

Sunday, April 7, 2013, 3pm
Hertz Hall

The Art of Fugue

Davitt Moroney, *harpsichord*

PROGRAM

Johann Sebastian Bach (1685–1750) *The Art of Fugue*, BWV 1080

1–4 Four Simple Fugues

5–7 Three Counterfugues in Stretto

INTERMISSION

8–11 Two Double Fugues and Two Triple Fugues

12–13 Two Mirror Fugues

14 Quadruple Fugue (*completed by Davitt Moroney*)

*Harpsichord by John Phillips (Berkeley, 1998),
after Nicolas Dumont (Paris, 1707)*

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Johann Sebastian Bach
The Art of Fugue
 BWV 1080

The 14 Basic Rhythmic Versions of the
 Art of Fugue theme

This musical score displays 14 different rhythmic variations of the Art of Fugue theme. The variations are arranged in two columns of seven staves each. The first column includes Fugue 1, 2, 9, 5, 6, 7, 11, 12a, 12a, 13a, and 13b. The second column includes Fugue 3, 4, 5, 6, 7, 10, 3, 4, 8, 11, 12b, 12b, and 13a, 13b. The notation uses various time signatures (C, 3/4, 3/8) and includes triplets and rests to illustrate different rhythmic treatments of the theme.

Johann Sebastian Bach
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FOUR SIMPLE FUGUES

Fugue 1 [on the *Art of Fugue* theme].

Fugue 2 [on the *Art of Fugue* theme].

Musical notation for Fugue 2, showing the Art of Fugue theme in C major, 4/4 time.

Fugue 3 [on the melodically inverted version of the *Art of Fugue* theme].

Musical notation for Fugue 3, showing the melodically inverted version of the Art of Fugue theme in C major, 4/4 time.

Fugue 4 [on the inverted version of the *Art of Fugue* theme, and a little “cuckoo” motif].

Musical notation for Fugue 4 and the Art of Fugue Theme. The top staff shows the 'ART OF FUGUE THEME:' in C major, 4/4 time. The bottom staff shows the 'cuckoo' motif, with notes marked [cuc - koo!] and [cuc - koo!].

THREE COUNTERFUGUES IN STRETTO

(on regular and inverted versions of the *Art of Fugue* theme, combined)

Fugue 5 [using two different versions of the *Art of Fugue* theme, (a) regular and (b) inverted; the second half presents them combined in strettos].

Fugue 6, in the French Style, by Diminution [using four different versions of the *Art of Fugue* theme, (a) regular, (b) inverted; (c) regular, twice as fast, and (d) inverted, twice as fast. All versions are presented combined in various strettos].

Fugue 7, by Augmentation and Diminution [using six different versions of the *Art of Fugue* theme: (a) regular, (b) inverted; (c) regular, twice as fast, (d) inverted, twice as fast; (e) regular, twice as slow, and (f) inverted, twice as slow. All versions are presented combined in various strettos].

Musical notation for Fugue 7, showing the Art of Fugue theme in C major, 4/4 time.

TWO DOUBLE FUGUES

Fugue 9 [using two themes, the first of which is new; the two are combined together in various ways, in “Counterpoint at the 12th,” so the lower theme can also be a fifth lower, or the upper theme a fifth higher].

Fugue 10 [using two themes, the first of which is new; the two are combined together in various ways, in “Counterpoint at the 10th,” so they can be doubled in thirds and sixths].

NEW THEME (Counterpoint at 10th and 12th, so theme can be doubled in thirds or sixths):

ART OF FUGUE THEME (Counterpoint at 10th and 12th, so theme can be doubled in thirds or sixths):

TWO TRIPLE FUGUES

Fugue 8 [three-voice triple fugue, on three themes, the first two of which are new and the third of which is a rhythmic modification of the inverted version of the *Art of Fugue* theme].

1st THEME (NEW):

2nd THEME (NEW):

ART OF FUGUE THEME:

Fugue 11 [triple fugue in four voices using the same three themes as Fugue 8, but not inverted; this time the *Art of Fugue* theme starts, in its regular form].

1st THEME: ART OF FUGUE THEME:

3rd THEME (from fugue 8, 2nd theme, adapted):

2nd THEME (from fugue 8, 1st theme, reverted):

TWO MIRROR FUGUES

Fugue 12a [the first section is based on the main theme; the second section is based on the second version, an ornamented statement of the theme].

Fugue 12b [an exact mirror inversion of 12a, inverted top to bottom].

Fugue 13a [a three-voice counterfugue, using both the regular and inverted versions of a lively transformation of the main theme].

Fugue 13b [an exact mirror inversion of each individual part in 13a, but with the order of the parts juggled].

QUADRUPLE FUGUE
(completed by Davitt Moroney)

Fugue 14 [quadruple fugue on four themes, the third of which spells out Bach’s name and the last of which is the *Art of Fugue* theme].

BACH’S SIGNATURE THEME, SPELLING OUT HIS NAME IN NOTES

3rd THEME (NEW): B A C H

2nd THEME (NEW):

ART OF FUGUE THEME: fits perfectly with the three existing themes, and fills out the rhythmic gap where the other voices stop moving . . . HERE ↓

1st THEME (NEW):

THE ART OF FUGUE is Bach's musical testament. It gives tangible form to rhetorical ideas of exceptional nobility, partly by means of an imposing musical architecture but even more by the warmth and richness of Bach's musical imagination. In other words, the power of Bach's intellect unpinning his extraordinary capacity to use complex counterpoint for expressive and emotional purposes.

The work lay unfinished at his death, with 18 pieces (14 fugues and four canons), one of which lacks its last page. The surviving manuscript of the last fugue breaks off near the end. Scholarship has shown that somewhere between 30 and 40 closing measures are now missing, but Bach had no doubt brought it to full completion in his mind. (Were they on a different sheet of paper, now lost?) Even more unfortunate is the fact that his carefully planned scheme for *The Art of Fugue* was all but destroyed when the collection was published, less than a year after his death, by the addition of irrelevant pieces, and so there is now a severe confusion in the order of works in the second half of the cycle (as explained in detail below). Bach's scheme has been restored relatively recently.*

DEBUNKING THE MYTHS

Many conflicting ideas have been proposed about this work. There has been so much nonsense written about it that even some of the craziest notions still need to be patiently dismissed and some of the most evident rational conclusions still need to be reiterated. Logical conclusions will never convince people who prefer to fantasize and leave aside rationality, so I do not quarrel with those who insist on having a mythologized view of this work, any more than I would with flat-earthers or creationists. The world of Bach's music has always been one where irrational silliness coexists side by side with serious reasoning based on evidence.

* My edition of the work is available as *Die Kunst der Fugue*, ed. Davitt Moroney (Munich: G. Henle Verlag, 1989). The intellectual underpinning of my edition drew notably on the scholarship of Gustav Nottebohm (1881), Donald Francis Tovey (1931), Gustav Leonhardt (1952), R. Koprowski (1975), Wolfgang Wiemer (1977), and Gregory Butler (1983).

When it comes to *The Art of Fugue*, most of the flat-earthers rely on pseudo-arguments. (1) This work, they say, was not written for any specific instrument. *Reply*: Such a belief ignores the evidence of Bach's 1,100 other works, always written magnificently and idiomatically for the instruments chosen. The work was understood right into the middle of the 19th century to be a keyboard work, and the idea that it is not one is just a 20th-century invention. (2) This work can therefore, they say, be played on any instruments. My favorite recorded version in this camp is the one on a saxophone quartet; there are versions for string quartet, full romantic orchestra, steel drums, synthesizer, and so on. *Reply*: This illogical leap ignores the realities of the keyboard features of the work and many refined details in the writing that Bach modified in order to make it more easily playable by the hands. (3) They claim that since *The Art of Fugue* is counterpoint, the linear nature of the music is better served when each line is played by a different musician. *Reply*: This ignores the immeasurable benefits for the counterpoint when a single brain is in charge not just of playing all the parts but overseeing their exact harmonic and rhythmic interrelationships at all moments. (4) They point out that the open-score notation used for this work presents each melodic line on a separate musical staff, "proving" it was not written for keyboard. *Reply*: This ignores Bach's own notational practice elsewhere for keyboard music, as well as the open-score notation preferred by most composers of serious keyboard counterpoint over the previous 150 years. (5) They sometimes claim that several solo instruments can play certain fugues faster than a single player can manage them. *Reply*: This ignores the fact that Bach changed the level of notation for almost all the fugues originally notated in 16th notes, but unfortunately he died before finishing his notational revisions so he did not apply the slower note values to the last couple of pieces. This means that some pieces look as if they should be played fast but in fact they should not. (6) Finally, they claim triumphantly (when all other arguments fail) that in any case, it is impossible for ten fingers to play

The Art of Fugue on a keyboard. *Reply*: This ignores the fact that harpsichord keyboards are different from piano keyboards; notably, they are a little smaller and have a shallower key dip. The perceived "impossibility" of certain passages relates to a modern piano keyboard. (And what do these people imagine ten-fingered harpsichordists actually do when they play the work in public? Whistle the notes they "can't play"?)

One of the strangest claims about *The Art of Fugue* is that it is "abstract," and should perhaps not even be performed. Writers have waxed lyrical about how this is some kind of "music of the spheres," perhaps best read from the page and not heard as notes sounding in a performance. Such a view stems from a post-Romantic view of counterpoint as something belonging to the world of the intellect, and even as something "anti-musical" and "anti-expressive." But Bach clearly liked keyboard counterpoint when it was expressed by ten fingers controlled by one brain. He seems to have thought it was a good way of writing strong and expressive music.

There are also three fundamental practical questions that keep resurfacing. (1) Is *The Art of Fugue* really a harpsichord work? (2) In what order should the pieces be played? (3) Should the famous unfinished fugue be considered part of the cycle, despite its being absent from the autograph manuscript and lacking the unifying motto theme that is common to all the other pieces? Extensive research by many different scholars has now replied firmly to all three questions. Newer research will undoubtedly continue to shed light on these and other points, but it is hard to see how the current scholarly answers to these three questions will be seriously contradicted.

The questions are easy to answer. (1) Bach did indeed specifically write the work thinking primarily of practical performance on the harpsichord. The entire work is playable by the ten fingers of two hands. The open-score notation is a standard keyboard notation for counterpoint. The top note (high e''', found in fugue 13) is a rarity in Bach's works; it was available on harpsichords in the 1740s but usually not available on organs (whose top note was normally c''' or

d'''). Once it is accepted as definitely keyboard music, the question still remains: Which keyboard? One feature in particular argues strongly against Bach having conceived it with organ primarily in mind: the bass line in his big organ works always shows unmistakable signs of having been composed for the feet, not the fingers; those signs are entirely absent from *The Art of Fugue*. (2) For the printed edition (1751), Bach decided to change the order of the pieces by comparison with his autograph manuscript (ca. 1745); but the print was finally published nearly a year after his death and unfortunately his revised plan was not carried out correctly by his executors. Fortunately, the intended order can be reconstructed without much room for doubt. (See below for a more detailed discussion of this point.) (3) Any reconstruction of the order must indeed include the final unfinished fugue, since we now know that Bach allotted six pages to it in his pagination scheme. The absence of the work from the main autograph manuscript is a sure sign that it is one of Bach's very last compositions. As for the missing motto theme, it must have been scheduled to appear on the last page, and needs therefore to form the centerpiece of any reconstruction of the last page.

IN PRAISE OF COUNTERPOINT

I will stress here just a few features that particularly help listeners to *The Art of Fugue*.

Inversion. An important part of Bach's language is the idea of turning a theme or melodic fragment upside down (known as melodic "inversion"). The intervals are inverted (usually, but not always, pivoting around the third degree of the scale). What went up, comes down instead. So a theme that sounds the notes "D, E, F, G, A" can invert (pivoting around the F) to "A, G, F, E, D." Bach uses this principle throughout *The Art of Fugue*, announcing it right at the start, in the first four pieces: fugues 1 and 2 are based on the normal version of the theme, while 3 and 4 are based on the inverted theme. So in the motto theme that unites all the pieces in the collection, "D, A, F, D, C-sharp," becomes "A, D, F, A,

B-flat” when turned upside down. There’s nothing clever about this. Although the melody thus created has new pitches, the ear can easily recognize that the inversion is related to the original form because the rhythm has not been altered, only the pitches. A normal version and its inversion will have identical rhythms. Even the intervals have not been altered, so an upward leap of a fifth remains a fifth but leaps downwards, and stepwise motion remains stepwise. By the end of a concert of *The Art of Fugue*, the listener has heard the theme well over 200 times, about half in each direction, and often substantially modified rhythmically.

Counterfugues. Fugues that systematically use both melodic versions of the theme, normal and inverted, as known as counterfugues. In *The Art of Fugue*, Nos. 5–7 and 11–13 are particularly elaborate counterfugues.

Stretto. Bach also often uses a device known as “stretto,” especially in fugues 5–7. The term is close to the word Italians use for a dense coffee with not too much water in it, *ristretto*, and in Bach’s music it means much the same thing; it can certainly have a kick to it. In a stretto, the main melody is heard playing against itself in another voice, so you hear the theme twice at the same time, but with one part starting just after the other. In other words, the theme harmonizes with itself in a sort of short canon. The multiplicity and variety of the stretto treatment in *The Art of Fugue* is astounding, but also amusing. Fugue 7, in particular (where six versions of the theme coexist in a joyous chaos, all tumbling about and falling over each other), makes me think of a description of the Bach household given by one of his many children. The house was always so full of children and other musicians running in and out that C.P.E. Bach described it as being rather like a pigeon coop, with birds always flying in and out. Fugue 7 is definitely a pigeon-coop fugue. The four statements of the very slow version of the theme, grandfather-like (with the notes in rhythmic augmentation), supports the whole structure, rising steadily through the four voices (bass, tenor, alto, soprano), around which the normal versions of the main theme scurry about in every

direction, while the child-like fastest versions (with the notes in rhythmic diminution) rush all over the place.

Double counterpoint. In almost every piece Bach wrote there is more than one short melody, and these melodies are combined together to make harmony. The two-part *Inventions* are in two-part counterpoint, always based on two ideas being tossed back and forth between the hands. In “two-part invertible counterpoint” almost every melodic fragment found in one hand will appear somewhere in the other hand when the counterpoint is “inverted.” Any melodic passage can become the accompaniment and any accompanimental passage can become principal melody. But the concepts of “principal melody” and “accompaniment” are fundamentally misleading here. There is little hierarchical distinction between melody and accompaniment, since the whole point of the exercise is premised on their essential equality and interchangeability.

Triple counterpoint. In practice, Bach is at his happiest when combining not two, but three thematic elements, in triple counterpoint. The themes are short, sometimes just one measure and rarely more than four measures. Although one theme is usually announced at the start of a fugue (it is generally on the longer side and referred to as the “subject”), it is not necessarily the most important melodic element in the work. Usually Bach combines the layers rapidly by immediately adding a second theme in counterpoint, and then a third, so that after about six measures three different elements are already in play together. Only then does the musical fun really begin; Bach juggles with his themes to find new harmonies, like someone turning a three-dimensional object round to see new angles.

His contrapuntal language is usually composed within the particularly playful discipline called “triple invertible counterpoint.” As its name implies, this depends on there being at least three melodic lines (called “voices”) in play for most of a piece. “Triple” because there are three melodic elements; “invertible” because any of these three lines can be on the top, on the bottom, or in the middle. This makes it sound

easy but is difficult to do convincingly, so that the result sounds natural. Without this invertible counterpoint, Bach would not be Bach; it is the musical language that he speaks most comfortably, the contrapuntal air that he breathes. One important feature of Bachian counterpoint is his way of reinforcing the independence of the lines by making sure that they all have strong rhythmic profiles, different speeds, and different starting moments. The thematic threads rarely start or end together, on the same beat, and this feature helps him weave his lines into the musical texture.

Whereas double invertible counterpoint can invert into only one different position (since either theme 1 is on top and theme 2 underneath, or 2 is on top and 1 is underneath), triple invertible counterpoint is much more exciting and flexible, because the three themes can combine together in six, not two, different ways, and thus be superimposed vertically (harmonically) in six positions. Anyone with an elementary understanding of factorials, permutations, and combinatorics will understand this point easily enough. Three factorial—or $3!$ to mathematicians; that is, $3 \times 2 \times 1 = 6$ —implies the six possibilities: $1/2/3$, $1/3/2$, $2/1/3$, $2/3/1$, $3/1/2$, and $3/2/1$. So four measures of carefully composed triple invertible counterpoint can generate for Bach, as he rings the changes, 24 measures of excellent music. But since he also inverts the positions and changes the keys (dominant, subdominant, relative major or minor, etc.), not only do the harmonies sound quite different but the different versions are placed in different parts of the keyboard, in new relationships with each other.

Although Bach generally likes to introduce his three melodic elements right at the start and move into the combinations as quickly as possible, in some remarkable fugues he introduces them in distinct sections, at a considerable distance from each other. After several long paragraphs dealing with the first theme (during which other melodic fragments are tossed around in chatty invertible counterpoint), a second theme is formally introduced. The purpose of such a scheme is to create a third section bringing together two themes which, until then,

have not met. These works are “double fugues.” They remind me of non-parallel lines. They start in different places, and at different angles, but we know from the start that they will certainly intersect. Part of the musical pleasure comes from finding out when and how this happens, and the fact that we are waiting for it.

Some such fugues even have three or (very rarely) four separate themes, introduced at a considerable time distance from each other; these are all large-scale, highly imposing structures, but the purpose is the same. Once theme 2 has been introduced, it will be combined with 1; and after 3 has been introduced, it will be combined with 1 and 2. There is something superbly inexorable about the contrapuntal mechanism behind these works. And of course Bach’s compositional process in such cases will certainly have started with the combinations that only appear at the end. From them he unravels the strands and weaves pages of extraordinary music from each thread, before allowing the grand combinations to crown the edifice. Works with two themes are nowadays called “double fugues” and works with three are “triple fugues.”

(Anyone with a taste for this kind of thing might want to give a close listen to Bach’s Cantata No. 50, *Nun ist das Heil und die Kraft*, BWV 50; it is a stupendous sextuple invertible counterpoint set into almost unstoppable combinatory motion. Most listeners would never know its interior mechanism. It sounds joyful, strongly assertive, thrilling, and playful. Bach must have had fun with it, and of course he does not use anywhere near all the 720 possibilities offered by the $6!$ combinations....)

Understanding this combinatorial principle and learning to listen to more than one melody at a time is perhaps the most fruitful way of learning to appreciate Bach’s music. But other features can also be helpful. They tend to be rather jargon-heavy, which is unfortunate and can be somewhat inhibiting. But the ideas themselves are rather simple to understand and not particularly difficult to hear. The main point of this fiery combinatorial part of his compositional process is to present his three melodic partners, and to present them equally.

There can be few approaches more destined to kill young musicians' appreciation of the nature of Bach's counterpoint than to encourage them to "bring out the theme" by playing it louder. The famous 19th-century musical analyst Hugo Riemann wrote (in his *Catechism of Fugal Composition*, 1890) that Bach's fugal writing made "possible the constructing of longer pieces of compelling logic using only a single theme." A more blind (and deaf) view of Bach would be hard to imagine, and in fact Riemann's own understanding of Bachian counterpoint was more sophisticated than his statement implies; but not everyone's is, especially today. What made possible Bach's "constructing of longer pieces of compelling logic" was not the use of a single theme, but rather the multiplicity of thematic material being used, constantly, in triple invertible counterpoint of a richly permutational kind.

A misguided stress on monothematic construction is at the basis of most bad fugue playing today. Each generation sees and hears in Bach what it wishes to see and hear. The obscurantism of Riemann's reductive formulation almost willfully obliterates the essence of Bach's counterpoint. Virtually none of Bach's fugues are based on developments of single themes. His works are full to the brim with other fragmentary melodic ideas that get thrown around in various combinations.

Nevertheless, the first four fugues of *The Art of Fugue* do not use these technical features, and their restraint is precisely what is so remarkable about them. They are composed on a theme that was deliberately designed to produce an extraordinary variety of strettos and inversions, yet they studiously avoid contrapuntal fireworks, concentrating instead on pure, free counterpoint. In these first four fugues, the themes are therefore perhaps the least important element.

Free counterpoint. Fugues are complex structures, but construction is not everything. How many people look at modern buildings and think of the girders holding them up? Engineers and architects, perhaps. In some cases, important features of the engineering are laid bare for all to admire, as with the Golden Gate Bridge,

the Centre Pompidou in Paris, and Berkeley's own Wurster Hall. I like to think of all these buildings as being rather fugal.

All of the musical matters I have mentioned so far refer to musical structure and are essentially the composer's business as musical engineer. Or to take another metaphor, they are like the ingredients that go into a cake, yet it would be easy to make a bad cake with exactly the same recipe. Bach pays great attention to the freely created new melodies that are like the contrapuntal icing on his carefully structured layer cake. Writing in four parts using triple invertible counterpoint allows him always to have one free voice with which to be inventive. This non-structural melodic material is present throughout Bach's fugues. To use a last analogy, it adds ample and individualized "flesh" to Bach's "skeletal" structural combinations. Playing fugues and concentrating only on the themes is like being an expert chiropractor or surgeon rather than an admirer of the warm beauty of a living body. Listening to (and playing) Bach fugues while concentrating less on the skeletal themes and more on the palpable melodic outbursts that are not thematic can lead to a richer appreciation of Bachian counterpoint.

The fiery "bits in-between." Bach has a trump card up his sleeve when using his contrapuntal combinations so that these works (that could be rather intellectual bits of musical engineering) avoid becoming—to use his own phrase—"like dry sticks." He wanted them to have "fire" in them. He always develops the passages where the main theme is not actually being sounded anywhere (like the curving arches between the solid pillars). These are what English-speaking musicians call "episodes," but I prefer the French name, *divertissements*, a word that correctly implies that Bach, the player, and the listeners are having fun. Bach called them the *Zwischenspielen*, the bits played in-between. These free counterpoints, with their playful interludes, add not only fire but warmth to the music.

Bach seems to have thought of the articulation of themes alone as cold, dry sticks, and of the added free counterpoints as a warm fire.

The way fugues are often played, I feel that the themes are "brought out" rather like skeletal bones on an emaciated body. The free counterpoints are the beautiful, warm, living flesh and are more attractive; they can be the source of more sensual pleasures for players and listeners. The sensuality of counterpoint depends on this.

IN PRAISE OF CONTRAPUNTAL INSTRUMENTS

Since the theme in a Bach fugue is precisely what never changes, "bringing it out" on the piano is essentially drawing attention to what is static in the work rather than to what is constantly changing. Bach's free counterpoints around the themes, his flesh around the bones, is more seductive and is constantly changing. I prefer to concentrate on that, and to try and draw the attention of listeners to the most changing and imaginative part of a fugue, not to its stick-like skeleton. And this is where the harpsichord comes into its own. Pianos are capable of great dynamic gradations; playing without using that dynamic resource takes away something that is fundamental to the inherent nature of the instrument. Yet triple invertible counterpoint depends on all three melodic elements being equal, as they get juggled in their permutational shifts. In other words, the ways of making good harpsichords expressive are in complete harmony with the nature of the best music written for them, but these expressive means are fundamentally different from the ways of making good pianos expressive. The magnificent possibilities offered by the modern piano, including the kind of "volume-by-touch," exist essentially in a beautiful parallel world that is largely irrelevant when playing Bach. When you think about it, triple invertible counterpoint is really a particularly curious kind of musical style to try and play on the piano, an instrument whose nature is fundamentally antithetical to the procedure. To make such counterpoint sound convincing, the piano has to give up much of what makes it a piano. The ability to bring out one theme means that players do in fact bring out themes. As with parents who unfortunately favor one

of their three children, the result is both unfair and unjust. Bachian counterpoint absolutely requires equality of treatment among the themes, not bringing out one theme at the expense of the others.

There are two common keyboard instruments that, by their nature, will always give full equality to all simultaneously combined contrapuntal themes: the organ and the harpsichord, because the player's fingers cannot destroy or falsify the essential balance needed to present such counterpoint. Bach's keyboard counterpoint, with its constantly changing multiple combinations in every measure, grows from and depends on the fundamental nature of these two instruments. At first, they seem to be poles apart: the organ has pipes and is a wind instrument where the notes do not decay towards silence as long as the finger is playing the note; whereas the harpsichord has strings that are plucked and do decay relatively rapidly once the finger has played the note. The fact that Bach chose to write so much of his highly expressive contrapuntal music for keyboard instruments that cannot "bring out notes" by playing them louder (rather than for violins and flutes, for example) implies he was not at all bothered by the absence of this feature. Since all his other music is highly expressive and emotional, his way of playing these two objectively "less expressive" instruments must also have been highly expressive; but it can only have been so in a way that was radically different from the kind of playing that is most natural to a piano.

The period during which most of the finest contrapuntal music for keyboard was composed was the period when the harpsichord and organ were the two principal keyboard instruments, so there is a chicken and egg situation. Did harpsichords and organs develop in the way they did in the 16th and 17th centuries because the music that composers were writing was essentially polyphonic? Or did composers develop their compositional styles for keyboard music because the instruments they had under their fingers responded in the way they did? The answer is that both are true. The organ traces its roots back many centuries; as a sophisticated

instrument with keyboards well adapted to the fingers, it dates back to at least the 15th century. That is also the time harpsichords first developed in forms recognizably comparable to the ones we know.

By Bach's time, these instruments had already had the benefit of a longer period of development and a gradual process of perfection that had lasted for longer than the entire history of the piano until today. In other words, whatever relation the finest modern concert grand piano has to the earliest pianos was more or less the relationship that Bach's harpsichords and organs had to the earliest known such instruments. There was nothing remotely primitive about Bach's instruments, or about his way of playing them. By his time they had, for over 300 years, been developed by wonderful craftsmen for superb keyboard players; they had been improved, in order to make them perfect for playing the particular kinds of music that composers wrote. That music was essentially polyphonic and contrapuntal.

BACKGROUND INFORMATION

If both the complicated history of *The Art of Fugue* and Bach's clear intentions are to be understood, some background knowledge is essential. During the 1740s, Bach seems to have had two overriding preoccupations: a desire to publish his keyboard music and a more private interest in the expressive possibilities of intricate canon and counterpoint. His publishing plans for his organ and harpsichord music are easy enough to identify. He started with three volumes of *Clavierübung*, or "keyboard practice": in 1731, he published his six harpsichord Partitas, in a volume carrying the charmingly misleading annotation "Opus 1"; four years later, in 1735, he issued the Italian Concerto and French Overture; and still four years later, in 1739, he published a massive collection of organ pieces. In the last decade of his life, Bach moved into top gear. The fourth volume of *Clavierübung*, the "Goldberg Variations," appeared in 1741, followed in 1747 by the keyboard ricercars of

the *Musical Offering* and the *Vom Himmel hoch* variations for organ, and in 1748 by the six "Schübler" organ chorales. In the light of his preoccupation with publishing some of his keyboard pieces, we can see *The Art of Fugue*, Bach's final summary of keyboard fugue, as a fitting climax to 20 years of activity, filling a gap in his published work that might have seemed strange to his contemporaries since keyboard fugues were one of the things for which he was most famous. (At this point he clearly still had no plans to engrave and publish *The Well-Tempered Clavier*.) *The Art of Fugue* was engraved, as Wolfgang Wiemer showed, by J. H. Schübler during the last year of Bach life. It was published only in 1751, a year after his death.

Bach's other preoccupation in his last decade, a private interest in strict fugal and canonic polyphony, comes to the fore in several ways. During the 1730s, he had been putting together the manuscript collection that would become the second book of *The Well-Tempered Clavier* (basically assembled in 1742), but the works to which he then turned all had other features in common as well as the contrapuntal intricacy. The "Goldberg Variations" (1741), with their nine canons (and their appendix of 14 supplementary canons, discovered 30 years ago), the *Musical Offering* (with ten canons and two exemplary fugues), and the five canonic variations on *Vom Himmel hoch*, all reflect Bach's increasing obsession with complex counterpoint, but each collection is also unified by a single key and is based on a single theme. It is not surprising, therefore, that during the 1740s Bach should have started work on a large-scale series of fugues and canons (each one here called "Contrapunctus" by Bach, a Latin name stressing the contrapuntal language of the fugue), demonstrating in a masterly manner the expressive art of keyboard counterpoint, but also presented with all the works in the same key (D minor) and all constructed on the same theme.

The idea for such a work may have been slowly germinating all Bach's adult life, ever since 1705, the date of his famous visit "to Lübeck, in order to comprehend one thing and another about his art" (as he himself succinctly put it); the mirror

fugues are strikingly comparable to Buxtehude's two four-part movements in D minor (each also entitled "Contrapunctus" and each having its mirror-like "evolution"), published in his *Fried und freudenreiche Hinfarth* in 1674. These works, composed in memory of Buxtehude's father, may be the models for Bach mirror fugues in D minor, entitled "Contrapunctus" (Nos. 12 and 13 in *The Art of Fugue*).

It seems likely that Bach embarked on serious work on *The Art of Fugue* only after finishing the second book of *The Well-Tempered Clavier*. The sketches and autographs of the earliest versions are lost. Probably in about 1745 or 1746 he made an autograph score of all of the material he had composed up to that point. This fair copy does survive. It is in open score, with each of the four melodic lines on a separate staff, with all the notes designed to be played by the ten fingers of two hands. It contains twelve fugues and two canons.

This total of 14 may have been a deliberately self-referential gesture indicating Bach's own name, like a signature, since according to the age-old principle A=1, B=2, C=3, etc., B+A+C+H=14. Bach was well aware of the fact and exploited it in many ways. He added 14 canons to the "Goldberg Variations" (ending with "etc.," implying he could go on, but 14 was enough), and exploited both 14 (=BACH) and its numerical reverse 41 (=J. S. BACH) in other works. However, for *The Art of Fugue* he changed his mind and added two more fugues and two more canons, bringing the fugues themselves up to 14 and the canons up to four. Perhaps he intended to write a total of 14 canons but was interrupted by the total blindness that caused his final illness and death in July 1750. (The four canons are omitted in today's performance.)

His autograph manuscript contains many corrections and modifications, including complete reworkings of two pieces (one fugue and one canon). Equally significant, at some point Bach took a critical overview of the inconsistent (and incoherent) notational levels he had been using, and instructed his assistant—his teenage son Johann Christoph Friedrich Bach (1732–1795)—to double the note values for

several pieces in order to bring them in line with the main notational level of the collection. So several pieces originally written in eighth notes and 16th notes were notated in quarter notes and eighth notes. (Modern players who misunderstand Bach's purpose can easily unwittingly play these pieces at inappropriate speeds.) All of these corrections date from about 1747, when Bach's work was probably interrupted by his composition of the *Musical Offering* and the *Vom Himmel hoch* variations.

There is an additional element that sheds light on what Bach may have had in mind. In June 1747 he joined the "Mizler Society," a rather learned group of musicians, set up by his friend and student Lorenz Mizler. Telemann and Handel were already members. Bach waited to join until he could be the 14th member. This was in all likelihood an in-joke, another reference to his name. One condition of membership obliged Bach to agree to submit a "scientific" work, in published format, and it might have been the extremely complex six-part canon (six parts derived from three different melodic lines) that is now associated with the appendix of 14 canons added to the "Goldberg Variations"; he is shown displaying this complex canon in his best known portrait, painted by Elias Gottlob Haussmann in 1746; we know the little canon was printed since at least one copy of the original print survives. A further condition of membership in Mizler's society was that Bach should submit a new published work, in similarly "scientific" vein, every year until the age of 65. This was maybe his motivation for printing the highly complex *Vom Himmel hoch* variations (1747) in a teasingly incomplete form visually, meaning they cannot be played directly from the publication without first working out "scientifically" how to derive the missing canonic voices. In 1748, Bach may have offered his Mizler colleagues copies of the printed ricercars (very learned contrapuntal works) from the *Musical Offering*; he printed 100 copies but by October 6, 1748, most of them had been "given away." It is possible, therefore, that Bach thought of the printed edition of *The Art of Fugue* as being his final offering to the members of the Mizler Society, probably intended as his

1749 gift; after March 1750 he would be off the hook, since he would have turned 65.

BACH'S ILLNESS AND DEATH

However, things did not quite turn out as planned. By mid-1749 Bach had already gone blind and his work on *The Art of Fugue* ground to a halt, despite the help of young Johann Christoph Friedrich. The first part of the collection (comprising the first ten fugues) was sent off to the engraver and corrected; we are therefore fairly sure about what Bach intended for these ten fugues. Among them were at least one new fugue (No. 4, not found in the autograph manuscript) and one heavily revised fugue (No. 10, which was given a completely new opening). He was probably able to check and correct the engraved plates for these pieces. By June 1749, however, his eyesight (which had always been troublesome) had deteriorated badly, due to a cataract, and he could hardly work at all. Bach's health was cause for such general concern that his employers actually auditioned his successor at that time, so sure were they that he was about to die.

He rallied, however. Although almost totally blind at times, he continued work, dictating revisions of existing works (and perhaps some final compositions) to those of his younger sons who were still living at home. It was probably at this point that he was able to put fugues 11–13 in order and start work on the concluding fugue, No. 14. At the end of March 1750, he had a painful eye operation. Death finally came on the evening of July 28, 1750, following a stroke.

No one seems to have known precisely what his intentions were. At the time of his death the corrections to the second half of the collection had not been carried out. The remaining pages were hastily engraved. The inventory for Bach's estate lists a small payment due to "Mr. Schübler"; since this was equivalent to less than the value of Bach's two dozen pewter plates, it seems unlikely that very many pages remained to be engraved on the metal plates that were used for printing at that time.

THE ERRORS IN THE FIRST EDITION

The Bach family (probably with C.P.E. Bach making the decisions, and making the mistakes) found themselves in a difficult spot. They tried to finish the work on the edition, perhaps hoping to raise some money. (Bach did not die a wealthy man, and his widow was soon destitute.) In their confusion, they misguidedly placed the last fugue (No. 14)—which was incomplete—at the end of the volume, after the four canons. Gregory Butler has convincingly demonstrated (using infrared photography of the page numbers, which have been altered) that Bach originally allowed the six pages following fugue No. 13 for this last fugue. His study should therefore have laid to rest the erroneous idea that Bach did not intend the unfinished fugue to form part of *The Art of Fugue* (an idea unfortunately supported by certain earlier writings by Gustav Leonhardt).

Bach's sons were in no doubt that it belonged with the collection; their only doubt was where to place it. Butler has not only shown they were right to include it, but also confirmed the fugue's correct place in the cycle. (Tovey had, in 1929, already proposed that it should be positioned as fugue No. 14.) The family's decision to place the unfinished fugue (the surviving portion of which occupies only five, not six, engraved pages) at the end of the whole work was very unfortunate; this created a six-page gap in the pagination between the end of No. 13 and the first of the four canons. They filled this gap—thereby sowing the seeds of immense confusion—by adding the three-page early version of fugue No. 10 and by displacing the three-page fourth canon into first position. In this way, Bach's inheritors committed a series of simple but fundamental blunders that have plagued *The Art of Fugue* ever since.

(1) They included an early version of a fugue that had already been engraved and printed as No. 10. In revising that fugue, Bach had added 23 measures to the opening and had made innumerable corrections to the rest of it. There cannot be any question of his having intended the earlier version to be printed.

(2) They changed Bach's logical musical order of the canons. The fourth canon is the most complex (at the interval of the fourth below, by augmentation and inversion) and its composition gave Bach much trouble, as we know from his earlier drafts. By placing the three-page fourth canon in front of the three rather simpler two-page canons, they destroyed something important in the musical structure of the group.

(3) They robbed the great unfinished fugue of its rightful place as the climactic 14th fugue. This is the piece whose third theme is derived from Bach's own name. "BACH" in German notation spells out the chromatic theme "B-flat, A, C, B-natural." It is thus the last new theme introduced into the whole of *The Art of Fugue*. It cannot be a coincidence that Bach introduces his melodic signature precisely at the end of fugue No. 14, since 14 is also the number equivalent of the letters BACH, as mentioned above.

Following these errors, the family committed two more, by including other pieces that have no place in the work.

(4) They included two arrangements of the three-part mirror fugue (No. 13), as reworked by Bach for two harpsichords, in four parts—and they even managed to print them in the wrong order! These arrangements have no logical place in Bach's tightly constructed cycle of fugues. The error is understandable, since the arrangements are based on the motto theme and therefore seem at first glance to be part of the collection. Bach made many such transcriptions during his lifetime; one movement for unaccompanied violin was transcribed for full orchestra (including organ, trumpets, and drums), and others were arranged for harpsichord; this does not mean that the transcriptions belong with the set of works for unaccompanied violin. In the case of the two arrangements of fugue No. 13, both pieces make fine works for two harpsichords, but this does not alter the fact that the original three-part version makes a splendid pair of mirrored pieces for solo harpsichord. It is the three-part version alone that belongs with the *Art of Fugue* cycle.

(5) Finally, and most surprisingly, they added at the end of the volume the completely irrelevant organ chorale prelude *Wenn wir in höchsten Nöten sein*. They explained in an explicit apology that the chorale was offered as a sort of compensation for the incompleteness of the last fugue.

In short, the family not only displaced two works (the 14th fugue and the first canon) but also added four movements that do not belong to the printed cycle of *The Art of Fugue*.

Bach's revised scheme for the work is simple. It consists of 14 fugues built on the same theme (or on transformations of that theme), organized in two groups of seven. They are arranged in order of increasing complexity. In the first group, there are four simple fugues followed by three inversion fugues (contrafugues) in stretto. In the second set, there are four fugues on two or three themes (Nos. 8–11), two mirror fugues (each presented first in normal version then repeated in its mirror version), and a concluding fugue on four themes, one of which was Bach's own name spelled out in musical notation, as a fitting signature to the whole. To this principal scheme he added, as a sort of appendix, four canons built on the same theme and similarly intended to be placed in order of increasing complexity. (This structure is restored in my 1989 edition for Henle Verlag.)

COMPLETION OF THE LAST FUGUE

A further word is necessary concerning my completion of fugue No. 14. As with almost all of the problems associated with *The Art of Fugue*, Bach's intentions can be deduced and a completion of the fugue can be proposed without much difficulty. Gustav Nottebohm was the first to propose (over 130 years ago) that, although the fugue has three separate themes and was given the title "Fuga a 3 Soggetti" in the posthumous edition, the completion planned by Bach must have introduced the motto theme. This idea has been attacked as often as it has been defended. I side with Nottebohm (and with Tovey and

many others). Since we now know that this fugue was indeed intended to follow fugue No. 13, the completion *must* contain the motto theme, like every other movement in the collection. The title's reference to "fugue with three subjects" means nothing, since it was almost certainly added (by C.P.E. Bach?) after Bach's death. All of Bach's own titles in this collection are in Latin, not Italian. Tovey noticed, in a particularly intelligent observation, that the motto theme supplies the missing rhythmic link when all four themes are combined (the quarter notes of the motto fill in the single passage where there is a rhythmic vacuum in an otherwise seamless flow of notes; see the musical example on page 11). He here drew attention to a highly characteristic feature of Bach's counterpoint.

Since Gregory Butler showed that Bach allowed six pages for the fugue, and since the surviving portion already occupies five, Bach's planned completion cannot have contained more than about 40 measures (assuming the sixth page to have been full). I have constructed by 30-measure completion around the only two usable statements of the final combination of all four themes. (I mean "usable" in the sense of "playable by the ten fingers," like the rest of the work.) I give the first combination in G minor with the motto theme in the soprano voice, because the introduction of Bach's own name, starting on a B-flat, pushes the music towards the subdominant; and I give the second in the tonic, D minor, with Bach's own name in the soprano voice, since he seems to have wanted to sign the whole work with his name. I have linked these two statements with a three-part stretto on the B-A-C-H theme; this triple stretto has not yet been used by Bach but he was undoubtedly aware of it (and even hints at it); I assume he was saving it for the last, climactic episode, so that is where I place it.

The music of these three portions of my completion, like three large "bricks" making up nearly 20 measures, can be said without undue exaggeration to be more than mere speculation. The "cement" I have added around these bricks is designed to maintain the wild chromaticism that Bach himself unleashed with his musical

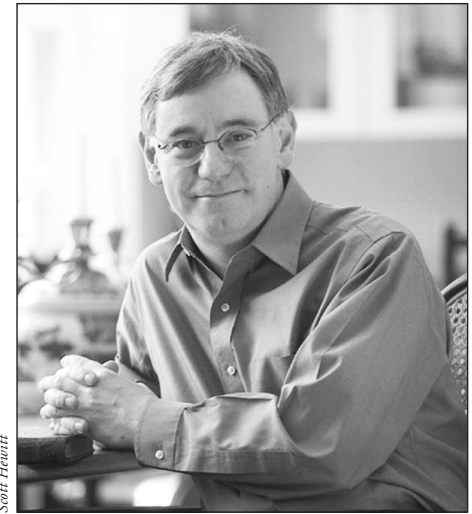
signature theme. I have refrained from indulging in a final tonic pedal, following the example of fugues Nos. 8 and 11, the longest complete fugues in the cycle. Comparison with the six-part *ricercar* from the *Musical Offering*, itself one of Bach's grandest fugal constructions, is helpful here. By 1750, Bach was more interested in concision than in lengthy perorations. (Just for the record, my last measure is a deliberate reference to fugue No. 8, a fugue I particularly like.)

Davitt Moroney

DAVITT MORONEY was born in England in 1950. He studied organ, clavichord, and harpsichord with Susi Jeans, Kenneth Gilbert, and Gustav Leonhardt. After studies in musicology with Thurston Dart and Howard M. Brown at King's College (University of London), he entered the doctoral program at UC Berkeley in 1975. Five years later, he completed his Ph.D. with a thesis, under the guidance of Joseph Kerman, Philip Brett, and Donald Friedman, on the music of Thomas Tallis and William Byrd for the Anglican Reformation. In August 2001, he returned to UC Berkeley as a faculty member and is a Professor of Music as well as University Organist.

For 21 years he was based in Paris, working primarily as a freelance recitalist in many countries. He has made over 60 CDs, especially of music by Bach, Byrd, and Couperin. Many of these recordings feature historic 17th- and 18th-century harpsichords and organs. They include Bach's *French Suites* (two CDs for Virgin Classics, shortlisted for the Gramophone Award), *The Well-Tempered Clavier* (four CDs), the *Musical Offering*, the complete sonatas for flute and harpsichord, and for violin and harpsichord, as well as *The Art of Fugue* (a work he has recorded twice; the first recording (1985) for Harmonia Mundi France, received a Gramophone Award; the second recording (2000) accompanies the edition of *The Art of Fugue* published by ABRSM Publishing, London). He has also recorded Byrd's complete keyboard works (127 pieces, on seven CDs, using six instruments), and the complete harpsichord and organ music of Louis Couperin (seven CDs, using four instruments). His recordings have been awarded the French *Grand Prix du Disque* (1996), the German *Preis der Deutschen Schallplattenkritik* (2000), and three British Gramophone Awards (1986, 1991, 2000). For his services to music he was named *Chevalier dans l'Ordre du mérite culturel* by Prince Rainier of Monaco (1987) and *Officier des arts et des lettres* by the French government (2000).

In 2000, he also published *Bach, An Extraordinary Life*, a monograph that has since been translated into five languages. In spring



Scott Hewitt

2009, he was visiting director of a research seminar in Paris at the Sorbonne's *École pratique des hautes études*. His recently published research articles have been studies of the music of Alessandro Striggio (in the *Journal of the American Musicological Society*), of François Couperin, of Parisian women composers under the Ancien Régime, and a more personal article on the art of collecting old music books.

In 2005, after tracking it down for 18 years, he identified one of the lost masterpieces of the Italian Renaissance, Alessandro Striggio's Mass in 40 and 60 Parts, dating from 1565–1566, the source for which had been lost since 1724. He conducted the first modern performance of this massive work at London's Royal Albert Hall in July 2007 (to an audience of 7,500 people, and a live radio audience of many millions of listeners) and conducted two performances at the Berkeley Festival & Exhibition in June 2008. Two further Berkeley performances took place in February 2012, for Cal Performances ("The Polychoral Splendors of Renaissance Florence"), and included first performances since the 16th century of other newly restored "mega-works" by Striggio's contemporaries. He has recently recorded the sixth CD of his set of the complete harpsichord works of François Couperin (ten CDs for the Plectra label).