

On the Subject of  
Strategic Method



COGNITION *VS.* INFORMATION  
IN MUSIC

# J.S. Bach's Musical Revolution

by Anno Hellenbroich

In his 1680 “Rules for the Promotion of the Sciences,” Gottfried Wilhelm Leibniz wrote an idea, to which he attached a metaphor which would seem funny to us today, an idea which is now more important than ever: “Those who walk around in the sun, take on a different color, and so likewise will a musician, having observed in the compositions of capable people thousands upon thousands of beautiful cadences and, so to speak, phrases of music, will, thus equipped with this beautiful material, be himself enabled to inspire his own imagination.” And, as a good teacher, who does not want to discourage those who are willing to learn, Leibniz adds: “There are even such people who are musicians by nature, and compose beautiful melodies.”

To recognize something in the observation of thousands of musical phrases “which inspires one’s own imagination.” This is the Classical-humanist method of teaching, which

challenges those who are willing to learn to re-live, from the sources of great compositions, the discovery for themselves, whether these be discoveries in the natural sciences, or new artistic creations.

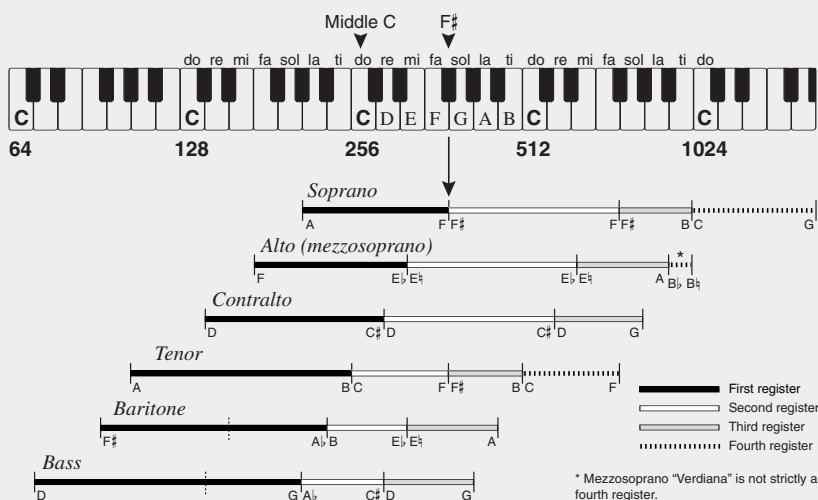
Johann Sebastian Bach (1685-1750) did exactly that when he was a child, and he became a genius. Mozart and Beethoven wrote down

“new counterpoint phrases” from the works of their predecessors, but especially from those of Bach, in order to make the new musical “idea,” or “thought-object,” their very own, as LaRouche described it in his groundbreaking essay, “Mozart’s 1782-1786 Revolution in Music,” in 1992.<sup>1</sup>

As it seems, it is only today, 250 years after Bach’s death, that we are

*This speech opened the conference panel on May 28. Footnotes have been added.*

FIGURE 1. *The six species of human singing voice.*



better able to understand the musical revolutions which Mozart and Beethoven recognized in Bach's late works, especially in *A Musical Offering* (1747), and in *The Art of the Fugue*.

Many of the ideas which Leibniz, some forty years earlier, articulated in his late work *The Monadology* and in *Principles of Reason in Nature, and Grace*, can help to make Bach's way of thinking, of composing, more intelligible today. We can obtain a deeper insight into Bach's intellectual principles of composition, which so fundamentally revolutionized Classical thinking, from remarks which Leibniz made with respect to music: his comparison to the principles of construction in nature, the divine order of creation, and the lawfulness of musical harmony.

In his *Principles of Reason*, for example, Leibniz speaks about the growing joy in the knowledge of the perfection of the universe God created, the same joy which arises from the beauty of a musical work of art, which sounds harmonic:

Since God is the most perfect and the happiest, and consequently the most worthy of love of all substances, and since truly pure love consists in an emotional condition which allows of the perception of desire for the perfection and happiness of that which one loves, this love gives us the greatest desire of which one can be capable, as soon as God is its object. Thus do we take joy in music, although its beauty seemingly only consist in the concord of numbers and in counting—of which we are not conscious—of the waves and vibrations of sounding bodies, which take on certain intervals.

In order to avoid misunderstanding: Leibniz sees—as did Kepler and Nicolaus of Cusa before him—in numbers and counting, a characteristic of the cosmos ordered by God, a

measuring, an aspect of a fundamental lawfulness which characterizes us and our universe. In particular, Leibniz makes the important remark that “music pleases us by means of the concord of numbers and counting, of which we are not conscious.” Is Leibniz speaking about our souls, perhaps as the midwife of Reason, in which beauty is unconsciously perceived? An idea which Friedrich Schiller develops in his essay on the aesthetic education of the beautiful soul.

In another passage of the *Principles of Reason*, Leibniz formulates the principle of “the best of all possible worlds” in the following way:

It follows from the highest perfection of God that, when he created the universe, He selected the best possible plan, in which there was the greatest multiplicity in the framework of the greatest order, in

which space, position, and time are best employed, so that He achieved the greatest effect with the simplest of means, endowing the creatures with the greatest power, the highest knowledge, the greatest happiness and the greatest good, of which the universe was capable.

“Greatest multiplicity in the framework of the greatest order”: Is not the immense work of Johann Sebastian Bach's life permeated by this principle?

Bach wrote all of his works “to God alone the glory,” *solī Deo gloria*, hundreds of spiritual and secular *Lieder*, cantatas, motets, the powerful Passions and the large fugal works, and, not least, the later work with the royal theme, *A Musical Offering*, as a “painful and tedious work.” Each of his works attests to the attempt to generate the largest multiplicity in a unity, a perfection, to cre-

FIGURE 2. Concluding refrain in “Ach Golgatha” from J.S. Bach's “St. Matthew Passion.”



FIGURE 3. Opening of “Ach Golgatha” from J.S. Bach's “St. Matthew Passion.”



ate the greatest effect by employment of the simplest means. Bach's development of polyphony, the fugue, his use of the organ point, are noticeable elements of this principle of the greatest effect with the simplest means.

That is why we concern ourselves with Classical music, from the Augustinian tradition to Leonardo da Vinci's researches on the *bel canto* human voice, to Bach's revolutionary invention of the well-tempered system—because we are convinced of the fundamental intelligibility of creative thinking. For, both in researches in the physical-natural sciences, as well as in investigating our powers of thinking, our creative thinking processes in the forming of works of art, we run up against the paradox today more than ever: lawful development *versus* discontinuity—which we have to solve.

## Bach: Master of Song

It took a long time for Bach's actually magnificent discovery of the characteristics of the six species of the human voice [SEE Figure 1]—for example, in choral singing and in the choral passages of the Passions—to be adequately appreciated.

Today, we have to rediscover the characteristics of hearing and singing of Bach's time, the heritage of the Bach family extending over six generations, about which Bach's great son, Carl Philipp Emanuel, reports.

I want to provide one example to illustrate this, in the brief form of this introduction to our panel.

In the second part of the great *St. Matthew Passion*, which was probably first performed in 1727 (rediscovered and performed anew 100 years later by the young Felix Mendelssohn Bartholdy in Berlin), Bach composes a recitativo for the alto voice and two alto oboes (Oboe da Caccia in F), "Ach Golgatha," which represents a

prelude to a magnificent alto aria. These two alto solos are situated following the scene of the Crucifixion of Jesus, before Jesus dies on the Cross. "Ach Golgatha" reflects the great paradox for all Christians, as expressed in the text of the aria, which says: "Twas there the Lord of glory was vilely rejected," and it peaks in the cry of agony, "... the innocent must die, as do the guilty. Ah! how this grief afflicts my soul!" The aria that follows, placed at this prominently dramatic passage of the Passion, takes up the idea of salvation ("See ye, see the Savior's outstretched Hands!"/ He would draw us to Himself. Come."). Compositionally, the aria echoes the interjected calls, which one can hear in the

introductory double chorus of the *St. Matthew Passion*.

Compositionally, Bach employed the special characteristics of the alto (or mezzosoprano) voice, to represent this painful paradox. This becomes clear, for example in the concluding refrain of "Ach Golgatha" [SEE Figure 2], which drops from a D $\flat$  in the middle register to the E $\flat$  in the chest register, before Bach ends the alto voice in the middle register on the shallow-sounding G, polyphonically set against the oboe voices. With the oboes and the accompanying pizzicato bass, which are polyphonically singing with the human voice, Bach created one of the most gripping of vocal compositions. This is also true with respect to its

FIGURE 4. *Beethoven Piano Sonata Op. 111, opening of first movement.*



FIGURE 5. *Lydian intervals in "Ach Golgatha" from J.S. Bach's "St. Matthew Passion."*



harmonic boldness, which anticipates the paradoxes of the later theme of his *A Musical Offering*.

The opening interval “Ach Golgotha” [SEE Figure 3], which consists of a diminished seventh  $E_b$  to  $G_b=F^\sharp$ , was later “used” by Mozart and Beethoven, for example in Beethoven’s Piano Sonata Opus 111 [SEE Figure 4]. The paradoxes of the poetic text are characterized by a succession of Lydian interval-leaps and combinations. Each Lydian interval sung by the soloist also introduces a new degree of poetic tension in the text. For example, as shown in Figure 5, in the lines “*der Segen und das Heil der Welt / wird als ein Fluch an’s Kreuz gestellt*” (“The blessing and the salvation of the world / is being, as if a curse, put up on the cross”), the contraries “Der Segen” and “an’s Kreuz” are both sung on Lydian intervals. This is a peculiarity which Mozart discovered in 1782-83, based on *A Musical Offering*, as a new tool of composition. In earlier times, this Lydian interval was outright “cursed” as *Tritonus*, the “devil” (*Diabolus*) in music.

One of the special characteristics of the Lydian interval is connected with the matrix of the six species of voices. The natural shift in the register upwards or downwards occurs either at distances of the octave or Lydian interval. So one can say: The Lydian interval is the smallest interval-unit which effects a register shift in all of the voice species. There are only six Lydian intervals, and they remain the same upwards or downwards, i.e., also in the inversion [SEE Figure 6].

The particularly impressive recording of “Ach Golgotha” which I will play, is from the year 1954, under the direction of Wilhelm Furtwängler with the Vienna Philharmonic orchestra, one of the very few performances of the *Passion* under Furtwängler.<sup>2</sup> Furtwängler

FIGURE 6. The six Lydian intervals.



FIGURE 7. Autograph score, “Ach Golgotha” from J.S. Bach’s “St. Matthew Passion.”

died that year. The alto is Marga Hoeffgen. In this performance, the young Dietrich Fischer-Dieskau sang the words of Christ [SEE autograph, Figure 7].

One characteristic of all Classical music, as you can perceive it in the interpretation of this segment of the *St. Mathew Passion*, is carried by the fundamental idea of the Passion, love—*agapē*—in the Christian sense. In other words, the essential musical emotion is not sensuousness, but *agapē*, as Plato and the Apostle Paul define that emotion. In true contrapuntal polyphony, the essential ideas of the composition are chiefly defined in two ways. First, as physical principles are defined in science, by ontological paradoxes. In music, the relevant paradoxes are posed by the metaphorical forms of transitions, lawfully generated dissonances, generated within the composition. Second, by explicit or implied quotation from ideas stated in other compositions, either by the same, or other composers. For this reason, the two late works, *A Musical Offering* and *The Art of the Fugue*, about which we shall learn more from Professor Vyaskova, have their prominent importance for succeeding musical revolutions.

### Bach's *A Musical Offering*

I shall play three short examples from *A Musical Offering* to illustrate this. What is striking in the basic theme of *A Musical Offering*, is the seemingly paradoxical F $\sharp$  in the C-minor key area, that F $\sharp$  in the second part of the royal theme, along with the already-mentioned diminished seventh A $\flat$  to B $\natural$ , which Bach put on the first accentuated beat of the bar. With the entrance of the second voice, this allows for the development of lawful dissonances, which were so inspiring for succeeding generations of composers.

FIGURE 8. J.S. Bach's own keyboard reduction of the Six-part Ricercar from "A Musical Offering."



Then, we shall hear two further canons, the very compressed short form of *A Musical Offering* by Bach, with the characteristics of the simultaneous upward and downward movements of the same contrapuntal voice, thus the ambiguity of the intervals, which Bach formulated as the simple movement [SEE Figure 8], and then the inversion of the movement [SEE Figures 9 and 10].

In a letter written to Nicolaus Hartsöcker around 1711, Leibniz wrote the following on the subject of dissonances:

The imperfections which exist in the universe are like the dissonances in an excellent composition, which, in the opinion of those who well understand the connection, contribute to make this [the composition] more perfect.

And to Goldbach (a correspondent mathematician from St. Peters-

burg), he wrote about the sparing use of dissonances:

Dissonances are pleasing as an occasional accompanying element and are employed to great effect: they are inserted between the harmonious sounds [*Wohlklänge*] like shadows in the order and in the light, so that we all take great joy in the great order.

[Text continues on page 69]

FIGURE 9. "Canon Perpetuus Super Thema Regium" from J.S. Bach's "A Musical Offering."

In riddle form:

The musical score for the riddle form consists of two systems of grand staff notation. The first system shows the right hand playing a simple melody while the left hand plays a complex, rhythmic pattern. The second system continues the piece, with the right hand playing a more active melody and the left hand providing harmonic support. Trills are marked with 'tr' and a section is marked with a double bar line and repeat dots.

In solution form:

The musical score for the solution form consists of two systems of grand staff notation. The first system shows the right hand playing a complex, rhythmic pattern while the left hand plays a simple melody. The second system continues the piece, with the right hand playing a more active melody and the left hand providing harmonic support. Trills are marked with 'tr' and a section is marked with a double bar line and repeat dots.

FIGURE 10. *Contrary Motion Canon* from J.S. Bach's "A Musical Offering."

*In riddle form:*

The musical score for the 'In riddle form' consists of two systems of two staves each. The key signature is three flats (B-flat, E-flat, A-flat) and the time signature is common time (C). The first system shows the beginning of the canon with a repeat sign. The second system concludes the piece with a double bar line and repeat dots.

*In solution form:*

The musical score for the 'In solution form' consists of two systems of three staves each. The key signature is three flats and the time signature is common time. The first system shows the beginning of the canon with a repeat sign. The second system concludes the piece with a double bar line and repeat dots.

