

Early Keyboard Studies NEWSLETTER

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Fingering, Bach and the *Wegweiser*

In the autumn of 1688, catalogs for both the Frankfurt and the Leipzig semiannual book fairs announced an anonymous new organ tutor published in Augsburg with the title *Kurtzer jedoch gründlicher Wegweiser* ...¹ The *Wegweiser*, as it is now commonly known, must have been extremely popular--it was reissued at least eleven times over the next sixty-five years in at least six different editions.² As one of the few such tutors of the baroque period, the work has received considerable attention from modern scholars of performance practice and organ pedagogy, and because its publication history (1689-1753) coincides almost exactly with the lifetime of Johann Sebastian Bach, nearly every scholar has speculated on the possible connection between Bach and the *Wegweiser*. Concrete evidence from Bach's lifetime, however, can now be brought to bear on the *Wegweiser* as it relates both to Bach's teaching and to the performance of his music.

The first edition of the *Wegweiser* comprises forty-eight pages of text followed by fifty-five pages of music. The text is divided into three parts, including (1) fundamental keyboard technique with emphasis on fingering, (2) the realization of figured bass, and (3) the fundamentals of Gregorian chant. The musical portion consists of sixty-four brief versets distributed over the eight modes, followed by a few miscellaneous pieces of somewhat greater length.³ Styles range from imitative movements of only two or three measures to one- or two-page toccatas in which free and imitative sections alternate. Added to all editions after the first was a sixteen-page translation from an otherwise unknown singing treatise by Giacomo Carissimi entitled *Ars cantandi*.⁴

An earlier date of 1668 for the *Wegweiser*'s first edition is sometimes claimed in the

secondary literature. This erroneous date is the result of a typographical error in Göhler's list of *Messkatalog* entries.⁵ Göhler placed the *Wegweiser* in a chronological listing of anonymous treatises between entries dated 1686 and 1689, but its own date was mistakenly typed as 1668. A siglum at the end of the entry refers the reader to the autumn 1688, not 1668, book fair catalogs, and a search through the relevant catalogs confirms the correctness of the later date. The *Wegweiser* does not appear in the 1668 catalogs. Unfortunately, the earlier date is still to be found, for example, in the standard work on sources of late seventeenth-century German keyboard music,⁶ and it is prominently displayed on the front cover of Rudolf Walter's edition.⁷

According to the *Wegweiser*'s preface, "many good friends" were responsible for putting it together. The identity of these friends has never been determined, although several names have been put forward. One of the most likely is Johann Speth, who assumed the position of Augsburg cathedral organist in 1692. A number of similarities link the *Wegweiser* with

IN THIS ISSUE:

Fingering, Bach and the Wegweiser
by Paul Walker

Report by William Dowd on
"The Bach Harpsichord"

A Bellows Pumping System for the
Holy Cross College Organ
by John Boody

THE WESTFIELD CENTER FOR EARLY KEYBOARD STUDIES, INC.

The Westfield Center for Early Keyboard Studies is a not-for-profit organization which, through a broad range of educational activities and concerts, promotes the study, research and performance of keyboard music of the Medieval, Renaissance, Baroque and Classical periods. The Center provides a unique forum for communication and learning among harpsichordists, fortepianists, clavichordists, and early organists, as well as instrument builders and musicologists.

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Speth's *Ars magna consoni et dissoni*, a collection of toccatas and versets published in Augsburg in 1693.⁸ Both prefaces deflect the credit for the actual composing of the pieces to others who are not named. The music of the two collections is alike in style, the pieces are brief, and technical requirements are modest. Furthermore, Speth's collection is mentioned in the preface to the *Wegweiser's* second edition (also 1693), where the *Ars magna* is recommended to the student after he has completed the pieces in the *Wegweiser*. Finally, the information on Gregorian chant found in the *Wegweiser* is based explicitly on the practice of the Augsburg cathedral.

Even if Speth had a hand in the *Wegweiser's* production, as seems likely, the identity of the "many good friends" remains unclear. Speth's *Ars magna* is now thought by scholars to be entirely his own work, although Speth himself insisted that he had simply gathered the music "from other Italian and German composers."⁹ A similar modesty may hide Speth's authorship of the *Wegweiser*. On the other hand, my own preliminary search among the imitative pieces turned up several concordances with fugues from the second edition (1697) of a composition treatise by Daniel Speer.¹⁰ Speer was active in nearby Swabia as a composer, theorist, and novelist, and he published under several pseudonyms, but whether he could have been involved with the *Wegweiser* or whether he merely copied from it is an open question. Concordances also exist between thematic material in the *Wegweiser* and that of Speth's *Ars magna*.¹¹ There appear to be no concordances with other important verset collections of the period, such as those by Kerll, Poglietti, or Murschhäuser. Further searching of this sort may help to determine the nature of the supposed collaboration and the relationship of the *Wegweiser's* music to the works of Speth, Speer, and perhaps others.

To the author of the *Wegweiser* text, proper fingering was the key to a student's mastery of organ playing, and the section on keyboard technique is devoted primarily to this topic. Traditional seventeenth-century fingering is advocated, with little use of the thumb and paired fingerings

for scale passages in both hands (RH ascending 34 34, descending 32 32; LH ascending 21 21, descending 23 23). Most modern writers on the *Wegweiser* have tried to relate this system to J. S. Bach's earliest instruction or his later teaching. Harold Gleason pointed out that Bach's older brother and first teacher, Johann Christoph, was a student of Pachelbel who was a student of Johann Caspar Kerll, a possible contributor to the *Wegweiser*.¹² Gwilym Beechey noted similarities between one of the *Wegweiser* pieces and Bach's well-known C-major *Applicatio* (BWV 994) from the *Clavierbüchlein für Wilhelm Friedemann Bach* of ca. 1720.¹³ The *Applicatio* is fingered according to the *Wegweiser* system, and Beechey conjectured that Bach not only learned from the tutor but may have taught from it as well. Sandra Soderlund, in her recent organ instruction book, likewise associates the *Wegweiser* with Bach's youth.¹⁴ She emphasizes, however, the contrast between its system of fingering and C.P.E. Bach's description of his father's innovative use of the thumb.¹⁵ Like Beechey, she too notices the use of traditional fingering for the *Applicatio* and suggests that the modest technical requirements of the piece, in particular the absence of sharps and flats, made the more modern fingering unnecessary.

Fortunately, a little-known document of the period sheds important light on the matter. In 1738, the sixth edition (1731) of the *Wegweiser* was given a published review by one of Bach's own students. Lorenz Christoph Mizler von Kolof is most often remembered today as the founder of the "*Societät der musikalischen Wissenschaften*," an organization devoted to the study of music and music theory. Members included Telemann, Handel, and Bach, and it was for his induction into the *Societät* that Bach wrote his canonic variations for organ on "Vom Himmel hoch." According to his own account, Mizler studied "practical music" with Bach while a student at Leipzig University in the early 1730s, and he dedicated his Leipzig dissertation on music to Bach, Mattheson, and two other musicians.¹⁶ Mizler also founded a musical periodical, the *Neu eröffnete musikalische Bibliothek*, in 1737. It featured extensive reviews of important treatises (in-

Lorenz Mizlers

Der Weltweisheit und der freyen
Künste Lehrers auf der Academie zu Leipzig/
und der Societät der musikalischen Wissen-
schaften Mitglieds und Secretarius

Neu eröffnete

Musikalische Bibliothek

Ober

Gründliche Nachricht nebst
unpartheyischem Urtheil von musi-
kalischen Schriften und Büchern

Erster Band

Welcher bestehet aus sechs Theilen,
nebst den darzu gehörigen Kupfern
und Registern.

LEIPZIG im Jahr 1739.

Im Verlag des Verfassers und bey Brauns
Erben in Commission.

cluding Mizler's 200-page critique of Mattheson's *Vollkommene Capellmeister*) and eventually became the official journal of the *Societät*.

On pages 73-75 of part 5 of the *Musikalische Bibliothek*, dated Leipzig, October 1739, Mizler wrote a brief review of the anonymous organ tutor. He gave a complete transcription of the title page followed by a few general remarks, and he addressed the fingering with specific reference to Bach's keyboard music. The entire review reads as follows:

Augmented 6th edition of the short but thorough Guide,

by means of which one learns not only the basics of the art of organ playing as well as of thorough-bass and also the requirements for Gregorian Chant (and through diligent practice to bring these to perfection), but also one finds the late Mr. Giacomo Carissimi's Art of Singing and easy Basic Rules, by means of which one can bring youth to perfection in music without great difficulty. In addition, [one learns] the proper instructions on how to understand chant, how to recognize all of their tones, and how to recognize the same [tones]) to construct preludes on the organ for the introit, Kyrie, hymns, psalms, Benedictus, Magnificat, etc. Added to that [is] a specially-constructed set of exercises, engraved in copper, consisting of all sorts of preludes, interludes, versets, toccatas, tastatas, variations, fugues, and the like, all arranged in the order of the 8 regular, as well as transposed, church modes. Translated into German and published for the sake of all those, whether clergy or laymen, who need to understand Chant, and, even more, for the sake of those masters who teach music or students who are studying it, especially those inexperienced with the Latin language.

Augsburg, published by Merz & Mayer, book dealers, 1731

I have completely exhausted myself reading through the title page inscription of this book. If everything on the title page were true, the book would have to be huge; however, the whole work consists in its entirety of only six complete signatures, not including the exercises. The opening inscription appears to have become so lengthy because, as it says in the preface, many good friends worked on it. It consists of three parts. The first part deals with the most basic fundamentals of music, especially with fingering, which however I do not like at all. Anyone who does not know how to use his fingers better than this will scarcely be able to learn to play at the keyboard the Partitas of our famous Herr Bach of Leipzig. In the second part, the most general rules that one must note for learning figured bass are put down. The third part deals with ut re mi fa and related matters. The exercise plan looks better on paper than it sounds upon hearing. This music is definitely not in the contemporary taste.¹⁷

V

**Vermehrter und zum sechsten mal in
Druck beförderter kurzer, jedoch gründ-
licher Weg-Weiser,**

**Vermittelt welches man nicht allein aus dem
Grund**

74 Süßster Theil, der neu-eröffneten

Grund die Kunst, die Orgel recht zu schlagen, So wol was d. n. General-Bass, als auch was zu dem Gregorianischen Choral-Gesang erfordert wird, erlernen, und durch st. thias Ub'n zur Vollkommenheit bringen, son ern auch W-land H:n. Giacomo Carissimi Sing-Kunst und reichte Grund-Regeln, vermitt. Ist wol dar man die Jugend ohne große Mühe in er Music perfectioniren kan, zu finden seyn. Wob-p auch die eigentliche Unterweisung, d n Choral-Gesang zu begreifen, alle dessen Ton zu erkennen, und si h nach denselben in den Introitibus, Kyrie, Hymnis, Psalmis, Benedictus, Magnificat &c., wiff n auf der Orgel mit den præambulis zu richten. Dem hingu gefügt ein in Kupfer verferteter Uebungs-Plan, bestehend in allerhand præambulis, interambulis, Vers'n, Toccaten, Fassaten, Variation:n, Fugen und dergleichen, alle nach Ordnung der so wohl regular als transponierten 8 Kirchen-Ton:n eingerichtet. Allen so geist- als weltlichen, welche nothwendig den Choral-Gesang verstehen sollen, meist ns aber den in der Music unterweisenden Meist rn und lern. enden Jugend, absonderlich denen, so der lateinischen Sprach unerfahren zu Lieb ins teutsch hervor gegeben, und im Druck verfertigt.

Augsburg, verleges Merz und Mayer,
Buchhändler 1731

Ich bin ganz müde geworden bis ich die Aufschrift dieses Buches durchgelesen. Wenn alles wahr wäre was

Musika'ischen Bibliothek. 75

was auf dem Titel-Bat stünde, so müste es ein großes Buch seyn, das ganze Werk aber an und vor sich bestehet in 6. ganzen Bogen, ohne den Uebungs-Plan. Die Aufschrift schelnet so willkürlich gerathen zu seyn, weil viele gute Freunde, wie in der Vorrede stehet, daran gearbeitet haben. Es bestehet in dr. y Abtheilungen. Die erste Abtheilung handelt von den allerersten Gründen der Musik, absonderlich von der Abwechselung der Fng r, welche mir aber gar nicht gefället. Wer die Finger nicht besser zu verlegen wiß, wird schwerlich un-ers berühmten Herrn Bachens zu Leipzig Partien auf das Clavier spielen lernen können. In der andern Abtheilung sind die allergemeinsten Regeln, so man bey Erlernung des General-Basses zu merken dat, dinges het. Die dritte Abtheilung handelt vom ut re mi fa, und was dazu gehöret. Der Uebungs-Plan stehet auf dem Papier besser aus, als er in di Odren fällt. Nach dem heutigen Geschmack ist diese Sez-Art nicht.

Obviously, Mizler's opinion of the *Wegweiser* was predominately negative. He considered the title page pretentious, the text too general to be of much use, and the music old-fashioned. Most important of all, he found the fingering system totally unsatisfactory, and to underscore its inadequacy he pointed out the vast gulf between it and the best keyboard music of the day, namely his teacher's *Clavierübung I*. Although Mizler's primary instrument was the flute, his complaint about the *Wegweiser* fingering suggests that he himself played keyboard instruments and that he was perfectly aware of the advanced technique required to play Bach's music.

Mizler's general dissatisfaction with the older fingerings of the *Wegweiser* and Bach's use of them in the *Clavierbüchlein* seem at first to offer conflicting evidence. On the other hand, the fingering of the *Applicatio* suggests either that Bach began his students on the older paired fingerings before allowing them to advance to his new thumb-under style or, as Soderlund implies, that he retained the older fingerings for less demanding pieces. On the other hand, Mizler recommends the *Wegweiser* fingerings under no circumstances whatsoever. This apparent dilemma can best be resolved by considering the two different dates. Presuming that Mizler's study of "practical music" with Bach included at least some keyboard training, one must conclude that by the early 1730s Bach no longer taught the older fingerings. Therefore, if indeed Bach was still teaching those fingerings when he wrote out the *Applicatio* ca. 1720, then sometime during the ensuing decade, as he developed a teaching plan for his two eldest sons, he must have changed his mind and abandoned the earlier fingering system altogether.

In conclusion, Bach probably did learn to play the organ using fingerings similar to those in the *Wegweiser*, since he appears to have begun teaching his eldest son according to such a system. By the early 1730s, however, when Mizler studied with him, Bach no longer taught the earlier fingerings. Thus, as Mizler's review makes clear, the fingering system of the *Wegweiser* tells us nothing about either how to perform the mature works of Bach or how Bach taught keyboard technique af-

ter ca. 1730. The *Wegweiser* had clearly outlived its usefulness as a technical guide to the best keyboard music of the period long before the last edition appeared in 1753.

--Paul Walker

FOONOTES

¹ Albert Gähler, *Verzeichnis der in den Frankfurter und Leipziger Messkatalogen der Jahre 1564-1759 angezeichneten Musikalien* (Leipzig, 1902; reprint ed., Hilversum: Frits Knuf, 1965), part 1, p. 64, #1315. The edition itself is dated 1689.

² For a complete publication history, see Walter Berry Hewlett, *The "Vermehrter...Wegweiser" of 1698: A translation and commentary* (dissertation, Stanford, 1980), p. xii. For a list of extant copies, see *RISM*, vol. BVI (*Écrits imprimés concernant la musique*), pp. 947-948.

³ Several modern editions of the *Wegweiser's* musical portion have appeared. Listed chronologically, they are (1) *Compositionen aus "Wegweiser die Orgel recht zu schlagen" und aus "Manductio ad Orgaum,"* ed. Franz Commer, *Compositionen für Orgel aus dem 16., 17., und 18. Jahrhundert zum Gebrauch beim Gottesdienst gesammelt*, no. 3 (Leipzig: Leuckart, 1866), part 1, pp. 4-17 and part 2, pp. 3-6; (2) *Cent vingt et un versets brefs*, ed. Jean Bonfils, *L'Organiste liturgique*, no. 23-24 (Paris: Schola Cantorum, 1955), pp. 5-33; (3) *Orgelstücke aus der Orgelschule Wegweiser*, ed. Rudolf Walter, *Süddeutsche Orgelmeister des Barock*, no. 8 (Altötting: Alfred Coppenrath, 1964); (4) *Wegweiser. A 17th century German organ tutor*, ed. Gwilym Beechey (New York: Peters, 1972).

⁴ Even today, the *Wegweiser* is frequently cataloged under Carissimi's name, although he had nothing to do with the keyboard tutor.

⁵ Gähler, *Verzeichnis*, part 1, p. 64, #1315.

⁶ Friedrich Wilhelm Riechel, *Quellenkundliche Beiträge zur Geschichte der Musik für Tasteninstrumente in der 2. Hälfte des 17. Jahrhunderts*, *Schriften des Landesinstituts für Musikforschung Kiel*, no. 10 (Kassel: Bärenreiter, 1960), p. 58.

⁷ *Orgelstücke aus der Orgelschule Wegweiser*, ed. Walter.

⁸ For a complete modern edition, see Johann Speth, *Ars magna consoni et dissoni*, ed. Traugott Fedtke (Kassel: Bärenreiter, 1973).

⁹ See Fedtke's preface (pp. 4-5) to the edition.

¹⁰ Daniel Speer, *Grund-Richtiger Unterricht oder vierfaches musicalisches Kleeblatt* (Ulm: Georg Wilhelm Kühne, 1697). The concordances include:

Wegweiser, mode 1, piece #5 = Speer "Fuga C mol" (pp. 178-179)
Wegweiser, mode 1, piece #6 = Speer "Fuga D" (pp. 173-174)
Wegweiser, mode 2, piece #2 = Speer "Fuga A" (p. 170)
Wegweiser, mode 3, piece #5 = Speer "Fuga H" (p. 166)
Wegweiser, mode 6, piece #2 = Speer "Fuga F" (pp. 172-173)
Wegweiser, mode 8, piece #6 = Speer "Fuga A#" (p. 171)

In no case is a concordance exact. Most of Speer's fugues are longer than their *Wegweiser* concordances, and often one of the versions is a transposition of the other.

¹¹ Similar themes include:

Wegweiser, mode 3, piece #3 - *Ars magna*, mode 2, verse 2
Wegweiser, mode 5, piece #7 - *Ars magna*, mode 8, verse 6
Wegweiser, mode 7, piece #5 - *Ars magna*, mode 8, verse 5
Wegweiser, "Fuga" - *Ars magna*, mode 4, verse 4

¹² Harold Gleason, "A seventeenth-century organ instruction book," *Bach III/1* (January 1972), pp. 3-12.

¹³ Gwilym Beechey, "A 17th-century German organ tutor," *Musical Times* 113 (1972), pp. 86-89.

¹⁴ Sandra Soderlund, *Organ technique: An historical approach* (Chapel Hill: Hinshaw Music, 1980), pp. 122-124.

¹⁵ C.P.E. Bach wrote, "Because [my father] lived at a time when a graduate but striking change in musical taste was taking place, he was obliged to devise a far more comprehensive fingering and especially to enlarge the role of the thumbs . . . Hereby [the thumbs] rose from their former uselessness to the rank of principal finger." Quoted in Soderlund, *Organ technique*, p. 124.

¹⁶ See Philipp Spitta, *Johann Sebastian Bach*, 3rd ed. (Leipzig: Breitkopf & Härtel, 1921), vol. II, pp. 502-506; idem, translated Clara Bell and J. A. Fuller-Maitland (New York: Dover, 1951), vol. III, pp. 22-25.

¹⁷ Lorenz Christoph Mizler, *Neu eröffnete musikalische Bibliothek*, vol. 1 (Leipzig: the author and Braun's heirs, 1739; reprint ed., Hilversum: Frits Knuf, 1966), part 5, pp. 73-75. The translation is my own.

WESTFIELD CENTER CONFERENCES - 1985

THE FORTEPIANO IN ENSEMBLE MUSIC

The Westfield Center's first fortepiano event will explore the many facets of the nineteenth-century piano, with lecture topics ranging from the piano's beginnings in 18th-century Italy to performance practice of Chopin. The featured recital--Schubert's "Die schöne Müllerin"--gives recognition to the important relationship of the fortepiano both to other instruments and to the human voice. The characteristics of the early pianos which make them so suitable to accompaniment will be explored in the masterclasses by van Egmond and Bilson.

But the accompanimental role of the fortepiano is only a jumping off point for this conference. Mr. Bilson's masterclass will not be limited to *lieder* accompaniment; using appropriate instruments, it will also explore the range of solo music from Haydn to Brahms. Through the generosity of E. Michael Frederick, two antique instruments (Pleyel, ca. 1844-45 and Streicher, 1868) will be used by Seth Carlin for his recital of Chopin and Brahms and for his lecture on Chopin performance practice. In a fascinating presentation, Owen Jander will discuss the cultural context for Beethoven's "Tempest" sonata,

The round table, "Piano Pedagogy and the Future of the Piano in America", will address concerns surrounding the future of the piano generally. What place will the fortepiano take in conservatory and college music programs? What effect has the fortepiano had and what effect will it have on the modern piano? Plans and ideas for future Westfield Center conferences will be discussed.

The concerts take place in Westfield as part of the Westfield Center's ongoing Concerts on the Green series housed in the First Congregational Church at 19 Broad Street, Westfield.

BACH AND THE HARPSICHORD

A successful and important event at the 12 & 13 April 1985 Symposium BACH AND THE HARPSICHORD was a round table discussion entitled "The Bach Harpsichord." The panelists were: Christoph Wolff, noted Bach scholar and chairman for the discussion; Sheridan Germann, harpsichord decorator and historian; Robert Hill, harpsichordist; and myself, harpsichord maker. The following is a report of the subjects discussed. (An edited transcript of the session will be available. For information, write The Westfield Center.)

At the time of J.S. Bach, Germany was divided into many principalities, each with an autonomous court. Among the courts where French taste prevailed were those of Prussia and Saxony. German musical and keyboard style were less pure compared to the Italian and French styles, and German harpsichords differed markedly from region to region. As far as we know, only three harpsichords survive which have some connection with Bach: two are probably similar to an instrument provided by Bach to the court at Cöthen. The third may have belonged to J.S. Bach--or at least to his son, Wilhelm Friedemann. The inventory made at the time of Bach's death lists five harpsichords in his possession. Unfortunately, aside from assigning each a value (ranging from 30 to 80 Reichs thaler), the only description given was that the harpsichord worth 80 thaler was veneered. The question, "What kind of harpsichord did Bach play?", then, cannot be answered definitively. The evidence to be considered can be found in contemporary writings and descriptions and from surviving instruments from Bach's area and time. Also, there is internal evidence from Bach's music.

Two unsigned and undated harpsichords at Schloss Charlottenburg are almost certainly the work of Michael Mietke, the Prussian court harpsichord maker from before 1697 to 1719, the year of his death. (The ar-

gument for the attribution and history of these harpsichords is in "Mietke, the Margrave & Bach" by Sheridan Germann from *Bach, Scarlatti & Handel Tercentenary Essays*, edited by Peter Williams, Cambridge University Press, 1985.) One is a single-manual harpsichord; the other a double. Both are gorgeously decorated with chinoiserie by Gerard Dagly, the court decorator. The single can be dated about 1704 and is carried in an inventory as having belonged to Queen Sophie Charlotte. After her death in 1705 it passed to Queen Sophie Dorothea, and a good case can be made for Bach's having played it for the Margrave of Brandenburg in 1719. The history of the double is obscure, but it came to Charlottenburg in modern times from Monbijou, another royal residence, and it may have always been there. In March of 1719 Bach went to Berlin to take delivery of a large harpsichord by Mietke for the court at Cöthen. This fact was of only passing interest until recently, when the identification of the Charlottenburg harpsichords enabled us to describe the sort of instrument Mietke built.

The two Mietke instruments are of very similar construction, and superficially resemble the Hamburg school, having "S" shaped bentsides with curved tails. The case sides are light, while the framing and bottom are heavy (the soundboard liners are extremely heavy). The cases are lacquered on the outside and are lined with varnished wood with cap mouldings in imitation of an Italian harpsichord in its outer case. The bridges are shaped in the Italian fashion and are fairly heavy. The soundboard ribbing is in the north European tradition. The single has two 8' registers and the original compass was GG-c³ (GG# missing). The double has the standard French disposition of I 8' & 4', II 8' with a standard shove coupler. The original compass was FF-c³ (FF# & GG# missing).

Both instruments had their compasses extended to e³ about 1750. This was done without enlarging the cases by moving the keyboards toward the bass and adding four keys in the treble, thereby increasing the scales. The original scale of the double was c²=11 5/8", longer than Italian scales but much shorter than the North Eu-

ropean standard of 13" to 14". A scale of 11 5/8" indicates that the instrument was strung in brass to the top, and, moreover, that it was probably at low chamber pitch, under 400hz. The bridge of the single was moved during the alterations; it is therefore difficult to determine its original scale, but an educated guess would have it a semitone shorter than the double scale giving it a higher chamber pitch of around 415 to 420hz. (These two pitches were in common use in Berlin in the first half of the 18th century as shown by surviving flutes with interchangeable joints.)

The only other surviving harpsichord with some claim to a connection with J.S. Bach is the well-known "Bach harpsichord" in the Berlin collection, acquisition Nr.316. It is an unsigned and undated double harpsichord with a curved tail, an original compass of FF-f³ and the present infamous Bach disposition of I 8' & 16', II 4' & 8' with a shove coupler. Nr. 316's earliest known owner was Graf von Voss, a collector of Bach manuscripts in the later 18th century. There are various von Voss family traditions that: 1) Wilhelm Friedemann Bach, from whom von Voss obtained J.S. Bach manuscripts, played the instrument; 2) that von Voss bought the instrument from Friedemann; and 3) that Friedemann got it from his father. The panel was unable to add any new evidence to the pedigree controversy; however, important new information about the probable maker and the original disposition of Nr. 316 was presented by Robert Hill. (This information had been made available to Hill by Dieter Krickeberg, the then curator of the Berlin collection.) Nr. 316 is very similar to a double harpsichord at Sondershausen in Thuringia attributed to Johann Heinrich Harrass (1665-1714), a harpsichord maker of Gross-Breitenbach, Thuringia. Adlung speaks of a Breitenbach maker, most probably Harrass, who made instruments of three registers: I 16' & 4' II 8' with a coupler.

During a recent restoration the wrestplank of Nr. 316 was removed. It was determined that the wrestplank had been turned over so that the original surface is now the present underside. It is clear that the original disposition was: I 16' & 4', II 8' coupler. The 16' and 8' strings shared the same bridge, but there was a

separate nut for the 16' to lengthen its scale. The 8' scale was unknown to the panel, but the 16' could certainly have been strung in brass or even overspun. At some later time a second 8' was added, and, if the jacks which all seem to be of the same workmanship are original, the work was done in the Harrass shop. The original 16' jacks had their tongues repunched lower to make an 8' register, and new 16' jacks were made, also by the same hand. The work on Nr. 316 seems tentative and experimental, as though Harrass was trying to make a difficult layout work. The wrestplank was inverted to give him a fresh start. It is not known when the 4' was put on the upper manual.

Besides Mietke and Harrass, what other instruments survive from Bach's time? While there are many Hamburg instruments surviving, and he undoubtedly played some from this school, it is unlikely that he owned or had frequent access to one, for the distance between Hamburg and Saxony or Thuringia was too great. Gottfried Silbermann (1683-1753) of Freiburg is the maker most frequently associated with Bach; indeed, almost all surviving unsigned harpsichords with the remotest connection to Bach have at one time or another been assigned to Silbermann, including the three described above. Bach and Silbermann's relationship through the organ and early fortepiano is well known, but no known harpsichord by Gottfried survives. (There are two by his Alsatian nephew, Johann Heinrich, but they are from a generation later.) Three double harpsichords made by Johann Heinrich Grabner, father and son, of Dresden, are dated 1722, 1739 and 1744. They are all five-octave, three-register instruments, have normal-angled tailpieces, and are veneered. The compass of 1722 is EE-e³ and it transposes a semitone. The dispositions are all suspect. One further bit of information: a newspaper announcement for the 1733 fall season of the Collegium Musicum said it would feature a harpsichord which heretofore had never been heard in Leipzig. Unfortunately, no further description is given.

A GG-d³ compass suffices for all of Bach's harpsichord music. He uses basses below C only occasionally, and c³ suffices in the treble until 1726 and the partitas

which require d³. One assumes he normally had or used a double-manual harpsichord, but is not specifically required until 1735 and the second part of the Clavier-Übung. When he did require a double, he needed one with a coupler in order to separate the voices in the *pièces croisées* of the Goldberg Variations.

Bach's well-known preference for small keys, both short and narrow, is an important clue to his preference in instruments. The Mietke keys are small, with narrow octave spans about equal to 17th-century French practice. Hamburg keys are large, both in length and octave span. The dimensions of the Harrass or Grabner keys were unknown to the panel.

The questions were asked: Why did Bach limit himself first to a range of GG-c³ and later only to d³ if five-octave compasses were available on so many early instruments close to him? If he had owned an FF to f³ harpsichord, wouldn't he surely have used it, and isn't his restricted range evidence that he did not have one? Not necessarily. The extension of the harpsichord compass, especially in the treble, is not always tonally satisfactory; the highest notes are often weak and do not balance the more central part of the compass. Perhaps more important, however, was what the panel referred to as Bach's "practicality": he was writing to disseminate his music as widely as possible, and the majority of existing harpsichords during his lifetime still had a restricted compass. He composed so that his music could be easily played on existing instruments.

Sheridan Germann introduced a startling discovery: In 1778 a harpsichord by Mietke was offered for sale. It was described as a "16' two-manual harpsichord, of which only two exist by this master." Did Bach take the other one to Cöthen? It is very unlikely, but once the floodgate of speculation was opened it was impossible to shut, especially with many organists and some organ makers in the audience. Surely the 16' will be debated as long as harpsichords are made and played!

--William Dowd

A Bellows Pumping System for the Holy Cross College Organ

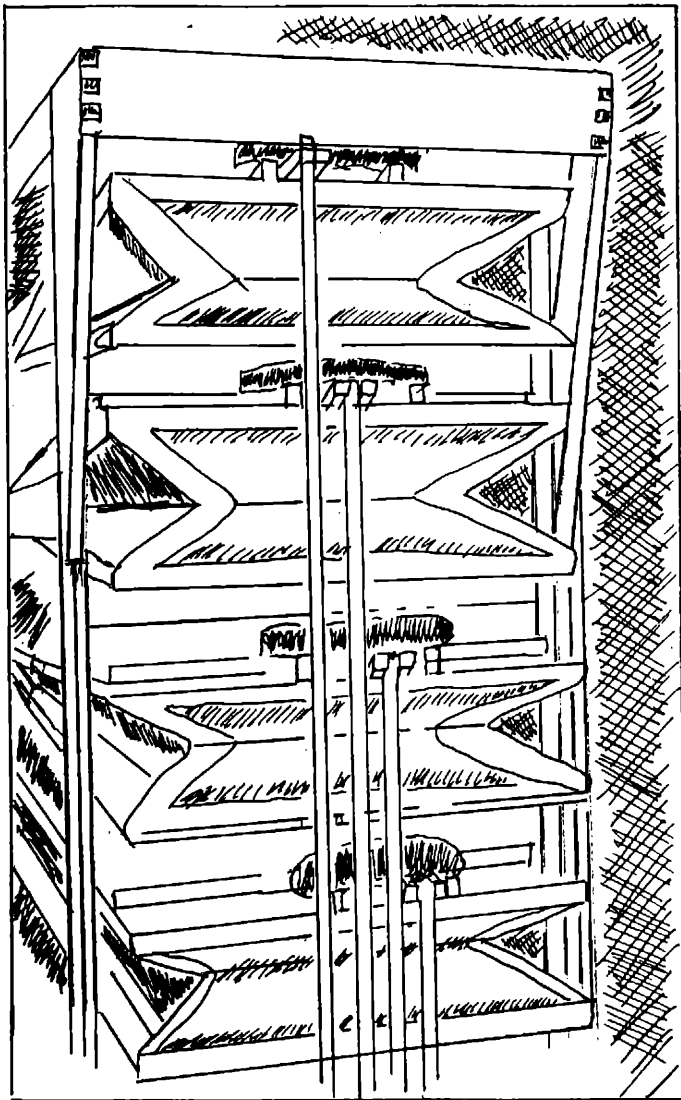
My earliest childhood recollection of being inside the organ chamber of the E. and G. G. Hook and Hastings in the First Baptist Church in Wakefield, Massachusetts, is of the 16' Double Open Diapason towering above my head and of the giant bellows strewn with broken sewer grates and tombstones, groaning and hissing as glorious music came from the organ. For organ-builders, the fascination with the things wind does and can do comes early in our lives, and never leaves. In every organ shop in which I have worked there have been long discussions on the musical character of the wind in the organ and the merits of various wind systems.

In January of 1980, while visiting the Taylor and Boody workshop in Staunton, Virginia, Charles Fisk asked to see the Tannenburg organ at Hebron Lutheran Church in Madison, Virginia. Built in 1804, the Madison organ in its design and voicing is reminiscent of 18th-century organs in South Germany. The organ also happens to have a completely original double bellows hand-pumped wind system. (George Taylor had releathered these bellows in 1970; the original leather had lasted for 166 years!) The drive over the Blue Ridge Mountains from Staunton to Madison was filled with wind system talk. Charles was designing the Wellesley organ at the time, and it was the wind system that was on his mind.

We had a great time in the cold Madison church looking together at the Tannenburg organ. Naturally, with such a beautiful old set of bellows, we did not use the organ blower. Music of all types was played and then there was the final testing of the wind by holding several treble notes and thumping on the bass octave with the flattened hand. What immediately struck us was the steadiness of the wind and the absence of the quick shake caused by the blower turbulence. We suspected that the two bellows worked together, each contributing to the wind supply and acting as a damper for its partner. When we returned from Madison, Charles went to the phone and instructed his shop to make two bellows for the Wellesley organ which would

make it possible to raise the wind by hand. During the following years, George Taylor and I talked several times about building a blowerless hand-pumped wind system. Bruce Shull completed a hand-pumped system for his organ in Huron, Ohio. John Brombaugh was building a hand-winded system for Fairchild Chapel at Oberlin, and Charles Fisk was building the Wellesley organ with its hand-winded system. All of these systems also had conventional blowers and regulating valves controlled by one or more of the wedge bellows for electric winding. When we received the contract to build a four-manual organ for the College of the Holy Cross in Worcester, Massachusetts, we saw an opportunity to build an organ with an historically authentic system of wedge bellows so that the wind could be raised by hand. We wanted to build a bellows apparatus that would enable the organ to easily be winded by human power for public events. But we also envisioned a mechanical system which would lift the bellows in the same way as done by hand, permitting practice and teaching with authentic wind characteristics.

The lungs of the Holy Cross organ are a rack of 4 wedge-shaped bellows, each 120cm x 240cm. These 18th-century northern European style bellows are made of two plates of two-inch-thick poplar hinged together at one end with rope hinges. The 10mm pine ribs and the sheepleather gussets between the two plates hold the air in the bellows. A sturdy framework of oak directly behind the main case holds the bellows. On the CS end of the frame there are four levers, each one connected to a bellows. To raise the wind, the pumper steps gently on each lever, lifting the bellows and setting it gently on the wind. The intake valve on the bottom of the bellows allows the wind to go into the bellows but not out. Two hundred pounds of steel weights plus the weight of the top plate of the bellows forces the wind out past the backcheck valve and into the main wind canal of the organ. The winding operation is peaceful and smooth as the bellows slowly fall to be raised up once again.

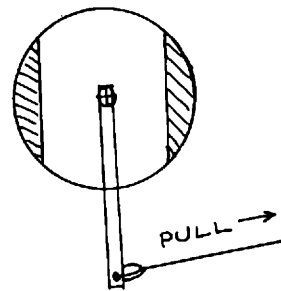


OPEN END of BELLOWS w/ PUSH RODS

As the organ was coming together, everyone in our shop debated the pros and cons of various mechanical pumping systems. We chose to develop an electromechanical system where there would be a gear motor for each bellows controlled by a switch that was closed when the bellows had fallen and needed to be filled. We felt that the individual motors would be clean and quiet, and that the components would be readily available industrial equipment that would be familiar to any technician servicing the organ. We selected a 45 RPM 3/4 HP single phase gear motor as the prime mover of the system. We started with 10 cycle/min. as being a reasonable number of pumps possible by timing the hand pumped system with open windlines. The 45 RPM gear

motor is reduced 4:1 by a secondary chain drive to a crank shaft mounted on 1" pillow block bearings. The crank is 7" long giving a 14" stroke on the bellows.

We were concerned about getting a very smooth pick-up and drop-off of the bellows so that the wind would not be shaken on each lift. The pumper accomplishes this quite naturally by stepping gently on the lever, moving rather rapidly through the cycle, and smoothly releasing the lever at the cycle's end. Fortunately, if the start and stop are done at the correct place in the cycle, the crank has this gentle start and stop characteristic built in.



There is relatively small vertical motion in shaded quadrants.

To take advantage of this "soft start" characteristic we realized that we would have to have good control over the stopping point in the motor cycle. We had hoped that the large gear reduction in the system would make the motors naturally coast to an accurate stopping point. In actual practice, however, there was quite a difference in the gear box drag, depending on whether the lubricating oil was hot or cold. We could have tolerated this, but it meant there would have to be excessive slack in the pick-up point, causing us to lose several inches of lift to the bellows. We finally turned to an all-electronic motor starting and braking system from Ambi-Tech Industries in Hillsdale, New Jersey. This solid state device controls the power switching for the motors and also applies intermittent D.C. current to the motor windings to bring the motor to a smooth and accurate stop.

When we started to design the pumping system we wanted the hand winding and motor systems to be interchangeable without any special effort. We did this by

making the attachment to the bellows from the lifting chain via a 14" stainless steel rod. When the bellows are lifted by hand it can slide smoothly on this rod without interference. The lifting chains are kept tight by coil springs on the bellows end.

There was considerable concern that all four bellows would fall at the same time and that, consequently, the organ would run out of wind. This has proven to be virtually impossible. The pressure in the bellows tends to rise as the bellows falls; as soon as one bellows starts to descend, it completes its fall before any others start to fall.

What have we learned from designing and building this system? What are the musical results? First, we have experienced a new quality of wind: the wind at Holy Cross has a steady and sure character, free from the quick shakes and turbulence of blower-fed systems. There is also the feeling of voluminous capacity. When a large chord is played the wind seems to be instantly available to the chests without the feeling of lag or sag sometimes associated with flexible winding systems. Best of all is the feeling of efficiency and cooperation that comes when the organ is winded by human power. The pumpers have a good view of the nave and are in a place where they can hear and feel the power of the organ through the levers as they convert muscle power into organ music. The work of pumping is a rhythmic, gentle exercise, and is not strenuous. (However, to be able to depress the levers, the pumper must weigh at least 130 lbs. Perhaps a diver's weight belt for pumpers who weigh less?)

The Holy Cross system has given us new appreciation of the effort necessary to provide wind to the organ for voicing and tuning. There are unforeseen advantages also: when wind is not required, the whole system is off and quiet (wind is immediately available at the flick of a switch or by stepping on a bellows lever). Also, the wind doesn't heat up during tuning as it does with a blower system. An aspect of the system which we will learn more about is the durability of the bellows themselves: the leather gussets,

the hinges, the intake and backcheck valves. After ten months of use we are approaching 200,000 cycles for each bellows. So far they show surprisingly little stress; in fact, the least troublesome of the entire system were the traditional organ parts of the wind system.

Each new organ is a new creation, and in organbuilding we often travel down new pathways. Surely we will continue to refine the Holy Cross mechanical lift system as we use tests our components and design. We may yet need to add an auxiliary blower-fed system to provide wind for endless midnight practice sessions. But we hope the major focus will be to raise the wind by human power, and that a large fraternity of students and music lovers can experience the gentle exercise and pleasure of converting muscle power to music.

--John H. Boody

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Charles Brenton Fisk
Organ Builder

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