CHAPTER TWO

THE CONCEPTION OF A NEW CATHEDRAL ORGAN

Like many significant and sober things imagined in the course of play, the successor to Casavant Opus 51 was conceived half in jest. No sooner had organ builder Martin Pasi made the whimsical suggestion that he build an organ playable in two different tuning systems did the idea become a serious and plausible proposal. So began an odyssey that would have itself been a remarkable story had a musical instrument never been realized in wood and metal. The whirlwind process of commissioning the organ took only four months, while the subsequent period of research and design took over two years, involving first-hand examination of important historical and modern organs throughout Europe and the United States as well the counsel of many colleagues and international experts. While Pasi brooded over how to realize the organ he had so spontaneously proposed, I searched for an adequate reason to explain why such an esoteric instrument as a dual-tempered organ belongs, of all places, in a church.

Commission

Each generation of Omaha's Catholic cathedrals since 1859 has contributed to its musical culture through the establishment and sustenance of choirs and the building and re-building of organs. The opportunity to commission a work of art on

the scale of and as unique as Martin Pasi's Opus 14 is much rarer. A convergence of people and ideas, together with the approaching Year of Jubilee at the turn of the third millennium and the impending centennial celebration of Saint Cecilia Cathedral in 2007, conspired to create the conditions out of which such a commission could be awarded. This situation was fueled by a notion that the art of organ building was entering a new period of maturity following the revival movements of the twentieth century.

The story of the commissioning of Pasi Opus 14 begins in the last days of July 1998, immediately upon my arrival to take up the post of Director of Music and Cathedral Organist. I had been asked to arrive a few days ahead of schedule to prepare for a call on a prospective benefactor, a meeting that had already been arranged in hope of securing funds to repair the Casavant organ. Armed with inspiration gleaned from experience of the newly installed Hellmuth Wolff organ (Wolff et Associés, Opus 40, 1996) at the University of Kansas, a sense of stewardship instilled during my brief work in campus ministry under Msgr. Vincent Krische,[1] and with the strong encouragement of my organ professor at KU, Dr. James Higdon, I made it a condition of accepting the job that this development call would not be framed as a solicitation of help but as the presentation of an opportunity to participate in a venture that would have widespread and enduring influence.

[1] From 1977 to 2005 Monsignor Krische was Director of the Saint Lawrence Catholic Campus Center adjacent to the University of Kansas.

The proposal from Casavant Fréres already in the cathedral's possession made it clear that it would not be accurate to describe the work that needed to be done on Casavant Opus 51 as mere renovation or rebuilding.[2] A new instrument had to be commissioned, and by this time I had become convinced that an organ with mechanical action should be considered first.[3] With little time for study of the situation, I made an initial inquiry on 23 July 1998 with C. B. Fisk of Gloucester, Massachusetts,[4] and by 1 August 1998 we had a preliminary proposal in hand from Manual Rosales of Los Angeles for a four-manual instrument of 72 stops.[5]

In the meantime, my new colleague Brother William Woeger had proposed the incorporation of the Casavant Opus 51 façade as a necessary parameter for a new organ design. The original façade had been designed by cathedral architect Thomas Rogers Kimball and manufactured by the Joseph Dux Company of Chicago to match the choir screen and other woodwork in the cathedral (Figure 10).[6]

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[2] Casavant Fréres, Specification No. 341-GSCR-59.

[3] I anticipated openness to this idea since there were already two small tracker organs in the cathedral by Gene Bedient of Lincoln, Nebraska: a one manual and pedal 3-stop positive (Bedient Opus 38, 1993) and a two-manual-and-pedal 7-stop chapel organ (Bedient Opus 60, 1998).

[4] Kathleen H. Adams, C.B. Fisk, Inc., to Kevin Vogt, 23 July 1998, Cathedral Archives, Saint Cecilia Cathedral, Omaha.

[5] Manuel Rosales, to Kevin Vogt, 1 August 1998, Cathedral Archives, Saint Cecilia Cathedral, Omaha.

[6] Laura Ennis, "The New Catholic Bishop Comes to One of the Most Beautiful and Finely Constructed Cathedral Churches in the Entire Country," *Omaha Trade Review* III (July, 1928): 12.

Figure 10. Façade, Casavant Opus 51
(Courtesy of Pasi Organbuilders)

Additional constraints were to include leaving unobstructed the quatrefoil "St. Cecilia" window on the cathedral's west façade and as many as possible of the three lancet windows at the gallery level below.[7] Brother William also urged that as many pipes from the 1918 instrument as possible be incorporated into the new organ. At the time, we were not confident that all of these conditions could be reconciled with the limitations imposed by mechanical action or the artistic standards of the builders

[7] Casavant Opus 51 had covered the two side windows in 1918, leaving only the center window open. According to Brother William Woeger, the center lancet window and the quatrefoil "St. Cecilia Window" were decorated in stained glass by Charles J. Connick of Boston, Massachusetts, and donated by descendents of the already-mentioned Burkley family.

we were considering, but we agreed to press ahead holding firm to our respective values.

Patronage

During the first week of August 1998 a delegation from Saint Cecilia Cathedral met over lunch with Mr. Frank P. Matthews, an Omaha attorney whose family had been associated with the cathedral from its earliest days. Mr. Matthews and his wife Helen had renewed this association several years earlier, and had subsequently made a donation in support of the cathedral music program. Accompanied by cathedral rector Father Norman Hunke, associate pastor Father Joseph Wray and Brother William Woeger, I presented to Mr. Matthews the state of affairs concerning the ailing Casavant Opus 51 and the opportunity before us to commission an instrument of surpassing beauty and integrity. I proposed that the time had never been so ripe to commission such an instrument: the United States had become the locus of the finest organ building in the world, and mechanical action (or "tracker") organs in particular had matured since their twentieth-century revival and come into their own at the hands of highly-skilled artisan builders. I reasoned that changes to Casavant Opus 51 over the years and the resulting loss of tonal integrity were due not so much to changing tastes as to the organ being dependent on the most recent technology at each critical moment in its history. I concluded that a primary benefit of a purely mechanical action is that its simple technology, imposing limits that actually create integrity within the instrument, never becomes obsolete as long as

raw materials are available and the knowledge of how to make things by hand is never lost.[8]

After patiently listening to my presentation, Mr. Matthews responded simply that he "would like to be a part of that." The degree to which Frank and Helen Matthews would participate in the organ project was not entirely clear at the time, but we presumed they would make a significant financial contribution toward the effort. They became part of a quickly-assembled organ committee that also included me, Brother William Woeger, Father Joseph Wray, and archdiocesan music director Father Ronald Noecker.

In the end, Mr. and Mrs. Matthews became the sole benefactors for the project, along with Mr. Matthew's surviving siblings, Mrs. Marian Howard, Mrs. Kathleen Irvine and Mrs. Marguerite Schneider. Mr. Matthews gradually announced the intention of his family to donate the organ to the cathedral in memory of his parents, Francis P. Matthews (1887-1952) and Mary Claire Hughes Matthews (1890-1964). The elder Mr. and Mrs. Matthews had themselves donated one of the "singing" windows in the cathedral clerestory based on the hymn *Tantum ergo sacramentum.* Claire Matthews had been an amateur pianist, and her husband one of Omaha's most distinguished citizens (Figure 11).

[8] I chose this argument for its objectivity over the assertion that mechanical key action gives the player greater control and allows greater musical expressivity, a claim that is refuted in some quarters.

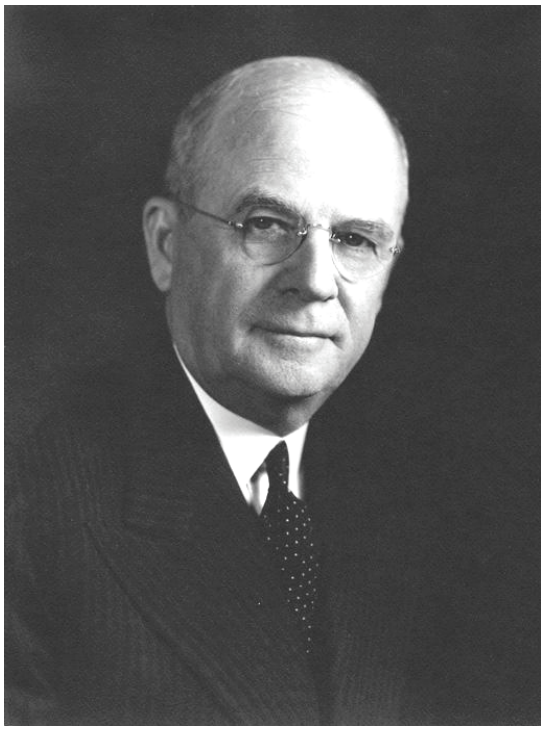

Figure 11. Francis Patrick Matthews, Sr. (ca. 1950)[9]
(Courtesy of the National Archives and Records Administration)

The elder Francis P. Matthews was active not only in local business, civic, religious and political life, but served the nation as a consultant to the Reconstruction Finance Corporation (1933-1949), Supreme Knight of the Knights of Columbus (1939-1945), a director of the U.S. Chamber of Commerce Department of Finance (1941-1951), Director and Vice President of the United Service Organizations (USO) during World War II, and a member of the President's Committee on Civil Rights (1946-1947). From 1949-1951 he served as the Forty-Ninth Secretary of the Navy

[9] Profile: Francis P. Matthews, The Harry S. Truman Library, National Archives and Records Administration, Accession number: 70-4716 (Accessed 11 June 2006), <http://www.trumanlibrary.org/profile/viewpro.php?pid=137>

under President Harry Truman, and U.S. Ambassador to Ireland from 1951 until his death in 1952.[10] He was a personal friend of Omaha's Archbishop Gerald T. Bergan,[11] and was twice awarded the Papal Order of St. Gregory by Pope Pius XI, the highest honor awarded to Roman Catholic laymen.

Solicitation of Proposals

With the prospect of secured patronage, Brother William Woeger and I reiterated our respective concerns for conservation of designs and materials bearing local history and the commission of a new work of art worthy of the most excellent traditions of organ building. The best way to satisfy these requirements seemed to be through a design competition. By late August, I had contacted four organ builders: C. B. Fisk, Paul Fritts, Manuel Rosales and Hellmuth Wolff. Paul Fritts did not appear to be interested in working within our prescribed parameters. However, Steven Dieck of C. B. Fisk, Manuel Rosales and Hellmuth Wolff all agreed to visit Saint Cecilia Cathedral in late September 1998. After these visits, Dieck and Wolff further agreed to submit proposals by the end of October.

Worried that none of the above builders would be willing to work under the constraints of a recycled façade and a west wall full of windows, I sought out a fourth builder to add to the slate. At the urging of Dr. Craig Cramer of the University of Notre Dame, I contacted Martin Pasi, an Austrian organ builder who had been

[10] Ibid.

[11] Most Reverend Gerald T. Bergan, Funeral Sermon for Francis P. Matthews, Sr. Courtesy of Frank P. Matthews.

associated with Paul Fritts prior to starting his own shop in 1990.[12] Pasi was unknown to me at the time and I was reluctant to add to the list of candidates a builder who had only just completed his Opus 10.[13] I was unaware at the time of Pasi's extensive experience prior to building instruments under his own name, and it did not occur to me that Paul Fritts was only then building his Opus 18.

I initiated communication with Martin Pasi on 31 August 1998, but under the guise of an inquiry on behalf of another church.[14] He promptly sent photographs and a recording of his Opus 4 in Lynnwood, Washington, but it was nine days before I mentioned the possibility of an organ project at Saint Cecilia Cathedral. Our first exchange on the matter exposed two of the central issues in the design and ultimate realization of Pasi Opus 14: the tension between eclecticism and stylistic integrity, and the relationship of the organ as a musical instrument to musical repertoire. On 9 September 1998 I wrote:

> Given the vast repertoire of the Roman Catholic tradition, I've been looking toward a somewhat eclectic design (within reason) that seeks to accommodate both the French Classical and French Romantic literature. Because of the organ that has served the Cathedral since 1918, the literature in the current repertoire tends toward British organ anthem literature. While I'm sensitive to all of these demands, I would like to see an instrument installed at St. Cecilia Cathedral that has a stylistic integrity that would be more admirable than mere eclecticism.[15]

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[12] Herbert L. Huestis, "From European Training to American Organ Building: Following the Career of Martin Pasi," *The Diapason* 90, no. 3 (March 1999): 14.

[13] Ibid., 15. This article notes the completion of Pasi Opus 10 in spring of 1998.

[14] Kevin Vogt, to Martin Pasi, electronic mail (printed copy), 31 August 1998, Pasi Shop Records, Roy, Washington. The church in question was St. Columban Catholic Church in Chillicothe, Missouri, a project that never materialized.

[15] Ibid., 9 September 1988.

The desire to "accommodate" French Classical and French Romantic literature suggests that I either did not imagine a new organ primarily situated within these stylistic traditions,[16] or that I presumed Martin Pasi's stylistic inclinations rested elsewhere. I was thinking about the rich history of liturgical organ playing in France and the robust tradition that has persisted there into modern times, but focusing on the interpretation and performance of inherited "literature" and related organ types rather than on the "primary rhetoric" of improvised performance that has been at the heart of such liturgical organ playing.[17] I was certainly not considering the defining characteristics of an organ as a musical instrument with the clarity of the late Smithsonian organologist John Fesperman:

> What *is* a musically adequate organ, one which can be termed a genuine musical instrument? It is one which has formal identity as an integrated instrument and which will faithfully render the intentions of the composer who understands it. Nothing else is required of it as an artistic medium.[18]

The reference above to the influence of Casavant Opus 51 on repertoire nevertheless reveals my budding ambivalence toward a functional consideration of the organ (in

[16] As is, for example, Wolff Opus 40 (1996) or the Rosales Opus 21/Fisk Opus 109 at Rice University (1997).

[17] The notion of "primary rhetoric" is adopted here from George Kennedy, *Classical Rhetoric and Its Christian and Secular Tradition from Ancient to Modern Times* (Chapel Hill: University of North Carolina Press, 1980), 4-5.

[18] John Fesperman, *The Organ as Musical Medium* (New York: Coleman-Ross, 1962), 10.

this case, its utility in choral anthem accompaniment) rather than an artistic *raison d'être* aimed at the realization and perception of musical ideas.[19]

Martin Pasi's response to my initial inquiry about a cathedral organ project was characteristic of our subsequent exchanges, and prophetic of the manner in which "formal identity" was realized in Pasi Opus 14:

> The question of eclecticism and style is a very difficult one for me to answer. I don't think I build organs in a particular style but rather combine styles and organbuilding [*sic*] methods of the past. Since everything has been done in the past already, the art of building a successful instrument is to bring together the sounds that work best with each other. Once the blending task is accomplished, any music can be played beautifully.[20]

The prospect of something new and transcendent of the past fascinated me, and it was nothing other than an intuitive embrace of this notion that set the commission process on an inevitable course.

Martin Pasi promptly sent a sample specification of 52-stops that included a "Résonance," in which the pedal division is playable on the manuals to increase the overall volume of sound. The price of the organ was to be $1.2 million with a delivery time of three years.[21] The projected cost was higher and the delivery time longer than I had imagined or hoped. Presuming, however, that these would be comparable to those of the other builders, I continued my investigation.

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[19] Ibid., 8.

[20] Martin Pasi, to Kevin Vogt, electronic mail (printed copy), 31 August 1998, Pasi Shop Records, Roy, Washington.

[21] Ibid.

On 28 September 1998, I visited the Pasi shop in Roy, Washington, and played both Pasi Opus 4 at Trinity Lutheran Church in Lynnwood, Washington, and Pasi Opus 5 at the Wolf residence in Kirkland, Washington. The idea of a dual-temperament organ arose the very next day, 29 September 1998. En route to British Columbia to visit Pasi Opus 10 in West Vancouver, Martin Pasi and I talked about tuning and temperament. I liked the Bach-Kellner temperament I had heard on Pasi's instruments the day before, but was skeptical about its utility on a large, versatile instrument.[22] Pasi casually quipped, "Maybe the organ could have two temperaments!" The ensuing laughter quickly turned to serious discussion, a conversation that would become a five-year preoccupation.

Martin Pasi made his first trip to Omaha a week later, on October 5 and 6, to assess the feasibility of incorporating the Kimball façade of Casavant Opus 51 into a new free-standing case. He submitted a preliminary proposal on 9 October 1998 for a 52-stop mechanical action organ over three manuals and pedal (Table 14). All divisions except the Swell were to have five extra pipes per octave, yielding two temperaments: a well-tempered tuning and 1/5-comma meantone. Since no research had yet been done, we presumed that this temperament scheme would be modeled after that of C. B. Fisk Opus 85, a large dual-temperament organ at Stanford University. The organ was to have electric stop action as well as a detached, reversed

[22] I had prior knowledge of only a few large organs tuned in an unequal temperament, most recently Opus 40 of Wolff et Associés at the University of Kansas, tuned in a 9th-syntonic-comma temperament devised by Jacques-Yves Asselin—a tuning much closer to equal temperament than Bach-Kellner.

console, a feature of many Roman Catholic church organs in France and southern Germany.

Table 14. Preliminary Stop List, 9 October 1998.[23]

Great		Swell	
16’	Praestant	16’	Bourdon
8’	Octave	8’	Principal
8’	Salicional	8’	Gamba
8’	Harmonic Flute	8’	Celeste
4’	Octave	8’	Harmonic Flute
4’	Spitzflöte	4’	Principal
2 2/3’	Quinte	4’	Harmonic Flute
2’	Superoctave	2 2/3’	Nazard
2’	Mixture IV	2’	Octavin
1 1/3’	Mixture V	1 3/5’	Tierce
8’	Cornet V	2’	Mixture V
16’	Trumpet	16’	Bassoon
8’	Trumpet	8’	Trompette
8’	Trompette	8’	Oboe
8’	Vox Humana	4’	Clarion [*sic*]

Positive		Pedal	
8’	Principal	32’	Subbass
8’	Bourdon	16’	Praestant
4’	Octave	16’	Subbass (octave transmission)
4’	Rohrflöte	8’	Octave (octave transmission)
2 2/3’	Sesquialtera II	8’	Bourdon
2’	Gemshorn	4’	Choralbass
1 1/3’	Larigot	2 2/3’	Mixture V
1’	Scharff IV	32’	Trombone
16’	Dulzian	16’	Posaune (octave transmission)
8’	Cromorne	8’	Trumpet
		8’	Trompette
		2’	Cornet

[23] Martin Pasi, to Kevin Vogt, fax transmission, 9 October 1998, Cathedral Archives, Saint Cecilia Cathedral, Omaha.

The eclectic appearance of the stop list above is partially the result of Martin Pasi's intentional evasion of categorization according to historical and national styles. The deliberate linguistic distinction between the 32' Trombone and the 16' Posaune in the Pedal is a prime example, ironic in that these stops share pipes through an octave transmission. This early stoplist also shows the influence of my repertoire-driven concerns in the inclusion of Clicquot-style French Trompettes in both the Great and Pedal (in addition to German Schnitger-style trumpets), a Harmonic Flute on the Great (in addition to Pasi's proposal of a full chorus of harmonic flutes on the Swell), and a 2' Cornet in the Pedal (a doff of the hat to meantone repertoire).

After Hellmuth Wolff's visit in late September, Frank Matthews approached me after a Sunday Mass at the cathedral, and referred to a comment Wolff had made about the size of organ the cathedral needed. The Swiss-born organ builder had explained that an organ of 20-stops could be voiced to fill such a large space, but that the musical demands on a cathedral instrument would require a greater variety of timbres, perhaps from 52 stops or so. Mr. Matthews had given serious thought to these comments, and concluded that he did not care how big the new organ would be, but that he wanted it to be "the best organ in the U.S.A."[24] With these words the respective proposals for the cathedral organ were free to follow their own paths toward coherence and integrity without premature budgetary constraint.

[24] Frank P. Matthews, to Kevin Vogt, in private conversation, early October 1998.

Pasi's proposed specification had matured by the end of October, increasing to 54 stops.[25] The Great Harmonic Flute had been replaced by an 8' Rohrflöte, the Pedal 2' Cornet by a 4' Clairon, and the Positive had been expanded to include both a principal and a flute at 2'. Inspired by its inclusion in Pasi Opus 5 and Opus 10, I requested the placement of an 8' Suavial on the Positive as another explicitly "Catholic" element.[26]

I returned to Seattle on October 19 where I met Brother William *en route* to San Francisco.[27] Together we visited Pasi Opus 4 in Lynnwood, and it was there that Martin Pasi presented two drawings, the first of a magnificent case inspired by the 1539 organ in the Cathedral of Barcelona, and the second incorporating three of the four Kimball façade flats into a new case design (Figure 12).

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[25] Martin Pasi, Preliminary Proposal, 26 October 1998, Cathedral Archives, Saint Cecilia Cathedral, Omaha.

[26] In this case, a treble principal stop tuned sharp, like an Italian Fifarro or Voce Umana. According to Owen and Williams, a more common usage of the name "in southern Germany, Switzerland and the Hapsburg countries from ca. 1710 to the early 19th century" is as a narrow-scaled 8' or 4' metal stop, with no mention of it being an "undulating" or de-tuned stop. (Peter Williams and Barbara Owen, *The Organ,* in The New Grove Musical Instrument Series [New York: W.W. Norton & Company, 1988], 286.) As a discant "principal celeste," however, it has become a bit of a Pasi trademark, as he has included the stop on seven instruments to date (Opus 2, Opus 3, Opus 5, Opus 10, Opus 12, Opus 14, and Opus 16).

[27] Kevin Vogt, to Martin Pasi, electronic mail (printed copy), 24 October 1998, Pasi Shop Records, Roy, Washington.

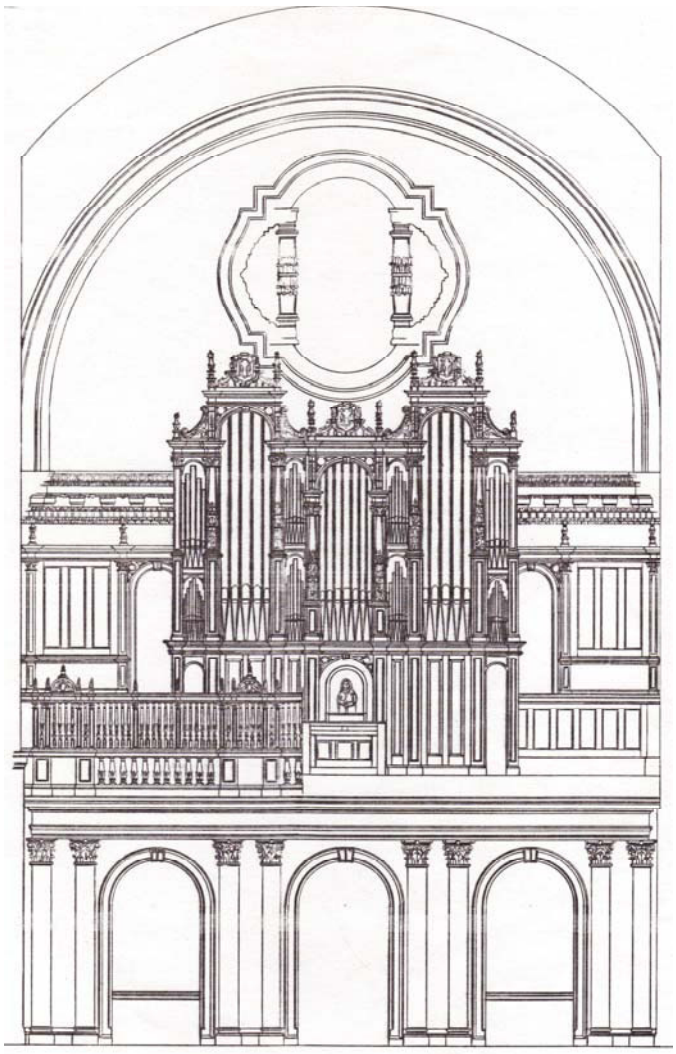

Figure 12. Original Façade Drawing, Pasi Opus 14
(Courtesy of Pasi Organbuilders)

When Brother William acknowledged to me that he felt this design would "honor Thomas Kimball,"[28] it appeared that our goals of architectural conservation and the commissioning of a new mechanical action organ were reconcilable after all.

[28] Quoted by Kevin Vogt, to Martin Pasi, electronic mail (printed copy), 24 October 1998.

It had not been possible up to this point to schedule a single trip for everyone on the organ committee, and so I arranged yet another trip to Seattle on October 27 and 28 to include Father Wray and Mr. and Mrs. Matthews. In the end, only Father Wray was able to make the trip since Frank Matthews had become ill. A musician himself, Father Wray joined a growing consensus favoring Martin Pasi as builder of the new cathedral organ. This consensus favoring Pasi was certainly aided by my frequent contact with him during the preceding month, whereas we were simply waiting for proposals from Hellmuth Wolff and Steven Dieck.[29]

By late October, Martin Pasi had decided to submit a single proposal for a dual-tempered organ.[30] I was becoming increasingly worried about having to "sell" the idea to the organ committee, and I had suggested to Pasi that he submit a "normal" proposal as well. However, the idea had gained such momentum by this time that there was no turning back, and I was already devising a rationale for dual temperament based not on historical or musical grounds, but symbolic and theological.[31]

While only Brother William and Father Wray had actually heard a Pasi organ by this time, we decided to make another attempt to convene the committee to hear the Wolff et Associés organ at the University of Kansas. On November 11, Father Ronald Noecker joined me, Father Wray and Brother William on an excursion to

[29] Mr. Dieck was occupied with a major installation in Japan for C. B. Fisk, and was unable to submit a proposal before a decision was made to award a contract.

[30] Noted by Kevin Vogt, to Martin Pasi, electronic mail (printed copy), 25 October 1998, Pasi Shop Records, Roy, Washington.

[31] Ibid.

Lawrence, Kansas, where we met with Wolff associate James Louder. We had not yet received a proposal from Wolff, but while we were in the office of Professor James Higdon a proposal and drawing arrived by fax, a moment of drama surpassed only by the spectacular proposal itself. Wolff had proposed a 51-stop organ with South German tonal inclinations,[32] encased behind a dramatic façade using all four of the Kimball façade flats and exposing all three gallery-level lancet windows (Figure 13).

Excitement ran high for this design, for the quality of the drawing over which Wolff had obviously labored industriously, for the possibility of conserving of all four of the façade flats from Casavant Opus 51, and for the opportunity to expose all of the west windows for the first time since 1918.[33] Reference to the famous Gabler organ at Abbey Basilica of Weingarten, constructed around six large windows, was unmistakable.[34] Equally attractive were the musical opportunities that would be offered by a Rückpositiv division on the gallery rail and the ample gallery space afforded by the small footprint of the proposed organ.

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[32] While this organ was not built in Saint Cecilia Cathedral, Hellmuth Wolff et Associés were able to realize Wolff's southern German tonal idea in a large four-manual instrument at Christ Church Cathedral in Victoria, British Columbia (Hellmuth Wolff et Associés, Opus 47, 2005).

[33] Wolff's extraordinary effort to exceed the challenge of leaving existing windows unobstructed was especially ironic and spectacular in that during his visit to Omaha in September he quipped with a hint of sarcasm that I had brought him to Omaha under false pretenses: I had told him we were embarking on an organ project when it was really a "window project."

[34] Friedrich Jakob, *Die grosse Orgel der Basilika zu Weingarten : Geschichte und Restaurierung der Gabler-Orgel* (Männedorf, Switzerland: Verlag Orgelbau Kuhn, 1986), 63.

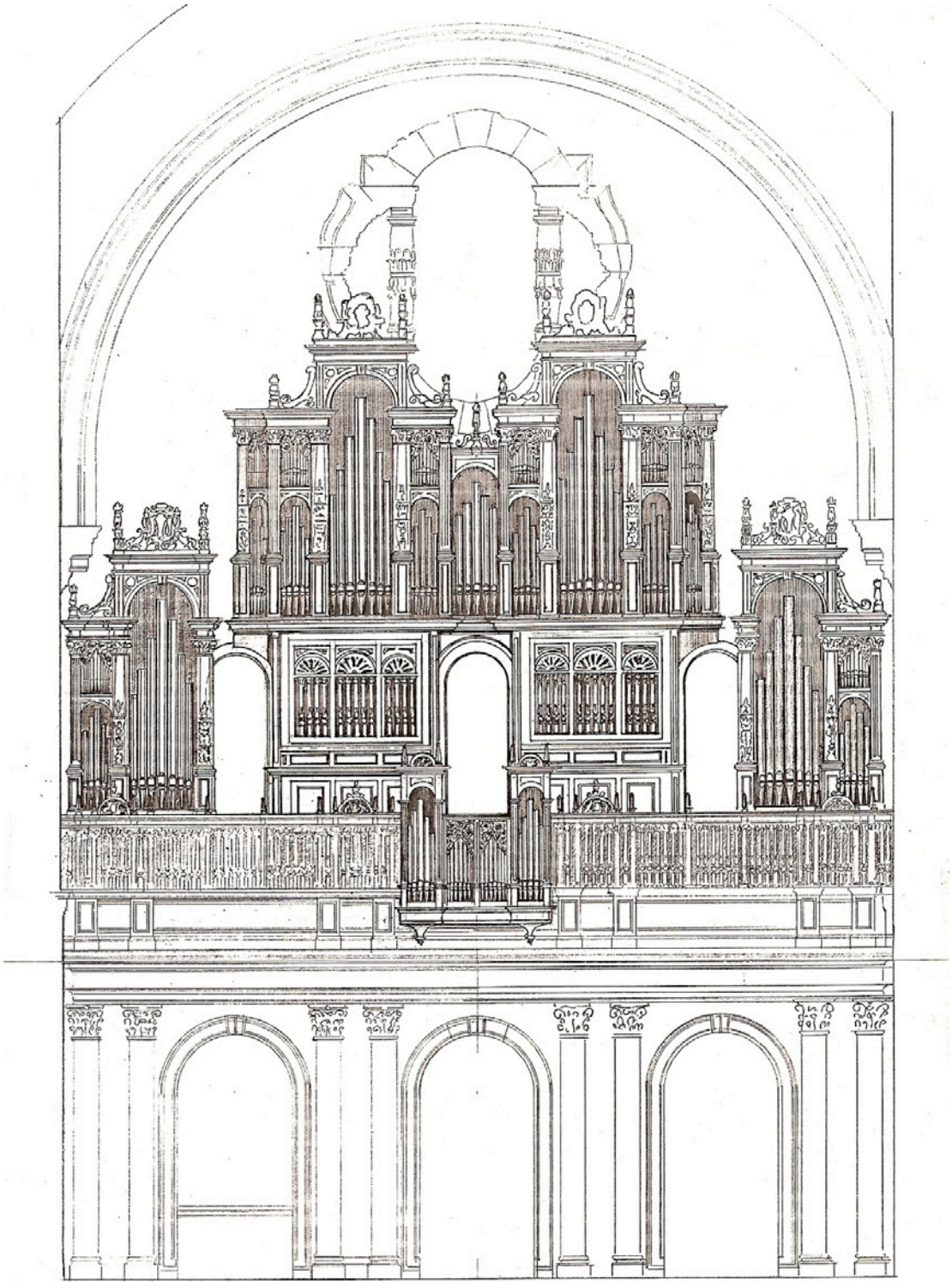

Figure 13. Façade Drawing, Proposal by Hellmuth Wolff et Associés
(Courtesy of Hellmuth Wolff et Associés)

Contract with Martin Pasi

When the organ committee convened to make a decision between the two proposals, I provided a list of points for comparison, including tonal style, style of case, conservation of the Kimball façade, relation of design to the windows, unique features, temperament, winding, pipework, console, cost, gallery renovation required, and projected miscellaneous expenses. After a few minutes of discussion the committee concluded that it would have to rely on my judgment to make the decision. In the end, I believe the competitive bidding process had confused the committee and obscured its task; rather than choosing an artist from whom to commission a work of art, the committee was presented with a choice between commodities that didn't yet exist and were ironically as dissimilar as apples and oranges. I decided in favor of the design by Pasi—or rather, I chose Martin Pasi to be the builder of the cathedral organ, for that was in fact the decision that had to be made.

If justification of the decision had been made solely on the proposals themselves, the defense would have rested on the relative congruence of the Pasi design with the pristine Spanish Renaissance architecture of the cathedral—even though the Wolff proposal would have conserved more of the old façade. Comprised of lead pipes housed in a single, unified cased, Pasi's designed also seemed in keeping with the style of Flemish organ building common in Spain during the sixteenth century—especially the Escorial Brebos organ of ca.1580, which had an internal Positive division rather than a Rückpositiv.[35] The Wolff design, governed by

[35] Williams and Owen, *The Organ,* 85.

an extraordinary will to solve the design problems involving the old façade and the windows, introduced the late-Baroque elements of case fragmentation and represented what I considered to be a period of decline in organ building rather than a rebirth or "Golden Age."

I knew very well that Hellmuth Wolff could have built an excellent organ in virtually any historical style and created a design that satisfied all of our sensibilities. He would have been an excellent choice as a builder had we understood that this was in fact the decision before us. In truth, my decision for Martin Pasi was based on the rapport established in our initial conversations. Once I became comfortable with supporting him as a viable candidate, we were already down the road of planning the organ. The decision was made on 16 November 1998, and a formal proposal arrived the following day with a contract for a 54-stop, dual-tempered organ (Table 15).

The organ was to have five extra pipes per octave in the Great, Positive and Pedal divisions, yielding a well-tempered tuning and fifth-comma meantone. It was to have a reversed, detached console with electric stop action and combination system. The organ was to be winded by three cuneiform (or "wedge-shaped") bellows, fed by a silent electric blower or operated by manual or foot pumping. The price of the organ was set at $1,119,000.00 and slated for delivery in late 2002.[36] Frank Matthews directed some minor changes in the contract concerning guarantees, insurance and the schedule of payments,[37] and the contract was presented to

[36] Williams and Owen, *The Organ,* 85.

[37] Kevin Vogt, to Martin Pasi, fax transmission, 23 November 1998, Pasi Shop Records, Roy, Washington.

Archbishop Elden Francis Curtiss for his signature on 27 November 1998, the day after Thanksgiving.

Table 15. Stop List of Formal Proposal, 17 November 1998.[38]

Great		Swell	
16’	Praestant	16’	Bourdon
8’	Octave	8’	Principal
8’	Salicional	8’	Gamba
8’	Rohrflöte	8’	Celeste
4’	Octave	8’	Harmonic Flute
4’	Spitzflöte	4’	Principal
2 2/3’	Quinte	4’	Harmonic Flute
2’	Superoctave	2 2/3’	Nazard
2’	Mixture IV	2’	Octavin
1 1/3’	Mixture V	1 3/5’	Tierce
8’	Cornet V	2’	Mixture V
16’	Trumpet	16’	Bassoon
8’	Trumpet	8’	Trompette
8’	Trompette	8’	Oboe
8’	Vox Humana	4’	Clairon

Positive		Pedal	
8’	Principal	32’	Subbass
8’	Suavial (discant)	16’	Praestant
8’	Bourdon	16’	Subbass (octave transmission)
4’	Octave	8’	Octave (octave transmission)
4’	Rohrflöte	8’	Bourdon
2 2/3’	Sesquialtera II	4’	Choralbass
2’	Octave	2 2/3’	Mixture V
2’	Blockflöte	32’	Trombone
1 1/3’	Larigot	16’	Posaune (octave transmission)
1’	Scharff IV	8’	Trumpet
16’	Dulzian	8’	Trompette
8’	Cromorne	4’	Clairon

[38] Formal Proposal by Martin Pasi, to Saint Cecilia Cathedral, 17 November 1998, Pasi Shop Records, Roy, Washington.

As a prelude to the signing of the contract, I presented the original rationale I had devised for the proposed system of dual-temperament in an essay entitled, "The Embodiment of Harmony: Musical Temperament and the Saint Cecilia Organ."[39] Claiming that the organ's historical role in the Church has been largely symbolic and metaphorical, I suggested that the two proposed temperaments—a variety of meantone and a well-tempered tuning—likewise symbolized the Platonic and Aristotelian intellectual traditions and their derivative theologies.[40] I also admit to naïvely and erroneously dismissing equal temperament as a "child of the Enlightenment," its common defense in the late-nineteenth and early-twentieth centuries "not so much related to philosophical or musical values, but rather to a post-Industrial Revolution penchant for standardization."[41] In pure speculation, I further equated the classical correspondences between the Boethian categories of *musica mundana, musica humana* and *musica instrumentalis* with the cult of Saint Cecilia. These ideas were developed and refined as the organ project unfolded, but their nascent form sufficed at the time to convince the Archbishop that Martin Pasi's

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[39] Kevin Vogt, "The Embodiment of Harmony: Musical Temperament and the Saint Cecilia Organ," unpublished essay, 22 November 1998.

[40] These preliminary ideas were derived in part from a first reading of Quentin Faulkner's suggestion that the first organs in churches may have been understood "as an embodiment of cosmic harmony and as a means of manifesting and teaching basic neo-Platonic doctrines associated with the *quadrivium* and the medieval cosmic worldview." Quentin Faulkner, *Wiser Than Despair: The Evolution of Ideas in the Relationship of Music and the Christian Church* (Westport, Connecticut: Greenwood Press, 1996), 216-217.

[41] Vogt, "The Embodiment of Harmony," 22 November 1998.

capricious idea for a dual-temperament organ was worthy of a commission from the Church.

While a contract was signed after only four months, it took nearly five years to plan and realize the Saint Cecilia Cathedral organ. We had hoped that a rapid commission process would have resulted in the delivery of an organ in time for the Church's Jubilee Year of 2000, the end of the second millennium of the Christian calendar. However, a race toward a signed contract was won by Bedford Presbyterian Church of Bedford, New York, now home of Pasi Opus 13. Our disappointment faded with the superstitious consolation that we had avoided a potentially unlucky opus number and with the realization that a large, specialized organ could only benefit from ample time for research and design.

Since neither the concept nor the *raison d'être* of such a specialized organ was entirely clear, it would take time for credible allies to emerge in a field of potential critics. So, too, would time be on the side of the small Pasi firm in organizing and cultivating a team of associate artisans to assist with this monumental undertaking. Finally, a sense of leisure on the front end of the project enabled both organ builder and client gradually to gain peaceful possession of intuited ideas that would doubtless be open to wide scrutiny.

Beyond the creation of the visual concept and formulation of the initial stoplist laid a host of design issues to resolve before building could begin. Most were practical in nature, such as the determination of the layout and mechanism that would make possible two discreet temperaments. Over these challenges arched nagging

aesthetic and ethical concerns. First, a large stoplist coupled with the very idea of two temperaments suggested an inherent tendency toward eclecticism, which could very well compromise the organ's "formal identity."[42] Second, the lack of a practical reason for adopting either temperament, such as the desire to play particular inherited repertoires in an "authentic" manner, exposed the proposal to premature scrutiny and ridicule and called into question the motives and responsibility of both organ builder and client. An ample period of planning thus proved critical in the search for pragmatic design solutions, philosophical possession of the "idea" of the organ and its justification—all to the benefit of the realization and reception of the instrument.

Research

The actual building of Pasi Opus 14 was preceded by two and one-half years of research involving the examination of numerous modern and historic organs in the United States and Europe, review of existing scholarship on the tuning and temperament of keyboard instruments, and consultation with several organ builders, organists and scholars in our immediate circles of acquaintance. Developments during this period of research revolved around three pivotal events: a visit to Stanford University in March 1999, a symposium at Pacific Lutheran University entitled "The Organ in the New Millennium" in April 1999 and a study tour to Europe in October 1999.

[42] John Fesperman, *The Organ as Musical Medium* (New York: Coleman-Ross, 1962), 10.

Visit to Stanford University

Martin Pasi and I met in Palo Alto, California, on 12 March 1999 to visit organist-scholar Robert Bates, then university organist at Stanford University, and to examine the famous dual-temperament organ by C. B. Fisk from 1984 (Fisk Opus 85) in the university's Memorial Church. Professor Bates proved to be an invaluable resource throughout our project, having both first-hand experience in playing, explaining and composing for the dual-temperament organ at Stanford and a thorough knowledge of the historical, mathematical and musical dimensions of keyboard temperaments. His early questions and suggestions were important guides to honing an initially amorphous concept. A first-hand encounter with Fisk Opus 85 likewise gave concrete testimony that such a concept could be coherently realized.

The assurance we experienced at Stanford had followed momentary panic resulting from a telephone conversation between Martin Pasi and Robert Bates on 8 March 1999.[43] Bates had suggested that a dual-temperament scheme in a context such as ours would need to go further in distinguishing between the two temperaments than does Fisk Opus 85 with its fifth-comma meantone and unique Vogel-Fisk well-tempered tunings, resulting from five extra notes per octave. Bates had further wondered if it would be best to relegate the dual-temperament concept to a smaller, secondary instrument at the front of the cathedral.[44]

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[43] Deduced from Kevin Vogt to Martin Pasi, electronic mail (printed copy), 9 March 1999, Pasi Shop Records, Roy, Washington.

[44] The idea of a smaller "choir" organ emerged with Bedford Presbyterian Church's signing of the contract for Pasi Opus 13 when it became apparent that Pasi Opus 14 would not be finished in time

The idea of expanding the Fisk-Vogel dual-temperament scheme was not new to us. We were aware that German organ builder Kristian Wegscheider had already built a dual-tempered organ at the Allstedt Schloßkapelle in Germany (Wegscheider Opus 1) with six extra notes per octave.[45] By this time Martin Pasi had also been thinking about using a "pure" quarter-comma meantone rather than a modified fifth-comma meantone as employed by Fisk and Wegscheider,[46] which we assumed would require more than seventeen notes per octave to allow for the derivation of a useful well-tempered tuning. It was Bates's suggestion of abandoning our plan for a large dual-temperament organ that caused me to panic:

> If the 54-stop version of the dual-temperament organ will not work, we may have to "temper" the idea as you suggest, and incorporate it into a smaller instrument. That would necessitate, however, doing the two projects together so that it appears [*sic*] to be a variation on the original idea, rather than me or you or both of us trying to manipulate an extra organ out of a failed concept. If we end up looking like a couple of flakes, the cathedral would be in serious trouble, because it does not have all the money in hand yet. We will have to wrestle with this fairly privately, since continued confidence in the project by the donors and administration is critical to its completion, to all other projects going on here, and to my tenure as director of music.[47]

Face-to-face conversation with Robert Bates at Stanford and direct experience with Fisk Opus 85 provided a timely point of reference for the continuation of open

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for Archbishop Elden Francis Curtiss' Twenty-Fifth Anniversary of Priestly Ordination in June of 2001.

[45] Lutz M. Seifert, "Die Wegscheider-Orgel zu Allstedt: Ein neues Konzept der dualen Temperierung," *Ars Organi* 40, no. 3 (September 1992): 141-145. We would later visit Wegscheider's other dual-tempered organ, Opus 21, at Dresden-Wilschdorf in Germany.

[46] The specific characteristics of these tuning systems will be explored in Chapter Three.

[47] Kevin Vogt to Martin Pasi, electronic mail (printed copy), 9 March 1999, Pasi Shop Records, Roy, Washington.

and optimistic inquiry. My curiosity about the fabled nearly-pure major thirds of fifth-comma meantone became fascination and even obsession during our brief visit. I found myself not so concerned with the temperament's utility in rendering inherited repertoire as caught up in the experience of the sound itself. I marveled at how in a very short time my ears and mind became sensitive to varying degrees of tempered intervals, and how I began to crave and savor the beauty of pure intonation. I recalled how several years earlier I had heard a choir singing Renaissance polyphony in just intonation and how I had wondered then if people in earlier times experienced such aural encounters as "hierophany," manifesting the sacred.[48] I speculated that there was something greater at stake in our project than its relationship to the traditions and conventions of organ building.

Our encounter with the Stanford Fisk also confirmed the sonic and musical value of meantone tuning being available on a large organ well-placed high on the central axis of a room. While meantone tuning could at the time be found in several smaller organs in the United States, the 16' plenum heard in meantone at Stanford was unusual. Pasi and I agreed that this was a sound the more-resonant Saint Cecilia Cathedral simply could not do without. Robert Bates concurred that a smaller dual-temperament organ in a secondary location would result in a missed opportunity in the design of the large instrument.

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[48] Mircea Elliade, *The Sacred and the Profane: The Nature of Religion,* trans. Willard R. Trask (New York: Harcourt Brace Jovanovich, 1959), 11.

Professor Bates's thorough tour of Fisk Opus 85 further illuminated the challenges of accommodating additional pipes on windchests. In the Stanford organ, each accidental key has access to two pipes corresponding to each temperament. When selecting the temperament the organist chooses one set of accidentals over the other through the shifting of roller boards, controlled by the movement of a large iron lever over the organ console. Both *C* and *C-sharp* sides of the organ contain complete sets of accidental pipes, disrupting the traditional major third arrangement of pipes on each side and possibly sacrificing in some instances the tuning benefit of such an arrangement. The shifting roller board system also forces the organist to make a choice of temperaments before beginning to play. Two questions emerged from these observations: (1) How best to organize the pipes of a dual-temperament organ on the windchests, and (2) how much flexibility the organist should have in selecting the temperament?

Finally, our visit to the Stanford Fisk helped to enrich our thinking about style and eclecticism. In Opus 85, organ builder Charles Fisk "combined different facets of historical organs into a creative composite, producing an organ that could successfully render two centuries of repertoire [17th and 18th centuries] from different national schools."[49] The presence of a romantic-style 1901 Murray Harris organ in the choir loft below the Fisk organ left Charles Fisk free to narrow and deepen the concept of an eclectic organ into one that would render the sound-worlds of Bach's

[49] Kimberly Marshall, "Fisk's legacy of eclecticism: The Stanford and Littlefield Instruments," *Informazione organistica: bollettino quardimestrale della Fondazione Accademia di Musica Italiana* 1, no. 2 (1989): 4.

era as well as that of the preceding century. The three "schools" represented in the tonal specification are "the massive 'color machines' of Northern Germany, the 'Bach organs' of Thuringia, and instruments in French classical style."[50] At Stanford I caught a glimpse of something I was counting on Martin Pasi to deliver—a creative synthesis of historical styles. I wrote to him on the eve of our trip to Palo Alto:

> I don't envision this organ [Pasi Opus 14] to be an "eclectic" instrument, but I do imagine it to be "cosmopolitan." Is there a difference? And what is it? I don't know the answer to all of these questions, but I have an intuition about them.[51]

Harald Vogel felt such a synthesis was accomplished in the Stanford Fisk Opus 85: "In this organ the move from eclecticism to universality—to which we all so passionately strive—was accomplished."[52] The challenge presented to us by Fisk Opus 85: How far can the concept of dual-temperament be taken, and how wide a swath of historical and national styles can really be synthesized into a coherent bid for universality?

Symposium at Pacific Lutheran University

The second event provoking significant developments in the planning of Pasi Opus 14 was the symposium, "The Organ in the New Millennium," held 8-12 April 1999 at Pacific Lutheran University in Tacoma, Washington. The conference was co-

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[50] Ibid.

[51] Kevin Vogt to Martin Pasi, electronic mail (printed copy), 9 March 1999, Pasi Shop Records, Roy, Washington.

[52] Harald Vogel, "Tuning and Temperament in the North German School of the Seventeenth and Eighteenth Centuries," *Charles Brenton: Fisk: Organ Builder,* Vol. I (Easthampton, MA, 1986), 250.

sponsored by PLU and The Westfield Center, and brought together 170 organists and organ builders from around the world to celebrate the completion of a monumental North German-inspired organ of 54 stops by Paul Fritts & Company, the firm's Opus 18. The organ was fêted with performances by James Holloway, David Dahl, Hatsumi Mirua, Margaret Irwin-Brandon, Peter Sykes, Craig Cramer, Mark Brombaugh, William Porter, Melvin Butler, Roger Sherman and Martin Rost, and panel discussions with Robert Bates, John Boody, John Brombaugh, Ralph Carskadden, Hans Davidsson, Stephen Dieck, Lynn Edwards, Quentin Faulkner, Susan Ferré, Bruce Fowkes, Paul Fritts, Roberta Gary, Rodney Gehrke, Christopher Kent, Barbara Owen, Martin Pasi, William Porter, Christa Rakich, Manuel Rosales, Pamela Ruiter-Feenstra, Roger Sherman, Peter Sykes, Carole Terry and James Wallman.[53] This impressive assembly of some of the brightest lights in the world of organ art afforded an uncommon opportunity to seek both support and guidance for our own landmark project.

Indirectly but profoundly influencing the development of a rationale for Pasi Opus 14 was Professor Hans Davidsson of the Göteborg Organ Art Center in Sweden, who introduced symposium participants to his research into the musical world-view of seventeenth-century Germany. Davidsson's analysis of Matthias Weckmann's chorale cycle "O Lux Beata Trinitas" draws upon principles of Baroque structural organization and rhetorical processes identified by Rolf Dammann, in this case, "the

[53] Symposium Program Folder, "The Organ in the New Millennium," 8-12 April 1999, Pacific Lutheran University, Tacoma, Washington.

principle of cosmic harmony in the macrocosm and the principle of how it interacts with the human in the microcosm."[54] As an example of the kind of pre-compositional system Weckmann or any other seventeenth-century composer might have used in organizing the *dispositio* of a musical work like "O Lux Beata Trinitas," Davidsson employs an illustration from Athanasius Kircher's *Musurgia Universalis* (Rome, 1650) as the analytical lens through which to view the structure of the chorale cycle. Davidsson constructs an analogy between the six settings in Weckmann's cycle and Kircher's illustration of a "world organ" (*Harmonia nascentis mundi Organum decaulum*), which compares the first six days of creation to six registers of a cosmic organ.[55]

Davidsson's interpretation demonstrated that an analogical analysis of an artifact not only describes but participates in the world-view associated with the object. It was a small step for me to conclude that Davidsson's methodology might be applied to a musical instrument as well as a musical composition. The validity of the methodology would depend upon whether or not one wished to accept or acknowledge the associated world-view. It was only another small step for me to use this interpretation to reinforce my early position that the justification of a dual-temperament organ—or any organ—rested not on its utility but in its manifestation of the neo-Platonic concept of *harmonia.* Quentin Faulkner astutely observes:

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[54] Hans Davidsson, *Matthias Weckmann: the Interpretation of his Organ Music*, vol. 1 (Stockholm: Gehrmans Musikförlag, 1991), 143.

[55] Davidsson, 145.

> It is surely more than coincidence that the authors who furthered ideas about world harmony during this period are the same ones that show the greatest interest in the organ: Praetorius, Kircher, Werckmeister. Indeed, it seems that in general the organ has flourished wherever the Christian neo-Platonic world view has been cultivated...[56]

I further reasoned that if the world-view "carried" within a dual-temperament organ could be shown to be congruent with the foundational beliefs of the host institution (in the case of Pasi Opus 14, the Roman Catholic Church), the decision to commission such art would be vindicated against all future criticism.

The symposium at Pacific Lutheran University also provided the first opportunity for me to meet Quentin Faulkner of the University of Nebraska (even though we lived and worked less than an hour's drive apart). I described for him the organ project afoot at Saint Cecilia Cathedral and expressed my hope that he and his colleague George Ritchie would take advantage of the organ when it was finished for the benefit of their students. I also asked his opinion on the proposed organ, about which he later responded,

> ...it becomes clearer to me that the Pacific Northwest builders are in the process of creating a new organ type that will not merely incorporate, but will fuse the previous organ types that feed into it, and thus will transcend all of them. That is, what Martin Pasi will build for St. Cecilia's is not just a conglomerate of various organ styles; it is something radically new that will go beyond any and all of those styles.[57]

It was too early to consider these words prophetic, but they were certainly encouraging.

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[56] Quentin Faulkner, *Wiser Than Despair: The Evolution of Ideas in the Relationship of Music and the Christian Church* (Westport, Connecticut: Greenwood Press, 1996), 221.

[57] Quentin Faulkner to Kevin Vogt, electronic mail (printed copy), 21 April 1999, Pasi Shop Records, Roy, Washington.

The most significant development at the PLU Symposium furthering the conceptualization of Pasi Opus 14 was meeting Kristian Wegscheider, the organ builder of Dresden, Germany, who had built two small dual-temperament organs with eighteen notes per octave. Martin Pasi had by this time concluded that six extra pipes per octave would probably be more desirable than five, especially if quarter-comma meantone were to be used and an adequately flexible well-tempered tuning—something akin to Bach-Kellner—were to be derived from it.[58] The moment of crisis and opportunity came when Wegscheider heard David Dahl's performance of Louis Vierne's *Carillon de Westminster* on the new Fritts organ at PLU (tuned in Bach-Kellner temperament). Even though this *Pièce de Fantaisie* of Vierne is tame in terms of chromatic harmony and enharmonicity, Wegscheider exclaimed that Bach-Kellner temperament simply would not work for an organ on which such music was to be played.

Wegscheider offered to help Pasi, which in turn would realize Wegscheider's own "Traum in einer großen Orgel."[59] The two organ builders met at Pasi's shop on Monday, 12 April 1999, to work out a temperament scheme for Pasi Opus 14. The result was dramatic. Wegscheider had proposed a dual-temperament scheme based on quarter-comma meantone requiring not eighteen, but twenty notes per octave. The two temperaments would share only the diatonic pitches *C*, *D*, *G* and *A*. This plan

[58] Bach-Kellner is a modern keyboard temperament devised by theorist Hermann Kellner as a possible solution to the riddle of which temperament (if any) Bach had in mind for *Das Wohltemperierte Klavier*. Bach-Kellner has become a popular temperament among organ builders seeking a colorful but smoothly modulating circular temperament.

[59] "…dream in a large organ." Kristian Wegscheider to Martin Pasi, electronic mail (printed copy), 16 April 1999, Pasi Shop Records, Roy, Washington.

constituted a conceptual shift from a single organ with extra pipes to essentially two organs that shared one-third of their pipes. Since there was no way to account for the extra pipes this would entail within the contract price or the additional space they would require within the proposed case design, Pasi proposed a reduction in the number of stops that would be available in the meantone tuning. The stoplist was thereafter subjected to continuous revision until building of the organ began in December 2000.

European Study Tour

In October of 1999 Martin Pasi and I traveled to Europe to visit several important historic and modern organs, including a large, historic meantone organ and central German organs from the 18th century exhibiting "cosmopolitan" characteristics of stylistic fusion (Figure 14). These instruments represent points of contact between Pasi Opus 14 and historical organ building traditions, although we were seeking impressions from them as much as hard data. Our *Europareise* also provided opportunities for continuing conversation with Kristian Wegscheider in Dresden about temperament schema and examination of one of his dual-tempered organs. An added purpose for the tour was to study examples of winding systems, particularly mechanical means of simulating hand- or foot-raised wind, which Martin Pasi wanted to consider for inclusion in the Saint Cecilia Cathedral organ.

We arrived in Frankfurt on Tuesday, 5 October 1999, where we were joined by American organ builders Paul Fritts and Bruce Shull. Together we met Stefan Göttelmann, organ professor of the Hochschule für Kirchenmusik in Heidelberg, who

Figure 14. European Study Tour, October 1999
(Courtesy of the Department of Geography, University of Kansas)

showed us a restored 1785 Stumm *Brüstungsorgel* at the Ulrichskirche in Neckargemünd.[60] We thereafter made our way south to the area around Karlsruhe in Baden-Wurttemberg, where we established our base for the next couple of days. We stayed near Bretten at the home of Dr. Martin Kares and his family. Dr. Kares is the "organ expert" for the Evangelische Landeskirche Baden, and he served as our guide during these early days of our expedition.

Our first stop on Wednesday, 6 October 1999, was Karlsruhe, where we saw two innovative *Kleinorgeln* conceived by Dr. Kares. As overseer of organ building and restoration for the Protestant churches in Baden-Wurttemberg, Dr. Kares has developed several economical designs for small church organs.[61] The Landeskirche commissioned and owns several of these instruments, and loans them to parish churches to fill a need for a transitional instrument or to demonstrate the value of a pipe organ.

One such "Leihpositiv" was a one-manual, "dual-style" organ of six stops built by Peter Vier of Friesenheim (1998).[62] A mechanical sub-octave coupler transforms a bright Baroque-sounding organ into a warm, fundamental-rich Romantic-sounding instrument. In other words, the 8' stop becomes a 16' stop, the 4' becomes an 8', and the 2' becomes a 4', and so on. Economy is further achieved by

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[60] A *Brüstungsorgel* is an organ located along the gallery rail, with the key desk either at the rear of the case or, as with the Stumm organ at Neckargemünd, at the side.

[61] Martin Kares, *Kleinorgeln: Geschichte, Typen, Technik,* (Karlsruhe: Ver. Evang. Presse-Verb. für Baden, 1998), 34-90.

[62] Ibid., 39-41.

the derivation of the bottom octaves of the "Romantic" voices from the existing unison registers. The lowest octave of the stopped Subbass 16' contains only six pipes, each producing two adjacent chromatic pitches through variation in winding.

The second of Kares' Leihpositiv designs we encountered was that of a two-manual organ of seven stops by the Rheinmünster firm of Matz & Luge (1998).[63] This organ features an octave coupler making the six stops on Manual I playable an octave higher on Manual II. When Manual II is then coupled to Manual I the result is the sound of a very large plenum from an organ no larger than a 4' positive.

While these attempts to reduce the size and cost of organs did not impress the American organ builders in my party, they represented bold creativity—not unlike that which would be required by our own project. Perhaps the most important issue raised by our encounter with these instruments was that of the relationship of the consultant or client to the creativity of the organ builder. The positive organs by Matz & Luge and Vier appeared to be first and foremost the creative fruit of the consultant, Martin Kares. Martin Pasi, Paul Fritts and Bruce Shull all remarked gratefully on the relative artistic freedom organ builders enjoy in the United States and Canada.

On the same day, Martin Kares escorted us to the village of Kirrweiler in Rheinland-Pfalz to examine a new organ by Alsatian builder Rémy Mahler (1998)

[63] Ibid., 50-51.

using the case and historic pipework from the 1809 organ by Franz Seuffert.[64] The organ was interesting to us in that it is tuned in a modified 1/5-comma meantone temperament, and more so because Rémy Mahler had fitted it with a mechanical wind-raising device to inflate the bellows as if by hand (or foot). Such a process contrasts with that of an electric blower feeding wind into the bellows in that hand-pumped bellows are allowed to close rather than remaining open and simply acting as a reservoir.[65]

A stop in nearby Landau to see another Mahler organ preceded a foray into the now-French province of Alsace for dinner at Rémy Mahler's home in Pfaffenhofen. There we were met by Bavarian organ builder Robert Wech who at the time worked for Rieger Orgelbau. An evening of spirited conversation afforded Martin Pasi a chance to explore with Rémy Mahler the possibilities for developing a mechanical wind-raising system for Pasi Opus 14. The opportunity to see another Mahler organ with such a system the next morning in Bretten did not materialize. Our base at the Kares residence allowed a day of sightseeing in Baden-Baden instead.

On Friday, 8 October 1999, we departed for Grauhof, a former Augustinian monastery north of Goslar in the foothills of the Harz Mountains. The Monastery Church of St. George is a wide, Italianate, baroque-style building dating from 1717, unique in North Germany. The church is home to a famous organ completed in 1737

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[64] Gerd Babelotzky, *Die Mahler-Seuffert-Orgel von Kirrweiler* (Kirrweiler, Germany: Katholisches Pfarramt Kirrweiler, n.d.), 6.

[65] A brief description of manually-raised wind and its musical effect is given in Chapter Three.

by Christoph Treutmann (the Elder) of Magdeburg, one of the most important "Bach organs" in existence (Figure 15). Harald Vogel writes of this instrument:

> The resources available from the original pipes show more tonal variety than any existing organ of Bach's time. Besides the Principal chorus in the three manuals and the generous disposition of the Pedal, the stoplist includes 16', 8', and 4' string stops and a wealth of reed stops, which Bach so valued, even including the 32' Posaune. This masterpiece by Christoph Treutmann overlaps the Middle and North German organ building styles and, as a result, is one of the most ideal instruments for the music of Johann Sebastian Bach.[66]

Figure 15. Façade Organ Treutmann organ at Kloster Grauhof
(Photo by Kevin Vogt)

[66] Harald Vogel, trans. by Elizabeth Harrison, *The Bach Circle, Vol. II*, Loft Recordings LRCD2102 (2000): 8.

Complete choruses in all divisions, including the pedal, and the variety and type of reed stops certainly situate the Grauhof organ in the North German baroque style alongside the monuments of Arp Schnitger of Hamburg. Treutmann may have actually worked with Schnitger on an organ in Magdeburg.[67] A notable departure from the Hamburg style is the integration of the divisions of the Grauhof organ into a large single case, with each division open to the others.

In contrast, North German organs of the period were typically organized according to the *Werkprincip*, whereby discreet divisions of the organ were visually, architecturally and tonally separated in distinct organ cases. The sonic effect of Treutmann organ's layout is homogeneity, whereas *Werkprincip* organs depend on tonal distinctiveness and spatial separation of divisions. The layout of the Grauhof organ allows all of the divisions to be successfully coupled together (an unusual tonal and mechanical capability for an organ of this time).[68]

Because of its physical size, single open case and the stylistic fusion of its tonal elements, the Treutmann organ at Grauhof was an important historical model to which Martin Pasi referred in his unique design of Pasi Opus 14. A comparison of the contracted Pasi specification with the original disposition of the Treutmann organ (now restored) demonstrates similarity of scope and tonal kinship (Table 16).

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[67] Heiko Dückering and Peter H. Gottwald, *Die Treutmann-Orgel im Kloster Grauhof* (Tutzing: Hans Schneider, 1974), 11.

[68] Ibid., 36.

Table 16. Comparison of Grauhof Treutmann and Pasi Proposal

Treutmann (1737)[69]		Pasi Opus 14 Proposal[70]	
	Haupt-Werck		**Great**
16’	Principal[71]	16’	Præstant
16’	Viola di Gamba	—	—
8’	Lieblich Principal	8’	Octave
8’	Viola di Gamba	8’	Salicional
8’	Spitzflöt	8’	Rohrflöte
6’	Quinta		—
4’	Octava	4’	Octave
—	—	4’	Spitzflöte
2 2/3’	Nasat	2 2/3’	Quinte
—	—	2’	Superoctave
2’	Rauschpfeiffe III	2’	Mixture IV
1’	Mixtur VI	1 1/3’	Mixture V
—	—	8’	Cornet V
16’	Trompet	16’	Trumpet
8’	Trompet	8’	Trumpet
—	—	8’	Trompette
—	—	8’	Vox Humana
	Oberwerck		**Positive**
8’	Principal	8’	Principal
—	—	8’	Suavial (discant)
8’	Rohrflöt	8’	Bourdon
4’	Octava	4’	Octave
4’	Spitzflöt	4’	Rohrflöte
2 2/3’	Quinta	—	—
2 2/3’	Sesquialtera II (2/3’ in bass)	2 2/3’	Sesquialtera II
2’	Superoctava	2’	Octave
—	—	2’	Blockflöte
—	—	1 1/3’	Larigot
1’	Mixtur V	1’	Scharff IV
16’	Fagotto	16’	Dulzian
8’	Vox Humana	8’	Cromorne

[69] Vogel, *The Bach Circle*, 11-12. The organ was restored in 1989-1992 by the firm of Hillebrand of Altwarmbüchen.

[70] Pasi Opus 14 contract.

[71] The order of the stops has been altered from published lists or the windchest order for the sake of direct comparison with the Pasi specification.

	Hinter-Werck
—	—
—	—
—	—
—	—
8’	Gedackt
8’	Quintadena
4’	Principal
4’	Traversiere
—	—
2’	Octava
2’	Waldflöt
—	—
1 1/3’	Quinta
1/2’	Sharff III
—	—
—	—
8’	Hautbois
—	—

	Swell
16’	Bourdon
8’	Principal
8’	Gamba
8’	Celeste
8’	Harmonic Flute
—	—
4’	Principal
4’	Harmonic Flute
2 2/3’	Nazard
—	—
2’	Octavin
1 3/5’	Tierce
—	—
2’	Mixture V
16’	Bassoon
8’	Trompette
8’	Oboe
4’	Clairon

	Pedal
12’	Rohrflöt (resultant 32’)
16’	Praestant
16’	Subbass
8’	Octava
8’	Flachflöt
4’	Octava
2 2/3’	Mixtur IV
32’	Groß Posaunen Baß
16’	Posaune
8’	Trompet
—	—
—	—

	Pedal
32’	Subbass
16’	Praestant
16’	Subbass
8’	Octave
8’	Bourdon
4’	Choralbass
2 2/3’	Mixture V
32’	Trombone
16’	Posaune
8’	Trumpet
8’	Trompette
4’	Clairon

Alongside the complete Principal choruses in every division (including 16’ manual choruses in the Hauptwerk or Great), a full pedal compartment, and a generous complement of full- and short-length Germanic reeds, the two organs share *galanterie* features such as strings (Violas da Gamba at 16’ and 8’ on the Treutmann, and Salicional 8’, Gamba 8’ and Celeste 8’ in the Pasi specification), modern imitative reeds (oboes), and imitative transverse flutes (the Treutmann Traversiere 4’

and Pasi's proposed Harmonic Flute chorus).[72] The original Pasi stoplist also proposes several French Classic-style voices (Trompette, Clairon, Cromorne, Cornet), all of which are beyond the tonal scope of the Treutmann organ.

The Grauhof organ also demonstrated how ample wind might be provided to a large organ from remotely-located bellows, a challenge that would have to be met in Omaha. Six 11' x 5½' wedge-shaped bellows (*Spanbälge*) some ten meters from the organ feed wind to the windchests through three long canals, aided by a single Schwimmer bellows near the Oberwerk division. Unless they are inflated by the modern electric blower, the main bellows require three "calcants" to raise the wind by treading large pedals.

Our host at Grauhof, organist Martin Hoffmann, arranged for us to spend the night in a parish house near the *Stabkirche* in Hahnenklee, where we saw an organ by the Swiss firm of Goll. We returned to Grauhof the next morning, 9 October 1999, where some of the organ builders took detailed measurements of Treutmann's reed pipes. Martin Pasi preferred to listen to the organ in order "get an impression."

In the late afternoon, we set off for the medieval Hanseatic town of Tangermünde, lying on the Elbe River north of Magdeburg near Stendal, on a pilgrimage to one of the largest historic meantone organs in Europe (Figure 16). We had hoped to attend the weekly Saturday evening organ recital at St. Stephan's Church, but arrived too late. Our quest was realized the next morning when organist Christoph Lehman gave us a tour of the church's organ, dating from 1624. The organ

[72] The French name for the 2' Octavin also suggests a reference to similar Récit flute configurations in organs by Aristide Cavaillé-Coll in the latter nineteenth century.

Figure 16. Scherer Organ at St. Stephanskirche, Tangermünde
(Courtesy of Pasi Organbuilders)

was the work of Hamburg organ builder Hans Scherer the Younger, recently restored by the Potsdam firm of Alexander Schuke. In spite of radical changes to the instrument over 370 years, fifty-percent of Scherer's original pipework has survived, making this organ one of the most important musical artifacts in Europe from the early seventeenth century.

The Hans Scherer organ at Tangermünde provided a rare opportunity to hear very large Principal choruses made of lead pipes in a large resonant church and tuned in quarter-comma meantone tuning—a sonic complex Martin Pasi hoped to create in Omaha. Although it is three stops larger than eventual meantone "side" of Pasi Opus 14 and spread over three manuals instead of two, the Tangermünde organ helped to define the eventual scope of the meantone organ concept realized at Saint Cecilia Cathedral (Table 17).

The proposed Pasi Opus 14 clearly went further toward a mature seventeenth-century North German organ concept in its generous inclusion of manual reeds (Trumpet 16', Trumpet 8', Dulzian 16', Trechterregal 8' and Vox Humana 8'). However, similarities between the Pasi design and this organ type, and the Tangermünde Scherer organ in particular, perhaps end here since the Pasi plan was not governed by the *Werkprincip*. Its manual divisions were to be housed in a single case with the pedal division standing demurely behind the case rather than speaking directly from front pedal towers.[73] It seemed a happy coincidence, however, that the

[73] John Brombaugh notes, however, that Schnitger's organs at Cappel and Uithuizen have rear-positioned pedal windchests. John Brombaugh, "Bach and the Organs of His Time: Their Influence in America," *The Musical* Times 126, no. 1705 (March 1985): 172.

Table 17. Comparison of Tangermünde Scherer and Pasi Meantone

Scherer (1624)[74]		Pasi Opus 14 Meantone[75]	
	Im OberWercke		**Hauptwerk**
16’	Principal (in façade)[76]	16’	Praestant
16’	Quintadeen	—	—
8’	Octava	8’	Octave
8’	Gedact	8’	Rohrflöte
4’	Flöite	4’	Octave
	Ruspipe II	2 2/3’	Quinte
		2’	Superoctave
	Mixtur V-VIII	1 1/3’	Mixture V
	Scharp III-V	—	—
—	—	16’	Trumpet
—	—	8’	Trumpet
—	—	8’	Vox Humana
	Im RückPositiff		**Oberwerk**[77]
8’	Principal I-II (in façade)	8’	Prestant
—	—	8’	Suavial (discant)
8’	Gedact	8’	Gedeckt
8’	Quintadeen	—	—
4’	Octava	4’	Octave
4’	Holflöit	4’	Rohrflöte
—	—	2 2/3’	Sesquialtera II
—	—	2’	Octave
—	—	—	—
1 1/2'	Zifelit	1 1/3’	Quinte
	Mixture II-IV	—	—
	Scharp III-VI	1’	Mixture IV
	Im OberPositiff		
8’	Principal	—	—

[74] Christoph Lehman, ed., *Die Scherer-Orgel der St. Stephanskirche Tangermünde* (Tangermünde: Rathaus-Buchhandlung, 1994), 32. The organ was restored in 1983-1994 by Alexander Schuke Orgelbau of Potsdam.

[75] Pasi Opus 14 final meantone stoplist.

[76] The order of the stops has been altered from published lists or the windchest order for the sake of direct comparison with the Pasi specification.

[77] The order of the stops has been altered from published lists or the windchest order for the sake of direct comparison with the Scherer specification.

8’	Holpipe	—	—
4’	Flöite	—	—
3’	Nasath	—	—
2’	Waltflöit	2’	Waldflöte
	Zimbel III	—	—
—	—	16’	Dulzian
8’	Trommete	8’	Trechterregal
8’	Zincke	—	—
	Pedal		**Pedal**
16’	Principal	16’	Praestant
16’	Untersatz	—	
8’	OctavenBaß	8’	Octave
4’	FlöitenBaß	4’	Octave
	RukspipenBaß II	2 2/3’	Mixture V
16’	BassunenBaß	16’	Posaune
8’	TrommetenBaß	8’	Trumpet
2’	CornettenBaß	2’	Cornet

wood carvings on the case of the Tangermünde Scherer closely resembled Thomas Kimball’s façade detail in Casavant Opus 51, which was to be incorporated into the new case for Pasi Opus 14 (Figures 17 and 18).

Figure 17. Scherer Case Detail at Tangermünde[78]

[78] Photo by Christine Lehmann, CD booklet cover, Christoph Lehman, *Die historische Scherer-Orgel der St. Stephanskirche zu Tangermünde*, Psallite, 60051, 1994, CD.

Figure 18. Kimball Case Detail of Casavant Opus 51
(Courtesy of Pasi Organbuilders)

The Saxon organs of Gottfried Silbermann provided another historical point of reference for the spatial arrangement and synthetic tonal concept of Pasi Opus 14. And so, we departed for Dresden on Sunday afternoon, 10 October 1999. We arrived at Kristian Wegscheider's *Werkstatt* in time to attend a baroque music concert in nearby Meissen featuring Wegscheider's wife, mezzo-soprano Britta Schwarz. The next day we toured the 1729-1730 Silbermann organ in Rheinhardtsgrimma, which had recently been restored by Wegscheider, as well as the much larger Silbermann organ at the Dresden Hofkirche,[79] slated for restoration in 2002 by the Dresden firm, Jehmlich Orgelbau.

The main organ at the Dresden Hofkirche was at 47 stops the largest of the fifty organs built by Gottfried Silbermann,[80] surpassing the famous 1710-1714 Freiberg Cathedral organ (45 stops) and the 1732-1736 Dresden Frauenkirche organ destroyed by bombs during World War II (43 stops).[81] Silbermann had intended the Dresden cathedral organ to be a 66-stop instrument, but was constrained by space limitations.[82] Begun in 1750 after Silbermann had become seriously ill, the organ was largely the work of his disciples and associates: Zacharias Hildebrandt, Johann Gottfried Hildebrandt, Johann Georg Schön, Adam Gottfried Oehme, David

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[79] The Roman Catholic cathedral in Dresden.

[80] Andreas Hahn, "Gottfried Silbermanns und seiner Schüler Orgel in der Dresdner Kathedrale, Geschichte—Restaurierung—Rekonstruction: 1750-2002," trans. George Taylor, *ISO Journal* 16 (March 2003): 43.

[81] Ulrich Dähnert, *Die Orgeln Gottfried Silbermanns in Mitteldeutschland* (Amsterdam: Frits Knuf, 1971), 192, 206.

[82] Hahn, 42.

Schubert, Wilhelm Eraßmus, Nicolaus Wilhelm Manner and Johann Daniel Silbermann.[83] Gottfried Silbermann died in August 1753; the Dresden Hofkirche organ was completed in 1755.

The Dresden Hofkirche organ is yet another example of distinctive fusion of disparate stylistic elements, comprised of fully developed "Northern" choruses and color stops in all divisions—the pedal included—blended together in a large, open case. Especially noteworthy is the inclusion of two wide-scale *cornet separé* stops as well as several independent flute mutations. Such French influences are common in Silbermann's organs, perhaps a result of his early years in Alsace collaborating with his elder brother Andreas Silbermann, who had in turn worked in Paris with the French organ builders Alexandre and François Thierry.[84] Gottfried Silbermann is also known to have discussed his plans for the Hofkirche organ with his Alsatian nephew, Johann Andreas Silbermann, as early as 1740-41.[85]

A comparison of the Dresden Hofkirche specification with the Pasi specification shows the degree to which the "universal" organ type toward which the Pasi proposal aimed was prefigured in the late-Baroque organs of central Germany (Table 18).

[83] Ibid., 45-46.

[84] Dähnert, 12.

[85] Hahn, 42.

Table 18. Comparison of Dresden Hofkirche Silbermann and Pasi Proposal

Silbermann Dresden Hofkirche[86]		Pasi Opus 14 Proposal[87]	
	Hauptwerk		**Great**
16’	Principal	16’	Præstant
16’	Bordun	—	—
8’	Principal	8’	Octave
8’	Viola da Gamba	8’	Salicional
8’	Rohrflöt	8’	Rohrflöte
4’	Octava	4’	Octave
4’	Spitzflöt	4’	Spitzflöte
3’	Quinta	2 2/3’	Quinte
2’	Octava	2’	Superoctave
1 3/5’	Tertia	—	—
2’	Mixtur IV	2’	Mixture IV
1 1/3’	Zimbel III	1 1/3’	Mixture V
8’	Cornet V (discant)	8’	Cornet V (discant)
16’	Fagott	16’	Trumpet
8’	Trompete	8’	Trumpet
—	—	8’	Trompette
—	—	8’	Vox Humana
	Brustwerk		**Positive**
—	—	8’	Principal
—	—	8’	Suavial (discant)
8’	Gedeckt	8’	Bourdon
4’	Principal	4’	Octave
4’	Rohrflöt	4’	Rohrflöte
2 2/3’	Nassat	—	—
2’	Superoctava	2’	Octave
—	—	2’	Blockflöte
1 1/3’	Quinte	—	—
1 1/3’	Sufflöt	1 1/3’	Larigot
1 3/5’	Sesquialtera (4/5’ in bass)	2 2/3’	Sesquialtera II
1’	Mixtur III	1’	Scharff IV
—	—	16’	Dulzian
8’	Chalumeau (TG)	8’	Cromorne
	Oberwerk		**Swell**
16’	Quintadehn	16’	Bourdon
8’	Principal	8’	Principal
—	—	8’	Gamba

[86] Ibid., 55.

[87] Pasi Opus 14 contract.

8’	Unda maris (TG)	8’	Celeste
8’	Gedackt	8’	Harmonic Flute
8’	Quintadehn	—	—
4’	Octava	4’	Principal
4’	Rohflöt	4’	Harmonic Flute
3’	Nassat	2 2/3’	Nazard
2’	Octava	—	—
—	—	2’	Octavin
1 3/5’	Tertia	1 3/5’	Tierce
1’	Flaschflöt	—	—
	Mixtur IV	2’	Mixture V
—	—	16’	Bassoon
—	—	8’	Trompette
—	—	8’	Oboe
—	—	4’	Clairon
8’	Echo V (Cornet, discant)	—	—
(8’)	Vox Humana	—	—
	Pedal		**Pedal**
32’	Untersatz	32’	Subbass
16’	Principalbaß	16’	Praestant
—	—	16’	Subbass
8’	Octavbaß	8’	Octave
—	—	8’	Bourdon
4’	Octavbaß	4’	Choralbass
2 2/3’	Mixtur VI	2 2/3’	Mixture V
—	—	32’	Trombone
16’	Posaunenbaß	16’	Posaune
8’	Trompetenbaß	8’	Trumpet
—	—	8’	Trompette
4’	Clarinenbaß	4’	Clairon

An entire day in Dresden on 11 October 1999 also provided time to visit some organs by Kristian Wegscheider himself, most notably the dual-temperament organ at the Christophoruskirche in Dresden-Wilschdorf. Completed in 1995, this instrument (Wegscheider Opus 21) is a two-manual, 14-stop organ that is playable in both a 1/5-comma meantone temperament and a derived well-tempered tuning with six extra notes per octave. Whereas the change of temperament in the aforementioned Stanford Fisk is effected through a shifting roller-board mechanism, it is accomplished in Wegscheider Opus 21 by means of a shifting stop action (Figure 19).

As in the Stanford Fisk, this system yields the same degree of flexibility in choosing temperaments in that the entire organ plays in only one temperament at a time.[88]

Figure 19. Wegscheider Opus 21 Shifting Stop Action[89]

On Tuesday, 12 October 1999, we traveled from Dresden to the Thuringian town of Waltershausen, home of a famous organ by Heinrich Gottfried Trost (Table 19).

[88] The ability to independently select a temperament by division or even stop distinguishes the eventual Pasi Opus 14 design. This system will be explained in Chapter Three.

[89] Photo by Kevin Vogt.

Table 19. Disposition of Trost Organ at Waltershausen[90]

Heinrich Gottfried Trost, Waltershausen (1730)			
	Hauptwerk		**Brustwerk**
16’	Portun-Untersatz	8’	Gedackt
16’	Groß Qvintadena	8’	Nachthorn
8’	Principal	4’	Principal
8’	Gemshorn	4’	Flöte douce
8’	Viol d’Gambe	4’	Nachthorn
8’	Portun	4’	Gemshorn
8’	Qvintadena	3’	Spitz-Qvinta
8’	Unda maris	3’	Nassad-Qvinta
4’	Octave	2’	Octave
4’	Salcional		Sesqvialtera II
4’	Röhr-Flöta		Mixtura IV
3’	Celinder-Qvinta	8’	Hautbous
2’	Super-Octava		
	Sesqvialtera II		**Pedal**
	Mixtura VIII	16’	Groß Principal
16’	Fagott	16’	Sub-Baß
8’	Trompetta	16’	Violon-Baß
		8’	Octaven-Baß
	Oberwerk	6’	Celinder-Qvinta
8’	Flöte Dupla	32’	Posaunen-Baß
8’	Vagarr	16’	Posaunen-Baß
8’	Flöte travers	8’	Trompetten-Baß
4’	Lieblich Principal	16’	Qvintadenen-Baß (transmission)
4’	Spitzflöte	8’	Viol d’Gamben-Baß (transmission)
3’	Gedackt-Qvinta	8’	Portun-Baß (transmission)
2’	Wald-Flöte	4’	Super-Octava (transmission)
8’	Hohl-Flöte	4’	Röhr-Flöten-Baß (transmission)
8’	Vox Humana		Mixtur-Baß VI (transmission)

The historical import of this organ and its perplexing tonal scheme were of particular interest to us, as was a recently-installed wind-raising mechanism by Laukhuff. Our primary purpose in visiting this instrument, however, was to gain first-hand knowledge of a little-known organ type that may be relevant to the music

[90] “Trost-Orgel Walterhausen: Disposition” (Accessed 23 February 2007), <http://www.www.trost-orgel.de/>

of Johann Sebastian Bach. While the Walterhausen Trost organ was built after Bach left Thuringia, organ expert Hartmut Haupt speculates:

> It seems most likely that Bach knew of and observed Trost's largest and most important project, the organ at Waltershausen (1722-1730), and followed its completion with interest.[91]

Haupt further cites research on the original stoplist by Eule Orgelbau that suggests Bach's own ideas and principles are incorporated into this organ:[92]

1. Depth and gravity are achieved with the 32' stop in the Pedal and three 16' stops in the *Hauptwerk*.
2. Colorful stops at 8' and 4' pitch are abundant (Viol di gamba 8', Fugara 8', Flöte dupla 8', Schweizerflöte 8', Unda maris 8', Salicional 4', Geigenprincipal 4', Fleute douce 4') and can be used soloistically or in combination.
3. Third-sounding ranks (in Mixtures) are present.
4. The air supply is sufficient to play the *plenum.*
5. Two Glockenspiels are included in the stoplist.[93]

Haupt's assertion undoubtedly links these characteristics to Bach's well-known 1708 recommendation for the improvement of the organ in St. Blasius's Church in Mühlhausen.[94] Whether or not Bach held these ideas firmly until 1722, and regardless of his influence on this organ in particular, the Trost organ at

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[91] Hartmut Haupt, "Bach Organs in Thuringia," in *J. S. Bach as Organist,* ed. George Stauffer and Ernest May (Bloomington: University of Indiana Press, 1986), 28-29.

[92] The Trost organ at Waltershausen was restored by Hermann Eule Orgelbau in 1959.

[93] Haupt, 28-29. The present specification does not indicate two Glockenspiels, but rather two Zimbelsterns.

[94] Hans T. David and Arthur Mendel, ed., rev. Christoph Wolff, *The New Bach Reader: A Life of Johann Sebastian Bach in Letters and Documents,* (New York: W.W. Norton & Company, 1998), 55-56.

Waltershausen typifies the late-Baroque Thuringian organ type,[95] an opulent example of the kind of organs Bach played during the years he was actually a practicing organist.[96]

Haupt also noted that Trost organ at Waltershausen "approaches the type of instrument envisioned in the Romantic era."[97] It was to be for us one more example of an historical organ that transcends commonly accepted conventions of period and style. To the extent that Pasi Opus 14 was to incorporate coherently the characteristics of "gravity" and "color," it might perhaps participate in both the sound-worlds of Bach and the nineteenth century.

The final leg of our tour in Germany crowned our appreciation of the rich variety of organ building traditions that developed in German-speaking lands during the Baroque era. On 13 October 1999, we made our way to the Benedictine Abbey Basilica at Weingarten near Lake Constance, which houses one of the most famous organs in Europe. Its celebrated façade was the inspiration for Hellmuth Wolff's proposal for Saint Cecilia Cathedral (Figure 20):[98]

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[95] Lynn Edwards explores this organ type in depth in her article, "The Thuringian Organ 1702-1720: '...Ein wohlgerathenes gravitätisches Werk," *The Organ Yearbook* (1991): 119-150. Edwards summarizes the general characteristics of the Thuringian organ in terms of (1) tonal gravity, (2) ample wind supply, (3) abandonment of the Rückpositiv, (4) multiplication of eight-foot registers, (5) mixtures containing third-sounding ranks, (6) lack of complete case and pedal division behind main organ, (7) abandonment of the short octave bass in favor of a full octave containing low F-sharp and G-sharp, and (8) preference for a circulating temperament.

[96] Bach's career as an organist *per se* was in fact limited to the Thuringian towns of Arnstadt (1703-1707), Mühlhausen (1707-1707) and the Archducal Court of Weimar (1708-1717).

[97] Haupt, 29.

[98] *Cf.* p. 78.

Figure 20. Gabler Organ Façade at Weingarten[99]

[99] Friedrich Jakob, *Die grosse Orgel der Basilika zu Weingarten : Geschichte und Restaurierung der Gabler-Orgel* (Männedorf, Switzerland: Verlag Orgelbau Kuhn, 1986), dust cover.

Several well-known organ builders vied for the contract at Weingarten between 1715 and 1736, including the brothers Andreas and Gottfried Silbermann, and the project was finally awarded to Joseph Gabler of neighboring Ochsenhausen. Built between 1737 and 1750, the organ is an engineering marvel—the scattered divisions of the organ linked to the keydesk by wooden trackers winding through a maze of long horizontal and vertical runs. Ivory knobs, controlling an equally complex mechanical stop action, adorn a free-standing console rich with inlaid wood.

Tonally, the Weingarten organ could not be more different than the north- and central-German organs we heard at Grauhof, Tangermünde and Dresden (Table 20). Rather than functioning as balanced foils to one another, the divisions of this quintessential South German organ are terraced dynamically, variously described by Gabler himself as "*pompos und scharpf*," "*penetrant*," *"gravitätisch*," "*douce*," and "*lieblich*."[100] Voices within each division are also layered from *piano* to *forte,* distinctive in their individual colors rather than in their ability to blend in ensemble. Mixtures and breaking mutation complexes are enormous (up to twelve ranks) and multiple-rank flute and string stops abound. Imitative stops are plentiful, such as a Querflaut 4', whose cherry wood pipes were turned on a lathe, and a Vox Humana once thought so lifelike in its imitation of the human voice that Gabler is said to have sold his soul to the devil in order to make such a perfect specimen.[101]

[100] Ibid., 121-122.

[101] Ibid., 92-94. Jacob notes that this stop is neither better nor worse than other touted examples of this type.

Table 20. Disposition of Gabler Organ at Weingarten[102]

Joseph Gabler, Weingarten (1750)	
Hauptwerk (I)	
16’	Principal
8’	Principal
8’	Rohrflaut
8’	Piffaro V-VII
4’	Octave
2’	Superoctav
2’	Hohlflaut
2’	Sesquialter VIII-IX
2’	Mixtur IX-X
1’	Cimbalum XII
8’	Trombetten
Oberwerk (II)	
16’	Bourdon
8’	Principal
8’	Hohlflaut
8’	Coppel
8’	Violoncello I-III
8’	Salicional
8’	Unda maris
4’	Mixtur IX-XII
Kronpositiv (II)	
4’	Principal doux
4’	Viola II
2’	Nasat
2’	Cimbalum II
Großpedal	
32’-16’	Contrabaß II
32’	Subbaß
16’	Octavbaß
16’-8’	Violonbaß II
8’	Mixturbaß V-VIII
16’	Bombardbaß
16’	Posaunenbaß
Echowerk (III)	
16’	Bourdon
8’	Principal
8’	Flauten
8’	Quintatön
8’	Viol douce
4’	Octav
4’	Hohlflaut I-II
4’	Piffaro II
2’	Superoctav
2’	Mixtur V-VI
1’	Cornet V-VI
8’	Hautbois
Brust-Positiv (IV)	
8’	Principal doux
8’	Flûte douce
8’	Quintatön
8’	Violoncello
4’	Rohrflaut
4’	Querflaut
4’	Traversflöte II
4’	Piffaro IV-VI
2’	Flageolet
2’	Cornet VIII-XI
8’	Vox humana
4’	Hautbois
Brustpedal	
16’	Quintatönbaß
8’	Superoctavbaß
8’	Flaut doucebaß
8’	Violoncellobaß
4’	Hohlflautbaß
4’	Cornetbaß X-XI
2 2/3’	Sesquialter VI-VII
8’	Trompetenbaß
8’	Fagottbaß

[102] Ibid., 88-89, 132-136. The organ was restored in 1981-1983 by Kuhn Orgelbau of Männedorf, Switzerland. The stops have been reordered here according to the convention of listing principals, flutes and strings at each pitch level, and then reeds.

The auxiliary registers are among the most memorable characteristics of the organ. The 20-bell pedal Glockenspiel, for instance, hangs above the console as three clusters of grapes—obvious homage to Weingarten! Three pipes submerged in water mimic the chirp of the Nightingale, four mechanically blown pipes sound the call of the Cuckoo, and four low pipes ape the roll of kettledrums. Utterly unique in the entire world is a 49-pipe mixture called "*La Force,*" dedicated to one note—low *C* in the pedal—and reinforcing the harmonic series on *C* up to the flat-twenty-first.[103]

These features combined with the idiosyncratic tonal scheme of the organ suggested a way out of the conundrum of justifying an organ based on the musical repertoire it can render. The Weingarten organ has proven itself in myriad recordings of organ literature, but it stands as an instrument not belonging to any music in particular but representing all sorts of extra-musical realities, from the earth's varied creatures, animal and vegetable, to the harmony of the spheres itself.

And yet, in seeing, hearing and playing such a monument, one senses the disintegration of the organ as a coherent instrument. Speculating about the way in which decadence in the art of organ building sets in, musicologist Peter Williams writes:

> Each regional organ achieved its classical shape at a slightly different point in time from the others; all, having reached that shape, faced the parting of the ways. It was the dilemma of proceeding towards the traditional or the experimental, towards real organ tone or orchestral substitution, towards

[103] Ibid., 56-62.

> organs suitable for contrapuntal or for chordal music, towards brilliance and unity or volume and extreme contrast.[104]

While such trends in eighteenth-century organ building did not approach the radical abandonment of formal identity that would come with the advent of electricity in the late-nineteenth- and early-twentieth-centuries, the South German organ type, exemplified in Weingarten, provides a vivid illustration of Williams's indictment of

> ...the heavy specifications of Lower Bavaria, the flute-stops made of strangely constructed pipes, the very narrow-scaled ranks giving a biting string-tone, the undulating or *céleste* stops, the detached consoles, the stops of unusual materials, the echo departments scattered around an organ, the wild Cases sometimes hugging themselves into self-negation around the window-frames.[105]

He notes of the dynamic imbalance between the divisions of such organs:

> The Germans had their own versions of echo-organs, which, like the old Spanish and English Swells and the French *Echos*, were not fully balanced to the Great Organ: *Kronwerke, Echowerke, Seitenwerke, Unterwerke* are too different, they can only accompany or utter echoes, they contribute nothing to the *organo pleno*.[106]

In contrast, Williams cites the work of Gottfried Silbermann as an example of the "peak of organ-development in the early eighteenth century," lauding the "finely balanced contrasts between manuals" and the "carefully integrated and compact sound" resulting from a unified case.[107] He locates in central Germany the epicenter of a pre-decadent "cosmopolitan" organ type that prefigured our hopes for Pasi Opus 14:

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[104] Peter Williams, "The Eighteenth-Century Organ: A Parting of the Ways," *Proceedings of the Royal Musical Association*, *92nd Session* (1965-1966): 70.

[105] Ibid., 70-71.

[106] Ibid.

[107] Ibid., 68.

> The King of Saxony looked east for his domain, but the organ-builders and composers of Saxony and Thuringia looked west to France, south-west to Franconia and the Rhineland, north-west to Hamburg and Lübeck. As J. S. Bach received so many tributaries into the mainstream of his organ-music, so Gottfried Silbermann felt influences from far and near: from his frenchified brother in Alsace; from the Italianate Gasparini, builder of the famous organ at Görlitz on the Niesse; from the local builders of Saxony who referred to him as the *weltherühmten Künster,* the 'world-famous craftsman'. Silbermann and Bach, builder and composer, were working in similar circumstances—in the same area, at the same time, for similar employers; in both cases French influences are today [1965-1966] easily underestimated, north-west German overestimated.[108]

This is not to say that the apical Saxon organ type associated with Gottfried Silbermann was a consciously-followed pattern for Pasi Opus 14. It defined, rather, an outer limit of stylistic assimilation within which the contrapuntal essence of the organ was able to be conserved, and in so doing served as an historical anchor for Pasi Opus 14 even as it reached beyond the *Grand Siècle* into the late-nineteenth century world of harmonic flutes and slotted strings.

The day in Weingarten ended, and we proceeded to Bern, Switzerland, by way of a ferry across Lake Constance (*Der Bodensee*). We were greeted in Bern by Emanuel Denzler, an organ builder who had shortly before that time worked for Martin Pasi, and who was himself responsible for significant design work on Pasi Opus 14. The next day, 14 October 1999, we traveled together to the Luzern area where Goll Orgelbau president Simon Hebeisen introduced us to two of his firm's organs. Our companions Paul Fritts and Bruce Shull then left us to return to Frankfurt for flights back to the States. Dinner in Bern that evening afforded an

[108] Ibid., 67-68.

opportunity to meet clavichord maker Jörg Gobeli and organ builder Arno Caluori from the mountain village of Says.

Thursday, 14 October, brought visits to the workshops of Gobeli and organ builder Thomas Wälti. A cable car ride up the Stockhorn yielded an afternoon of sightseeing in the Swiss Alps before driving to the western-most city in Austria, Bregenz (*am Bodensee*), to visit Martin Pasi's family. There we rested from our organ tour for three days, enjoying time with the Pasi family, strolling the city streets, and hiking on *Der Pfänder,* the mountain pressing Bregenz against the shore of Lake Constance. A visit to nearby Rieger Orgelbau was obligatory, however, as Martin Pasi had apprenticed and trained there. We also found time to socialize with Robert Wech and Christian Maetzler, both Rieger employees, and who both were to work on Pasi Opus 14 as associates of Martin Pasi.

On Tuesday, 19 October 1999, we returned to Alsace, France, to see the famous Johann Andreas Silbermann organ at the Church of St. Thomas in Strasbourg. We took a detour along the way to seek out a sculptor named Thierry Delorme in rural Thal-Marmoutier, and serendipitously came upon the village of Marmoutier and the medieval abbatial church of Saint-Etienne, home of the famous Andreas Silbermann organ of 1710.[109] Having made no prior arrangements to see the organ, we approached a priest after the evening mass to inquire about access to the organ.

[109] Andreas Silbermann was, as already noted, the elder brother of Gottfried Silbermann, and father of Johann Andreas Silbermann.

He told us to return in the morning. We did, and were rewarded with several hours of private access to this important instrument.

Clearly rooted in the French Classic tradition, the organ at Marmoutier is, like many things Alsatian, a synthesis of French and Germanic elements. Andreas Silbermann's original instrument of 1710 was unusual in that its sole pedal stop was a 16' Flûte,[110] indicating a Germanic bass function of the pedal rather than the typical French 8' bass line for trios, five-voice fugues (Grigny) and melodic textures, or the 8' Trompette plainsong *cantus firmus.* The elder Silbermann's son, Johann Andreas, significantly enlarged the instrument in 1746 after visiting his uncle in Saxony,[111] adding a Positif Cromorne, an Echo division consisting of a discant Cornet, and four pedal stops (Flûte 8', Flûte 4', Bombarde 16, and Trompette 8'), completing a "Germanic" idea begun by his father.[112] Both Andreas Silbermann's 1710 pedal division and Johann Andreas Silbermann's expanded pedal of 1746 lacked the conventional pedal reed extension to low AA (*en ravalement*). Finally, Jean-Albert Villard notes that, "Il est remarquable que les jeux d'Anches des Silbermann d'Ebersmünster et de Marmoutier n'aient pas l'éclat des Orgues des facteurs français."[113] This relative lack of brilliance in the Marmoutier reeds may also attest

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[110] Peter Williams, "The French Silbermann," *The Musical Times* 112, no. 1535 (January 1971): 77.

[111] Elie Peterschmitt, "Notice historique de l'orgue," *28 Juillet à Saint-Thomas: André Stricker à l'Orgue Silbermann de Strasbourg,* Disques Pamina SPM 1600 320 CD.

[112] Williams, "The French Silbermann," 77-78.

[113] "It is remarkable that the reed stops of the Silbermann [organs] at Ebersmünster and Marmoutier do not have the brilliance of organs of French builders." Jean-Albert Villard, *L'œuvre de François-Henri Clicquot: Facteur d'Orgues du Roy (1732-1790)* (Imprimerie Barnéoud, 1973), 209.

that the "French Silbermann" harbored a German penchant for blending reeds with flue choruses, even as he remained tethered to the Parisian tradition of his mentor Thierry.

We completed our pilgrimage at St. Thomas Church in Strasbourg, playing and hearing the 1741 Johann Andreas Silbermann organ there. Mozart played this instrument in 1778, and beginning in 1909, Albert Schweitzer employed it in annual concerts on July 28 commemorating the death of Johann Sebastian Bach.[114] Restored by Alfred Kern in 1979, the St. Thomas Silbermann organ is regarded by many as one of the great "Bach organs," whether this is due to its role in Bach reception history (through Schweitzer) or because Alsatian organs of this period, especially Silbermann organs, seem to blend the color of classic French reeds with Germanic polyphonic principal choruses. In any case, in this final organ on our tour shone yet another light on the prospect of harmonized styles in a unique instance of coherent formal identity.

We enjoyed dinner and an evening concert in Heidelberg, and the hospitality of Stefan and Iris (Wagner-) Göttelmann, and then departed for the United States from Frankfurt on Thursday, 21 October 1999. Though not immune from periodic doubt and uncertainty, Martin Pasi and I returned to our homes and work armed with vivid impressions in sight and sound of historical models, a base of common experience out of which to discuss design issues, and with renewed hope for the success of the project.

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[114] Elie Peterschmitt, "Les concerts du 28 juillet à Saint-Thomas," *28 Juillet à Saint-Thomas: André Stricker à l'Orgue Silbermann de Strasbourg,* Disques Pamina SPM 1600 320 CD.

Design

A little over a year intervened between our study trip in Europe and the beginning of the organ construction in December 2000.[115] During this time the contracted tonal specification was subjected to review and revision, outstanding questions concerning the physical disposition of the organ were settled, and the all-important work of determining pipe scales was accomplished. In order to take on a project of this scope, the Pasi team—which had at times consisted of only organbuilder Martin Pasi and cabinetmaker Markus Morscher—had to be expanded to include other artisans and workers. Hand-drafting, verbal communication and an intuitive design-build approach gave way to computer-aided design (CAD), producing detailed drawings of every part and mechanism of the organ.[116]

Design Influence of the Temperament Scheme

While final adjustments to the temperament could have occurred theoretically as late as the tuning of the completed organ, the justification of the dual-temperament concept depended on reasonable certainty of the tuning scheme, since this was by now driving so many facets of the design. Emanuel Denzler of Wälti Orgelbau, Bern, Switzerland, who had been working for the Pasi firm at the time the contract was signed for Pasi 14 and would later return to assist with the design of the stop action, immediately set out to develop a computer spreadsheet to aid in analyzing the

[115] Martin Pasi, to Kevin Vogt, 11 October 2000, Pasi Shop Records, Roy, Washington. This letter indicates monthly payments are to begin in December 2000, corresponding to the commencement of construction per contract.

[116] See Appendix Two.

properties of temperaments. Experience with the Scherer organ at Tangermünde had confirmed Pasi's intuition about using "pure" quarter-comma meantone as the "ancient" tuning; comparison with other circulating temperaments using Denzler's analytical tool endorsed Wegscheider's proposed "20-note" well-tempered tuning.

The decision to go forward with the dual-temperament plan raised questions again about the pipe layout on the windchest and the mechanism for choosing between the two tuning systems. Even while we were in Europe, Martin Pasi had been leaning away from both Wegscheider's solution of a shifting stop action and the Stanford Fisk's shifting roller board scheme. Instead, he proposed simply to provide two sliders and separate stop controls for each dual-tempered register. Independent control of an 8' Præstant (well-tempered) and an 8' Præstant (meantone), for example, would make sense since they would share only one-third of their pipes. The simplicity of the stop action would be matched by the straightforwardness of a traditional major-third windchest layout while providing ultimate flexibility to the organist.

As clear as the windchest layout would be, danger of tuning instability would remain since well-tempered and meantone pipes of slightly different pitches would stand next to one another and could sympathetically "draw" toward one another in pitch. Pasi proposed to mollify this tendency by providing different foot lengths to those pipes so that their pipe mouths would be at different heights.

Another potential source of tuning instability could occur with the pipes common to both temperaments. These pipes would receive wind through the toe

board channel from two different slider holes. Pasi would attempt to place each pipe equidistant from each slider hole, but his past experience with the transmission of stops between divisions warned that this alone may not provide adequate consistency of wind pressure, especially in this situation where precise tuning would be so critical to the success of the instrument. Pasi's solution would be to insert set screws in the toe board channel between the slider hole and the pipe hole. The adjustable screw would protrude into the channel to regulate wind flow within the channel, ensuring that a given common pipe would receive exactly the same amount of wind whether it was engaged from the meantone or well-tempered stop and slider.

Another aspect of planning the windchest design was the determination of the key compass of the manual and pedal divisions. While the standard compass adopted by the American Guild of Organists is sixty-one manual notes (*C*- c^4) and thirty-two pedal notes (*C*- g^1), many modern tracker organs in both Europe and the United States have a manual compass of either 56 or 58 notes (*C*- g^3 or *C*-a^3) and a pedal compass of 30 notes (*C*- f^1). The windchest space saved by these shorter compasses is perhaps negligible.[117] However, very little of the inherited repertoire calls for 61 notes, and the extremely small pipes needed in this extreme register are virtually impractical, especially in the upperwork of more classically-oriented instruments and in the unavoidable flue-substitutes for reeds. Martin Pasi favored the 58-note manual

[117] John Fesperman contended, however, that "the money saved [with a 54- or 56-note manual compass] could be better spent for one or more additional stops on the organ." John Fesperman, *Two Essays on Organ Design* (Raleigh: The Sunbury Press, 1975), 17.

compass, however, in order to yield a high *A* when the 16' manual reeds are played an octave higher as though they were 8' stops.

The dual-temperament idea added another dimension to the question of key compass. While the notion of meantone tuning employed in a thoroughly modern organ was a primary value in this project, we continually turned to historical precedence in weighing such decisions. For instance, the historical convention of omitting low $C^{\#}$ and E^{b}, together with concerns about the space required by eight extra pipes per octave, resulted in the pruning of the meantone compass in the bass octave. Likewise, we eventually agreed to limit the upper end of the compass to d^{3}, omitting the adjacent $c^{\#3}$.[118] The meantone compass thus became 48 notes in the manuals (*C, D, E-*c^{3}*,* d^{3}) and 28 notes in the pedal (*C, D, E-*f^{1}). We did not think to lower the top end of the meantone pedal compass, one of several inconsistencies resulting from continuous development of the concept from that of a modern organ with a meantone side to a smaller historical disposition nested within a larger eclectic organ.

The discussion of how far to go with historical conventions extended to consideration of the so-called "short octave" for the bottom octave of the meantone organ (Table 21).[119] The advantage of this configuration is that it allows the reach of large intervals, such as a tenth, in the left hand. While the short octave was not universal in organs from the meantone era, there are more than a few instances in the

[118] We would later regret this decision since it limited the usefulness of the Positive Dulzian 16' played on octave higher.

[119] Kevin Vogt, to Martin Pasi, electronic mail (printed copy), 11 July 2000, Pasi Shop Records, Roy, Washington.

inherited organ repertoire from the sixteenth and seventeenth centuries in which such intervals occur. The assistance of the pedal is usually necessary in the absence of a short octave. Robert Bates rendered the following opinion:

> I do know that if you put in the short octave you should make the keyboard actually *look* like there is a short octave. To do that, when in meantone you would need to make the keys that normally speak low *C*, $C^{\#}$, *D* and E^{b} all be permanently in the down position (so no one is tempted to play them).
>
> But there is a good reason *not* to bother with the short octave at all on such an instrument. It is nice to have low $F^{\#}$ and $G^{\#}$ available, even in meantone, since some meantone pieces call for these two notes. If what normally plays those pitches on the keyboard are taken over by *bass D* and *E*, then it is not possible also to have $F^{\#}$ and $G^{\#}$ unless you add split keys for those notes, which would be possible—but this adds another level of confusion.[120]

In the end, we decided to forego the short-octave and split keys in order to make the organ console appear as uncomplicated as possible.

Table 21. Key Configuration of the "Short Octave"

Key	E	F	$F^{\#}$	G	$G^{\#}$	A	B^{b}	B	c
Sounding Pitch-Class	C	F	D	G	E	A	B^{b}	B	c

Detail of Stop and Combination Actions

There is more than one way to approach simplicity, however, and there were times during the planning of the organ when eccentric idealism on my part was at

[120] Robert Bates, to Martin Pasi, electronic mail (printed copy), 25 July 2000, Pasi Shop Records, Roy, Washington.

odds with Martin Pasi's intuitive, pragmatic rectitude. This tension was most apparent in our dialogue concerning the organ's stop and combination actions.

Early in 1999 I had changed my mind about the need for a detached, reverse console as it was specified in the contract. My conversion occurred as I was watching an organist play the small mechanical-action Schudi organ in the Crypt of Washington's National Shrine of the Immaculate Conception. I had noticed how the organist and instrument were oriented toward one another, face-to-face, as it were. I began to believe that this relationship between instrument and player is more important than the convenience of being able to do something other than playing the organ—such as conducting a choir—while sitting at the bench.[121] Martin Pasi seemed relieved, since an attached, integrated key desk would mean that the key action could be as straightforward as possible.

With this change came also the possibility of a mechanical stop action, with solenoid motors attached to the sliders to power an electric combination system. We agreed that such a combination system could be quite simple: eight to twelve general combinations, no divisional combinations, and a "sequencer" allowing for the successive forward or backward movement across multiple memory levels of combinations.

In February 2000, I became concerned about the number of stops on the organ (eighty-one at the time) and that the area around the keydesk would look like the

[121] I was also attracted to the idea that the best model of musical leadership in the church's liturgy would involve more than one musician, especially in a metropolitan cathedral.

"cockpit of an airplane."[122] I proposed a solution that I thought might consolidate the large number of stop controls into a smaller area: Italianate stop levers instead of traditional stop knobs. To make the case, I noted my experience in college playing Lynn Dobson's Opus 29:

> The organ at St. Olaf College [Northfield, Minnesota] has stop levers and no combination action at all. They use registrants [registration assistants] for recitals, but I found it to be a very easy organ to play without any assistants at all. The advantages are many:
>
> (1) if the levers are well-arranged, it is possible to draw an entire chorus, for instance, with a single sweep of the hand,
>
> (2) the arrangement of the levers encourages certain combinations of stops and discourages others (like those combinations that would needlessly draw wind), [and]
>
> (3) the physical action of "drawing-in" the levers toward the center keeps all movements on the same plane (side to side) and feels like [the] "gathering together" of voices rather than the act of "pulling" individual voices. The levers Lynn Dobson designed for St. Olaf were gently curved so that they were very comfortable to touch and move either individually or together.[123]

I then drew up a stop-lever arrangement that would allow for easy manipulation of as many common stop combinations as possible without the help of registration aids (Table 22). I envisioned an unorthodox but clean-looking console along the lines of the one made by organ builder Aloys Mooser in 1834 for the Cathedral of Saint-Nicholas, Fribourg, Switzerland (Figures 21 and 22).

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[122] Kevin Vogt, to Martin Pasi, fax transmission, 27 February 2000, Pasi Shop Records, Roy, Washington.

[123] Ibid.

Table 22. Italianate Stop Lever Arrangement Proposal[124]

Near Left Stop Jamb	Near Right Stop Jamb	Far Right Stop Jamb[125]
Great Well-Tempered	**Swell Well-Tempered**	**Positive Meantone**
8’ Cornet V	4’ Clairon	1’ Mixture IV
8’ Trompette	8’ Trompette	1 1/3’ Quinte
16’ Trumpet	16’ Bassoon	2’ Octave
8’ Trumpet	8’ Oboe	8’ Præstant
2 2/3’ Quinte	2’ Mixture V	4’ Octave
16’ Præstant	4’ Principal	2 2/3’ Sequialtera II
1 1/3’ Mixture V	8’ Principal	8’ Gedeckt
2’ Superoctave	16’ Bourdon	4’ Rohrflöte
4’ Octave	8’ Voix Celeste	2’ Waldflöte
8’ Præstant I-II (*sic*)	8’ Gamba	8’ Trechterregal
2’ Mixture IV	8’ Harmonic Flute	
8’ Salicional	4’ Harmonic Flute	**Great Meantone**
8’ Rohrflöte	2’ Octavin	
4’ Spitzflöte	2 2/3’ Nazard	8’ Trumpet
8’ Vox Humana	1 3/5’ Tierce	2’ Mixture IV
		4’ Octave
		8’ Præstant I-II [*sic*]
Pedal Well-Tempered	**Positive Well-Tempered**	2’ Superoctave
		2 2/3’ Quinte
4’ Clairon	16’ Dulzian	16’ Præstant
8’ Trompette	1’ Mixture IV	4’ Spitzflöte
16’ Posaune	1 1/3’ Quinte	8’ Rohrflöte
8’ Trumpet	2’ Octave	8’ Vox Humana
32’ Trombone	4’ Octave	
2 2/3’ Mixture V	8’ Præstant	**Pedal Meantone**
4’ Octave	8’ Suavial	
8’ Octave	8’ Trechterregal	8’ Trumpet
16’ Præstant	8’ Gedeckt	16’ Posaune
32’ Subbass	4’ Rohrflöte	2 2/3’ Mixture V
16’ Subbass	2’ Waldflöte	4’ Octave
8’ Gedeckt	2 2/3’ Sequialtera II	16’ Præstant
		8’ Octave
		16’ Subbass

[124] Ibid. The stoplist given here reflects the state of its development on 25 February 2000. N.B. The Great 8’ Principal register was never intended to be a “Præstant,” i.e. placed in the façade.

[125] By specifying all of the meantone stops to be located on a far right stop jamb, I underestimated the usefulness of the meantone side of the organ. Experience has since shown that this arrangement would have been best conceived with the meantone stops split between the left and right sides as the well-tempered stops were envisioned. Still, the arrangement of stops within division groups was the salient feature of this proposal.

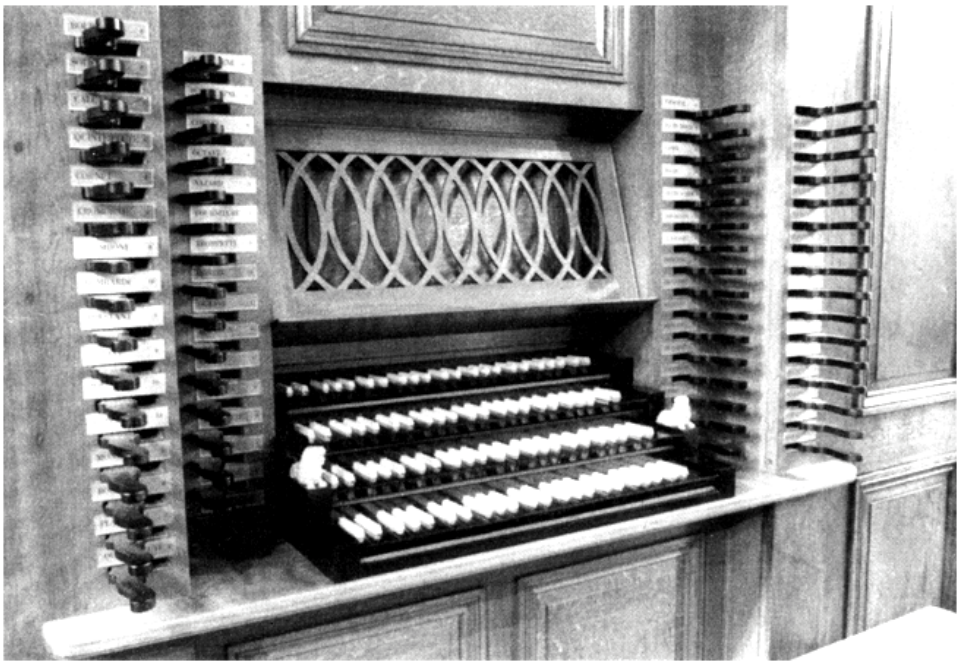

Figure 21. Mooser Console at Fribourg Cathedral[126]

I further proposed that if such a stop configuration could be devised, it might be possible to dispense with the electric combination system altogether:

> My biggest problem is a musical one. Our current plan with eight general combinations and a sequencer is a good one in terms of recitalists coming in to play with little preparation time...just keep hitting the "next" button. However, I don't like the idea of organists (including me) registering according to numbers or cues written into the score. It's too easy for the brain to disengage from an awareness of who's all [which stops] are playing at a given moment. And if your mind is not following the actual sequence of changing voices in the registration, it is very difficult to recover if you get into trouble...like if you press the "next" button too many times.[127]

I suggested that if a combination system were necessary, it too could be mechanical.

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[126] Aldo J. Baggia, "The Organ Storm of Aloys Mooser: A 19th-Century Swiss Organ Gazetteer," *The Diapason* 95, 4 (April 2004): 19.

[127] Ibid.

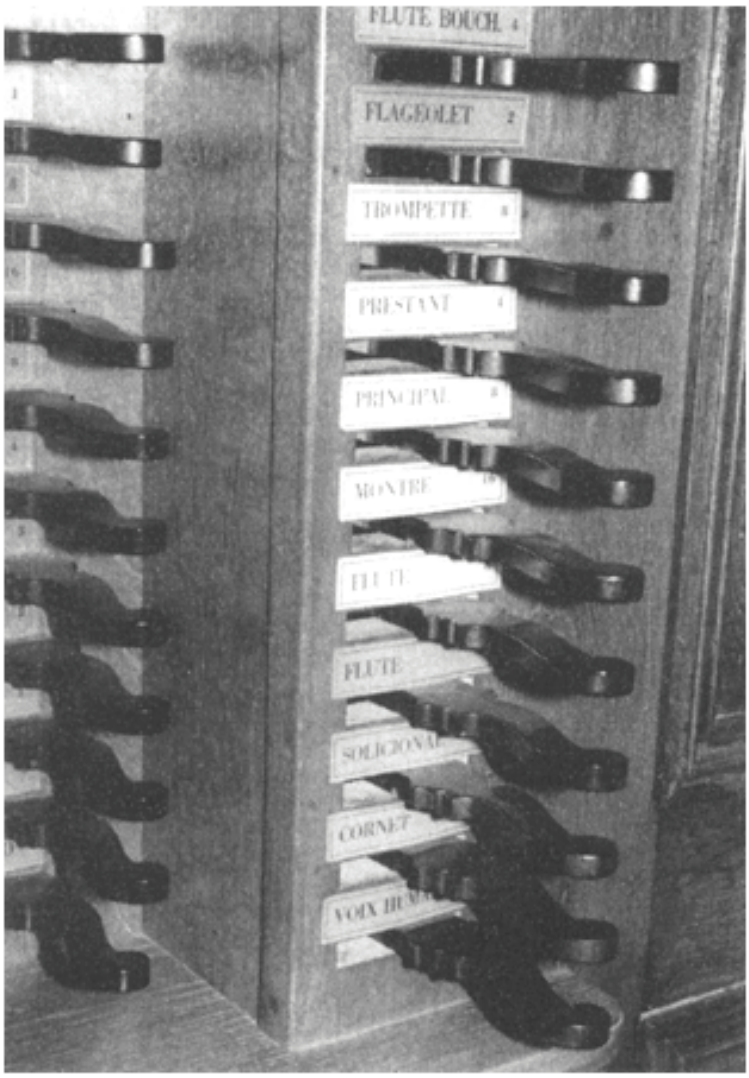

Figure 22. Close-up of Mooser Stop Levers[128]

Martin Pasi felt these conservative ideas went too far in attempting to ordain the way the organ would be used and received. Upon reading my proposal, he exclaimed in frustration, "The next thing you're going to tell me is that you don't

[128] Baggia, "The Organ Storm of Aloys Mooser," 19.

want a Swell box!"[129] I was actually not far from such a conclusion, but thought better of going down this road. Even a "purist" like Smithsonian curator John Fesperman, who thought the notion of such a device as a musical necessity was "wrong-headed" and akin to "looking through the wrong end of a telescope,"[130] took a practical bent on the matter: "It is sufficient to note that a swell, provided it opens a full 90 degrees, can be incorporated into an encased organ without destroying the design, however debatable its musical value might be."[131]

In the end, Martin Pasi's good judgment succeeded in balancing the already bold and idealistic concept of a dual-temperament organ with concern for the widespread, positive reception of the instrument. In this moment he also solved the perplexing problem of harmonizing the complete flexibility of the dual-stop plan with safeguards against inadvertent combination or misuse of the dual-temperament capability. He transformed my idea of using Italian-style stop levers for the entire organ into a means of visually differentiating the stops controlling the well-tempered side of the organ and those controlling the meantone side of the organ. The well-tempered stops would have traditional draw knobs, and the mean-tone stops would have more ancient-looking stop levers.

Pleased with this development, I devised several new stop jamb arrangements, finally settling on one that would place the Pedal and Great stops on the left and the

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[129] Martin Pasi, to Kevin Vogt, telephone conversation, on or about 4 March 2000.

[130] Fesperman, *Two Essays,* 21.

[131] Ibid.

Swell and Positive stops on the right (Table 23). We determined the following layout of the console controls for the electric combination action (Figure 23):

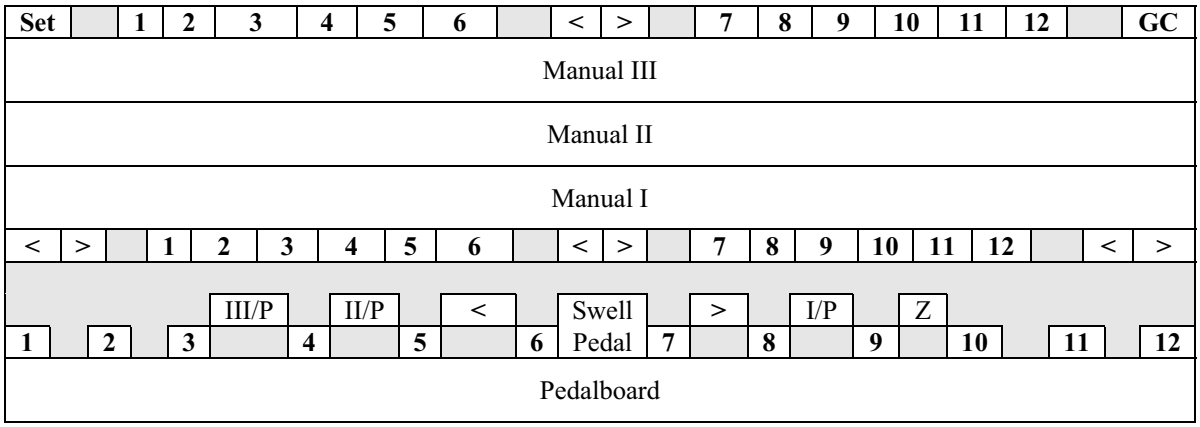

Figure 23. Diagram of Combination Action Controls

The twelve general combination pistons would be replicated above Manual III, below Manual I and above the Pedalboard on toe studs. In contrast to American convention, the capture-system "set" button would be located above the manuals on the left and the "general cancel" button (GC) also above but on the right. Forward (>) and back (<) controls were to be located in the center of all rows of pistons and toe studs as well as on either side of the lower manual row for use by page-turners or registration assistants. These buttons would control a "sequencer," allowing organist simply to advance forward or back through successive, numerically-ordered stop combinations and memory levels. The twelve general combinations were to be replicated on 96 levels of digital memory, making possible the storage of up to 1,152 stop combinations at a time.

Table 23. Final Stop Jamb Plan

Left Jamb[132]			Right Jamb[133]	
Pedal (knobs)	**I. Hauptwerk** (knobs)		**III. Unterwerk** (knobs)	**II. Oberwerk** (knobs)
		Cornet V 8’	Clairon 4’	
	Trompette 8’			Tierce 1 3/5’
Cornet 2’		Mixture IV 1’	Trompette 8’	
Clairon 4’	Trumpet 16’			Nazard 2 2/3’
		Mixture V 1 1/3’	Bassoon 16’	
Trompette 8’				Dulzian 16’
Posaune 16’	Trumpet 8’			Octavin 2’
		Superoctave 2’	Oboe 8’	
Trumpet 8’				Mixture IV 1’
Trombone 32’	Vox Humana 8’			Harmonic Flute 4’
		Quinte 2 2/3	Mixture V 2’	
Mixture V 2 2/3’				Quinte 1 1/3’
Gedeckt 8’	Spitzflöte 4’			Harmonic Flute 8’
		Octave 4’	Octave 4’	
Octave 4’				Octave 2’
Subbass 16’	Rohrflöte 8’			Gamba 8’
		Octave 8’	Principal 8’	
Octave 8’				Octave 4’
Subbass 32’	Salicional 8’			Celeste 8’
		Præstant 16’	Bourdon 16’	
Præstant 16’				Præstant 8’

Hauptwerk Meantone (levers)		**Couplers** (knobs)		**Accessories** (knobs)
	Mixture V 1 1/3’	III / Pedal	III / II	Tremulant
Trumpet 16’	Superoctave 2’	II / Pedal	III / I	Zimbelstern
Trumpet 8’	Quinte 2 2/3’	I / Pedal	II / I	Rossignol
Vox Humana 8’	Octave 4’			
Rohrflöte 8’	Octave 8’			
	Præstant 16’			

Pedal Meantone (levers)		**Oberwerk Meantone** (levers)	
	Mixture V 2 2/3’	Dulzian 16’	Trechterregal 8’
Cornet 2’	Octave 4’	Mixture IV 1’	Quinte 1 1/3’
Trumpet 8’	Octave 8’	Sesquialtera II	Waldflöte 2’
Posaune 16’	Præstant 16’	Octave 2’	Rohrflöte 4’
		Octave 4’	Gedeckt 8’
		Præstant 8’	Suavial 8’

[132] When the stop action was designed, the places on the stop jamb of the Great Trompette 8’ and the Cornet V were exchanged. The original placement proposed here would have situated both the Trumpet 8’ and Trompette 8’ adjacent to the Trumpet 16’.

[133] When the stop action was designed, the places on the stop jamb of the Positive Quinte 1 1/3’ and the Sesquialtera II were exchanged. The original placement proposed here would have situated the Quinte 1 1/3’ more clearly as part of the well-tempered Oberwerk principal chorus rather than the Sesquialtera (c.f. Oberwerk Meantone).

Changes to the Stop List

The stop list was subject to almost constant revision during the design period, resulting from additions or replacement of stops, modification of the list of stops slated for the meantone "side" of the organ, or simple changes in nomenclature. The compass of the Great mounted Cornet V fluctuated between beginning at *tenor* f^0, *tenor* g^0 and *middle* c^1 before settling on c^1.[134] As the dual-tempered windchests were designed, the idea of double treble pipes in the Great Octave 8' was abandoned.[135] Deference to the Germanic inclination of the meantone side of the organ led to the replacement of the wide, flute-scaled Larigot 1 1/3' on the Positive with a narrower, principal-scaled Quinte 1 1/3', as well as the trade of the proposed Positive Cromorne for a Trichterregal.[136] Finally, the Great mixture scheme was altered from alternative "polyphonic" (IV at 2') and "homophonic" (V at 1 1/3') mixtures to a more usual pairing of a five-rank mixture at 1 1/3' and a four-rank "Scharff-mixture" at 1'.[137]

The adoption of Wegscheider's suggestion to use twenty notes per octave within the contracted price called for the reduction of stops to be included in the

[134] Martin Pasi, to Kevin Vogt, electronic mail (printed copy), 17 July 2000, Pasi Shop Records, Roy, Washington.

[135] Ibid.

[136] Ibid. While the addition of the Trichterregal as very flexible chorus, solo and consort reed was a great boon to the meantone organ, we later regretted the omission of the Cromorne to complete the already impressive classical French palette. The Great German Trumpet 8' has proven a worthy substitute, however, in those French Classic registrations calling for a Cromorne.

[137] Final stoplist, 1 December 2000, Pasi Shop Records, Roy, Washington. The difference between the mixtures in the original scheme would have been largely in their composition. The "polyphonic" mixture was intended to begin at a lower pitch and keep those in the tenor register low enough so as not to encroach upon pitch levels in the treble register.

meantone specification. The Salicional 8' was irrevocably eliminated from the meantone Great, as was the Cornet V, the French Trompette 8' and the "polyphonic" Mixture IV. The Great Trumpet 16' was originally proposed for omission from the meantone organ, but was conserved for the sake of the *Sonaten* registration so popular among the Hamburg organists in the seventeenth century.[138] The Spitzflöte 4' was sacrificed instead.[139]

On the Positive, the undulating treble Suavial 8' and the 2' flute were removed from the meantone stoplist, along with one of the reeds.[140] As the layout of the windchest approached it became clear, however, that space savings by the omission of Positive stops would be negligible. So Martin Pasi opted to retain the entire Positive division in meantone, yielding a full range of colorful consort stops in addition to a full secondary chorus of principals. Cost and space savings would instead come from trimming the Pedal division, which led to a more historically-grounded form. Martin Pasi also agreed to include a 2' Cornet as a *cantus firmus* reed in both temperaments in exchange for the loss of a meantone Subbass 16'.[141] The result was a plan for a large but economical meantone organ:

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[138] This registration is indicated in Matthias Weckmann's third variation on *Es ist das Heil uns kommen her*: 'Trumpet and Gedackt 8' or Trumpet 8' and 4' in the Pedal, with Principal 8' on the *Positiv* and Trumpet 16' on the Great.' Barbara Owen, *The Registration of Baroque Organ Music* (Bloomington: Indiana University Press, 1997), 79. Pasi Opus 14 is one of the few organs anywhere on which this registration can be realized in conjunction with quarter-comma meantone tuning.

[139] Martin Pasi, to Kevin Vogt, electronic mail (printed copy), 17 July 2000, Pasi Shop Records, Roy, Washington.

[140] Ibid. Plans vacillated several times over whether to include the Dulzian 16' or the Trichterregal 8' in the meantone specification.

[141] Ibid.

Table 24. Final Meantone Specification

Great		Positive		Pedal	
16’	Præstant	8’	Præstant	16’	Præstant
8’	Octave	8’	Gedeckt	8’	Octave
8’	Rohrflöte	4’	Octave	4’	Octave
4’	Octave	4’	Rohrflöte	2 2/3’	Mixture V
2 2/3’	Quinte	2 2/3’	Sesquialtera II	16’	Posaune
2’	Superoctave	2’	Octave	8’	Trumpet
1 1/3’	Mixture V	2’	Waldflöte	2’	Cornet
16’	Trumpet	1 1/3’	Quinte		
8’	Trumpet	1’	Mixture IV		
8’	Vox Humana	16’	Dulzian		
		8’	Trechterregal		

Changes in stop nomenclature were relatively few and somewhat arbitrary, since Martin Pasi and I agreed early on that it was not necessary for stop names to be linguistically or historically consistent.[142] The pedal Bourdon 8’ became Gedeckt 8’ largely because I preferred the German names describing pipe construction—in this case, pipes that are “covered” or stopped. Some name changes were entirely arbitrary, such as the Positive Blockflöte 2’ becoming Waldflöte 2’, and the original Positive Scharff IV being generically renamed Mixture IV. It took some time to

[142] Pasi actually felt that such consistency contributed to poor registration habits of organist, namely choosing stops according to “textbook” registrations or experience with other organs rather than really listening to what the organ at hand required. We actually considered abandoning traditional names altogether, but agreed that this was an experiment better reserved for a smaller instrument. And so we planned a 15-stop organ for the sanctuary of Saint Cecilia Cathedral in which the stops would carry the monikers of the twelve original apostles, the apostle Paul, Mary Magdalene and the Blessed Virgin Mary. Martin Pasi’s reading of the French term, *Montre,* for a principal displayed in the façade (from *montrer, “*to show”)—interpreted in this case by an organ voicer as the “one that shows the way” for the other voices of the organ—led to an allegorical equation of the 8’ façade Principal with the Blessed Virgin, who shows “the Way.” The entire specification of this “apostle” organ was to be a tonal allegory of the relationships within the earliest Christian community of apostles (witnesses to Christ and his resurrection). Listening to the individual voices and unraveling the allegory would bring the organist to discover the organ’s *dispositio*. This organ has yet to be realized.

settle on the spelling of the 8' Positive reed with funnel-shaped resonators. I favored the modern spelling of "Trichterregal," while Martin Pasi seemed to favor the older, traditional rendering, "Trechterregal." We split the difference and used the former version in the well-tempered stoplist, and the latter in the meantone specification.

Just as construction was about to begin I made a final suggestion concerning names for the divisions of the organ. Again, I preferred German terms for the various *Werke* because they tend to refer to respective locations within the organ. The Great thus became the "Hauptwerk." The name Positive, which carries the connotation of being physically detached and even diminutive, was recast as the "Oberwerk," identifying this department as high in the main case. I dubbed the Swell division "Unterwerk," similarly describing its low placement in the center of the case.[143] I was also eager to identify this division in terms other than its swell enclosure and shutters. While the swell apparatus was to be a special feature of this division, I did not want it to be the defining characteristic of this *Werk.*

Definition of the Wind System

The wind system is the most fundamental and yet mysterious dimension of an organ's properties. From the beginning, Martin Pasi intended for the organ to have gently flexible and ample wind, and saw an opportunity with Opus 14 to provide for the raising the wind without electricity. Since the fully mechanical key and stop actions already made electricity dispensable, Pasi designed four wedge-shaped

[143] Ordinarily, however, "Oberwerk" and "Unterwerk" would describe as above and below, respectively, the physical placement of secondary divisions in relation to the "Haupt-" or main "Werk." In contrast, the Hauptwerk of Pasi 14 was to be divided on either side of these central secondary divisions.

bellows that could be inflated mechanically by the treading of foot levers as an alternative to being filled by an electric blower. This human-powered method allows the bellows to close as air is fed into the organ, and results in relaxed, even tranquil wind.

Considering this to be an ideal mode of winding, Pasi had been exploring the possibility of including some mechanical means of simulating foot-pumped winding, such as we observed at Kirrweiler and Waltershausen. However, the complexity of the organ design had already made sufficient demands on time and energy, and Pasi decided to forego this potential source of further complication.

Reconciliation of Internal Form and Case Design

Finally, the design of Pasi Opus 14 met with the inevitable challenge of marrying an early approximation of the outer form of the instrument with the reality of an organ growing from the inside out. It became clear early in 2000 that the organ had developed conceptually since the time of the contract in such a way that it would not fit into the original case design. Martin Pasi was faced with making the organ either higher or deeper, since the organ was already as wide as it could practically be. Efforts to reconfigure the design by raising the Thomas Kimball façade flats to reach up and around the central Saint Cecilia window met with unsatisfactory results.

In truth, Pasi's façade design had been distilled by this time into its essential form, which meant that making the organ case deeper was the only option. Following the custom we had observed in central Germany, the entire pedal division would thus be located on two levels behind the main case against the west wall of the organ

gallery, with an intervening walkboard for tuning and service. The twelve bass pipes of the stopped 32' Subbass would be placed on electric offset chests along the side walls of the gallery. The twelve full-length basses of the 32' Pedal Posaune would also have to sit on offset chests behind the main case, lower than the remainder of the pedal division, and taking their wind directly from the blower. These factors mean that the bottom octaves of the 32' Subbass and the 32' Posaune would not playable *sans* electricity.

The eventual success of Pasi Opus 14 was in part the result of sufficient time being available for study, discussion, consultation, consensus and creativity—all conspiring to allow the idea of the organ to mature before being materialized in wood and metal. This was a hidden benefit in having to wait for other contracts to be fulfilled. By the time the organ was finished there was no sense remaining in anyone that Saint Cecilia Cathedral had simply purchased a musical appliance; we had commissioned a work of art.

Toward an Apology for the Organ

In proposing a large dual-temperament organ for a non-academic environment, Martin Pasi had gone out onto a limb, confident only in his well-honed talent and luck-charmed life. I had joined him on the limb, also feeling I had nothing to lose, and I attempted to convince everyone I encountered that this was a good idea. A process of constructing an apology, an articulation of this organ's *raison d'être,* thus ran parallel to the design and building of the organ, playing out both in public debate among interested colleagues—supporters and detractors—and in the scholarly

forum of conference and symposium. I became convinced that the justification of a dual-temperament organ in a Roman Catholic cathedral was inextricably bound to the justification of organs in general within the Catholic tradition. The following account of the public and scholarly discourse preceding the installation of Pasi Opus 14 chronicles the pursuit of a coherent rationale for a project well underway.

Public Dialogue

The first major announcement of plans for the organ came in April of 1999, when organ historian Alan Miller Laufman published the following notice in *The American Organist*:[144]

> St. Cecilia R.C. Cathedral in Omaha, Nebr., has signed a contract with organbuilder Martin Pasi of Roy, Wash., for a new 3m 54-stop mechanical-action organ, Op. 14 (2002). A news release from the cathedral states that the design concept sprang from the historical role of the organ in Catholic worship. "For more than a millennium, the organ has held a privileged place in the worship of the church because of its didactic role of embodying the harmonic order of the cosmos, and its symbolic function of personifying the wind-blown voice of the Holy Spirit, who when we know not how to pray, 'intercedes for us with sighs too deep for words.'" The new instrument will seek "to embrace the entire tradition of the liturgical organ, and to embody *musica*, the interior harmony and integrity that led the virgin Cecilia to her crown with all the saints in light."
>
> The organ will feature "a very mild and colorful well-temperament, and a 1/4-comma meantone, embodying the principal intellectual streams of Western Christianity: a platonic search for purity in the pure thirds of meantone temperament, and a humanistic desire for the utility of playing in all keys and the exaltation of human affections in the subtly varied 'key colors' of well-tempered tuning." The builder and cathedral organist Kevin Vogt eschewed equal temperament on the grounds that "the values of rationalism and standardization could not serve as a foundation for art intended to inspire

[144] Alan Miller Laufman, "Miscellanea Organica," *The American Organist* 33, no. 4 (April 1999): 76.

> faith." The dual-temperament chosen "will make audible the kinds of sounds that have provided numinous experiences to the faithful through several centuries. It will also be another way in which the organ embodies in its architecture something of the harmonic order of the cosmos, and in this case, the human attempt to deal with the anomaly known as the Pythagorean comma and the desire for harmony with the spheres—and with God."

With this article, Laufman exposed to a national audience of professional organists and enthusiasts the naïve and untested assertions that were part of my initial proposal of the organ to Archbishop Elden Francis Curtiss.[145] Fortunately, initial reactions were few, but vigorous public discussion of the project eventually broke out during eight days near the beginning of 2002. The short-lived controversy came on the heels of cathedral organ scholar Heather Hernandez's posting of information on the PIPORG-L internet list service hosted by the State University of New York at Albany. No less than forty-four messages were posted on this list service between 25 January and 1 February 2002, either scoffing at the project under such subject headings as "The Emperor's New Organ,"[146] or defending the venture, as in Malcolm Wechsler's eloquent "Poor Old Temperamental St. Cecilia."[147] Criticism ranged from virulent, misguided pot-shots at the cathedral congregation and at friends in the academy who were presumed to have been behind the "stupid design,"[148] to

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[145] See p. 82 for a summary of the contents of this proposal.

[146] Charlie Lester, "The Emperor's New Organ," *PIPORG-L Archives* (Accessed 4 March 2006), <http://listserv.albany.edu:8080/cgi-bin/wa?A2=ind0201D&L=PIPORG-L&P=R11228&I=1>

[147] Malcolm Wechsler, "Poor Old Temperamental St. Cecilia," *PIPORG-L Archives* (Accessed 4 March 2006), <http://listserv.albany.edu:8080/cgi-bin/wa?A2=ind0201D&L=PIPORG-L&P=R12220&I=-3&m=1>

[148] Rodney West, "St. Cecilia Cathedral Organ?" *PIPORG-L Archives* (Accessed 4 March 2006), <http://listserv.albany.edu:8080/cgi-bin/wa?A2=ind0201D&L=PIPORG-L&P=R9346&I=-3>

reasonable questions about the reliability of such a complex instrument, the practicality of maintaining it, and its usefulness as a church organ.

Malcolm Wechsler of the English firm of Mander Organs attempted to quell concerns about the organ's supposed complex mechanics:

> Don't worry, all of you. This instrument will have a mechanism that will be a thing of beauty. Clean and efficient, and long lasting. It is only your lack of experience with such things that makes you fearful.[149]

To those who questioned the utility and appropriateness of a dual-tempered organ in a church, he retorted:

> As for the use to which this fascinating new organ will be put—well—this is a serious place. They have an Organ Scholar,[150] which tells you something of their commitment to the instrument, and she's been around the Parisian tribunes and lots more places too, I suggest. From her and from others on the music staff, there will be some real organ music heard. Some of that music will be enhanced by the temperament for which it was conceived. Some hearing these sounds will for the first time might be a bit bemused, but the musical skill and integrity brought to bear on performance will win listeners over. They will have none of the preconceived reactions found amongst some of our colleagues. And I expect that at the arrival of this organ or before it, there will be an intelligently wrought program of education and explanation. By the time I get there, which will be as soon as possible, I suspect the instrument will have a proud and strong following. This is going to be a landmark! Trust me?[151]

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[149] Wechsler, "Poor Old Temperamental St. Cecilia."

[150] Heather Hernandez was at the time a doctoral student at the University of Nebraska-Lincoln and an organ scholar at Saint Cecilia Cathedral.

[151] Wechsler, "Poor Old Temperamental St. Cecilia." Sadly, Malcolm Wechsler did not live to visit Pasi Opus 14 in Omaha, but upon hearing reports of a recital on the organ proclaimed, "…I must say, any Organ that can perform convincingly, in mean tone, works of Buxtehude, M. Rossi, Reincken, and Cabanilles, and later on, play the wondrous Jongen Choral—well, ain't that somethin'!" Malcolm Wechsler, "Re: better than perfect?" *PIPORG-L Archives* (Accessed 4 March 2006), <http://listserv.albany.edu:8080/cgi-bin/wa?A2=ind0201D&L=PIPORG-L&P=R2484&I=1&m=137>

Whether or not Wechsler's predictions about the artistic success and utility of Pasi Opus 14 were on the mark would have to wait to be proven. I was determined, however, to answer the reasonable doubts about the appropriateness of such an organ for a church from the perspective of the Church's self-understanding and tradition.

Academic Discourse

My first opportunity to expose the Pasi Opus 14 project in an academic setting, along with its budding rationale, came with an invitation to give a plenary address at The Twenty-Third Annual Liturgical Music Conference at St. John's University in Collegeville, Minnesota, held on 13-17 June 2000. The general topic for the conference was architecture and acoustics for musical liturgy under the banner, "How Awesome This Place." Following suit, I presented a paper entitled "Awesome Organs in Awesome Places: The Embodiment of Cosmic Harmony."

My lecture was preceded by a keynote address by Monsignor M. Francis Mannion, who called for the renewal of the sacramental, heavenly, cosmic, glorious, catholic, paschal and traditional dimensions of the Roman Catholic liturgy.[152] I proposed that the organ could play an important role in this renewal, and constructed a symbolic theology of the organ in terms of:

(1) Cosmology, concerning music and the created universe,
(2) Christology, concerning the doctrine of Jesus Christ as the incarnate *Logos*,

[152] M. Francis Mannion, Keynote Address, The Twenty-Third Annual Liturgical Music Conference, St. John's University, Collegeville, Minnesota, 13 June 2000. These themes have been subsequently distilled in the essay, "Rejoice, Heavenly Powers! The Renewal of Liturgical Doxology," in M. Francis Mannion, *Masterworks of God: Essays in Liturgical Theory and Practice* (Chicago/Mundelein, IL: Hillenbrand Books, 2004), 236-263.

(3) Pneumatology, concerning the agency of the Holy Spirit, and
(4) Eschatology, concerning the heavenly liturgy of the New Jerusalem.[153]

I based my thesis first upon Quentin Faulkner's carefully posited claim that the medieval organ was "an embodiment of cosmic harmony and a means of manifesting and teaching basic neo-Platonic doctrines associated with the *quadrivium* and the medieval cosmic worldview."[154] Faulkner contrasts this "cosmic worldview" with the emergence of a "self-conscious worldview" that coincided with the cultural marginalization of the organ:

> The pressures of Pietism and of the radically new Enlightenment ideas about music (e.g., music exists primarily to express and reflect human emotion, or to provide entertainment and relaxation) had an enormous impact on the status of the organ and its music. As self-consciousness transformed earlier cultic attitudes toward worship, the instrument was required to conform to the new requirement that music should edify the congregation. Its music then, instead of being understood as yet another voice in self-forgetting praise, was expected to speak to and to move the hearts of listeners.[155]

Faulkner further reflects on this marginalization, providing a conceptual "key" to my argument:

> The demise of the antique medieval worldview has relegated the organ to the fringe of the post-Enlightenment musical scene, since to the degree that the modern instrument participates in the characteristics of the medieval organ, it evokes and espouses by the very character of its sound the medieval [cosmic-conscious] worldview.[156]

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[153] Kevin Vogt, Plenary Address, *Awesome Organs in Awesome Places: The Embodiment of Cosmic Harmony,* The Twenty-Third Annual Liturgical Music Conference, St. John's University, Collegeville, Minnesota, 14 June 2000.

[154] Quentin Faulkner, *Wiser Than Despair: The Evolution of Ideas in the Relationship of Music and the Christian Church* (Westport, Connecticut: Greenwood Press, 1996), 217.

[155] Faulkner, *Wiser Than Despair*, 221.

[156] Faulkner, *Wiser Than Despair*, 223. For examples of these characteristics, Faulkner cites the well-known condemnation of the organ by Igor Stravinsky, who "disliked the organ because of its

If the organ could be said to carry the medieval, cosmic worldview in its characteristics and in the character of its sound, I suggested that "building, restoring, repairing, playing, employing liberally in the liturgy, composing for, improvising upon, and reflecting theologically about the organ" must in some way contribute to the restoration of the cosmic dimension of the liturgy.[157] For this to be true, it must be shown that this cosmic worldview is still operative on some level of the Church's consciousness. It also requires us to be clear that we are not probing the functional utility of the organ, but rather the manner in which the organ has served and can serve as a symbol, and the meaning that has been and might still be invested in it.

Faulkner considers the organ as an "embodiment of cosmic harmony and as a means of manifesting and teaching basic neo-Platonic doctrines" in response to the question of how the organ came to be accepted in a church that had been prejudiced against instruments of any kind. He cautiously acknowledges that evidence in primary sources for a didactic and symbolic explanation of the medieval Church's acceptance of the organ is "scanty and inconclusive," but nevertheless asserts that there is a "slender thread of support for conjecturing that the organ might have served as a symbol of cosmic harmony."[158] With this statement, Faulkner goes as far as he

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'*legato sostenuto* and its blur of octaves [read complex harmonic reinforcement of multi-octave chorus registrations and mixtures], as well as the fact that the monster never breathes.'"

[157] Vogt, "Awesome Organs."

[158] Faulkner, *Wiser Than Despair*, 217.

can without breaching the rational bias of the academic establishment, which might be more comfortable with the skeptical view of musicologist Peter Williams:

> It would not be difficult to find theoretical-theological reasons for the organ's presence in church, and scholarship's eager reliance on a period's writing could lead today to some such thesis as that the organ as a diatonic instrument of fixed tones was a symbol, metonym or paradigm for the perfect proportions of divine *harmonia*. But such an explanation must be at best retrospective: organs were known and their sound used for many purposes irrespective of symbolic exegeses worked out at the time or afterwards by those not necessarily themselves involved in making them."[159]

A retrospective, synchronic appropriation of even "scanty and inconclusive" evidence or "slender threads of support" for conjecture finds its place, however, in religious interpretation, which has also at its disposal a wide range of images from Hebrew and Hellenistic Christian textual sources,[160] a complex web of theoretical treatises, extant musical texts and instruments, and living traditions of organ building, musical composition and liturgical usage. The Hebrew bible, for instance, is replete with images of cosmic praise which still are contemplated daily in the Liturgy of the Hours by all duty-bound religious and clerics and an increasing number of lay persons.[161] Such use of sacred texts naturally involves investing them with meaning

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[159] Peter Williams, *The Organ in Western Culture 750*-1250 (Cambridge: Cambridge University Press, 1993, 56.

[160] An excellent compendium of such images from the Christian Patristic Era is: Robert A. Skeris, *ΧΡΩΜΑ ΘΕΟΥ* [*Chroma Theou]: on the origins and theological interpretation of the musical imagery used by the ecclesiastical writers of the first three centuries, with special reference to the image of Orpheus* (Altötting: Alfred Coppenrath, 1976).

[161] The Liturgy of the Hours is a component of the liturgical economy of the Roman Catholic Church, together with the Eucharist or Mass and the other Sacraments (Baptism, Confirmation, Reconciliation or Penance, Marriage, the Holy Orders of Bishops, Priests and Deacons, and the Anointing of the Sick.). The Liturgy of the Hours, also known as the Divine Office, consists today of Morning Prayer (traditionally known as Lauds), Evening Prayer (Vespers), and Night Prayer

which may be influenced by knowledge of the text's original *Sitz im Leben,* but is not limited by it.

The Greek idea of cosmic harmony and order can be traced to Plato, one of the chief proponents of Pythagorean number theory.[162] Patristic thought on the subject was summed up by St. Augustine (*De musica*), and especially by Boethius (*De institutione musica*), who formulated a theory of music that encapsulated the medieval conception of beauty:

> The source of all beauty, all order is God, who has created cosmic order and harmony (*musica mundana* in Boethius's terminology: the music of the universe). The world is a reflection of that beauty and order, as is human beauty (Boethius's *musica humana*—not merely physical beauty, but the perfect harmony of body and soul), and all of these beauties may be expressed mathematically in the form of numerical ratios. Those ratios in turn may be perceived by the ear as Boethius's *musica instrumentalis*, sounding music (both vocal and instrumental).[163]

The Hermetic notion of correspondences between the universal, personal and sensory world seem merely poetic and even quaint to the Post-Enlightenment mind, but traditional Judeo-Christian systems of ethics and morality continue to rest upon the belief that human actions have cosmic and metaphysical consequences.[164]

(Compline). The former Office Matins and the Minor Offices (Little Hours) have been folded into the temporally flexible Office of Readings and Daytime Prayer.

[162] Joscelyn Godwin, ed., *The Harmony of the Spheres: A Sourcebook of the Pythagorean Tradition in Music* (Rochester, Vermont: Inner Traditions International, 1993), 3-6.

[163] Faulkner, *Wiser Than Despair,* 77.

[164] "Hermetic tradition" refers to a broad swath of revelation that "embraces a cosmology of many levels of being, linked by correspondences and permeated with one divinity, in which the human being is a microcosm whose destiny is to rejoin its inner divinity with is also the One God." (Godwin, 112.) Those who carried this tradition "shared the practical and scientific outlook of Hermetism—Hermes was, after all, the god of technique and craft—in their curiosity about the world and their

Indeed, it is within such a cosmology that the theological systems of the Roman Catholic Church continue to reside. Reflecting on the cosmic dimension of liturgy, no less an ecclesial figure than Joseph Cardinal Ratzinger (now Pope Benedict XVI) quotes theologian Erik Peterson in the Neo-Platonic claim that:

> …it is not pure coincidence that the medieval music theorists begin their treatises by referring to the harmony of the spheres. Since the Church's hymn of praise tunes in to the praises of the cosmos, any consideration of the musical element in the Church's cult must also take into account the sort of praise offered by sun, moon, and stars.[165]

The link between the organ and this cosmology can be found in myriad speculative theories of the Medieval, Renaissance and early Baroque periods found in the Treatises of Zarlino, Fludd, Praetorius, Keppler, Mersenne and Kircher. The aforementioned allegory of *Die Welt-Orgel* by Athanasius Kircher is a notable example.[166] The organ figures prominently in speculative poetry well into the eighteenth century, exemplified by the works of John Milton, John Donne and John Dryden, all of whom drew deeply from the well of cosmic harmony.

Clues about cosmic symbolism and the organ can be found in countless instruments themselves, particularly in the iconography on organs of the Renaissance

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program for understanding it in all its aspects." (Ibid., 113.) Hermetism pervaded Muslim cosmology as well as Jewish and Christian thought in the Common Era, perhaps even to a greater degree. (Ibid., 112). The extent to which these systems hold sway in modern secular societies is another question altogether.

[165] Erik Peterson, *The Angels and the Liturgy* (New York: Herder and Herder, 1964), 29. Ratzinger acknowledges that this statement is "certainly somewhat exaggerated," but "basically quite worthy of consideration." (Joseph Cardinal Ratzinger, "Theological Problems in Church Music," in Robert Skeris, ed., *Crux et Cithara: Selected Essays on Liturgy and Sacred Music* [Altötting: Alfred Coppenrath, 1983], 220. For the original, see "Theologische Probleme der Kirchenmusik," *Communio: Internationale Katholische Zeitschrift* 9 [1980]: 148-57.)

[166] Athanasius Kircher, *Musurgia Universalis* (Rome, 1650).

and Baroque. Evidence related to the actual cultic use of the organ is less explicit, but nonetheless tantalizing. For instance, the long tradition of the organ playing alone in the liturgy—either independently of ritual or hymn texts or in alternation with stanzas of hymns, canticles and mass movements sung by the choir—suggests either a widely-accepted symbolic role of the organ in the divine service, or a gross liturgical aberration.[167] While a full discussion of the practice of *alternatim* is beyond the scope of this study, it is safe to assert that the organ played a significant role in the performance of the liturgy throughout the last millennium, regardless of the chronological circumstances or retrospective interpretation that may have contributed to its entrée or acceptance into Christian worship.

The task remains, however, of uncovering the meaning of the organ's cultic use. Ratzinger suggests a cosmological answer:

> The organ is a theological instrument whose original home was the cult of the emperor. When the Emperor of Byzantium spoke, an organ played. On the other hand the organ was supposed to be the combination of all the voices of the cosmos. Accordingly, the organ music at imperial utterances meant that when the divine emperor spoke, the entire universe resounded. As a divine utterance, his statement is the resounding of all the voices in the cosmos. The

[167] It is often asserted that the organ *in alternatim* actually replaced the liturgical words uttered by humans. This may have been the case in certain Reformation traditions. However, it is important to note that in the case of Roman Catholic practice between the time the organ was admitted into the liturgy and prior to the promulgation of the Missal of Pope Paul VI (1969) the priest was required to pronounce himself (sometimes audibly) all of the ritual texts sung by the choir or delegated to the organ, and it was this priestly enunciation of the canonical text that was ultimately efficacious. This parallel performance of the aural dimensions of the liturgy may have contributed to a sense that choir and organ, both "polyphonic" instruments, as it were, gave voice to the cosmos as a whole in union and in accompaniment to the priestly prayer of the risen Christ in heaven and that of the priest, *alter Christus* ("another Christ"), at the altar on earth.

> 'organon' is the cosmic instrument and as such the voice of the world's ruler, the *imperator*.[168]

The future pope does not relegate this cosmic understanding of the organ to the shadowed memory of Byzantium, however, but traces its "theo-political" history down to the modern age:

> Against this Byzantine custom, Rome stressed a cosmic Christology and on that basis the cosmic function of Christ's Vicar on earth: what was good enough for the Emperor was quite good enough for the Pope. Naturally, it is not a case here of superficial problems concerning prestige, but it is a matter of the public, political and cultic representation of the mandates received in each case. To the exclusivity of an imperial theology which increasingly abandoned the Church to the Emperor and degraded the bishops to mere imperial functionaries, Rome opposed [*sic*] the Pope's cosmic claim and with it the cosmic rank of belief in Christ, which is independent of and indeed superior to politics.[169] Therefore the organ had to resound in the papal liturgy as well.
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> Such a borrowing from the imperial theology is not regarded with favour by contemporary theological scholarship, which considers such as acceptance as "Constantinian" or as "Romanisation," which is naturally far worse than Hellenisation. As a matter of fact, what has been said thus far suffices to indicate clearly the convincing reasons for the whole process, as well as its logic within the Christian context: this detour made it possible to avoid turning the Church into a synagogue and to carry out in practise the true claim of the Christian faith, which accepts the inheritance of the Temple and surpasses it by far, into the very dimensions of the Universal.
>
> Furthermore, the history of the organ remained a theo-political history for quite a long time: the fact that an organ resounds at the Carolingian court is an expression of the Carolingian claim to equality with Byzantium. Conversely, the Roman usage was transferred to the cathedrals and abbey churches. Less than a lifetime ago it was still customary for the organ to play as background

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[168] Joseph Cardinal Ratzinger, "Theological Problems in Church Music," in Robert Skeris, ed., *Crux et Cithara: Selected Essays on Liturgy and Sacred Music* (Altötting: Alfred Coppenrath, 1983), 220.

[169] It is not clear whether Ratzinger intends "Rome" to mean the imperial authority or the Church (*cf.* the first sentence of this quotation).

> to the abbot's recitation of the Pater noster in Benedictine abbeys, and this is to be understood as a direct inheritance from the ancient cosmic liturgy.[170]

It is not much of leap from there to suggest that the late-nineteenth and early-twentieth century custom in France of accompanying the Low Mass with the organ also belongs to this cultic lineage, along with any other solo performance on the organ in and around liturgical worship today.

After cosmology, Christology is the second theological lens through which I proposed viewing the organ as a symbol at the St. John's Liturgical Music Conference. The cosmological considerations entertained above take us to the brink of this category, since Christian speculation has long extended the Platonic doctrine of the Harmony of the Spheres to the music of heavenly bodies—angels, and the like, attending the throne of grace.[171] Ratzinger's "theo-political" history cited above also crosses over into the Christological realm insofar as the organ's role as the voice of the *Imperator* translates from temporal to spiritual jurisdiction.

Finally, the equation of the song of the cosmos with the voice of the Cosmic Christ is bound up in the dogma of the Holy Trinity and the doctrine of the incarnation of Jesus Christ, who "in the beginning was the Word:" *En archē ēn ho*

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[170] Ratzinger, "Theological Problems," 221. N.B. British spellings have been retained in this quotation.

[171] Jacques de Liège in his *Speculum musicae,* for instance, not only expands upon Boethius's treatment of *musica mundana* and *musica humana,* but adds a fourth category, *musica cœlistis,* to develop a fully Christian cosmology. See Joscelyn Godwin, ed., *The Harmony of the Spheres: A Sourcebook of the Pythagorean Tradition in Music* (Rochester, Vermont: Inner Traditions International, 1993), 128-140.

Logos.[172] Attempting to elucidate the semantic richness of this word, *Logos*, historian Jaroslav Pelikan notes:

> …near the beginning of Goethe's *Faust* the aged philosopher Faust is sitting in his study pondering that very text and trying out different translations for it: *Im Anfang war das Wort / der Sinn / die Kraft / die Tat"*: In the beginning was the word / the mind / the power / the deed. The term Logos can have any and all of those meanings, and many other meanings besides, such as "reason" or "structure" or "purpose."[173]

The Christological meaning of Logos is explicitly celebrated in this New Testament hymn:

> He is the image of the invisible God, the firstborn of all creation; for him all things in heaven and on earth were created, things visible and invisible, whether thrones or dominions or rulers or powers—all things have been through him and for him. He himself is before all things, and in him all things hold together.[174]

While the "intelligent order" of the organ manifesting *harmonia* might therefore be said to symbolize Christ—the Word that holds all things together in harmony—it is the incarnation of this Word, proclaimed in the opening of the Gospel of John, that forms the basis of a modern theology of music—and by extension, of the organ. Explicating Cardinal Ratzinger's theology of liturgical music, M. Francis Mannion writes:

> The Word in the church is not merely verbal, of course; it is effected in the sacraments, which are the central modalities in which the Incarnation is

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[172] Jn. 1:1.

[173] Jaroslav Pelikan, *Jesus through the Centuries: His Place in the History of Culture* (New Haven: Yale University Press, 1985; New York: Harper & Row, 1987), 58. Original reference is Goethe, *Faust* 1224-37.

[174] Col. 1:15-17 (New Revised Standard Version)

> elongated historically. The whole sacramental and liturgical system forms an expansion of the Word into the realms of the bodily senses. The Word of God finds expression in a process the cardinal calls the "musification" of the Word, itself a feature of the incarnational process by which "the flesh itself is 'logicized.'"[175]

Mannion further describes Ratzinger's concept of this historical and ritual "elongation" of the Incarnation:

> As the Word takes flesh, it draws into itself and reshapes the diversity of created things and the multifaceted dynamics of the human world. As all the features of creation are shaped and conformed to the cross of Christ, so, too is music. This means a process of the attraction and reshaping of "pre-rational and trans-rational forces, attraction of the hidden sounds of creation, discovery of the song that lies at the bottom of things." As the "spiritualization of the flesh" occurs, "*wood and metal* [emphasis mine] become tone, the unconscious and the unreleased become ordered and meaningful sound. A corporealization [an embodiment or incarnation] takes place which is a spiritualization, and a spiritualization which is a corporealization. The Word takes form in music; music is assumed into the Word.[176]

Language such as the "attraction and reshaping of 'pre-rational and trans-rational forces'" might be difficult for the non-theologian to grasp, but what is significant to the present discussion is that the highest-placed theologian in the Roman Catholic communion himself appears to view the organ as a symbol of a theological reality.[177]

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[175] M. Francis Mannion, "The 'Musification' of the Word: Cardinal Ratzinger's Theology of Liturgical Music," *Josephinum Journal of Theology* 5, no. 2 (Summer/Fall 1998): 60. For source of quotations, see Joseph Cardinal Ratzinger, "Liturgy and Sacred Music," *Commuio* 13:4 (Winter 1986): 386.

[176] Ibid. The sub-quotations here are from the text of a keynote address to the Eighth International Church Music Congress at Rome on 17 November 1985. For bibliographic commentary, see Robert Skeris, *Divini cultus studium: Studies in the Theology of Worship and of its* Music (Altötting: Alfred Coppenrath, 1990), 244.

[177] Ratzinger's original English text, however, allows some doubt that the phrase translated above as "wood and metal" is an explicit or exclusive reference to the organ. The original text reads, "*Brass and wood* [emphasis mine] become sound; what is unconscious and unsettled becomes orderly and meaningful resonance." (Joseph Cardinal Ratzinger, "Liturgy and Church Music," in Skeris,

The third hermeneutic lens raised in my plenary address at St. John's involved the possibility of a "pneumatological" interpretation of the organ in a church—that pertaining to the Holy Spirit:

> Watching an organ builder breathe life into the elements of the earth as he blows into a pipe and gives it voice for the first time readily conjures up the creation of Adam in the second chapter of Genesis: "…then the LORD God formed man from the dust of the ground, and breathed into his nostrils the breath of life; and the man became a living being." Similarly, the risen Christ *breathed* upon his disciples and said: "Receive the Holy Spirit."[178]

I also speculated that one way the long-practiced tradition of *alternatim* between the organ and voices could be interpreted might be that the wind-blown organ came to symbolize the Holy Spirit who, since "we do not know how to pray as we ought…intercedes with sighs too deep for words."[179] I noted that Metaphysical poet George Herbert also tapped the Pythagorean tradition to express the help given by this Spirit to human beings in their weakness:

> Consort both heart and lute, and twist a song
> Pleasant and long:
> Or, since all musick is but three parts vied
> And multiplied,
> O let thy blessed Spirit bear a part,
> And make up our defects with his sweet art.[180]

I further proposed:

Divini Cultus Studium, 193.) Nonetheless, Ratzinger's belief that ordered sound and the matter enlisted in its ordering are imbued with *Logos* is beyond question.

[178] Vogt, "Awesome Organs." Scripture quotations and references from Gen. 2:7 and Jn. 20:22.

[179] Rom. 8:26 (New Revised Standard Version)

[180] George Herbert, "Easter," from *The Temple (1633).*

> ...the text-less—but not Word-less—voice of the organ has served to architecturally conserve a sonic theology of pure praise, functioning liturgically like the *jubilus* or melismatic chants in general: the ecstatic tongues of fire by which the chaos of Babel was restored by pure understanding in the Spirit.[181]

Sometime between A.D. 1114 and 1130, Baldric, Bishop of Dol, likewise made symbolic use of the organ in his catechetical letter to the people of Fécamp:

> For myself, I take no great pleasure in the sound of the organ (*ego siquidem in modulationibus organicis non multum delector*); but it encourages me to reflect that, just as divers [*sic*] pipes, of differing weight and size, sound together in a single melody as a result of the air in them, so men should think the same thoughts, and inspired by the Holy Spirit, unite in a single purpose… All this I have learned from the organs installed in this church. Are we not the organs of the Holy Spirit? And let any man who banishes them from the church likewise banish all vocal sound, and let him pray, with Moses, through motionless lips… For ourselves, we speak categorically—because organs are a good thing, if we regard them as mysteries and derive from them a spiritual harmony; it is this harmony that the Moderator of all things has instilled in us, by putting together elements entirely discordant in themselves and binding them together by a harmonious rhythm… As we listen to the organs, let us be drawn together by a deeper harmony, and be cemented together by a two-fold charity.[182]

This passage hints at another category for considering the organ as a theological symbol—Ecclesiology (from the Greek *Ekklesia*, meaning "the Assembly of God's People")—one that may be most easily apprehended by modern people, since it does not require assent to the metaphysical. While I did not include this aspect in my presentation at the St. John's Conference, I would later develop this idea into a proposition that the organ functions symbolically in the church building in a

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[181] Vogt, "Awesome Organs." *Cf.* Acts 2:1-11.

[182] Faulkner, *Wiser Than Despair,* 218. Original source is *Patrologiae latinae* clxvi, 1177-8; trans. in Jean Perrot, *The Organ from Its Invention in the Hellenistic Period to the End of the Thirteenth Century,* trans. Norma Deane (London: Oxford University Press, 1971), 220-1.

manner similar to the bishop's *cathedra*, the altar and tabernacle, baptismal font, the confessional, the ambry (repository of the sacramental oils), and the ambo (or pulpit).[183] These artifacts symbolize, contain and point to the multiple presences of Christ proclaimed in the first constitution of the Second Vatican Council:

> Christ is always present in His Church, especially in her liturgical celebrations. He is present in the sacrifice of the Mass, not only in the person of His minister, "the same now offering, through the ministry of priests, who formerly offered himself on the cross," but especially under the eucharistic species. By His power He is present in the sacraments, so that when a man baptizes it is really Christ Himself who baptizes. He is present in His word, since it is He Himself who speaks when the holy scriptures are read in the Church. He is present, lastly, when the Church prays and sings, for He promised: "Where two or three are gathered together in my name, there am I in the midst of them" (Matt. 18:20).[184]

I reasoned that an organ could be seen as representing this last "presence," the assembly (*ecclesia*) of the baptized when it prays and sings.[185]

Finally, I put forward that an organ might be considered as a symbol of the *Parousia,* "the End Times":

> Beside the eschatological symbolism in the use of the organ as a collection of all the voices in the cosmos and the decoration of the organ with icons of the heavenly host, a word must be said about the architecture of the organ itself. It might be asserted that all ecclesiastical architecture is under girded with the teleological symbolism of Zion, the New Jerusalem.[186]

At this point my argument turned practical and prescriptive:

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[183] Kevin Vogt, "The Organ as a Symbol," in *The Saint Cecilia Cathedral Organ* (Omaha, Nebraska: Saint Cecilia Schola Cantorum, 2006), 9.

[184] *Sacrosanctum consilium* (1963), 7.

[185] Vogt, "Awesome Organs."

[186] Ibid.

> The extent to which the Heavenly City is symbolized by organ, however, depends upon the extent to which the organ stands on its own architecturally. Organs in chambers behind screens from the turn of the last century on lacked the physical integrity to bear such a symbol. Likewise, while the physical proportions of the organ pipes were visible in the un-encased organs of Walter Holtkamp, Sr. in the middle of the twentieth century, the resulting "flower box" arrangements on any bare wall by Holtkamp's lesser disciples also lacked unity.
>
> One of the most significant contributions of the Organ Reform Movement (the *Orgelbewegung*) was the recovery of the encased organ, economically designed in obedience to the limitations of mechanical key action. Insofar as the organ case (*die Gehäuse*) houses a choir of musical bodies forged out of the elements of earth, inspired by wind, and organized according to the acoustical laws of the universe that bear witness to the divine *Logos*, such an organ is both a symbol of *Ecclesia*—the Church, and Jerusalem, "built as a city, strongly compact, at unity within itself (Psalm 122:3)."[187]

The St. John's University Liturgical Music Conference provided an initial opportunity to test these ideas in a public forum of sympathetic peers. An opportunity to develop them further and to submit them to scrutiny and critique came with an invitation to prepare a paper for a colloquium entitled "The Organ in Christian Worship" held at Princeton Theological Seminary on 4-6 February 2001. My paper was to be a "Roman Catholic counterpoint" to a position paper by seminary music director Martin Tel, an *apologia* from a Reformed perspective defending the new seminary chapel organ by Paul Fritts & Associates.

[187] Ibid.

Tel's tack on the subject was pragmatic, built upon an assumption that "form follows function."[188] He proposed seven categories in which to consider the "form" of the organ:[189]

(1) Placement of the organ
(2) Divisions and disposition
(3) Mechanical action
(4) Temperament
(5) Winding system
(6) Electronic assist mechanisms
(7) Stewardship (i.e. craftsmanship)

He further posited that decisions made concerning these formal dimensions of Fritts Opus 20 fulfilled requirements of three functions of the organ, prioritized according to "a Reformed understanding:"[190]

(1) Leadership of congregational singing
(2) Choral accompaniment
(3) Performance of organ literature

I questioned the notion that form follows function in the art of organ building, unless function is defined as a musical purpose, .i.e. rendering a composer's musical ideas.[191] I argued that the perspective of judging an organ's usefulness in a particular liturgical context or in playing one segment or another of the inherited repertoire is

[188] Martin Tel, "Proposal for a New Pipe Organ for Miller Chapel," presented at the Colloquium "The Organ in Christian Worship," Princeton Theological Seminary, Princeton, New Jersey, 5 February 2001.

[189] Ibid.

[190] Ibid.

[191] Fesperman, *The Organ as Musical Medium,* 8.

based on "a kind of historicism unique to the twentieth century," which I believed had "relegated the organ to the fringes of cultural life within and without the church."[192]

I offered an alternative perspective:

> …a longer history tells a different tale—a story in which forms are as much construed as they are constructed, and in which organs develop out of the builder's search for beauty and expressiveness. Musical repertoire and liturgical function seem to have followed the developments of the instrument as a symbolic web was woven from the yarn of contemplating the instrument. If we want to understand the historical role of the organ in the Christian church and its potential role in the future, we must first seek to understand the metaphoric and symbolic history of the organ, and how this history relates to sacramental systems. What is ultimately at stake here is not only the future of the organ, but a coherent theology of music in Christian worship.[193]

I also contended:

> … the perspective in which the function of the organ determines its form and character does not yield an adequate conceptual framework on which to hang a compelling case for the revival of the organ in the musical life of the church. The building of an organ is utterly impractical, and will not ultimately be defensible save by argument of quality. The aesthetic form and expressive character of the organ itself must carry the weight of any apologetic discourse on its behalf, viewed through the lens of theological speculation and directed toward the restoration of the cosmic-conscious worldview historically associated with the organ in the liturgy.[194]

In an attempt to approach a theological aesthetic of a church organ, I revisited the theme of the "awesome organ." Would such an organ be the revered "King of Instruments," or a "humble servant?" Borrowing the parlance of Sir Thomas

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[192] Kevin Vogt, "Principals and Principles: Organ Building for Christian Congregations," presented at the Colloquium "The Organ in Christian Worship," Princeton Theological Seminary, Princeton, New Jersey, 5 February 2001.

[193] Ibid.

[194] Ibid. This statement reveals an assimilation of previously referenced ideas of John Fesperman and Quentin Faulkner into an emerging personal "program" of restoration and revival of the organ.

Mallory and a common formulation of Christ's royal identity, I put forward the notion that the kind of organ that will best serve the Church now and in the foreseeable future is "The Awesome Organ: Once and Future Servant-King." I proposed that such an organ

> (1) exhibits unity in form and design, regardless of size (easier to achieve in small organs),
>
> (2) contains variety in its physical and tonal characteristics (easier to achieve in large organs), and
>
> (3) bears a complex tonal scheme bound together by a playing mechanism that is as simple as possible.[195]

I once again laid out the categories of cosmology, Christology, pneumatology, ecclesiology and eschatology as theological lenses through which to interpret the organ as a symbol, an embodiment of a hidden reality. I extended this approach to make a theological case for the dual-temperament feature of Pasi Opus 14, by this time well under construction:

> In meantone tuning, most [eight of twelve] major thirds are pure, yielding an exceptionally sweet, if static, sound to most [eight of twelve] major triads. The pure third, an interval completing the chord of the Holy Trinity, offers a momentary glimpse of the harmony of God. This idealistic search for purity in harmony is complemented in the well-tempered tuning by the aim of utility and taking full advantage of the broad range of human affections.[196]

I once again asserted (albeit precariously) that equal temperament, though widely employed and accepted, is an "artifact" not congruent with traditional Christian religion and cultic worship:

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[195] Ibid.

[196] Ibid.

> Granted, equal temperament is a very old system of tuning, but its widespread use in recent times appears to be linked to the ideals of the Enlightenment, sacrificing both pure intonation and *affect* for rational perfection. Moreover, its defense in the late nineteenth and early twentieth centuries may not be so much related to philosophical or musical values, but rather to a post-Industrial Revolution penchant for standardization.
>
> In choosing this argument as an apology for the proposed dual-temperament organ at Saint Cecilia Cathedral, I have rejected the notion that rationalism and standardization can adequately serve as a foundation for art intended to inspire faith. In its place, I have chosen to affirm the values at the heart of meantone and well-tempered tuning—the metaphysical, idealistic search for purity, and the exaltation of human affections.[197] This is another way in which the organ is an architectural embodiment of ideas, and in which its character is not directed toward the mere performance of music but toward honest human expression.[198]

Such sweeping claims are obviously replete with opportunities for refutation, but along with Martin Tel's pragmatic program they provided rich fodder for discussion and debate. These papers were discussed by a panel of academics that included Quentin Faulkner. Faulkner opened his response with the following anecdote:

> The German poet and critic Heinrich Heine was standing together with a friend in front of Amiens cathedral in France. Overwhelmed by that mighty, towering façade, decked with its lacy veil of stone carving, and overcome by the thought of countless laborers, each toiling tirelessly to create just one small part of the vast whole, the friend finally asked Heine, "How is it that we today cannot create such a building?" Heine answered him, "My dear Alphonse, men in those days had convictions. We moderns have only opinions, and it takes more than a mere opinion to build a gothic cathedral."[199]

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[197] This statement is an oversimplification of the characteristics of these tunings. For instance, pure major thirds are only one characteristic of quarter-comma meantone tuning. Organists and composers also exploited its two sizes of semitones, for instance, for expressive purposes similar to the variation in "key color" found in the circulating, well-tempered systems.

[198] Vogt, *Principals and Principles.*

[199] Quentin Faulkner, "Opinions and Convictions," presented at the Colloquium "The Organ in Christian Worship," Princeton Theological Seminary, Princeton, New Jersey, 5 February 2001. For

Turning first to Martin Tel's essay, Faulkner praised the craft, comprehensiveness and coherence of the statement, but noted that "in none of these functions is the organ *indispensable* to Christian worship," citing historical instances in which neither congregational nor choral singing were in any way dependent on the organ, and alluding to the irrelevance of organ literature to the conduct of Christian worship.[200] Faulkner nevertheless affirmed Tel's position while placing it within a specific world-view:

> Martin's remarks are indeed apt and well-chosen, but they arise out of a vision of a world of confidence and assurance that can hardly be presumed in these days, a vision of a church in the course of unselfconsciously adorning what it so passionately adored: its living, life-giving Lord. It's that kind of confidence and assurance that gave birth to the instrument that stands before us. At this juncture in the life of the church, the organ's greatest merit may be as a witness to, a reminder of the faith and commitment that gave the instrument life and breath, and bid it sing its Maker's praise.[201]

Turning to my essay, Faulkner did not rush to its defense, but used it to highlight the tension between the organ as an artifact of a world-view oriented by convictions and a pluralistic, opinion-riven host culture:

> Kevin's [my] comments may at first seem (how shall we put it charitably?) a bit out of touch with reality, somewhat removed from the modern world—off-the-wall! But they raise in my mind a vitally important question, a question already alluded to above: Why the organ? What contemporary defense of the

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the source of interior quotations, see Heinrich Heine, "Über die französische Bühne," neunter Brief, in *Werke und Briefe*, Vol. 6 (Berlin: Aufbau-Verlag, 1962), 68.

[200] Ibid. This was not to suggest that there is no corollary between specific worship traditions and the inherited repertoire for the organ. On the contrary, it could be easily shown that most of the extant historical literature for the organ issued out of liturgical *praxis.* The literature itself, however, must be regarded as an historical record of a liturgical-musical practice rather than as a sacred text essential to the enactment of Christian worship.

[201] Ibid.

> organ in the church can anyone here (or anywhere!) offer, that cannot be contested, contested not merely by ignorance or prejudice, but with sound theological arguments? If you reject Kevin's proposals as pie-in-the sky or irrelevant, then what arguments can you offer in their stead to support the continued presence of the organ as a central figure of Christian liturgical music-making? That is, if there are other valid models for congregational song—a quiet meditative model, or a sing-along model—that exclude the cooperation of this kind of forthright instrumental voice, is there any pressing reason to keep the instrument around? Does the organ exist in the church for any reasons other than practical?[202]

The last word on the matter was given by seminary professor James F. Kay in a sermon entitled "Call to Excellence." Contrasting two world-views, that of Jerusalem (standing for the will and way of God) and Athens (representing the world of high culture, of the arts and sciences, of philosophy and of human excellence modeled in heroic epics), Kay situated the consideration of the organ as an artifact within the Christian call to *arête,* meaning "excellence" or "virtue."[203] He then proposed that the organ stands as summons to human excellence:

> In the presence of this King of Instruments, all of us in Athens and Jerusalem who have cynically settled for mediocrity and indolence stand condemned. (I am not accusing. I am confessing!) The real scandal is not that the Calvinists finally have a decent organ. The real scandal is that this superior instrument reflects and requires particular virtues from us that are in short supply. And amid all of our mediocrity and indolence, "in the confusion of men and the Providence of God," excellence has now come on the scene in a new way at Princeton in an instrument we Reformed so long despised.[204]

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[202] Ibid.

[203] James F. Kay, "Called to Excellence," a sermon preached at the Colloquium "The Organ in Christian Worship," Princeton Theological Seminary, Princeton, New Jersey, 6 February 2001.

[204] Ibid.

In a dramatic peroration—as if it were a final Calvinist rejection of my "papist" proposition that the organ is an embodiment of *harmonia* and or an expression of Ratzinger's "musification of the Word"—Kay proclaimed:

> Excellence, then, is something we do not possess; it possesses us. In its original and un-derived sense, excellence belongs only to God. And any excellence, any virtue that we might have comes ultimately from God. It is at hand, but not in hand. It is coming to meet us from on high. And it beckons us, calling out to us, in the name of Jesus Christ, whose eternal life is our true destiny. It is a creature, even one that breathes like us, but it is not the Creator. The organ reflects God, but it is not God, as the prophet Hosea would remind us. It is rather "the work of our hands."[205]

Regardless of any fundamental differences or nuances in understanding among those gathered for the Princeton Theological Seminary colloquium, the dialogue that emerged helped me to gain confidence in and peaceful possession of the concept that Martin Pasi was realizing in Opus 14. While I accepted Professor Kay's prophetic warning against idolatry, I held firm to the conviction that the justification of a dual-temperament cathedral organ rested upon the historical reception of the organ in the Church as a manifestation of the divine *Logos* and an embodiment of harmony.

Modern reception of this organ within the Church, however, would require speculative interpretation of the instrument and its unique characteristics as artifacts of ecclesial culture infused in the liturgical, catechetical and evangelical programs surrounding its use. While such speculation is no longer accepted in post-Enlightenment academia in the developed West, it remains constitutive of religious hermeneutics, of traditional Christian spirituality, and of the sacramental system of

[205] Ibid.

the Roman Catholic Church. It is from this perspective that I assert that a dual-temperament organ is not only appropriately commissioned by and justifiably housed in a Roman Catholic cathedral (as opposed to an academic recital hall or musical instrument museum), but it is *most* appropriate and justifiable in this context, where it can participate in a living tradition of music making and contemplation in sight and sound of those realities that are as yet unseen and unheard, but nonetheless known.