proposed as correct, and the so-called "Bach temperament"²⁶ discovery a few years ago has given the discussions renewed focus. Many temperaments have even been reconstructed or invented by numerous 20th-century scholars to fit the music.²⁷ Practically speaking, most unequal circulating temperaments actually do the job well enough, and personal preference will help decide which to choose; some suit sharp, and some flat, keys slightly better. Many different tunings have been used on record, including Werkmeister, Kirnberger III, Valotti and Bradley Lehman's "Bach".²⁸

Scheme for study

Despite the list of technical components listed above, there is no reason to try to organize study of the music on that basis; where a new technique needs to be learned (e.g. hand-crossing), it will arise in the proper place, and so the pianist's systematic "étude" mentality is not needed here. As the project is designed to be undertaken complete, the relative level of difficulty of the individual works need not be considered as a decisive factor.²⁹ Within each group below, the practice order can take difficulty into account, but of course it is only by assimilating a new technique that "difficult" can become normal. For those who have no serious training on piano or organ, having started on harpsichord or clavichord (my own experience), the main difficulty will be discomfort in remote keys; thus the schedule proposed takes account of this, moving from familiar territory until the final maximum of seven sharps is reached. It is important to remember that at this point, the problem is not necessarily the actual reading of large numbers of sharps or flats, but that a player's fundamental and familiar sense of keyboard geography is under stress, with new hand positions, different finger stretches and the like.

The system here is designed to allow for self-study, which is why it is presented as a series of timed goals. Projects like this take as long as one lets them, which is why limiting time in some way is necessary; a player may never feel quite "ready" to start on an apparently impenetrable work like the Prelude & Fugue in Bb Minor from Book 2, so it is important to push oneself over that line. Those who have the benefit of a teacher will find much of the value of that comes in the feedback, but others can still play for musical (and hopefully candid) friends, or use simple recording equipment, to "externalise" the learning curve. The other thing to remember is that this process will help a player's keyboard technique comprehensively; even if one moves on to a new work without feeling that a previous one has been completely mastered, returning to it at the end will show just what progress overall has been made. The 48 really is the most thorough way of improving an early keyboard technique.

Because players will have very different amounts of practice time available, the schedule below³⁰ is structured as a series of five "units". The length of time spent on each unit can vary, but the selection of pieces is designed to cover about an hour of music. A very experienced professional with unlimited practice time and excellent sight-reading might manage a unit in two or three weeks; conversely, an amateur with a very busy day job might find a unit length of eight months about right. In any case, the project should aim to be completed within three to four years at the most, otherwise the continued commitment will be too difficult to sustain. Many players will find a unit length of between four and six months is possible. Experience shows that Unit 5 will probably need to be double length; the challenges here really are of a different order for most players, even for professionals.

Each unit *must* end with a performance of some kind: this is the goal that defines the end of a unit, and is absolutely vital. Learning a work, and learning to present it in performance, are two slightly different skills; what level of technical thoroughness is actually necessary during practice may only become clear to the player when a listener is present to hear the result. For amateur players, the suggestion is a domestic recital with a few invited

sympathetic) friends; that way, an actual performance takes place, but in a private and relaxed environment.

The musical content structure of the proposed units is given below, but each unit also contains within it a series of steps in order to make the study sufficiently systematic. If, for example, a unit length has been set for three months, the six components here can be allowed about a fortnight each, although some overlapping of time between them is of course likely.

- ▶ Analysis of the score and background reading
- ▶ Fingering
- ▶ Basic learning
- ▶ Improving problem passages
- ▶ Familiarity and revision
- ▶ Preparation for performance

Everyone has their own method of learning, usually that acquired from a teacher, so the suggestions below may be followed, adapted or ignored, as appropriate.

1. Analysis of the score and background reading

Background reading to the collection (especially from Schulenberg (1992), Jones (2013) and Ledbetter (2002) - see the Bibliography below) is very useful, and the latter book will also aid in understanding the fugue structures. In order to be able to create a well-characterized performance, many decisions will have to be made about the score: What sort of piece is this? What are the main structural elements? How should the tempo reflect its character? How free should it be? Is additional ornamentation helpful? And so on.³¹ Marking up the sub-structures (e.g. repetitions, recapitulations, codas etc) is important, as well as noting all the fugal entries, for example with a small square bracket in red whenever the subject or answer appears. Listening to recordings (see below) can be both instructive and aspirational, but be warned there is never a compete recording for which students will agree with the performer's musical decisions for every single piece.

2. Fingering

Good fingering not only allows comfortable hand positions (and therefore a greater chance of accuracy and cantabile tone), but consistent articulation schemes, and musical phrasing. Try, for example, fingering the hands in turn, one page at a time. If good choices have been made, it should be possible to play the music accurately *at a very slow speed* immediately. If mistakes continue to occur, see if there are alternative fingerings which are better (there are a few bars in Book 2 for which no sensible fingering seems possible!).

3. Basic learning

Concentration is not easy to maintain over long periods, so frequent short practice sessions are often more productive than a few lengthy ones. With the fingering in place and the musical decisions made, work through each piece can take place somewhat under tempo, making a note of particular bars that need attention — and working out *why* that is the case. Identifying specific technical problems is essential in order to solve them. This stage assimilates the music and starts teaching the fingers the patterns and shapes that comprise each section.

4. Improving problem passages

At this stage, much of the music should begin to seem straightforward and familiar, but there will still be places where stumbles tend to occur. Slow practice can be very useful here, and that is where a metronome is best used. Some of Bach's counterpoint is so complex that it hardly seems possible to read it at speed (e.g. Book 2, Fugue in G# Minor, bars 32-33), and sufficient "thinking time" will have to be allowed, unless the player is prepared to memorize such sections mechanically. Generally, moments of complexity in the music cause performers to rush, and being very careful with the tempo at such moments is necessary.

5. Familiarity and revision

At this stage, the working tempo should be reached (some players find it useful to note a reference metronome mark), and the music "bedded in". Problem passages should have been largely solved, and the various musical styles naturally assimilated. It can help develop the stamina and concentration needed for performance by playing at least two or three Preludes & Fugues back to back, and without a break, in each practice session. When working in extreme sharps, be aware of the problem of "enharmonic confusion"; for example, the dominant chord of D# Minor is A# Major, but the *fingers* will feel that as Bb-Major, and it can be quite confusing mentally slipping between enharmonic chords.

6. Preparation for performance

Working up to a performance means taking pains both with the big picture and the details: clear articulation and phrasing, good tone, a consistent tempo, rhythmic shaping and so on. The clearer the music is to the player, the clearer it will seem to the listener. At the same time, the performer needs to build confidence through competence: the belief that it will go right in performance, as it does in rehearsal. Those who are nervous in performing should consider why this is (often to do with the feeling that one is being personally judged by the audience, which may not at all be the case), and help overcome it by playing first just to individual family members or close friends.

The Units

The list below prioritizes by key signature, and thus major keys (upper case) are matched to their relative minor (lower case).³² After covering the central keys in both books, works in three to four sharps and flats are tackled, and only then the more extreme flats and sharps, grouped together. The principle here is to keep within related key areas, so that the hand positions and fingering for those areas are uniformly maintained and assimilated, rather than

jumping between very different keys (apart from Unit 5, there is no rising order of difficulty in the unit numbering from 1-5). The actual study or performance order within a unit can be modified, but here generally moves from flatter to sharper, rising by fifths. In the later units, movement between the two volumes is minimized, so that the pieces fall into convenient groups for performance, e.g. Unit 5 is grouped by five, six and seven sharps, with major keys first: B, g#, B, g#; F#, F#, d#; C#, C#.

Unit 1. Book 1: Preludes & Fugues in Bb, g, F, d, C, a, G, e, D, b

Unit 2. Book 2: Preludes & Fugues in Bb, g, F, d, C, a, G, e, D, b

Unit 3. Book 1: Preludes & Fugues in Eb, c

Book 2: Preludes & Fugues in Eb, c

Book 2: Preludes & Fugues in A, f#

Book 1: Preludes & Fugues in A, f#

Book 1: Preludes & Fugues in E, c#

Book 2: Preludes & Fugues in E, c#

Unit 4. Book 1: Preludes & Fugues in Ab, f

Book 2: Preludes & Fugues in Ab, f

Book 2: Prelude & Fugue in bb

Book 1: Preludes & Fugues in bb, eb / d#

Unit 5. Book 2: Preludes & Fugues in B, g#

Book 1: Preludes & Fugues in B, g#, F#

Book 2: Preludes & Fugues in F#, d#, C#

Book 1: Prelude & Fugue in C#

Performing

The five units above represent five recitals. Those with access to more than one keyboard instrument may wish to switch instrument between units, or repeat units on consecutive days or weeks (this is a very useful practice, if you can find a sufficient listeners; the second performance is often more instructive than the first). It can be helpful to provide listeners with a printed order of pieces, perhaps with some words about Bach and the background to the collection, for those not familiar with the music.

At the end of the process, the performer should have a real sense of achievement; learning all 48 Preludes & Fugues is a major and impressive feat for any musician. Performing skills and keyboard technique all round should have significantly improved as a result. It is now important not to lose these skills, especially new-found familiarity in all the keys. One way to maintain this is to play privately through Book 1 and Book 2 in alternation once every month or two. If it is possible or desirable to arrange further private or public performances, this will very much help keep the music under the fingers. And even when every Prelude & Fugue has been learned — and performed — the 48 is still a lifetime study.

Bibliography and Discography

Excellent introductions to the 48 can be found in Schulenberg, Tomita and Jones; for those wanting more detail, see Ledbetter; and for a performers' guide, Kirkpatrick.³³

Richard Jones, *The Creative Development of Johann Sebastian Bach*, vol.2
(Oxford: Oxford University Press, 2013)

Ralph Kirkpatrick, *Interpreting Bach's Well-Tempered Clavier* (New Haven and London: Yale University Press, 1984)

David Ledbetter, *Bach's Well-Tempered Clavier: the 48 Preludes and Fugues*
(New Haven and London: Yale University Press, 2002)

Yo Tomita, "The Well-Tempered Clavier, Book 1" (1996), Online,
Accessed 17 August 2018, <https://www.qub.ac.uk/~tomita/essay/wtc1.html>

David Schulenberg, *The Keyboard Music of J. S. Bach* (New York and London: Garland, 1992)

Recordings can be very instructive, but do not be over-influenced by any one player in particular, or by their virtuoso tempo choices; clarity is more important than flashiness. There are many fine recordings to choose from, and an alphabetical selection of these on various early keyboards is listed below:

Daniele Boccaccio (organ), Brilliant Classics 95157

Kenneth Gilbert (harpsichord), Archiv 479 4237

Masaaki Suzuki (harpsichord), BIS BIS-813 CD and BIS-1513 CD

Gustav Leonhardt (harpsichord), Sony 88691953072

Jaroslav Tůma (clavichord), Supraphon F10165

Finally, good luck to anyone undertaking the project!³⁴ It is very challenging, but enormously worthwhile.

Acknowledgements

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Endnotes

¹ Baroque organ continuo players would have been more used to more extreme flat keys, as the higher pitch of the organ relative to the other instruments meant that it was treated as a transposing instrument.

² Gerber was a pupil from 1724-27. Hans T. David and Arthur Mendel (eds.), rev. Christoph Wolff, *The New Bach Reader* (New York & London: W.W. Norton, 1998): 322; and David Ledbetter, *Bach's Well-Tempered Clavier: the 48 Preludes and Fugues* (New Haven and London: Yale University Press, 2002): 130.

³ David Schulenberg, *The Keyboard Music of J. S. Bach* (New York and London: Garland, 1992): 162.

⁴ The New Bach Reader, 489.

⁵ Edition by Christoph Wolff (Mainz: Schott, 1992).

⁶ Edition by Vitautas von Horn (HNH International Ltd, 2017).

7 Edition by Christoph Dohr (Cologne: Verlag Dohr, 2003). Both Hassler and Finck were pupils of Bach's student J. C. Kittel (1732-1809), from which we might reasonably infer that Kittel at least taught the 48 complete.

8 The major exceptions are: chromatic scales, and extensive hand-crossing, for which Bach's own Fantasia in C Minor, BWV 906, fills the gap; tremolo effects (see the Toccata in D major, BWV 912); and fast repeated notes, needed in some sonatas by Scarlatti but almost never by Bach. "Keyboard" is here used as separate in meaning from "organ", for obvious reasons.

9 That Bach players need to be able to cope with modulations to very remote areas is obvious from works like the Toccata in F# Minor, BWV 910, the Ricercar a6, BWV 1079 and the Prelude, Fugue and Allegro, BWV 998.

10 Johann Nikolaus Forkel notes that Bach "learned to tune his instrument so that it could be played upon in all the 24 keys ... and [was] obliged to contrive another mode of fingering, better adapted to his new methods, and particularly to use the thumb in a manner different from that hitherto employed". "On Johann Sebastian Bach's Life, Genius and Works", in *The New Bach Reader* (1998): 434.

11 The reminiscences of Bach's pupil Heinrich Nikolaus Gerber (1702-1775), as reported by his son Ernst Ludwig in 1790, are instructive here: after studying the Inventions, pupils were taken on to a series of suites; then the 48. *The New Bach Reader* (1998): 322. For more on Bach's teaching philosophy, see Forkel in *The New Bach Reader* (1998): 453-6.

12 For practical tuning instructions, see for example Peter Bavington, *Clavichord Tuning and Maintenance* (London: Keyword, 2007) and Carey Beebe, <http://www.hpschd.nu/> >Resources>Technical Library >Temperament.

13 For a summary of source texts, see Schulenberg (1992): 166 and 200-201.

14 Ed. Alfred Dürr (Kassel & London: Bärenreiter, [1989]/1996), BA 5191/2.

15 Book 1, ed Ernst-Günter Heinemann (Munich: Henle, 1997) Henle 258; Book 2, ed. Yo Tomita (Munich, 2007), Henle 1014.

16 Other Urtext editions include Alfred Kreutz (Leipzig: Edition Peters, 1961) and Walther Dehnhard (Wien: Wiener Urtext Edition, 1977).

17 Many of the Preludes & Fugues were composed to fit on pairs of manuscript pages (Richard Jones, *The Creative Development of Johann Sebastian Bach*, vol.2 (Oxford: Oxford University Press, 2013), p.19, a tightly-written format that has become less evident in more expansive modern editions; while the Bach Gesellschaft takes 199 pages for the whole collection, the Henle Edition has 253 and the Neue Bach Ausgabe 284.

18 Richard Jones (ed), J. S. Bach, *The Well-tempered Clavier* (London: The Associated Board of the Royal Schools of Music, 1994), AB 2283/4. For specialists, there is also a modern Urtext of Book 1 using original clefs: David Aljón Bruno (ed), Bach, *The Well-tempered Clavier I* (Ut Orpheus, Bologna, 2011), SET 16.

19 Peter Williams, "J. S. Bach's Well-tempered Clavier: a new Approach", *Early Music* 11/1 (January 1983): 46-52 and 11/3 (July 1983): 332-339. This discounts numerous pedal-point notes (especially in the A Minor Fugue, Book 1) where the organ possesses an obvious advantage.

20 Many early 19th-century English musicians thought of the 48 as an organ work, partly due to the association with fugue. For a modern view, see Robert L. Marshall, "Organ or 'Klavier'? Instrumental Prescriptions in the Sources of Bach's Keyboard Works", in George Stauffer and Ernest May (eds), *J. S. Bach as Organist: His Instruments, Music, and Performance Practices* (London: Batsford, 1986): 212-239.

21 The G# Minor Prelude of Book 2 has piano and forte markings, suitable for clavichord or a two-manual instrument; and Book 2 contains a few notes below bottom C.

22 See Richard Loucks, "Was the Well-Tempered Clavier Performable on a Fretted Clavichord?", *Performance Practice Review*, 5/1 (Spring 1992): 44-89.

23 For a description of the special difficulties of the 48 on the clavichord, see Ralph Kirkpatrick, "On Playing the Clavichord", *Early Music* 11/3 (July 1981): 293-305.

24 There is a long and detailed exposition of the issues in Ledbetter (2002): 35-50.

25 Rudolf Rasch, "Does 'Well-Tempered' mean 'Equal-Tempered'?", in Peter Williams (ed), *Bach, Handel, Scarlatti: Tercentenary Essays* (Cambridge: Cambridge University Press, 1985): 293-308.

26 Bradley Lehman, "Johann Sebastian Bach's tuning" (Online, Accessed 17 August 2018), <http://www.larips.com/>, with access to the two original 2005 Early Music articles and appendices at <http://www-personal.umich.edu/~bpl/larips/outline.html>.

27 See for example, John Barnes, "Bach's keyboard temperament: Internal evidence from the Well-Tempered Clavier", *Early Music* vii/2 (April 1979): 236-249, and Herbert Anton Kellner, *The Tuning of my Harpsichord* (Frankfurt am Main: Das Musikinstrument, 1980); there is a long list of these at Lehman, <http://www-personal.umich.edu/~bpl/larips/bachtemps.html>.

28 For a very useful discussion, see <https://www.colinbooth.co.uk/bach-n-tuning.pdf>. Note that the temperament listed on record may not always be as advertised; see Dan Tidhar, Simon Dixon, Emmanuel Benetos and Tillman Weyde, "The Temperament Police", *Early Music*, 62/4 (November 2014): 579-590.

29 Various teachers have come up with graded schemes for the individual Preludes & Fugues; see for example the 1907 pedagogical edition of the *Well-tempered Clavier* by Béla Bartók, which is still in print. The Henle study-score edition at https://www.henle.de/en/detail/?Title=The%20Well-Tempered%20Clavier%20Part%20I%20BWV%20846-869_9014, for example, grades them from 1-9 in order of difficulty. One writer has listed the whole Bach canon using the Henle 1-9 grades at <https://www.pianostreet.com/smft/index.php?topic=61340.0>, and interestingly just three fugues from the 48 are classed as harder than Level 6, the great majority of works being at Levels 4-5.

30 It would be possible to divide it into smaller portions, but the only real advantage of that is each unit-end recital becomes shorter.

31 Those working without a teacher will find a long and very useful list of questions performers can ask themselves when learning, in the editorial introduction to Ralph Kirkpatrick (ed), *Scarlatti, Sixty Sonatas* (New York: Schirmer, London: Chappell, 1953), vol.1: i-xvii; Kirkpatrick also suggested this be applied to the 48 too (Ralph Kirkpatrick, *Interpreting Bach's Well-Tempered Clavier* (New Haven and London: Yale University Press, 1984): 1).

32 This order by rising circle of fifths, with or without matched relative minors, was used in the sets mentioned by Goldberg, Chopin and Hassler.

33 See also other approaches to Bach and his works in Paul Badura-Skoda, *Interpreting Bach at the Keyboard* (Oxford: Clarendon Press, 1993), Richard Troeger, *Playing Bach on the Keyboard: A Practical Guide* (Pompton Plains, N.J. and Cambridge: Amadeus Press, 2003) and Colin Booth, *Did Bach Really Mean That?* (Wells: Soundboard Records, 2010).

34 For a social media support and discussion group, see Facebook's "Well Tempered Friends - play Bach's 48 together".