

Organ Design and the Kraft Music Hall

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What do Miracle Whip® and Velveeta® have to do with stop lists and pipe scaling? Not much. I am thinking more about Robert Armbruster's magnificent NBC studio orchestra that played so brilliantly on the *Kraft Music Hall* in the late 1940s. His aggregation stretched versatility to the maximum. In addition to the usual theme, signature, and background music, he had to accompany Nelson Eddy and Dorothy Kirsten in arias from grand opera, art songs, favorites from operetta and musical comedy, as well as popular melodies of the day. The orchestra had to perform overtures and other legitimate repertoire on the same airwaves as the NBC Symphony and also make a good showing against popular orchestra leaders such as Paul Whiteman. All of this was done within the confines of a modest-size studio and the well-controlled budget of a broadcast that had to pay its own way. Does this sound familiar to those involved in planning for a church pipe organ? To me, it is directly analogous to the age-old quest of providing cathedral music in a parish church setting. Getting the most out of a limited number of stops has been a fascinating challenge and, when successful, a point of great pride for organ builders over centuries.

How did Robert Armbruster and his many colleagues in the fields of broadcast, motion picture, phonograph recording, and theater music bring the grandeur of the symphony orchestra to their audiences when budget and space were limited? It seems quite obvious that they analyzed the major effects produced by the full symphony orchestra and developed patterns of reduced instrumentation that captured the most important ones. A typical radio orchestra of the day might be composed of two flutes (one doubling piccolo), two clarinets (one doubling bass clarinet), one oboe (doubling English horn), one bassoon, two horns, three trumpets, two trombones, one tuba (bell-front recording type), one harp, two percussion (one traps, one tympani and mallets), eight violins, three violas, three 'cellos, and two basses. Sometimes for popular music two or three of the woodwind players would double saxophone. Piano (doubling celesta) and guitar might also be added. These jazz effects were strictly secondary. The orchestra was expected to sound symphonic, and did so at less than one-third the size of a full symphony orchestra.

The string section in such an orchestra was just large enough to create a rich, full and luxurious sound. At least one of every woodwind tone color was represented. The brass section was larger than necessary to balance the number of strings and winds; however, it was vital to have brass power in reserve to provide the climactic crescendo that could not come from other choirs of the orchestra without far more players. In other words, brass was dominant in the tutti. Solid, powerful bass is an important component of the symphony orchestra, and the tuba was often more important in the role of doubling the string basses than in playing the bottom brass line.

Of course a cleverly worked out list of instrumentation is not nearly enough. Each instrumentalist must be capable of producing exquisite tonal color and have absolute control of dynamics, attack, accent, and release. I don't know of any effect more thrilling in music than hearing one of these great Hollywood orchestras performing at the height of the mid-century period when art music was considered appropriate as mass commercial entertainment. The world's greatest musicians were gathered in Hollywood. They played with a degree of self-confidence and authority that elevated these rather modest ensembles into the major leagues.

Many organ builders, ourselves included, strive to produce small organs which do big musical jobs. Our choir organs in the French Romantic style and *Multum In Parvo* (much from little) parish church organs in the English style have captured the essence of comprehensive church organs in extremely small formats. A few years ago we set out to expand this concept with an effort to produce the major effects of the symphonic organ with a limited number of stops. It was conceded for decades that an organ could not be considered symphonic unless it had at least three manuals and 50 or so stops and those who advocate giant instruments—the bigger the better—would scoff at considering anything under 100 ranks symphonic. We came to the conclusion that much of the material in large symphonic organs, although sumptuously beautiful, was duplicative. But even after eliminating duplications, a symphonic stop list was far too large for the average church. We decided to follow the *Kraft Music Hall* model—analyze the major effects of symphonic organs and see if they could be reproduced in miniature. Obviously it would require more than just a few stops, but we felt that the job could be done with less than twenty.

Before going further one might question the practical value of this exercise. It is our belief that for most churches the organ can only earn its way if it has enough variety and tonal color and a wide enough dynamic range not only to accomplish the nearly impossible list of church musical jobs, but to prevent boredom from setting in among both musicians and listeners over time. Instruments dedicated entirely to the organ solo repertoire, which is the common approach in small designs, fall short in their ability to do the jobs that most congregations want accomplished. For most churches an organ of symphonic character is the ideal—they want versatility, musical leadership, and emotional connection. But they usually want these in a modest size building and on a budget. So aside from the pure pleasure of solving a musical puzzle, we had a good reason to build the smallest symphonic organ we could. We got our first opportunity in the exceptionally beautiful chapel of the First Presbyterian Church of Spartanburg, South Carolina. Our first task was to delineate the major effects of the larger symphonic organs:

Tonal Qualities

1. Unison diapason tone of at least two different colors and dynamic levels with chorus work suitable to each.
2. Flutes of vividly differentiated tone color including one powerful, open solo flute.
3. Two celeste stops: a pair of genuine orchestral strings, and a pair of soft ethereal voices. Most small organs rely on one compromise celeste pair to do these two very different jobs. Such stops usually tend toward flute or diapason tone. Although they may be attractive, they do not elevate an instrument into the symphonic class. Keen strings are absolutely necessary, but so are the less assertive, dolce tones. Both should be represented, and the string pairs should be full-compass to low C.
4. Color reed tone useful in both solo and accompaniment roles.
5. Heroic chorus and solo trumpet tone. In smaller acoustics, power is best achieved with unison tone of great intensity—not loud, high-pitched mixture tone. The proper character is usually achieved through high wind pressure reeds.

6. Powerful Pedal bass. The symphonic organ has representatives of each tone color in the Pedal department. A Bourdon is not enough; there must also be open flue tone and reed tone to provide clarity, point, and drama. If possible, 32' tone should be included.

Control Elements

7. Effective expression. A symphonic organ must be able to produce a crescendo from *ppp* to *fff*. It also should be able to produce full organ chorus effects at less than full organ volume. Part of this has to do with the proper terracing of voices, but solid expression boxes with responsive shades are vital, too.
8. Contrasting expression. There must be at least two divisions under expression for an organ to start claiming symphonic status. In a small instrument as many voices as possible should be under expression. In the symphonic concept, unexpressive voices are a luxury normally reserved for large instruments. In some cases layout demands that certain voices be unexpressive, for example where the Swell must be behind the Great, but this should be an exception.
9. Precise, responsive, silent, lightning fast key and stop actions and a steady wind system.
10. A comfortable console well equipped with playing aids.

Comparing the lists of orchestral instrumentation and organ stops, let us consider what are the most essential elements of each in addition to the bedrock string and brass sections of the orchestra and the comparable diapasons and chorus reeds of the organ. In other words, what special sounds and effects elevate the orchestra and the organ to the symphonic class or, put more simply, make a small ensemble sound big. In the orchestra, French horn, harp, tympani, and solid bass are vital. In the organ the key elements are real strings, a big solo flute, an heroic solo trumpet and also powerful, clear bass. In the orchestra, players must have absolute control over their instruments or else the conductor will not be able to create grand effects from limited instrumentation. In the organ, the key and stop action, wind system, expression system, and console must be perfectly responsive for the organist to be able to lift the organ to the symphonic level. Just as each member of the orchestra must have developed a beautiful and distinctive sound, so the voicer must give his pipes definite character and beautiful tone.

First Presbyterian Church, Spartanburg, South Carolina

Now let's review the Spartanburg organ stop list to see how it fulfills the symphonic ideal. The Great and Swell each have independent diapasons. The name Salicional may be a bit misleading to those who consider it a member of the string family. We use that name (and the name Dulciana) to indicate stops of the echo diapason class, which is characterized by pure diapason tone of moderate to low power. This nomenclature is quite common on British and continental Romantic organs. On the Great, the 8' Open Diapason is complemented with an independent 4' Principal that is quite narrowly scaled in the bass and tenor progressing upward to more nearly match the scale of the Diapason in the high treble. The Principal is rich in harmonics providing a simple, but quite satisfying chorus effect that also works well with the super coupler. The chorus of the Great is completed with a Mixture. Although it is often very useful, particularly in a small scheme to specify an independent Twelfth and Fifteenth instead of a Mixture, the unique tone color provided by a compound stop is essential to the symphonic ensemble. It is comparable to the difference between a three-violin

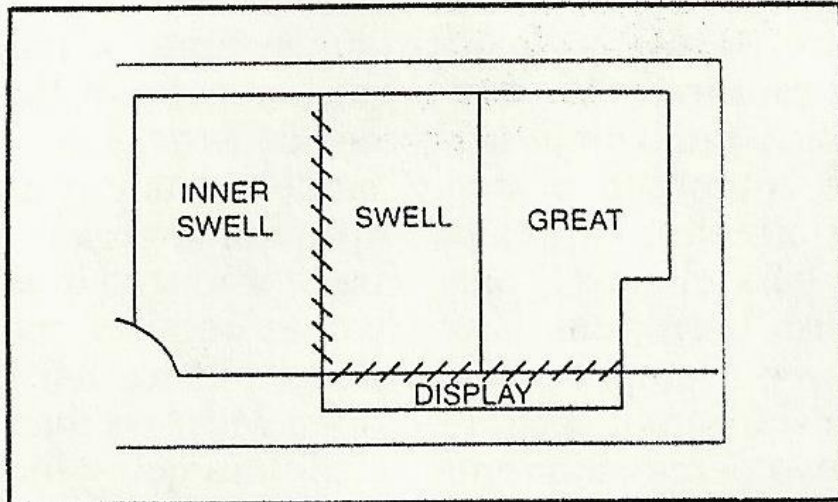
section in a salon ensemble and eight violins in a small symphonic orchestra. In a scheme of only 12 voices it is impossible to have an independent diapason chorus in the Swell, but the unification of a small scale echo diapason makes a very convincing substitute, especially when the Stopped Diapason is included to provide additional unison weight. Unification works best when it is substituting for stops that would not have a very great scale difference if they were straight. In general, the smaller the unison scale the less difference there would be in its octave and fifteenth. Therefore, the Salicional is a good candidate for such treatment.

This organ has four distinctly different flute tones. The 8' Stopped Diapason is of wood with pierced stoppers from middle C producing a colorful but also solidly fundamental sound. The 4' Chimney Flute is an excellent companion, being of extremely small scale with a light, buoyant and lyrical tone. Its 2 $\frac{2}{3}$ ' unification adds interesting solo colors. The Corno Dolce of the Great is a moderate scale open flute with a $\frac{1}{4}$ taper. The Harmonic Flute is a powerful solo voice which ascends in power up the scale. It also adds significantly to the foundation of the Great.

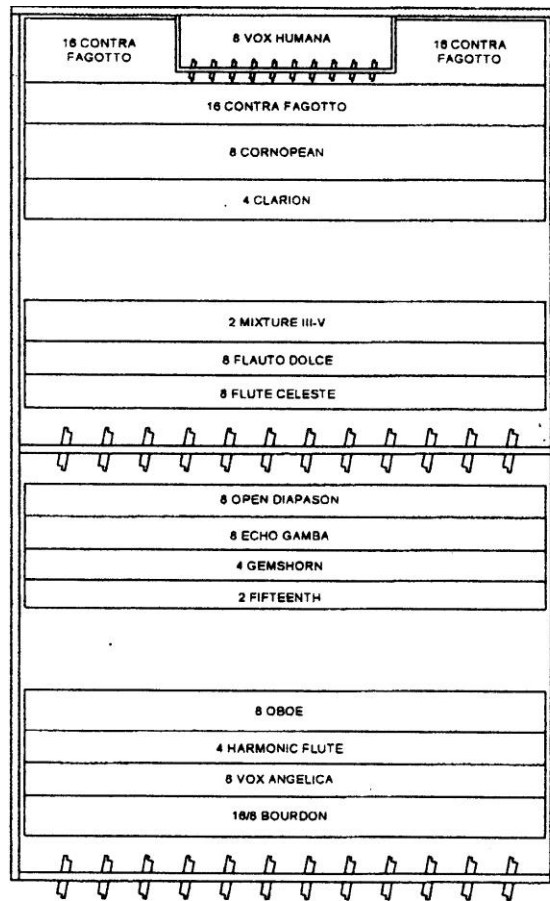
Genuine orchestral string tone is provided by the Vox Celeste (II). These are narrow scale strings of exceptionally keen intonation. The contrasting undulating effect is provided by the Flute Celeste which is paired with the Corno Dolce. It has a smooth, ethereal character with just enough edge to add distinct point to accompaniment lines and, with its celeste, to make a heavenly effect leading into the more pungent strings. It can be drawn on the Swell at both 8' and 4' pitches as a means of beginning the Swell build-up. Introduction of the Vox Celeste (II) with swell box closed is hardly noticed when it is preceded by the Flute Celeste at 8' and 4' pitch, the Great box having been opened. Although to many it would seem to be an impractical luxury to extend the Swell Vox Celeste to 8' pitch and also include an ethereal celeste on the Great, we believe that it is one of the basics for the symphonic effect.

For a color reed in this instrument we selected a Flügel Horn—truly a chameleon among stops. It sounds like a small scale or muted trumpet. In certain registers, especially when doubled by a flute, it can produce a French Horn character, and it also serves all of the traditional accompaniment and solo roles of the Oboe. E.M. Skinner often preferred a Flügel Horn in place of an Oboe on small stop lists because of its versatility. The color reed was placed on the Great both to provide mild chorus reed character for that division and so that it can be accompanied by Swell voices.

Chorus reed tone is provided by the Tuba Minor. Traditionally, the name tuba is applied to trumpets or trombas of exceptional power. The trumpet-type is brilliant, singing and bell-like in its tone while the tromba-type is darker, more sonorous and smoother. The tuba in this instrument is definitely of the trumpet class. It is voiced on 8" of wind pressure and is enclosed separately within the Swell box producing double the normal dynamic range. Its shades are kept partially closed when it is serving in the role of a standard chorus trumpet. When its shades are closed it can play the part of a color reed, the volume level being like that of an oboe. When its shades are fully open this stop takes on an heroic character suitable for trumpet tunes, fanfares, and the like. When played on the Swell manual at 16' and 8' with the super coupler, it provides a thrilling *full Swell* effect.



Schoenstein double expression on a small scale



Schoenstein double expression on a large symphonic organ

It is unusual in an organ of this size to include three 16' Pedal stops, but these are vital if the organ is to be lifted out of the small organ class. A normal 16' Bourdon is augmented by the 16' Corno Dolce which is scaled so as to produce a very prompt-speaking clear and firm bass. It has a reduced scale in the bottom two octaves to produce the kind of bite one hears from the orchestral double bass. The profundity of the Pedal comes from the full length 16' extension of the Swell Tuba.

All of the voices of this organ are under expression. The Great and Swell are located next to one another and speak into the chapel through a ceiling grill. Swell shades open nearly 90° and are operated by a powerful, fast electric-pneumatic motor. It would be impossible to create a symphonic caliber dynamic range on an organ of this size without at least one powerful stop under double expression. Described above, this device increases the organ's dynamic range from *mp* to *pp* and at the other end of the spectrum from *ff* to *fff*.

The action system employs the Schoenstein individual valve Expansion Cell wind chest and the wind system uses five separate regulators to provide absolutely steady wind of adequate capacity and appropriate pressure. The console includes a solid state capture combination action with 16 memories and our Range feature which permits the organist to program pistons to be either generals or divisionals in any combination desired.

This organ has proven to be versatile far beyond what one would expect of a 12-voice scheme. In the context of a modest-sized room, the organ is truly symphonic in character and has proven itself capable of playing most of the standard organ repertoire as well as sophisticated choir accompaniments and service music. The main characteristic that separates it from other organs of its size is the number of tone color possibilities and the impressive dynamic range. It is capable of a sustained uninterrupted crescendo from *ppp* to *fff* providing a sense of grandeur that is seldom heard even in instruments much larger. This also means that it has met the goal of any good accompanimental organ design: to have a variety of tonal colors available at any volume level the conductor desires.

SCHOENSTEIN & Co.
FIRST PRESBYTERIAN CHURCH
SPARTANBURG, SOUTH CAROLINA
CHAPEL ORGAN
Two Manual and Pedal Organ
12 Voices – 15 Ranks
Electric-Pneumatic Action

GREAT (Expressive)

- 16' **Corno Dolce** (12 Pipes)
- 8' **Open Diapason**
- 8' **Harmonic Flute** (Cor. Dolce Bass)
- 8' **Corno Dolce**
- 8' **Flute Celeste** (TC)
- 8' **Voix Celeste** (II - Swell)
- 4' **Principal**
- 4' **Corno Dolce** (12 Pipes)
- 2' **Mixture** (III)
- 16' **Flügel Horn** (TC)
- 8' **Flügel Horn**
Tremulant
Chimes (TA)



Console, First Presbyterian Church,
Spartanburg, South Carolina

SWELL (*Expressive*)

16' Bourdon (*Wood - 12 Pipes*)
 8' Salicional (*Stopped Diapason Bass*)
 8' Stopped Diapason (*Wood*)
 8' Voix Celeste (*II*)
 8' Flute Celeste (*II - Great*)
 4' Salicet (*12 Pipes*)
 4' Chimney Flute
 4' Flute Celeste (*II - Great*)
 2 $\frac{2}{3}$ ' Nazard (*From Chimney Flute*)
 2' Fifteenth (*12 Pipes*)
 16' Bass Tuba† (*12 Pipes*)
 8' Tuba Minor†
 Tremulant
 †In separate box inside Swell, 7 $\frac{1}{2}$ " wind

PEDAL

16' Corno Dolce (*Great*)
 16' Bourdon (*Swell*)
 8' Open Diapason (*Great*)
 8' Corno Dolce (*Great*)
 8' Stopped Diapason (*Swell*)
 4' Octave (*Great Open Diapason*)
 16' Bass Tuba (*Swell*)
 8' Tuba Minor (*Swell*)
 4' Flügel Horn (*Great*)

Full couplers and usual accessories.

University of St. Thomas, Houston, Texas

Our next opportunity to test this concept came at the University of St. Thomas in Houston. We were especially honored to work with architect Philip Johnson in designing an instrument for his striking chapel of St. Basil. The building promised an outstanding acoustic and perfect placement, which enabled us to work on a slightly larger format. Since there was to be a display pipe façade, we added an unenclosed First Open Diapason to the Great that is extended into the Pedal providing a fourth 16' Pedal stop on this 15-voice instrument. At the request of our client, we substituted a Clarinet for the Flügel Horn. Although we gave up the mild secondary chorus reed tone character of the Flügel Horn, we gained a color of more contrast with the Tuba. In the Swell we added a unified echo principal mutation at 2 $\frac{2}{3}$ ' and 1 $\frac{1}{3}$ '. This stop is scaled to balance with the Salicional and augment the organ's secondary chorus as well as provide several options for additional color. The most significant change was to place the keen orchestral strings on high pressure in the secondary Swell expression box along with the Tuba. This is a great advantage for it allows the strings to be muted to various volume levels to serve in more accompaniment roles. Obviously, the build-up of celeste tone is quite enhanced. This also illustrates the value of the opportunity to work with an architect in designing an ideal organ space. In Spartanburg there was no way to enlarge the double expressive box, but in Houston we could tailor-make the space to suit the optimum tonal design.

SCHOENSTEIN & Co.
CHAPEL OF ST. BASIL
UNIVERSITY OF ST. THOMAS
HOUSTON, TEXAS
 Two-Manual and Pedal Organ
 15 Voices – 17 Ranks
Electric-Pneumatic Action

GREAT (*Expressive*)

16' Corno Dolce (*12 Pipes*)
 8' First Open Diapason†
 8' Second Open Diapason
 8' Harmonic Flute (*Corno Dolce Bass*)
 8' Corno Dolce
 8' Flute Celeste (*TC*)
 8' Salicional (*Swell*)
 4' Principal
 2' Mixture (*III*)
 8' Clarinet
 Tremulant
 †In display

SWELL (Expressive)

16' Bourdon (*Wood - 12 Pipes*)
 8' Salicional
 8' Stopped Diapason (*Wood*)
 8' Gamba†
 8' Gamba Celeste†
 8' Corno Dolce (*Great*)
 8' Flute Celeste (*Great*)
 4' Salicet (*12 Pipes*)
 4' Chimney Flute
 4' Corno Dolce (*Great*)
 4' Flute Celeste (*Great*)
 2²/₃' Twelfth (*TC - From Nineteenth*)
 2²/₃' Nazard (*From Chimney Flute*)
 2' Fifteenth (*12 Pipes*)
 1¹/₃' Nineteenth
 16' Bass Tuba†
 8' Tuba Minor†
 Tremulant
 †In separate box inside Swell, 7½" wind.

PEDAL

16' Diapason (*Extend 1st Open Diapason*)
 16' Corno Dolce (*Great*)
 16' Bourdon (*Swell*)
 8' Open Diapason (*Great Second Open*)
 8' Corno Dolce (*Great*)
 8' Stopped Diapason (*Swell*)
 4' Octave (*Great First Open*)
 4' Flute (*Great Harmonic Flute*)
 16' Bass Tuba (*Swell*)
 8' Tuba Minor (*Swell*)
 4' Clarinet (*Great*)

Full couplers and usual accessories.

Grace United Methodist Church, Greensboro, North Carolina

Our next instrument along these lines at Grace United Methodist Church in Greensboro, North Carolina, provided a real challenge in placement. Although the side chancel chamber was of adequate size, the opening only spanned about half of it and could not be enlarged. This meant that the Great would fill the opening and that the tone of the Swell would have to speak across the Great and make a 180-degree turn to reach the nave. Obviously we could not enclose the Great, so we cut it back to the bare essentials and built up the Swell, duplexing several of its stops on to the Great. This plan was used with great success by E.M. Skinner in his small schemes. The Harmonic Flute, with its ascending increase in treble power, is one of the few solo voices that can work well unenclosed. Since the Corno Dolce and Celeste had to be in the Swell in order to be under expression, there was no room for its 16' extension, and the Harmonic Flute had to have its own bass. We have often noted the interesting musical quality of the orchestra's traverse flute, which changes to a distinctly string quality in its lowest range resulting from the tube of the flute being the same scale for its entire compass, and we decided to extend the Harmonic Flute into a string-scale bass stop at both 16' and 8' pitch. We reduced the diameter of the pipes as they progressed downward so that the tenor and bass of the Harmonic Flute is distinctly in the string family—enough so to name the extensions 'Cello and Double Bass.

The Great chorus, being unexpressive, required special treatment. An independent 2' Fifteenth completes the chorus, but Mixture tone is also necessary. In an organ of this size, Mixture tone is most useful when it is under expression, so we increased its size and power, placing it within the double expressive sub-division of the Swell. Used with the tuba it adds brilliance to the *full Swell* build-up. Used alone it can be adjusted to various different volume levels to suit lesser Swell combinations. In full organ combinations, when coupled to the Great, it tops off the diapason chorus. After seeing the utility of four 16' Pedal stops in Houston, we wanted to do the same here. Fortunately the chamber was large enough to include a 16' extension of the Great Open Diapason. Since the stop did not have to be on display, we were able to make it of wood which yields a very solid, prompt-speaking tone.

Because this organ replaced an older instrument which had a very nice Vox Humana on its own chest, we were able to include this luxury economically. Being in the double expressive section adds to its exotic effect.

SCHOENSTEIN & CO.
GRACE UNITED METHODIST CHURCH
GREENSBORO, NORTH CAROLINA
 Two-Manual and Pedal organ
 16 Voices – 19 Ranks
 Electric-Pneumatic action

GREAT

16' **Double Bass** (*Pedal*)
 8' **Open Diapason**
 8' **Harmonic Flute** (*'Cello Bass - 29 Pipes*)
 8' **Stopped Diapason** (*Swell*)
 8' **Corno Dolce** (*Swell*)
 8' **Flute Celeste** (*Swell*)
 4' **Principal**
 2' **Fifteenth**
 8' **Tuba** (*Swell*)

SWELL (*Expressive*)

16' **Bourdon** (*12 Pipes*)
 8' **Salicional**
 8' **Stopped Diapason** (*Wood*)
 8' **Gamba**†
 8' **Celeste** (*GG*)†
 8' **Corno Dolce**
 8' **Flute Celeste** (*TC*)
 4' **Salicet** (*12 Pipes*)
 4' **Chimney Flute**
 2½' **Nazard** (*From Chimney Flutes*)
 2' **Fifteenth** (*12 Pipes*)
 2' **Mixture IV**†
 16' **Bass Tuba**† (*12 Pipes*)
 8' **Tuba**†
 8' **Flügel Horn**
 8' **Vox Humana**†
 Tremulant
 †*In separate box inside Swell,*
Vox in separate control box

PEDAL

16' **Open Diapason** (*12 Pipes*)
 16' **Double Bass** (*12 Pipes*)
 16' **Bourdon** (*Swell*)
 8' **'Cello**
 8' **Salicional** (*Swell*)
 8' **Stopped Diapason** (*Swell*)
 4' **Flute** (*Great Harmonic Flute*)
 4' **Super Octave** (*Great Open Diapason*)
 16' **Bass Tuba** (*Swell*)
 8' **Tuba** (*Swell*)
 4' **Flügel Horn** (*Swell*)

Full couplers and usual accessories.

Grace Episcopal Church, Sheboygan, Wisconsin

Our next small symphonic organ was built for Grace Episcopal Church in Sheboygan, Wisconsin, an Anglo-Catholic parish that enthusiastically supports the highest traditions of Anglican music. The instrument was designed specifically to accompany the Anglican choral service. This musical emphasis combined with space restrictions in the small gallery dictated some variations on the symphonic theme. First, we substituted the Aeoline and Vox Angelica for the Corno Dolce and Flute Celeste. To make the absolutely smooth, unbroken build-up so beloved in this musical tradition, both celestes are in the string family. The Aeoline and Vox Angelica are keen but very delicate and blend perfectly into the powerful solo Gambas with both inner and outer shades of the Swell closed. Space and budget allowed the luxury of two color reeds so we could have our cake and eat it too with both Clarinet and Flügel Horn.

The lovely church lent itself to a Victorian Gothic façade with decorated front pipes. This, in turn, gave us the opportunity to put two Great stops in display—the first Open Diapason and Harmonic Flute with its 'Cello and Double Bass extension. These stops can be accompanied with stops in their own division by using the Enclosed Great to Swell coupler.

The Swell box was not large enough to include open 8' bass pipes; therefore, we provided two unison stops, an open wood Claribel Flute and our very small scale English-style Lieblich Gedeckt sharing a common bass. The Swell has an independent 4' Gemshorn (a tapered principal) and 2' Fifteenth along with principal scale Quint and Tierce mutations to complete its chorus.

Using pipes from the former organ gave us the luxury of two independent Pedal stops making a total of five 16' stops in a 20-voice organ! This yields a reed, an open wood, a moderate scale string, and two levels of bourdon tone, the extremely soft character of the enclosed Lieblich Gedeckt being helpful for accompanying the more delicate sounds of the organ.

SCHOENSTEIN & CO.
GRACE EPISCOPAL CHURCH
SHEBOYGAN, WISCONSIN
 Two Manual and Pedal Organ
 20 Voices – 23 Ranks

Electric-Pneumatic Action

GREAT (*Expressive*)

- 16' **Double Bass** (*Pedal*)
 - 8' **First Open Diapason**†
 - 8' **Harmonic Flute**† (*'Cello Bass*)
 - 8' **Second Open Diapason**
 - 8' **Aeoline**
 - 8' **Vox Angelica** (*TC*)
 - 8' **Lieblich Gedeckt** (*Swell*)
 - 4' **Principal**
 - 2' **Mixture** (*IV Ranks*)
 - 8' **Clarinet** (*TC*)
- †*In Display*

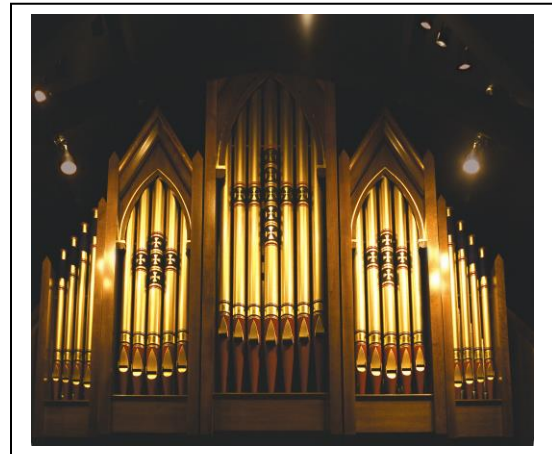
SWELL (*Expressive*)

- 16' **Lieblich Gedeckt** (*Wood - 24 Pipes*)
 - 8' **Gamba**†
 - 8' **Gamba Celeste** (*TC*)†
 - 8' **Claribel Flute** (*Lieblich Gedeckt Bass*)
 - 8' **Lieblich Gedeckt** (*Metal*)
 - 4' **Gemshorn**
 - 2½' **Twelfth** (*Nineteenth Treble- 12 Pipes*)
 - 2' **Fifteenth**
 - 1¾' **Seventeenth** (*TC*)
 - 1½' **Nineteenth**
 - 16' **Bass Tuba**† (*12 Pipes*)
 - 8' **Tuba Minor**†
 - 8' **Flügel Horn**
- Tremulant
 †*In separate box inside Swell, 10" wind*

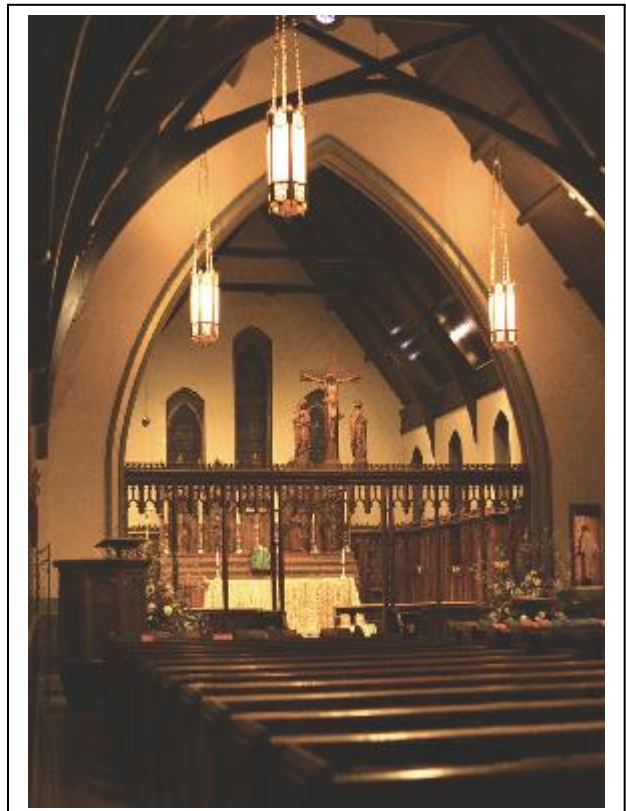
PEDAL

- 32' **Resultant**
- 16' **Open Wood** (*12 Pipes*)
- 16' **Bourdon**
- 16' **Double Bass** (*12 Pipes*)
- 16' **Lieblich Gedeckt** (*Swell*)
- 8' **Principal** (*Wood and Metal*)
- 8' **Octave** (*Great Second Diapason*)
- 8' **'Cello**
- 8' **Claribel Flute** (*Swell*)

GRACE EPISCOPAL CHURCH, SHEBOYGAN, WISCONSIN



GRACE EPISCOPAL CHURCH, SHEBOYGAN, WISCONSIN



- 4' **Fifteenth** (*Metal - 12 Pipes*)
- 4' **Flute** (*Great*)
- 16' **Bass Tuba** (*Swell*)
- 8' **Tuba** (*Swell*)
- 4' **Flügel Horn** (*Swell*)

Full couplers and usual accessories.

St. Paul's School, Brooklandville, Maryland

Our latest example was just completed for St. Paul's School in Brooklandville, Maryland. This large Episcopal school has an attractive, new, collegiate-style chapel. The organ is located in a chamber above the narthex providing plenty of room for a complete exposition of this style. It combines and expands upon the designs of the earlier organs. The only unenclosed stop is the Grand Open Diapason, the bass of which is wood located horizontally on the roof of the expression boxes. The 4' Chimney Flute and Tuba from the Swell are borrowed onto the Great. An Oboe is added to the Swell giving this scheme the two most basic color reed tones. Most important, however, is the provision for a true 32' stop extending to low G. Although this is not part of the initial installation, space is prepared.

SCHOENSTEIN & CO.

ST. PAUL'S SCHOOL

BROOKLANDVILLE, MARYLAND

Two Manual and Pedal Organ

18 Voices – 20 Ranks

Electric-Pneumatic Action

GREAT (*Expressive*)

- 16' **Corno Dolce** (*12 Pipes, Harmonic Flute Treble*)
- 8' **Grand Open Diapason**†
- 8' **Open Diapason**
- 8' **Harmonic Flute** (*Corno Dolce Bass*)
- 8' **Salicional** (*Swell*)
- 8' **Corno Dolce**
- 4' **Flute Celeste** (*TC*)
- 4' **Principal**
- 4' **Chimney Flute** (*Swell*)
- 2' **Mixture** (*III*)
- 8' **Tuba** (*Swell*)
- 8' **Clarinet**
- Tremulant
- †In display

SWELL (*Expressive*)

- 16' **Bourdon** (*Wood, 12 Pipes*)
- 8' **Salicional**
- 8' **Stopped Diapason** (*Wood*)
- 8' **Gamba**†
- 8' **Gamba Celeste**†
- 8' **Corno Dolce** (*Great*)
- 8' **Flute Celeste** (*Great*)
- 4' **Salicet** (*12 Pipes*)
- 4' **Chimney Flute**
- 4' **Corno Dolce** (*Great*)
- 4' **Flute Celeste** (*Great*)
- 2²/₃' **Nazard** (*From Chimney Flute*)
- 2²/₃' **Twelfth** (*TC - From Nineteenth*)
- 2' **Fifteenth** (*12 Pipes*)
- 1³/₅' **Seventeenth** (*TC*)
- 1¹/₃' **Nineteenth**
- 8' **Oboe**
- 16' **Bass Tuba**† (*12 Pipes*)
- 8' **Tuba**†
- Tremulant
- †In separate box inside Swell, 10" wind.

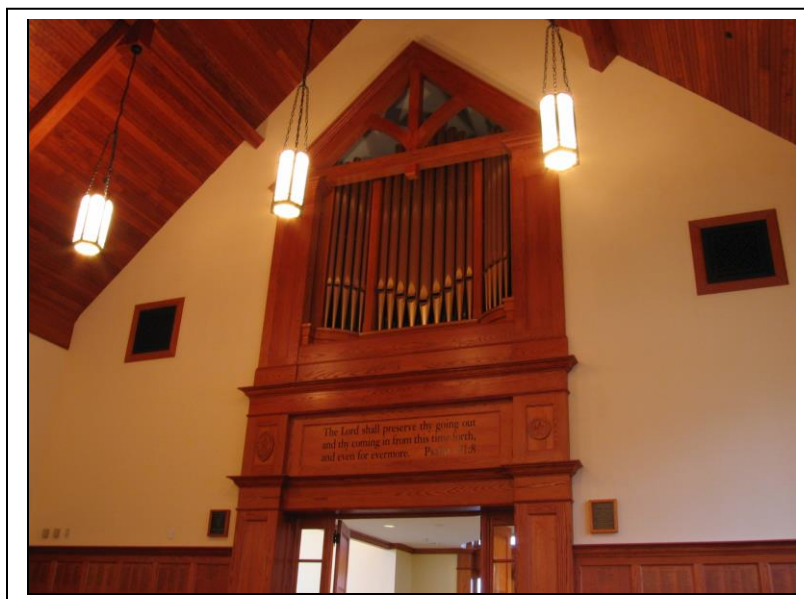
PEDAL

- 32' **Resultant**† (*Sub Bass and Bourdon*)
- 16' **Double Open Diapason** (*12 Pipes*)
- 16' **Sub Bass**
- 16' **Corno Dolce** (*Great*)
- 16' **Bourdon** (*Swell*)
- 8' **Open Diapason** (*Great Grand Open*)
- 8' **Flute** (*Great Harmonic Flute*)
- 8' **Salicional** (*Swell*)
- 8' **Stopped Diapason** (*Swell*)
- 4' **Octave** (*Great Grand Open*)
- 4' **Flute** (*Great Harmonic Flute*)
- 16' **Bass Tuba** (*Swell*)
- 8' **Tuba** (*Swell*)
- 4' **Clarinet** (*Great*)

†Prepared for addition of 32' pipes.

Full couplers and usual accessories.

St. Paul's School, Brooklandville, Maryland



A review of these five stop lists shows that although musical, acoustical, and placement considerations must be taken into account if each installation is to reach its maximum potential, a basic design concept adhering to specific design criteria can be maintained. Our objective with each of these jobs was to preserve the symphonic character that was so attractive to our clients as they auditioned similar instruments and at the same time tailor a design to meet their requirements and space restrictions. This is the continuing fascination and challenge of organ design. The satisfaction derived from it is quite similar to the exhilaration an orchestrator feels when his work has yielded a sound that should only come from an orchestra two or three times as large. I'll bet Robert Armbruster enjoyed the playbacks of his *Kraft Music Hall* performances with the same relish we experience on hearing fine artists play one of these miniature symphonic church organs.

Jack M. Bethards is President and Tonal Director, Schoenstein & Co. Organ Builders. A San Francisco Bay Area native, he holds Bachelor's and Master's degrees from the University of California at Berkeley. He has been a professional musician and is currently active in the American Guild of Organists. He is past president of the Associated Pipe Organ Builders of America and member of the American Institute of Organbuilders, the International Society of Organbuilders, the Organ Historical Society and the Association Aristide Cavallé-Coll. He serves on the advisory boards of several organ preservation societies. In his 43 years of pipe organ work and research, Mr. Bethards has been a frequent lecturer and contributor of articles to professional journals. A major thrust of his study, including work abroad, has been Romantic organ building in France, Germany, England and America.

Schoenstein & Co. is the oldest and largest organ factory in the Western states. The Schoenstein family has been building instruments for five generations. The firm was started in the Black Forest of Germany in the mid-19th century and in 1877 in San Francisco. In addition to organ building, Schoenstein & Co. does restoration work specializing in historic organs including the Salt Lake Mormon Tabernacle Aeolian-Skinner organ.