

Cover feature

Fratelli Ruffatti, Padova, Italy Christ Cathedral, Garden Grove, California

Here is the brief history of a truly remarkable pipe organ, one of the most famous in the entire world, from America and Europe to the Far East and Australia. It is the massive instrument in the former Crystal Cathedral, now Christ Cathedral, of Garden Grove, California.

The beginning

It all began in 1970, when Richard Unfried, organist of the Garden Grove Community Church, headed by Dr. Robert H. Schuller, contacted the firm of Fratelli Ruffatti to submit a proposal for the manufacturing of a new organ. The driving force behind the acquisition of the new instrument was Arvella Schuller, the wife of Dr. Schuller, who was herself an organist, and the first organist of the Garden Grove Community Church. Her focus was a high quality music program and the consequent need for an instrument of great significance.

The first Fratelli Ruffatti organ, a five-manual instrument of 116 ranks and nearly 7,000 pipes, was installed in 1977 in the building that is currently called the "Arboretum." It was then the sanctuary from which Dr. Schuller preached, not only to a local congregation of several thousand people, but also to the worldwide audience of the *Hour of Power*, by far the most popular televised church service of all time, which was broadcast throughout the United States and in many countries on several continents.

The organ was inaugurated by Virgil Fox on April 1, 1977, followed by concerts by Richard Unfried, Diane Bish, David Craighead, and others. On this instrument, Virgil Fox later made the first "direct-to-disk" recording ever made on a pipe organ, playing the entire program from memory at night, with

only a few seconds of silence between pieces. No editing was possible with the technology of the time.

In the new Crystal Cathedral

A new, exciting building was designed by Philip Johnson and built to serve as the main sanctuary, accommodating more than 4,000 people. It is enclosed by more than 10,000 rectangular panes of reflective glass that constitute the walls and roof. The size is remarkable: 128 feet high, 207 feet deep, and 145 feet wide, 91,000 square feet of floor space. In 1979, Dr. Schuller appointed Virgil Fox as consultant for the installation of the organ in the new space. Fratelli Ruffatti, Virgil Fox, and Arvella Schuller planned the new instrument. At the end of 1979, the contract was awarded to Ruffatti for the building of a new instrument, both exciting and unique, and one of the largest church organs of its time. The project was made possible by the generous donation of Hazel Wright, a Chicago resident and a follower of the *Hour of Power* television program. Not only did she finance the entire project, but she also provided an endowment for the future maintenance of the instrument.

In its original Virgil Fox design, the new organ included the previous Ruffatti instrument from the Arboretum, the 1962 Aeolian-Skinner organ formerly installed at Lincoln Center for the Performing Arts in New York City, and a number of additional Ruffatti stops, among which were seven sets of horizontal brass trumpets and a string division. Over the years, under the direction of Guy Henderson, John Wilson, and Brian Sawyers, who also took part with Ruffatti in the installation, several additional stops were installed, ultimately reaching a total of 16,000 pipes.

Unfortunately, Virgil Fox never lived to see the organ completed. He died on October 25, 1980, while the organ was



December 4, 2013: Bishop Kevin William Vann with Francesco and Piero Ruffatti at the contract-signing ceremony held at the Basilica of St. Anthony in Padova

still under construction. Dr. Frederick Swann was appointed the new director of music and organist, and took over for Virgil Fox as consultant, giving final approval to the project in 1982. In his words, "the new five-manual console is the largest drawknob console ever built. The exterior is of Virginia oak, the interior of rosewood. It is mounted on a moveable platform with a parquet floor and is one of the most luxuriously equipped consoles in the world."

The opening concert on May 7, 1982, was a memorable event, involving Pierre Cochereau, organist of Notre Dame, Paris; Ted Alan Worth; a full orchestra directed by Pierre Cochereau's son Jean-Marc; and an impressive choir of a thousand, uniting several choirs from the Los Angeles area. Frederick Swann recalls the event: "None of us in the throng present will ever forget the sensational evening of sights and sounds. It would be difficult to imagine a more inspiring occasion in pipe organ history."

The instrument

This magnificent organ, one of the largest in the world, is playable from five 61-key manuals and a 32-note pedal-board. It consists of 14 pipe divisions, 265 stops, and 268 ranks of pipes, plus a good number of prepared-for ranks. The main organ is located in front. The south balcony houses three manual divisions and one pedal division, and the horizontal brass trumpets are in the east and west galleries. Because of this, the sound comes from all four sides of the cathedral, for an incredible and unique sonic experience. Due to the complexity of the installation, with pipes located at various heights and, in some cases, exposed to direct sunlight, tuning has never been easy. Early on, a computerized system was installed by the organ curators, to monitor the temperatures in the various organ locations, thus obtaining vital information for the regular tuning of the 16,000 pipes.

After decades of exposure to sunlight, heat, humidity, and in some cases

Fratelli Ruffatti

GREAT – II – Unenclosed

- 16' Montre
- 16' Kontra Geigen
- 16' Bourdon
- 8' Diapason
- 8' Principal Major
- 8' Principal
- 8' Flûte Harmonique
- 8' Spitzflöte
- 8' Spitz Celeste
- 8' Holz Gedeckt
- 5 1/2' Gross Quinte
- 4' Oktav
- 4' Octave
- 4' Flûte Ouverte
- 4' Flûte à cheminée
- 3 1/2' Gross Tierce
- 2 3/4' Quinte
- 2 3/4' Sesquialtera II
- 2 3/4' Jeu de Tierce II
- 2' Fifteenth
- 2' Super Octave
- 2' Blockflöte
- 1 1/2' Mixture IV-VI
- 1 1/2' Ripieno IV
- 3/4' Cimbalo IV
- 1/2' Zimbel IV
- 16' Contre Trompette
- 16' Posaune (ext 8' Trompette)
- 8' Trompette
- 8' Trompette
- 8' Herald Trumpet (Bombarde)
- 4' Clairon
- 4' Tremulant
- Sub – Super – Unison off

GALLERY GREAT – II – Unenclosed

- 8' Grand Montre (Gallery Pedal)
- 8' Principal
- 8' Holzgedeckt
- 4' Octave
- 4' Koppelflöte
- 2' Fifteenth

- 1 1/2' Nineteenth
- 1' Twenty-second
- 1 1/2' Fourniture V
- 1/2' Zimbel IV
- 16' Sub Trumpet (ext 8' Trumpet)
- 8' Trumpet
- 8' Millennial Trumpet
- 8' Herald Trumpet (Bombarde)
- 4' Clairon (ext 8' Trumpet)
- Great on Choir
- Great on Swell
- Great on Solo
- Great on Celestial
- Gallery Great off II
- Tremulant
- Sub – Super – Unison off

SWELL – III – Enclosed

- 16' Flûte Courte
- 16' Quintaton
- 8' Montre
- 8' Principal
- 8' Flute Couverte
- 8' Bourdon
- 8' Viole de Gambe
- 8' Gambe Celeste
- 8' Salicional
- 8' Voix Celeste
- 8' Erzähler
- 8' Erzähler Celeste
- 4' Prestant
- 4' Octave
- 4' Cor de Nuit
- 4' Flûte à Pavillon
- 2 3/4' Nazard
- 2' Doublette
- 2' Flûte à bec
- 1 1/2' Tierce
- 1 1/2' Larigot
- 1 1/2' Septième
- 1' Piccolo
- 3/4' Neuf
- 2' Plein Jeu III
- 1 1/2' Mixture V

- 3/4' Cymbale III
- 8' Cornet de Récit V (wired)
- 16' Bombarde
- 16' Contre Trompette (ext 2^{ème} Tpt)
- 16' Basson
- 8' Première Trompette
- 8' Deuxième Trompette
- 4' Première Clairon
- 4' Deuxième Clairon
- 8' Voix Humaine
- 8' Hautbois
- 8' Hautbois d'Orchestre
- Tremulant
- Sub – Super – Unison off

CHOIR – I – Enclosed

- 16' Gemshorn
- 8' Viola Pomposa
- 8' Viola Celeste
- 8' Flauto Dolce
- 8' Flauto Celeste
- 8' Cor de Nuit
- 4' Prinzival
- 4' Koppelflöte
- 2 3/4' Rohrnazat
- 2' Prinzival
- 2' Zauberflöte
- 1 1/2' Tierce
- 1 1/2' Larigot
- 3/4' Scharff IV
- 16' Fagotto
- 8' Petite Trompette
- 8' Millennial Trumpet (Gallery)
- 8' Clarinet
- 4' Fagotto (ext 16' Fagotto)
- Tremulant
- Sub – Super – Unison off

POSITIV – V – Unenclosed

- 16' Bourdon (Great)
- 8' Prinzival
- 8' Rohrflöte
- 4' Prinzival
- 4' Spillflöte
- 2' Oktav
- 1 1/2' Larigot
- 1' Siffilöte
- 1' Scharff IV
- 1/4' Terz Zimbel III
- 16' Fagott (Choir)
- 8' Krummhorn
- 8' Tuba Mirabilis (Bombarde)
- 4' Rohrschalmei
- Tremulant
- Sub – Super – Unison Off

SOLO – IV – Enclosed

- 8' Gambe
- 8' Gambe Celeste
- 8' Doppelflöte
- 8' Major Flute (Gallery)
- 4' Orchestral Flute
- 2 3/4' Quintflöte
- 2' Fife
- 8' French Horn
- 8' English Horn
- 8' Corno di Bassetto
- 8' Cor de Bassett (Gallery)
- Tremulant
- Gallery Flute Trem
- Sub – Super

BOMBARDE – IV Unenclosed

- 4' Flûte d'Arvella (Pedal 4' Spillflöte)
- 16' Tuba Profunda (TC, 8' Tuba Mirabilis)
- 8' Tuba Mirabilis
- 8' Herald Trumpet
- 8' Millennial Trumpet (Gallery Great)
- 4' Tuba Clairon (ext 8' Tuba Mirabilis)



Front organ: large façade pipes being removed



Pipes being removed from the highest level of the front organ



The five-manual console prior to restoration

rainwater from leaks in the roof, the organ was in need of urgent repair. Following the acquisition of the cathedral and its 34-acre campus by the Archdiocese of Orange, Bishop Kevin William Vann, an organist and music lover, launched the project of preserving and restoring the iconic instrument. A farewell fund-raising event was organized: on May 18, 2013, Hector Olivera played the last concert on the instrument prior to restoration, to an audience that nearly filled the building.

The restoration

Bishop Vann came to Padova (Padua), Italy, in December 2013, visited the workshop of Fratelli Ruffatti and, on December 4, 2013, met with brothers Francesco and Piero Ruffatti, principals of the company, at the Basilica of St. Anthony, for the official signing of the restoration contract. Soon after, the complicated process of restoration began. A 40-foot container full of crates of all sizes was sent from Padova to Garden

Christ Cathedral, Garden Grove, California

Enclosed with Solo

- 4' Major Octave
- 1 1/3' Harmonics VI
- 1 1/3' Fourniture III
- 1/2' Cymbel IV
- 16' English Post Horn (ext 8')
- 8' English Post Horn
- 8' Trompette Harmonique
- 4' Clairon Harmonique
- Unison off

CELESTIAL – V – Enclosed

- 16' Bourdon Doux (ext 8' Fl à cheminée)
- 8' Principal
- 8' Viola Pomposa
- 8' Viola Celeste
- 8' Flauto Dolce
- 8' Flauto Celeste
- 8' Flûte à cheminée
- 4' Principal
- 4' Italian Principal
- 4' Flûte Traversière
- 2 3/4' Sesquialtera II
- 2' Doublette
- 2' Octavin
- 1 1/3' Plein Jeu V
- 3/4' Cymbale IV
- 1/2' Jeu de Clochette II
- 16' Contre Trompette (ext 8' Trompette)
- 16' Ranquette
- 8' Trompette
- 8' Cor Anglais
- 8' Cromorne
- 4' Clairon
- 4' Chalumeau
- Tremulant
- Sub – Super – Unison Off

STRING – I – Enclosed

- 16' Viola
- 16' Viola Celeste
- 8' Dulciana
- 8' Unda Maris
- 8' Salicional

- 8' Voix Celeste
- 8' Dulcet
- 8' Dulcet Celeste
- 8' Muted Virole I
- 8' Muted Virole Celeste I
- 8' Muted Virole II
- 8' Muted Virole Celeste II
- 8' Violoncello
- 8' Cello Celeste
- 8' Rohrpfeife
- 4' Nachthorn
- 8' Voix Humaine
- Tremulant
- Sub – Super – Unison Off
- String Off I
- String on Great
- String on Swell
- String on Solo
- String on Celestial

EPISTLE – Floating

- 8' Mounted Cornet V
- 16' Trompette en chamade
- 8' Trompette en chamade
- 4' Trompette en chamade
- 2' Trompette en chamade
- Sub
- Epistle on Choir
- Epistle on Great
- Epistle on Swell
- Epistle on Solo
- Epistle on Celestial

GOSPEL – Floating

- 16' Trompette en chamade
- 8' Trompette en chamade
- 4' Trompette en chamade
- Sub
- Gospel on Choir
- Gospel on Great
- Gospel on Swell
- Gospel on Solo
- Gospel on Celestial

PEDAL

- 64' La Force (resultant)
- 32' Double Diapason
- 32' Kontra Geigen (ext 16' Geigen)
- 32' Grand Cornet IV (wired)
- 21 1/2' Diapente Grave (ext 16' Geigen)
- 16' Contre Basse
- 16' Diapason
- 16' Principal
- 16' Montre (Great)
- 16' Geigen (Great)
- 16' Subbasso
- 16' Bourdon
- 16' Flûte Courte (Swell)
- 16' Quintaton (Swell)
- 16' Gemshorn (Choir)
- 10 3/4' Quinte
- 8' Principal
- 8' Octavé
- 8' Principal (Positiv)
- 8' Violone
- 8' Geigen (Great)
- 8' Bourdon (ext 16' Bourdon)
- 8' Bordone
- 8' Spitzflöte
- 8' Flûte Courte (Swell)
- 8' Gemshorn (Choir)
- 5 1/2' Octave quinte (ext 10 3/4' Quinte)
- 4' Octave
- 4' Choralbass
- 4' Principal (Positiv)
- 4' Spireflöte
- 4' Spillflöte
- 2' Octave
- 2' Spindleflöte (ext 4' Spillflöte)
- 5 1/2' Fourniture IV
- 2 3/4' Ripieno VI
- 1 1/3' Acuta II
- 32' Kontre Posaune (ext 16' Posaune)
- 16' Posaune
- 16' English Post Horn (Bombarde)
- 16' Contre Trompette (Great)
- 16' Bombarde (Swell)
- 16' Basson (Swell)

- 16' Fagotto (Choir)
- 8' Trompette
- 8' Trompette
- 8' Herald Trumpet (Bombarde)
- 8' Fagotto (Choir)
- 8' Krummhorn (Positiv)
- 4' Trompette (ext 8' Trompette)
- 4' Klarine (ext 8' Trompette)
- 4' Krummhorn (Positiv)
- 4' Rohrschalmei (Positiv)

GALLERY PEDAL

- 16' Open Wood
- 16' Montre Le Tour
- 16' Bourdon
- 16' Bourdon Doux (Celestial)
- 16' Viola (String)
- 16' Viola Celeste (String)
- 8' Prestant (ext 16' Montre Le Tour)
- 8' Bourdon (ext 16' Bourdon)
- 8' Viola (String)
- 8' Viola Celeste (String)
- 4' Basse de Choral (ext 16' Montre LT)
- 2 3/4' Mixture V (Gallery Great)
- 16' Bombarde
- 16' Contre Trompette (Celestial)
- 16' Sub Trumpet (Great)
- 16' Ranquette (Celestial)
- 8' Trompette (ext 16' Bombarde)
- 8' Millennial Trumpet (Gallery Great)
- 4' Clairon (ext 16' Bombarde)

PERCUSSIONS

- Bells on IV
- Bells on Pedal
- Rosignol
- Etoile de Grand matin
- Glockenstern
- Celestial Cloches
- Carillon on Pedal
- Carillon I
- Carillon IV

Cover feature



Gallery organ, prior to restoration. Several areas of the organ were temporarily protected to limit the damage from rainwater from leaks in the roof.



The organ's disassembly: all chairs have been removed from the cathedral floor and pipes are being carefully stored over the entire floor area, waiting to be packed.

Grove, and, upon its arrival, the delicate dismantling process took place, involving a five-man crew from the factory, headed by Piero Ruffatti, and a local crew headed by Brian Sawyers, former curator of the instrument.

With the help of local riggers, most of the pipes and many windchests were removed, plus a number of other vital components. The pipes were temporarily stored using the entire cathedral floor. Thousands of them were then carefully packed into crates, loaded into the 40-foot sea-land containers, and shipped to the Ruffatti factory, along with a number of windchests, expression louvers, the organ console, and miscellaneous parts.

A very efficient system was implemented to remove the heavy windchests from the chambers, some of which were located at a very high elevation. By using four electric hoists, two inside the chamber hooked to the ceilings and two outside hooked to the building's roof structure, parts were moved out of the chambers, transferred from one hoist to another, and lowered to floor level with no physical strain.

Restoration will include the replacement of perishable materials such as felt and leather, reconditioning of all windchests (with special attention to those damaged by rainwater), re-shaping of many damaged pipes, replacement of slide tuners, and reconstruction of some pipes that have been misplaced over the years. The present Ruffatti console will be retained, fully restored, and equipped with the most advanced technology, to offer new and innovative features such as a high number of personalized, password-protected folders to control the complex combination action, recording/playback, and much more. The connection between the console and the many organ divisions throughout the building will be by fiber optics, to achieve the fastest and most efficient data transmission.

Part of the restoration process will be carried out locally by a team led by Brian Sawyers, under the aegis of Fratelli Ruffatti. This process will include thorough cleaning of all organ parts, rearranging of some windchests, rewiring to new junction boards, and restoration of parts that were not shipped to Italy. The project does not include changes to the present stoplist. The organ chambers will be protected from dust originated by the



Trompeteria



Removal of the Ruffatti mahogany windchests



Ruffatti windchests being lowered to floor level

considerable amount of work that will take place in the building, which will be renovated inside to accommodate the Roman Catholic liturgy.

Dr. Frederick Swann, former music director of the Crystal Cathedral, has been appointed as the Cathedral consultant for the project. The re-named 'Christ Cathedral' is scheduled to reopen, with the restored organ, in 2016.

—Fratelli Ruffatti

Photo credit: Fratelli Ruffatti

Note: Years ago, a number of digital stops were added to help support members of the congregation sitting in the east and west galleries where the horizontal trumpets are located, since there was no room for additional pipe divisions in those parts of the building. Some extra pedal stops were also added, to reinforce the sound in a vast building with poor acoustics for bass frequencies. Those digital voices will be replaced with the latest technology, under a separate contract not involving Fratelli Ruffatti.

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