M.P. Rathke restores 1897 Möller Opus 188

Zion's Lutheran Church, East Germantown, Indiana

By Michael Rathke

1. Nameboard (Photo credit: Nicholas Ringwald)

I first visited Zion's Lutheran Church in 1986, near the beginning of my organbuilding apprenticeship. I recall surprise in discovering that the venerable M.P. Möller, with whose plentiful local electro-pneumatic installations I was familiar, had once built mechanical-action instruments. If Zion's organ were representative, Möller's tracker output had clearly been more than respectable. Apart from a stiff key action, the organ was a pleasure to play, and its 16 stops made a grand sound in this relatively small church.

My next visit came 25 years later, shortly after setting up my own workshop nearby. On this occasion I was less struck by the Möller's quality than by its evident deterioration. The organ looked fine, having recently received cosmetic repairs; its basic sound also remained fairly convincing, if not precisely as I remembered. But mechanically, the organ was a mess. The key action was heavy, sticky, and unpredictable; both manual windchests were suffering from obvious and severe sponsil damage; and the two reservoirs (supply-house units that had replaced the original double-rise) were living on borrowed time. Ciphers that could not be rectified abounded; other notes would barely play because their channels had been excessively bled to alleviate sponsil ciphers. The parishioners of Zion's remained proud of their historic organ, admired its sound, and affirmed that it had served well since arriving in 1933 from a neighboring church. But it had also been an ongoing maintenance challenge. This vigorous but small congregation was understandably weary of spending money at regular intervals and being assured time and again that the organ was now "good as new," only to find that each assurance had been optimistic, at best.

When we were asked to take over the organ's routine tuning and maintenance, we were also charged with making appropriate long-term recommendations. Our first was simply a year of watchful waiting, during which we proposed to carry out touch-up tuning and minor repairs but to do no major work, striving to keep near-term maintenance spending to an absolute minimum. We were thus able to observe the Möller through a full cycle of heating and cooling seasons, especially important given its location partly within an uninsulated organ chamber.

Möller Opus 188 (Photo credit: Mark Woodward)

This evaluation period also allowed the church a welcome respite from excessive cash outlays and to consider, for the first time, comprehensively restoring its fine but long-suffering pipe organ.

Several things soon became apparent. First, the 1933 relocation from St. Paul's Lutheran in nearby Richmond—carried out by "two farmers and a mechanic," according to local tradition—had begun the instrument's woes. The movers had clearly been competent general craftsmen, but they appear not to have been trained organbuilders. Second, the masonry chamber within which some two-thirds of the organ resided was not well sealed, leaking cold air in winter and hot air in summer, along with the odd bit of blown snow and rain. Third, although the chamber tone opening was more than ample and allowed good tonal egress, the chamber itself was almost too small for the organ it enclosed. The pedal chests had been wedged in at contrary angles, with key action run cross-lots and cobbled together from an assortment of wood tracker stock and soft copper wire. Fourth, the movers had provided absolutely no tuning or maintenance access. To carry out such basic operations as adjusting key action nuts required removal of most of the pedal pipes; to tune the Oboe necessitated either the removal of façade pipes or a precarious climb high above the pedal division.

During this year-long interim, Zion's organ committee wrestled with a number of options and contending opinions from parishioners, some of whom felt strongly that it was time to "stop pouring money down a black hole, discard the old Möller, and replace it with an 'up-to-date' electronic." While congregational sentiment ran generally against this course, especially among clergy and musicians, many felt rebuilding the Möller or selling it outright would make the most sense. Others in this 190-year-old church advocated a comprehensive restoration, emphasizing the organ's history, accumulated stewardship, and importance to the fine music program for which Zion's was known. The church solicited bids for all options, each of which was studied and debated in detail.

Following a vote by the entire church membership, M.P. Rathke, Inc. was awarded the contract for a full and strict mechanical restoration of the Möller. The organ committee chair later explained that we had tendered the winning bid in large part because it was also the low bid, the cost of comprehensively restoring the Möller being significantly less even than a modest electronic to replace it. (The previous sentence is worth re-reading for anyone fortunate enough to possess a historic instrument from any builder.)

During the course of restoration the organ was dismantled in its entirety. Pipework, which upon initial inspection had appeared clean and in relatively good condition, was stored in the church fellowship hall; everything else was taken to our workshop for cleaning, refurbishment, and repair. While in-shop work was proceeding, parishioners were busy tuckpointing, insulating, sealing, caulking, and painting the organ chamber. They also removed carpet from the choir area in front of the organ, sanded and refinished the yellow pine floor below, and invested in a simple humidification unit, built into the existing forced-air HVAC system.

Physical repairs, reinforcement, and reconstruction

The mechanical restoration was labor-intensive but relatively straightforward. We discovered that sponsil failure had been caused not only by the common condition of overheated, dry winter air, but also by sagging at midpoint of both manual windchests owing to glueline creep. Grid sponsils had thus opened on their undersides like the folds of an accordion in response to 115 years of gravity. After patching and regluing the sponsils, we provided reinforcement to the grid rails of both manual chests to prevent future deflection and to ensure that sponsil repairs would remain permanent. Keyboards were cleaned, flattened, polished, and rebushed; key tails were refelted and releathered. The Swell to Great coupler was comprehensively refurbished. Drawknobs were cleaned and relacquered, stop jambs were rebushed, and a purpose-made rotary blower switch (replacing a massive and unsightly industrial knife switch) was manufactured and applied to the old Bellows Signal stopknob. Kristen Farmer of Winston-Salem, North Carolina, was engaged to strip the many layers of flat black paint that had been applied to the nameboard and to carry out a painstaking restoration of the original silver-leaf stenciling (Photo 1). Five components required remanufacturing, either in full or in part:

1. Double-rise reservoir—It is clear that the organ's original 5′ x 8′ double-rise reservoir survived the 1933 move to Zion's along with the rest of the instrument. But in the early 1960s the old reservoir was cut into pieces and replaced by a pair of small and inadequate supply house units, likely because of the difficulty of carrying out proper releathering within the extremely tight confines of the chamber. Most of the old reservoir was discarded at that time, but a few pieces were reused as walkboards, bracing, and a jury-rigged post shoring up one corner of the organ's framework (ironically, replacing a structural post that had been hacked away to gain demolition access to the old reservoir).

Replicating the reservoir turned out to be less difficult than envisioned, for enough fragments remained that we were able to determine all dimensions and relevant construction details. After developing a working design, we entrusted the actual fabrication to J. Zamberlan & Co. of Wintersville, Ohio (Photo 2). I first met Joe Zamberlan in 1989 during our respective apprenticeships with Fisk and Noack; our similar training and philosophies have since led to collaborations on a number of projects, Zion's being but the most recent.

2. Double-rise reservoir (Photo credit: Nicholas Ringwald)

3. Rollerboard (Photo credit: Nicholas Ringwald)

6. Frames (Photo credit: Nicholas Ringwald)

4. Flute chest bung board (inset: close up) (Photo credit: Nicholas Ringwald)

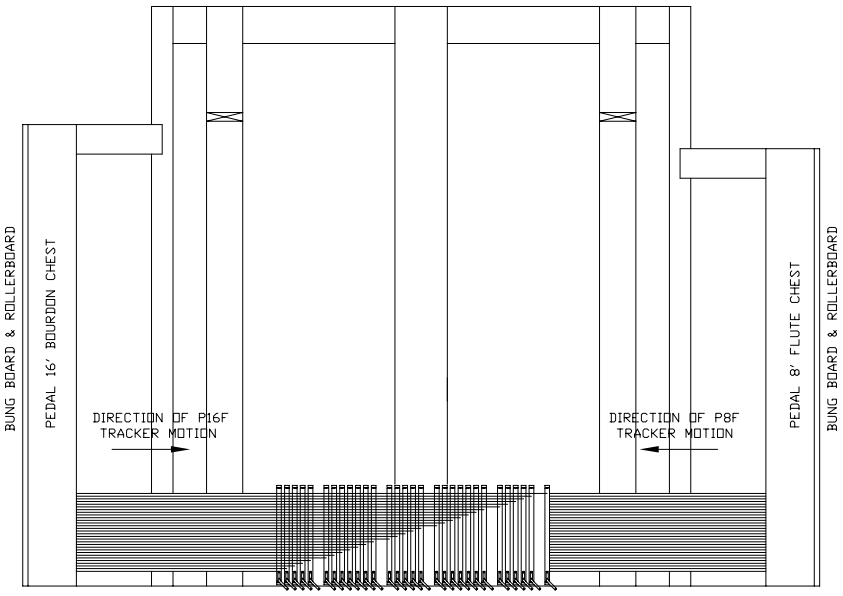
5. Ducts and ventils (Photo credit: Nicholas Ringwald)

2. Pedal key action—When the Möller was built for St. Paul's Lutheran in 1897, its internal layout was fairly typical: the Swell stood directly behind the Great at impost level, with pedal chests located near floor level, one on the CC side and the other on the ## side (Sketch A, p. 28). At Zion's, however, this configuration was impossible owing to the absence of space on the ## side. The 1933 movers thus placed all pedal resources on the CC side, where an L-shaped chamber configuration afforded almost enough room.

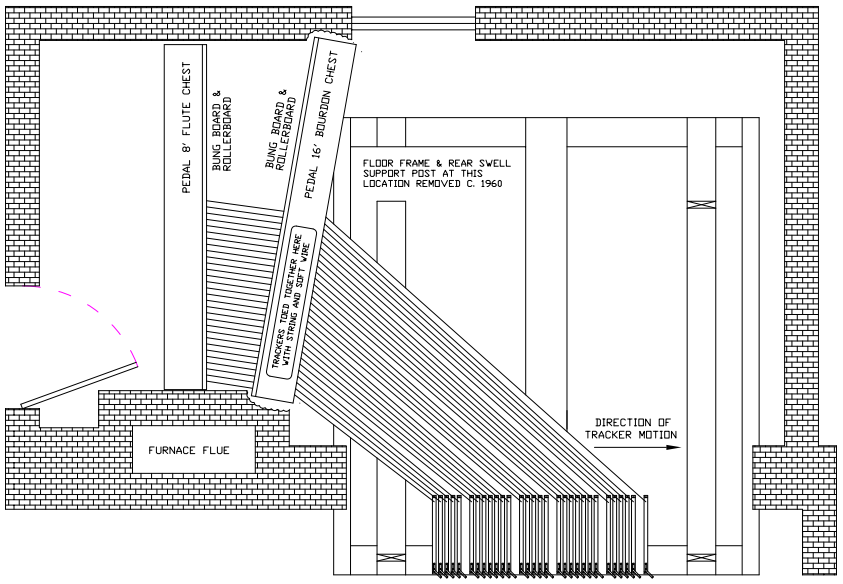
However, the Zion's chamber also required the Pedal chests to be located farther toward the back wall (away from the player) than at St. Paul's. The original action had employed a unique rollerboard, with cranked arms below the pedalboard and rollers running straight back from the keydesk; trackers had then continued at right angles to the Pedal chests. With the chests forced rearward, the 1933 movers chose not the preferable solution of extending the rollerboard and maintaining the original geometry, but rather the Rube Goldberg solution of chiseling away part of the chamber wall and running trackers at a 45-degree angle (Sketch B, p. 28). This somewhat counter-intuitive approach did get the job done, more or less, but it also reduced tracker motion by nearly 50% and imposed undesirable friction and lateral stresses on the Pedal action. We constructed a new rollerboard—essentially a "stretched" replica of the original (Photo 3) utilizing every scrap of old material we could salvage—and installed it in a manner consistent with Möller's 1897 design (Sketch C, p. 28.)

3. Pedal winding and stop action—The asymmetrical chamber at Zion's prompted the 1933 movers to choose yet another unusual solution. Because the Bourdon 16′ chest was slightly too long to fit the available space, it was jammed in askew; the slightly shorter Flute 8′ chest fit alongside with no difficulty. Both pedal chests were then served by the same key action run, but winding was less straightforward because each chest employed ventil rather than slider stop action. Thus two wind ducts were required, but only the 16′ Bourdon chest could be winded easily. Undaunted, the movers ran a second galvanized duct straight through the Bourdon chest rollerboard (!), cut a rough hole in the 8′ Flute chest bung board, inserted the duct, puttied it in place, and then located stop action ventils as best they could. Among other drawbacks, this clumsy arrangement made impossible the removal of the Flute chest bung board for maintenance. (Photo 4) The 2013 solution entailed attaching both stop-action ventils to the reservoir (their original location), constructing new poplar wind ducts to match remnants of the originals, and installing in a manner consistent with other Möllers of the period. (Photo 5)

4. Floor frame and building frame replication—During the 1960s, the Möller underwent a rough removal of portions of its floor and building frames to facilitate demolition of its original double-rise reservoir. Instead of reinstalling the load-bearing post, beam, and floor frame, workers simply nailed up scabs of material left over from the old reservoir, which at best provided crude and insufficient support. (Photo 6) We manufactured and installed replicas of



Sketch A: Original 1897 pedal key action layout (entire instrument freestanding) (Photo credit: Michael Rathke)



Sketch B: Pedal key action as modified during 1933 move (Photo credit: Michael Rathke)

the original floor frame and building frame, taking care to match wood species and copy joinery techniques from the rest of the instrument.

5. Replica reservoir placement and Great wind duct re-routing—During its time at Zion's, the Möller's supreme drawback had been a lack of maintenance access. The general culprit was a narrow (8′2″) chamber opening, compared with the width of the organ's main internal structure (8′0″), but specific obstacles included the location and orientation of both the original double-rise reservoir and the Great wind duct.

The 2013 solution was twofold. First, we turned the new reservoir 90 degrees from its original orientation, which allowed us to respect the essential layout of the original wind system while simultaneously opening a clear access path into the organ. (Sketch C) The end-on positioning of the new bellows will also make possible its easy removal for future releathering, as opposed to the crosswise orientation of the original, whose zero-clearance installation in 1933 surely contributed to its eventual demise.

The Great wind duct posed a more perplexing challenge. The original duct was intact in 2012; unfortunately, it completely blocked the only possible service access into the organ. The revised duct now exits the reservoir, crosses under the maintenance walkway, rises vertically, crosses back over the walkway, and finally makes a 90-degree turn forward to enter the Great pallet box. Although the new duct's construction is somewhat complex, every effort was made to replicate winding characteristics of the original: routing was kept as direct as possible, and cross-sections were deliberately made slightly oversize to compensate both for increased duct length (an additional 19″) and for necessary additional twists and turns.

Tonal restoration

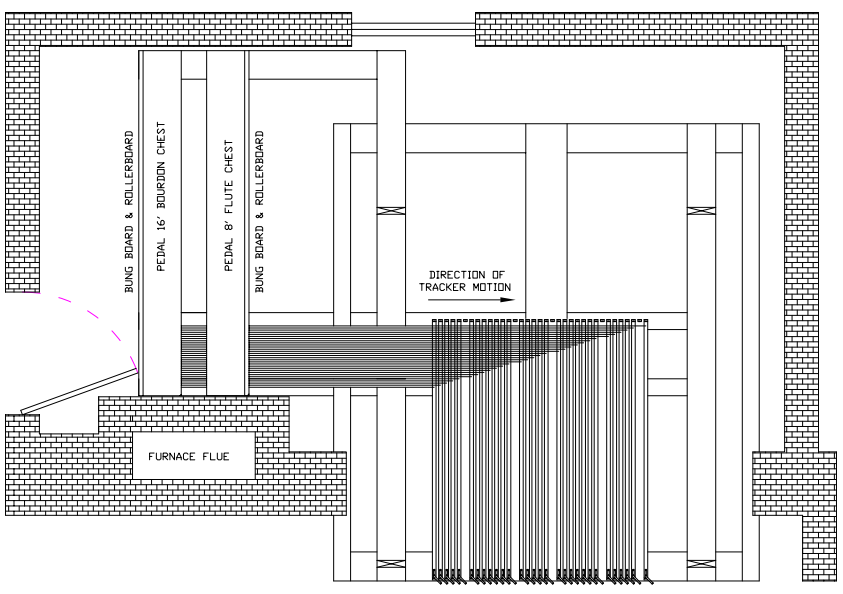
Successful restorative voicing depends on a number of factors including sufficient intact material, the restorer's familiarity with other instruments of the school and period, a cautious and deliberate approach, and especially an agenda-free willingness to allow pipes to tell the voicer what they want to do rather than vice versa. In the following paragraphs we will describe the Möller's altered tonal state in 2012, outline its evaluation, and summarize how we undertook to reconstruct the 1897 sound.

In 1986, Möller Opus 188 still possessed many of the sonorities that inspired worshipers almost a century prior. By 2012, some beautiful sounds remained, although in greatly attenuated form. The exact cause and timing are difficult to pinpoint, in part because church records from the period are sketchy, but also because of the involvement of so many different technicians, some of whom attempted experimental voicing in a manner both curiously random and spectacularly unsuccessful. The physical evidence furnished by the pipes themselves in 2012 seems the most reliable record and will be related here.

All wood pipes were in essentially original condition, requiring little apart from minor regulation and physical repair. The organ's sole reed stop—a sweet and assertive Oboe and Bassoon 8′—was likewise in decent physical shape apart from some badly torn tuning scrolls. It had undergone tonal work in 1970 by a local technician who, incredibly, chose to sign each C resonator in block capital letters incised with an awl. Fortunately, his voicing efforts were limited to lightly kinking and roughly cross-filing numerous tongues, both of which steps were reversed in 2013. The entire organ had unfortunately been repitched in 2000 to A-440, predictably choking off many reeds; restoring the original pitch of A-435 helped greatly in recovering the Oboe's stability, promptness, and robustness of tone.

The metal fluework was a mixed bag. On the plus side, almost all interior pipework was physically intact, if not tonally unaltered. Pipes that were slotted in 1897 happily remained so; pipes originally cone-tuned had been fitted with sleeves but fortunately left close to their natural speaking lengths, so the net tonal effect was negligible. Numerous feet had collapsed from years of heavy-handed cone tuning and the use of thin foot material in the first place; we repaired this damage as a matter of course.

On the minus side, many inside pipes had been randomly altered by a variety of bizarre procedures. About a dozen



Sketch C: 2013 reconstructed pedal key action and floor frame (Photo credit: Michael Rathke)

lower lips had been pinched tight against the languids to where only the original coarse nicking allowed wind through the flue; these pipes murmured more than spoke. (This curious method was limited primarily to the Quintadena bass of the 8′ Aeoline.) A distressing number of windways had been aggressively filed open, removing significant material from both languid and lower lip. Upper lips of many mid-range principals had been torn and distorted; some appeared to have been gnawed by rats. Most front pipes, recipients in 2000 of a fresh coat of gold paint, barely spoke in 2012. While the paint job itself was competently executed from a cosmetic standpoint, obvious pre-existing damage had been simply painted over. Examples included out-of-round pipe bodies, dents, missing or broken tuning scrolls, collapsed lead toes, broken ears, and hooks held on by little more than a vestige of solder. Most front pipe windways had also received a generous infusion of paint (!), completely clogging the original nicking and materially reducing flueway cross-sections. Many dangled from their hooks, with wind leaking audibly at collapsed toes; this latter defect became evident only after the friction tape applied in 2000 as a band-aid repair dried out and began to unravel. Zinc conveyancing from the Great windchest was damaged or missing in many instances, causing weak or dead notes; a smooth dynamic transition between façade pipes and their interior continuations (Great Open Diapason, Dulciana, Octave) was nonexistent.

At this point we faced a critical dilemma. On one hand, we had been hired only to restore the Möller mechanically and to perform minor pipe repairs. Wholesale restorative voicing and major pipe repairs were neither contemplated nor included in the contract price. On the other hand, some pipe damage and tonal alterations became clear only after the restored action and wind system allowed pipes to be heard under full wind and precise control. We faced an uncomfortable choice between simply fulfilling the terms of our contract—delivering a perfectly functioning but poor sounding instrument—or moving ahead with necessary tonal work for which we could never be fully compensated. We ultimately chose the latter, not because it was a sound business decision—it was in fact a terrible business decision—but because of the virtual certainty that, if we didn't, no one ever would. Then this fine and rare pipe organ, mechanically sound but tonally compromised, would likely be discarded eventually. (It is axiomatic that tonally ugly instruments are seldom preserved, no matter how well they function.) In the end, we simply couldn't bear the thought. And so we prayed, put our noses to the grindstone, and forged ahead.

We tackled the façade first, essentially moving our pipe shop into the Zion's sanctuary for a full month. Most of the 33 large speaking front pipes required rounding up on large mandrels, as well as removal of visible dents. Components such as ears whose proper reattachment would have involved soldering—impossible without scorching the gold lacquer —were repaired using clear epoxy. The most difficult operation was removing the enormous amount of paint that in 2000 had been sprayed down into the windways, filling in nicking and coating languids and lower lips with an unwelcome layer of crud. Our front pipe work was accompanied at all times by moderate sweat and considerable *sotto voce* profanity.

Inside pipes were in some ways easier because they were smaller, but there were also many more of them. A few had to be completely remade; a hundred or so more received careful corrective voicing to match their untouched neighbors; a few hundred more required little apart from cleaning, re-prepping, and normal regulation for tone, power, and speech. The final result is as much a testimony to Möller's original pipemaking and voicing as to our care in resurrecting them.

Have the results repaid our efforts? On the one hand, it is not too much to say that Möller Opus 188 is once again mechanically reliable and tonally impressive, with a richness and versatility that compare favorably with the best of New England work from the period. As restorers, we are exceptionally proud of this magnificent pipe organ we have labored to bring back to life. On the other hand, ours is admittedly the pride of parents, or at least foster parents, and thus similarly subjective. The final assessment must rest with history, which will be informed by countless organists who have yet to experience this remarkable and historic instrument. We therefore encourage all interested readers to visit Zion's Lutheran Church, to play and listen, and to decide for themselves. Especially we invite you to share with us your reactions and impressions. ■

Möller Opus 188 (1897)

Zion's Lutheran Church, East Germantown, Indiana

GREAT (Manual I, 61 notes)

8′	Open Diapason	(1–6 zinc inside, 7–16 zinc in façade, rest spotted metal inside, slotted to #49)
8′	Doppel Flute	(stopped wood: 1–12 single mouth, 13-49 double mouth; rest normal open wood)
8′	Dulciana	(1–4 stopped wood inside, 5–12 zinc in façade, rest open spotted metal, slots to #49)
8′	Gamba (TC)	(13–61 open spotted metal inside, slotted to #49)
4′	Octave	(1–4 zinc in façade, 5–7 zinc inside, rest spotted metal inside, slotted to #42)
2⅔′	Twelfth	(spotted metal, slotted to #37)
2′	Fifteenth	(spotted metal, slotted to #37)

SWELL (Manual II, enclosed, 61 notes)

16′	Bourdon Bass	(1–12 stopped wood outside Swell box)
16′	Bourdon Treble	(13–61 stopped wood inside Swell box)
8′	Violin Diapason	(1–12 stopped wood; 13–61 open spotted metal, slotted throughout)
8′	Gedeckt	(1–61 stopped wood)
8′	Aeoline	(1–12 stopped zinc; 13-61 open spotted metal, slotted throughout)
4′	Violina	(1–6 open zinc, slotted; 7–61 open spotted metal, slotted to #49)
4′	Harmonic Flute	(1–6 zinc, 7–24 spotted metal, open and slotted to #24; harmonic from #25)
8′	Bassoon (bass)	(1–12 double taper, zinc stems and spotted metal bells)
8′	Oboe (treble)	(13–49 double taper, zinc stems & spotted metal bells to #24, 25–49 spotted metal stems & bells, 49–61 open spotted metal flues)

PEDAL (30 notes)

16′	Bourdon	(1–30 stopped wood)
8′	Flute	(1–30 open wood)

COUPLERS

Great to Pedal
Swell to Pedal
Swell to Great

ACCESSORIES

Swell expression shoe
Swell Piano and Forte pedals
Great Piano and Forte pedals
Bellows Signal (now On/Off switch)

Special thanks to Fritz Noack, Christopher Sedlak, and Timothy McEwan.

Restorers of the Organ

Joey Jarboe
Caleb Ringwald
Nicholas Ringwald
Paul Rathke
Michael Rathke

A native of Indiana, Michael Rathke received his early organbuilding training with Goulding & Wood, Inc. He subsequently served a formal five-year apprenticeship plus a further two journeyman years with C.B. Fisk, Inc. In 2002 he traveled to England to work with Mander Organs, assisting with the refurbishment of the 1871 Willis organ in London's Royal Albert Hall and the restoration of the 1766 George England organ at the Danson Mansion in Kent. Upon his return to the United States in 2004, Rathke established his own workshop, where his focus continues to be the building, restoration, and conservation of fine mechanical-action instruments.