Hope-Jones at 35. Photo was made during his Birkenhead period and is, to the best of our knowledge, seen here in print for the first time. It was given to Lee Haggart by Jim Nuttall.

Homage to . . .

Robert Hope-Jones

PART I

by Stevens Irwin

ROBERT HOPE-JONES (1859-1914) was the Creator of the Theatre Organ. His genius never failed him because he was able to think in terms of both the mechanical and artistic at the same time. He conceived a whole new system of electrical control for the organ, which Mozart so graciously called the *King of Instruments*, and he redesigned every stop he used so that it became a highly colorful and individualized timbre.

Admittedly, he was more interested in *tonality* as a thing in itself than in formal patterns of notes in the music, but he relieved us from hearing so many nondescript Diapasons and Flutes and monotonous Trumpets and Oboes, such as existed when he was a boy church organist.

He envisioned the organ sound as both a symphony orchestra and an organ, for he realized even in younger years that both styles of sound were needed to play the music of some five centuries, from 1473 to the present, since many of his ranks of pipes are still being used, even in church organs.

The tones he created were not the first to be imitative of instruments. He and his talented voicers were able to add warmth to William Thynne's Viols and Violas, smoothness and body of tone to Henry Willis' Tubas and Cornopeans, and true expressiveness to percussions. He changed the ancient keyed wooden Serpent into the louder reedy, brassy Ophicleide. To the or-

HOMAGE TO ROBERT HOPE-JONES
by Stevens Irwin

Much has been written about Robert Hope-Jones. To the conservative organ authorities of his time his tonal and mechanical innovations often seemed like sacrilege performed against the beloved instrument as they knew it. Others were open-minded and curious to hear or try his radically different instrument. In the days when the Hope-Jones concepts were new, there was no middle ground; the cognizant organ enthusiast was either for him or agin' him. Hindsight has vindicated Hope-Jones. Many of his innovations are used by latter day builders of straight organs, even those few to whom the word "unification" still has nightmarish aspects.

Author Irwin here outlines some of the developments in organ building brought about by the restless Englishman and his band of innovators. He has been careful to list the co-workers because the term "Hope-Jones" covers the work of more than two dozen progressive organ craftsmen who were attracted to the Hope-Jones banner because of the leader's interest in new and often revolutionary ideas in organ design.

Newcomers to the organ hobby will find this three-part commentary of special value because it will provide them with the background against which the name of the theatre organ's mentor looms large.

Editor

gan's Diapason, Chimney Flute, Gedeckt and Gemshorn he gave new timbres that seemed to say, "Listen to us; we sound as individuals now; we never were so distinctive before."

Robert Hope-Jones was the third son in a family of nine children; seven were boys. He was 20 years old at the height of the Victorian Era (in 1879). There were few symphony orchestras to be heard (we have over 900 in America today), yet Robert knew that major composers such as Berlioz, Schumann, Liszt, Mendelssohn, Vierne, Franck, and especially Widor thought out their compositions with the gentle sound of the orchestra in mind. These and many others sensed the continuum of tone heard when 50 or more woodwinds and strings "slid" gracefully from one note to the next, each with a slightly different timing. Some stated that they "heard" this singing quality in their thoughts even while they sat alone in their rooms and wrote notes on paper. The abrupt release of the tracker action organ with its lack of dynamic expression held no appeal for them. Hope-Jones set out to give them the musical sounds they desired.

Hope-Jones was not only versed in the theory of acoustics and electricity, he was also a most practical man. He once stated that his invention of very slender low-voltage magnets (one under each pallet-valve) and the use of two different precious metals as rubbing contacts came about without examination of other builders' actions. This alone is proof that he was able to sense the exact combination of elements needed to make Charles S. Barker's purely pneumatic-valve a success. Aristide Cavaille-Coll, Father Willis, and other builders had applied their own electric parts to it, but these were made from quite heavy machinery and required considerable voltage for operation. Cables were thick, many stop-actions utilized sliding strips of wood under pipes, swell shades were not electrically moved, and large pedal valves were still hard to open quickly. Hope-Jones also overcame key and switch contacts that oxidized quickly, low amperage from inefficient batteries, cables limited in length by their weight, and even pneumatic tubes that leaked. The Industrial Revolution's new materials and methods helped him.

Even in his own actions, for he made several kinds, he had to fight corrosion by atmospheric elements, not to speak of malicious persons who cut his wires. Another masterpiece of adaptation was his use of the *rotary* forge blower driven with an electric motor first introduced at St. Cuthbert's church, Edinburgh, in 1896. From then on it was possible for organists to have sufficient quantity or pressure of wind, nor were organs again limited in size due to a limited wind supply. Majesty of tone from Diapasons and the dignity of a deep pedal bass now came forth from the shadowy chambers. No longer need the organist limit his practice to times when a "pumper" was available, or depend on many sorts of hydraulic blowers. Later in his career he used a special type of turbine (not fan) blower to raise the 50-inch pressure for his Solo Tuba in the 14-rank Ocean Grove, New Jersey, opus. This unbelievable sound, heard by the writer in mid 1920's, has since been revoiced on 25 inches.

Hope-Jones redesigned the windchest so that each pipe, however high up the scale, had its own valve and magnet. If his new unification system were to work, any pipe in the organ had to sound from any combination of key and stop-action. He invented the Sforzando Action, indicator lights, several types of pedal and manual pistons, and Suitable Bass pistons under each manual. With the latter a thrust of the thumb brought on pedal stops of proper timbre and loudness to match each manual combination then on. He made many other aids for the player, some of them on just one organ.

His Pizzicato Action seemed to "pluck" even sustained stops by releasing their valves about one-sixth of a second after contact, even though keys were held down. Like Second Touch, the stops affected were drawn on special controls. Typical were solo stops and couplers to bring other solo stops to the lowest (Accompaniment) manual, where this touch usually was, as a Tuba Sonora 8', Melophone 8', Post Horn 8', Cello II ranks 8', and Solo to Accompaniment coupler 8'. His tremolando-type action that imitated string players "strumming" across strings was never popular.

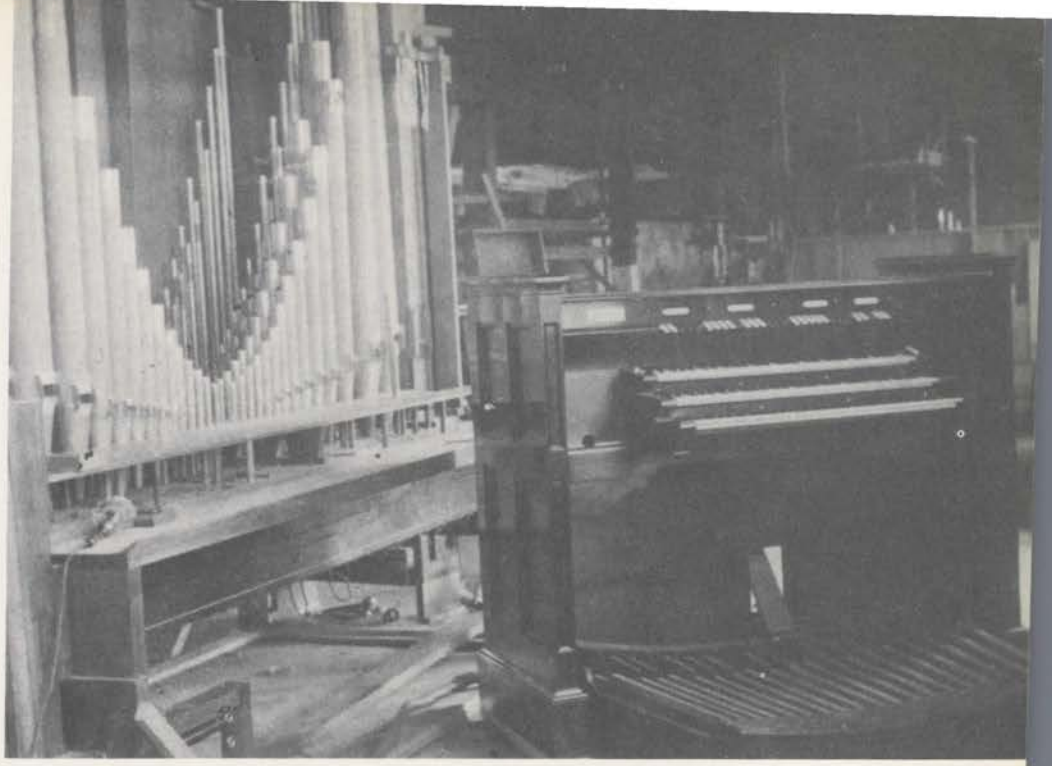
Other devices opened a swell shade slightly (or closed it) at each striking of a key. He applied electricity to the Crescendo Pedal and invented a separate electro-pneumatic motor to open and close each swell shade. He utilized bellows of every shape and size, each with its own magnet, to give flexible control to his remarkably individual ranks, as he saw each rank as a sort of instrument.

He was the Stradivarius of the Organ World. He did everything he could to make each rank a thing of great beauty. He thought in terms of

ranks, not whole divisions. He placed many on separate windchests with just the right pressure to bring out a style of tone and to make pipes sound efficiently. There is, after all, a direct relation of tonal results between wind pressure and size and shape of the air column as a thing in itself. Some ranks sat high up on stilts, others were right behind the shades, and still others were buried deep in concrete chambers, usually with shades high up on top, not always on the sides. And he understood the reflection patterns that sound waves follow; in one organ he made use of a masonry wall of great thickness to reflect sound upward against a wide, curved wooden roof. Here even the soft Dulciana Celeste can be heard clear to the back seats, and with shades closed!

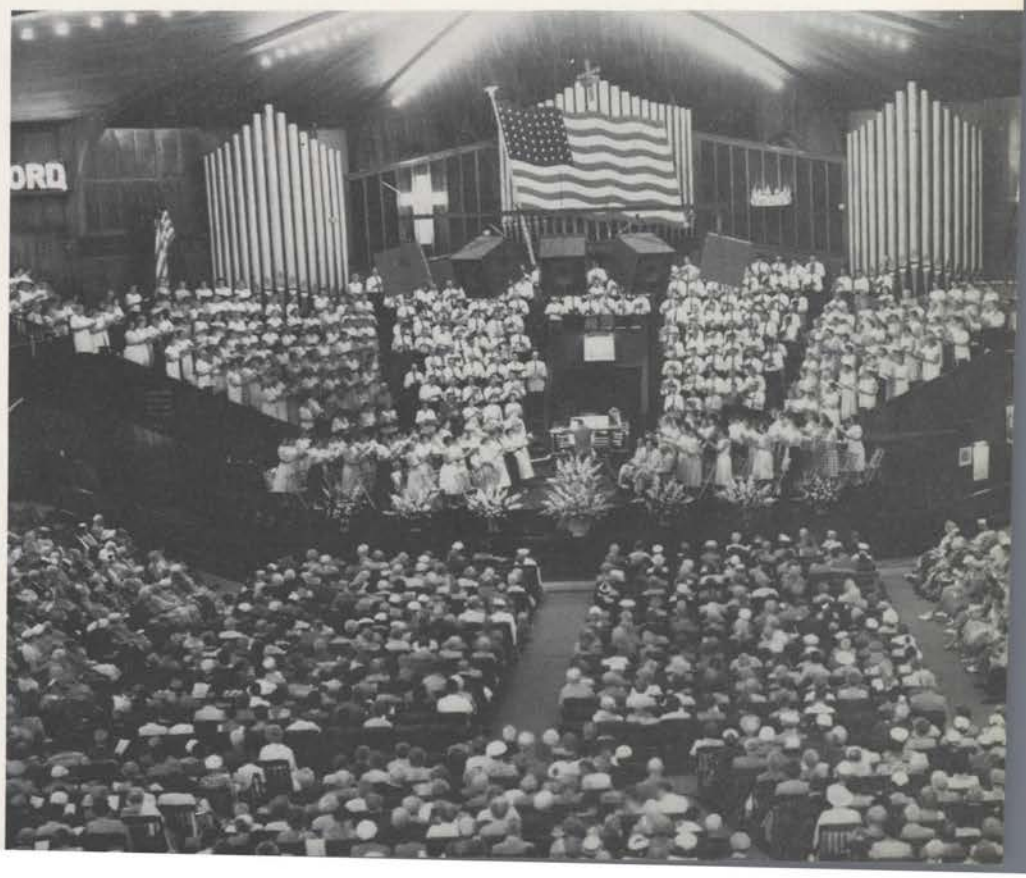
On the artistic side of the ledger he thought of each rank sounding in contrast to each other rank, even in the same swell chamber. Unlike the Classical (this term includes Baroque) organ, he contrasted an Oboe Horn with a Concert Flute, and a Diapason + Octave with a Trumpet. Because he was thoroughly orchestral in his instincts he built some of his later instruments so that Strings could fade, or dissolve, into Horn tone, and Trombas and Tubas could overwhelm Diapasons. No one fabricated a Dulciana more silvery than his, an Orchestral Oboe that sizzled with more high overtones, or a Muted Violin that showed off more "rosin." Yet he loved all sorts of Diapasons and other purely organ tones. He experimented with many sizes and dimensions of chimnies in order to make all sorts of combinations of odd and even-numbered harmonics, just from one stop. However, like most imitative stops in the organ, his were much louder than their counterparts in the orchestra. This was knowingly done so that under expression a Clarinet, for example, could sound like four ranks or a mere whisper of reedy timbre. Thus every stop might be a melody voice.

For his famous Viol d'Orchestre (as he spelled it) at Ocean Grove he provided a separate swell chamber and shades with a high-pressure tremulant. With its sharp and flat Celestes it sounds like many ranks, so great is the *phase-difference* due to summation and difference frequency propagation. With shades closed it is not only muted but entirely changed in quality. Along with the three Vox Humanas in



View of the Elmira factory erecting room, dated August 1909. The small organ being checked out was destined for Portland, Maine, according to Jim Nuttall's note on the back. — (Haggart collection)

The 14-rank organ Hope-Jones installed in the Ocean Grove auditorium in 1908 is a prototype of many of the builder's innovations, including the "unit system" of separating families of tone in swell chambers, higher wind pressure (up to 50"), unification, suitable bass, second touch, inclined manuals, all pipes enclosed (except the Diaphone), fast electro-pneumatic action, pizzicato touch and percussions. The problem of coastal moisture was overcome by building concrete chambers deep underground. Sound is conducted upward via large concrete ducts and poured into the auditorium by huge horn-shaped reflectors seen above. To increase conductivity the ducts were given several coats of enamel to provide a mirror-like surface. Swell shades were at the tops of ducts. To accommodate auditorium sponsors who expected to see pipes, impresario Tali Esen Morgan had wooden display pipes made and installed in time for Clarence Reynolds' dedication concert — much to Hope-Jones' amusement. The organ cost $26,000. Reynolds' rendition of "The Storm" was so realistic that concertgoers often jammed the exits to see if there was really a storm outside. The instrument has been rebuilt several times but most of Hope-Jones ideas have been retained. The console shown here is not the original, which was a horseshoe. Divisions are named Foundation, String, Wood, Brass and Percussion, each with its own swell pedal. The organ is still in use.



Hope-Jones' co-worker James Bolton settled in San Diego, Calif., and remained with organ work throughout his career. In this 1961 photo he is shown shortly after his retirement — but always ready to help hobbyists with the knowledge gained during a lifetime devoted to the organ.

Radio City Music Hall (on 6" wind) and the dazzling Serpent in the Los Angeles Wiltern Kimball, it deserves to rank with the greatest stops in the theatre world. And how great the contrast with the fair and band organs Hope-Jones heard in his youth! Some English churches then had barrel organs!

Our favorite builder did not bring forth any basic new forms of pipes. Even his Kinura had its origin in ancient Regals such as the Trommetenregal with inverted-conical tubes, albeit on much less pressure and with thinner tongues. Under his direction inventive and talented voicers — E. F. Lloyd, J. W. Whitely, Carlton Michell, J.C. Hele and James H. Nuttall — so completely redesigned pipes, resonators, shallots and reed-tongues as to make them speak entirely different qualities of sound. And he worked with all forms of pipes, making hybrid timbres such as his Oboe Horn, Horn Diapason, Diaphonic Diapason, and Quintadena Celeste, each of which resembled two qualities of timbre.

Was Hope-Jones influenced by the great French builder, Cavaille-Coll? After all, he traveled in the south of France in his early years. No less an authority than Stuart Kennedy of Calgary, Alberta, who has done much research on Cavaille-Coll, says that there is no reason to believe either builder influenced the other, even though they were contemporaries. Each maintained a high degree of individuality. Each was a genius in his own right.

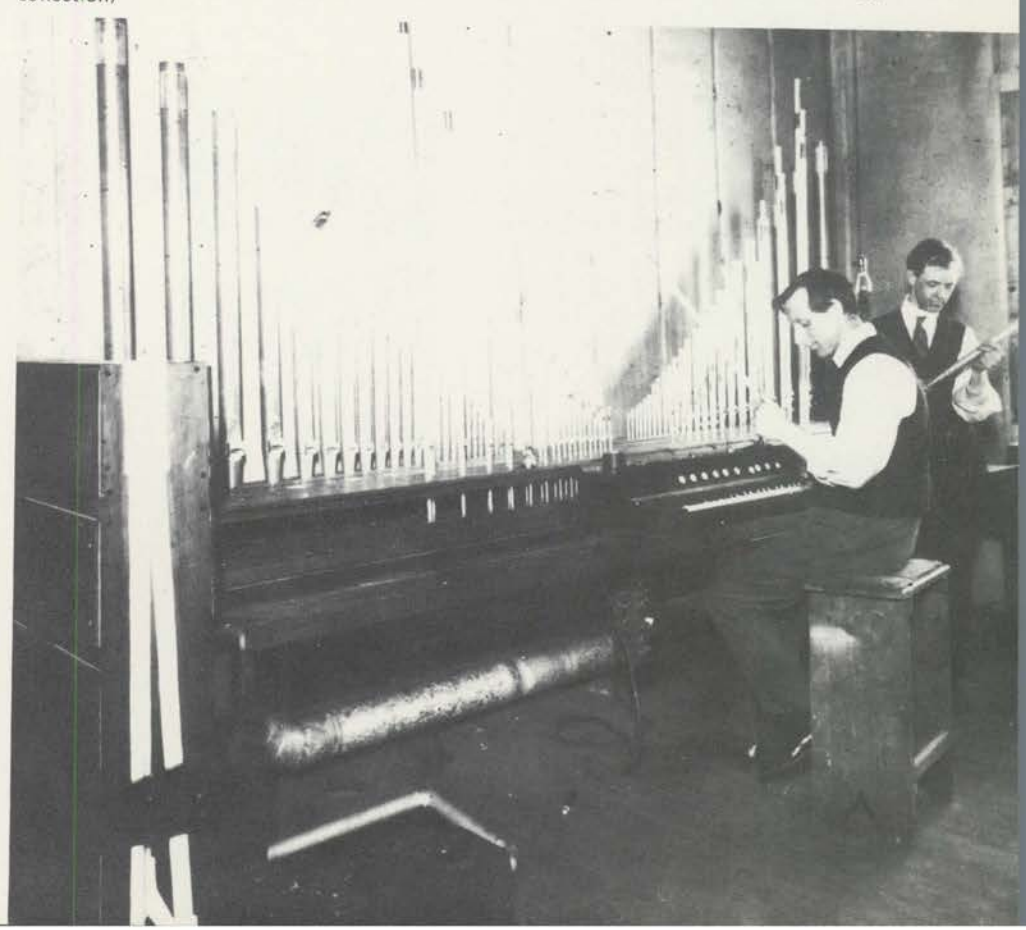
Nor did Hope-Jones receive even in his own day all of the credit for his inventions in sound. As voicer Eugene M. Nye of Seattle, Washington, says, "The so-called geniuses of organ building were usually a team of men, some of whom adapted the ideas of their leader, keeping them within the practical bounds of engineering." Nye further states, "When Hope-Jones was working full time in his Elmira, N.Y., plant, he employed about 50 men." Many of them had followed Hope-Jones from England.

He had the really talented James H. Nuttall to develop his ideas into stops, especially the Reeds, and to develop, along with Theodore Ilse, the horseshoe console. But he had other good men such as Joseph Carruthers, John J. Colton, David Marr, J. Meakin Jones, James and Ralph Bolton, Earl Beach, H. Badger, Fred W. Smith, Fred Wood and Robert Pier Elliott to make his dreams in sound come true. When the end came for Hope-Jones in 1914, Elliott went to the Robert Morton Organ Company as technical advisor to design their first unit organs, and then to W.W. Kimball in 1920 where he was in charge of sales and was also organ factory manager.

The Hope-Jones Electric Organ Co. in England, first at Battersea and then at Norwich with Norman and Beard (1898), built some 41 organs. Later, in this country, he built around 38, some of these being merely enlargements. Suprisingly enough, most of his work in England was along straight organ lines, but with some borrowing and extension. As Nye states, "The unit organ really came into being in this country." It came from England to America in 1903 when he emigrated here.

Hope-Jones and his co-workers were as concerned with blend between stops as any builder. However, they depended upon overtones speaking on just the right positions on the scale of pitches for cohesion. They knew that harmonic No. 14, for example, from a Tibia Plena 8' spoke on the same pitch as No. 14 from a Trumpet 8'. Some exceptions might be found among the pencil-thin Viols, Muted Viols, and the Orchestral Oboe, but these usually worked out to be advantages because the off-pitch partials (really inhar-

Rare photo of a corner of the voicing room at Hope-Jones' Elmira factory. James H. Nuttall (foreground) and G.H. Russell are voicing a Viol d'Orchestre. — (Photo is from Lee Haggart's collection)



ABOUT THE AUTHOR

When Stevens Irwin was twelve years old, he was escorted by his mother through the large John Wanamaker Store in Philadelphia. As they passed under the then new organ, Mary Vogt, still remembered in organ circles, let forth with a thundering crash on many Solo Diapasons and Tubas, shaking the polished marble floor with the biggest Open Wood 32' in America, and forests of Diaphones, all on high pressure. He has never been the same! This article is one result!

Irwin has written three dictionaries of organ stops, all published by G. Schirmer, New York. They are named *Dictionary of Pipe Organ Stops, Dictionary of Hammond Organ Stops,* and *Dictionary of Electronic Organ Stops.* All are heavily influenced by the Hope-Jones inventions, and list practically all of his stops.

Organ authority William H. Barnes of Tucson, Arizona, remembers Robert Hope-Jones very well. He told Irwin many of the things about this genius of organ building which appear here.

Stevens Irwin

monics) made a variety of random undulations that resembled surging orchestral sounds. As Hope-Jones broadened his pipe scales with just the right pressures, he was assured of obtaining true overtones, at least in the more obvious bottom parts of the series. In all of the stop-pitches between the 32' and 1/2' there are approximately 11,400 different overtones, each with its proper location in pitch. His famous Cor Anglais, Oboe Horn, and Kinura were rich in overtones that had never been heard before in the world of orchestra or organ, and some of these were sensationally loud, all of which provided a new sort of spatial dimension to sound, and made the Hope-Jones organ a fascinating new instrument in the musical world. Some overtones went up as high as harmonic No. 70 or even 85 from just one pipe, even in midrange. Up in this very high range it should be remembered that three and sometimes four harmonics sound between semitones of the scale! This extreme *density* of overtones accounts for much of the charm of Hope-Jones' reed tones. Remember too that the sensitive human ear can identify eleven octaves of pitch. Yet, the Solo Tibia Clausa of this pioneer builder gave forth little more than three harmonics along with the fundamental groundtone, which made it even purer in tone than a tuning fork or the biggest Diaphone!

In further imitation of the "grand orchestra," as it used to be called, Hope-Jones thought in terms of masses of notes and the "pictures in sound" that they would make. Contrasting moving lines of contrapuntal notes against each other is a concept in music that is hard to follow unless one has a thorough training in it. Rather he designed his organs for a single melody line on a conspicuous stop, perhaps a Solo Violin or Tuba Horn, and supported it by any number of neutral "gray" timbres that held up the melody but did not take attention away from it. These gray timbres included the Dolce and Dulciana and their Celestes, the Muted Cellos and Viols, and Echo Diapasons and Gemshorns. Unlike most current builders, he appreciated the value of an inconspicuous and satiny accompanimental sound. Have you ever heard a better accompaniment sound than a Muted Viola Celeste 8'? He also paid attention, as did designer/builder Donald Harrison, to the qualities of timbre he produced at extreme ends of treble and bass. Any one who has heard his cutting, stringy Contrabass 16' in its bottom octave will appreciate this, because it sounds "bowed." Larry Bray has a magnificent example in his three-organ Wurlitzer in Salt Lake City.

Hope-Jones' Echo Dolce was as soft as *mppp,* or around 11 decibels, but his Tuba Mirabilis and Solo Tromba were as loud as *mfff* or *ffff,* or around 82 decibels. His average Diapason sounded about 39 to 42 decibels, or on the borderline between *mf* and *f.* In contrast to these, ancient builders had made all stops, even Trompettes and bass pipes, near the *mp* dynamic. This, of course, was to keep any one voice from covering up the combination. But in the orchestra we expect Clarinets to cover up Violas, Horns to cover up Clairnets, Trombones to cover up Horns, and Trumpets to cover up Trombones. In both organ and orchestra this provides a sensational gradation of textures in quality as well as in loudness, both of which are normal to Romantic music composed since around 1830 and popular songs. Use of masses of notes (sometimes with couplers) and all sorts of "new" tone-clusters further brought out Hope-Jones' imitative tone qualities. In short, Hope-Jones "heard" orchestral and operatic transcriptions in his new sounds. Further along this line, the gigantic John Wanamaker store organ in Philadelphia was specifically designed to play the music of Richard Wagner, and presumably also Liszt and Richard Strauss. How much Hope-Jones influenced George A. Audsley, who made the basic design for this organ, is not known, but he undoubtedly influenced pipemaker Anton Gottfried, Joseph J. Carruthers (W.W. Kimball) and Herbert Kingsley (Robert Morton) who made the most of the newer imitative stops. Along with the (mostly) Moller in West Point Cadet Chapel and the Aeolian in Longwood Gardens, Kennett Square, Pennsylvania, the Wanamaker organ is certainly the most orchestral in concept. But let us not forget the whole division of Trombas and Trombones in the Midmer-Losh in Convention Hall, Atlantic City, or its four purely String divisions.

– To be continued –

In the next installment, Stevens Irwin discusses the importance of the swell box to the Hope-Jones' organ concept, the "formant" as related to pipe design, improved swell shutters, high wind pressure, "nicking" of pipe languids, "ears" and "bridges" on pipes, and "Second Touch" controls.