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Fratelli Ruffatti

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RESTORING FUSINE'S WOODEN ORGAN

An instrument of exceptional historical relevance is currently being restored by Fratelli Ruffatti. It is one of the most rare and intriguing pipe organs that can be found anywhere.

An inventory of the objects and various ornaments, property of the Church of S. Nicolò in Fusine (eastern Italian Alps, Veneto region), dated July 5, 1820, is the oldest document found about this extraordinary instrument[1], presumably built during the first two decades of the nineteenth century. The author is Agostino de Marco, born in the same village in 1777.

The beginning of the nineteenth century witnessed a period of deep economic depression in the area, partially caused by the fall of the Republic of Venice, of which this portion of the Italian Alps was a part. These valleys still preserve a high number of valuable historical organs[2] , however, and the presence of a pipe organ in the church was always felt to be an absolute priority. Agostino found a way to provide his church with a pipe organ in spite of the economic crisis by reducing the cost to the bare minimum. He utilized quality components coming from organs dismissed by other churches[3] : windchests, bellows, wooden pedal pipes, parts of the mechanical action, keyboard, and pedalboard, all of which belonged to one or more Venetian-style organs and all transplanted into a casework which apparently belonged to yet another different instrument. Often, these parts were considered of little or no value; the pipes were sold as raw metal

to be melted down. Our author therefore was able to install at the church of Fusine a nearly-complete organ. The only thing missing was the metal pipes.

Tin and lead were expensive and scarce, so he solved the problem by utilizing other readily-available and low-cost material of the time: spruce from the forests of the valley. And this feature is precisely what makes this organ unique in all the world.

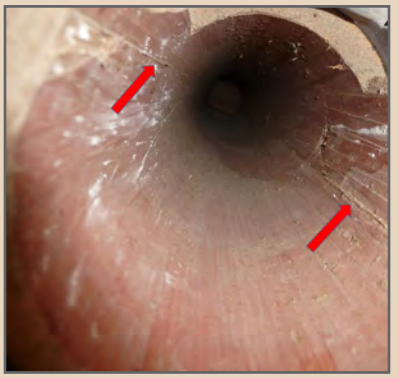
Spruce façade pipes, rounded like metal pipes, with carved-out mouths in the Church of S. Nicoló in Fusine, Italy.

1 As found by Marco Maierotti in the parochial archives during his research on the instrument.

2 In the nearby village of Caprile, the oldest Venetian-built organ in all of the Veneto region still remains, built in 1660 by an as-yet unknown builder (research is under way to find the name of the organbuilder) and restored by Fratelli Ruffatti in 2003.

3 Possibly by convents and monasteries which were suppressed by Napoleon at the time. In most cases their properties were auctioned or sold.

Organs with only wooden pipes have been manufactured in past centuries in many countries of Europe, but never of cylindrical shape. A famous organ with pipes all made of bamboo was built at around the same time, in 1824, by Father Diego Cera for the Parochial Church of St. Joseph in Las Piñas in the Philippines. However, while the Spanish monk utilized cylindrical elements already found in nature for the pipes, Agostino created these elements himself by sculpting each pipe by hand, a much more intricate task.



The inside of one of the resonators clearly shows the technique used by the builder. The pipe is composed of two sections. Two thick boards of red spruce were carved out by hand, using a convex-blade plane. These two sections were subsequently glued together with hot glue at the points shown by the red arrows. The pipe was then rounded on the outside. A major task just for one pipe, requiring high skill.

In the next column is a a view of internal pipes. The tuning is accomplished by positioning the small lead "flaps" at the resonator top. They provide the small correction in resonator length necessary for the exact tuning of the organ pipes.

Also as shown in the picture below, not all pipes are made of wood. Two ranks, Ottava (4') and Decimaquinta (2'), include several metal pipes, apparently acquired by the author and re-used. The Ottava made of metal was likely a necessity, since metal offers more flexibility in setting the tuning temperament for the instrument. But even these few metal pipes are truly extraordinary: they appear to have been manufactured during the second half of the seventeenth century by an Austrian or Tyrolean builder, and as such they represent extremely rare artifacts, of which few examples remain.

Below are reed pipes placed in front of the façade so that they may be readily accessible for tuning by the organist. This stop was manufactured in the shape of the Tromboncini, a typical regal-type reed manufactured by Gaetano Callido and other Venetian organbuilders of the eighteenth century. In this case, however, the reed pipes are made exclusively of wood rather than tin.

At right, one of the smallest pipes of the organ, from the Cornetta stop, a singing Tierce of tapered shape commonly found in the Venetian tradition.

It is hard to believe that pipes whose resonators are shorter than one inch can produce such an intense, clean, and beautiful sound. During restoration, more data will be will be collected, including professional analysis of the materials used by the author, since other woods appear to have been used by the author in addition to spruce, for the making of the pipes' lower and upper lips.

This detail of a tapered flute pipe shows the lower lip and the upper lip, carved separately and glued onto the pipe. The languid was inserted into the resonator from below before gluing the foot in place.

By removing a panel at the left side of the organ case, it is possible to see one of the two large wedge bellows, which can still be operated by pulling the ropes.

July 28, 2017, is the official date of the beginning of the restoration process. The organ was analyzed on site prior to dismantling. Data was collected by Ruffatti, among which were a very high number of sound samples, which were recorded with highly professional equipment. Below, a microphone is positioned in front of the mouth of one of the façade pipes.

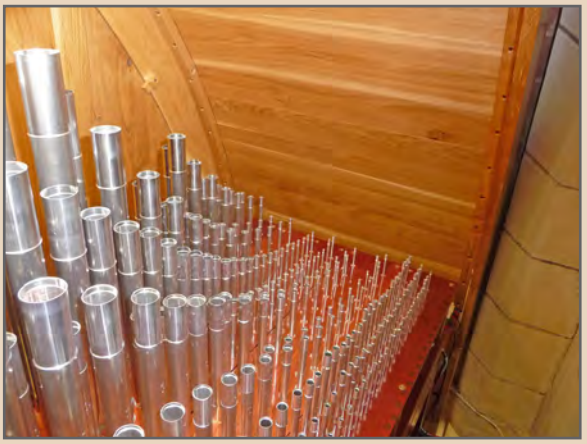
Each sound sample was then transformed into a three-dimensional color image showing its first 10 overtones. The 3-D image is particularly useful for immediate analysis and can be used to compare sound spectra before and after the restoration process. The software was developed during one of the research programs conducted by the Fraunhofer Institute for Building Physics IBP of Stuttgart, Germany, of which Ruffatti was a part. Below is the three-dimensional computer image of a sound sample.

For the specification of this instrument, see page 7.

BUCKFAST ABBEY BEGINS INSTALLATION

With its six Manual divisions (two of which are floating), two Pedal divisions, and more than 5,500 pipes, the organ for Buckfast Abbey in Devon, England, is certainly a complex instrument. It was created with the intent of covering the needs of a vast repertoire, ranging from ancient to modern music. This is not a "period" instrument, designed for the performance of a specific segment of organ music, but an organ without boundaries, suitable for choral accompaniment, support of the liturgy, and solo use in a variety of musical styles.

A Positivo division in the Italian style, a symphonic Solo, two French divisions in the West Gallery, and a variety of other musical ingredients facilitate the task. They are not meant to assemble a "collage" of traditions into one instrument, but to provide a better, and hopefully more authentic, means to express musicality. As is the case with fine cuisine, all ingredients are wisely proportioned to create harmony in the various ensembles, and the final judgment can only come not from reading the recipe (in our case, the stoplist below) but by tasting the finished product.



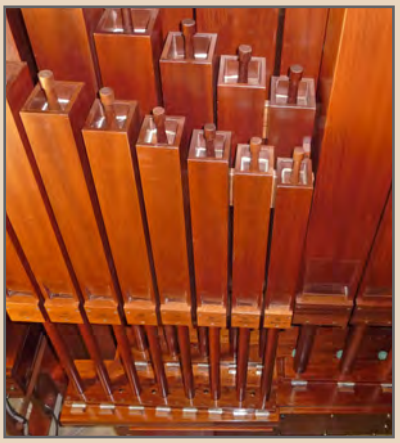
The Principal Chorus, or Ripieno of the Italian Positivo (a very rare division in all of the UK), sits under the arched ceiling of the solid-oak casework. It is voiced in the classic Renaissance style, at a pressure of 40 mm at the water column (approximately 1.6 inches), and it fills the church with its fresh, clear voice. Other divisions feature different wind pressures, ranging from 80 mm on the Great (a fraction above 3 inches) and 160 mm on the Solo (6.3 inches). Below are two Solo division ranks: the Doppelflöte 8', left, with its double-mouthed pipes; and the wooden harmonic Orchestral Flute 8', right.

All reed and flue pipes have been manufactured with the finest materials, with alloys ranging from 30% tin for the flutes to 95% tin for the larger 8' and 16' pipes. In-house manufacturing ensures perfect customization to meet tonal and acoustical challenges.

The Quire organ is designed to preserve the visual integrity of the Quire area: no protruding, visible casework, but simple pipe façades framed by the gothic arches behind and above the choir stalls. The pipe façades however, with their shiny 95%-tin alloy, add a sense of quietly sparkling elegance, enhanced by the presence of the embossing on the center pipes. Diamond embossing is a feature of ancient Italian organs, often used by Ruffatti in their new instruments.

The Quire organ is located above the choir stalls on both sides of the chancel, featuring simple pipe façades made of almost pure tin. The diamond-embossed center pipe of each façade catches and reflects the light.

Behind the façades, massive, solid oak cases totally surround the Quire organ divisions, to reflect and project the sound. They are very large, each measuring 37 feet in length, with a maximum height of 23 feet and a depth of 7 feet, about 11 by 7 by 2 meters. All wooden elements inside, from the soundboards to the walkboards, are made from the finest African Sipo mahogany, highly seasoned and finely varnished

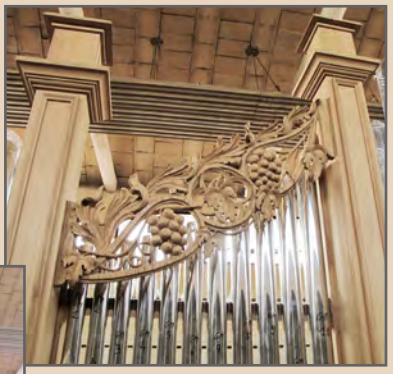


At left is one of the Quire cases, shown during assembly at the Ruffatti factory.

At right, the brass horizontal Pontifical Trumpet resonators, which will face the nave from the West Gallery organ cases.

The West Gallery organ is currently being installed and will be completed this year. It houses the French-style divisions: Grand-Orgue, Expressif, and Pédale. Most of its pipes are scaled and voiced following originals by the famous organbuilder, Aristide Cavaillé-Coll. Two spectacular oak cases are being installed at the sides of the large stained-glass window. A very original scheme has been utilized for their design: the connecting elements between the different "bays", or sections of the case, are made by carved rather than solid wood elements, thus achieving a very light and pleasant visual effect. The carvings, all very intricate, are made by hand.

At right, detail of the intricate hand-carved façade.



At left, one of the two oak West Gallery organ cases, installed in the woodworking shop of the Ruffatti factory.

The two four-manual consoles, one in the Quire area and the other in the west Gallery, feature identical controls and can be simultaneously played by two organists to perform music for two organs. Both are decorated with elaborate hand carvings and wood inlay, and sit on hand-made parquet floors. Below, we see the movable Quire console. Its low profile grants visibility to the organist and reduces the visual impact in the Quire area. Note the hand-carving on the console, and the inlay work on the music desk, also done by hand. One of the interesting and unusual features of the Quire console is its height-adjustable mechanism. Its entire upper portion, including keyboards, stop jambs, and other controls, can be electrically raised or lowered by several inches by simply pushing a button. This feature, along with the height-adjustable bench and the distance-adjustable music desk, guarantees maximum comfort for all organists.

Look for the inauguration of this new organ in 2018, as part of an important concert series celebrating the millennium year of the Abbey.

SPECIFICATION -- BUCKFAST ABBEY

POSITIVO - Manual I
Quire Organ, unenclosed

Principale 8’
Bordone 8’ (mahogany)
Voce Umana 8’ (tG, flat-tuned)
Ottava 4’
Flauto Veneziano 4’
Decimaquinta 2’
Decimanona 1-1/3’
Sesquialtera II
Ripieno III 2/3’
Cromorno 8’
Pontifical Trumpet 8’ (Solo)
Abbatial Trumpet 8’ (Solo)
Glockenspiel (tC)
Tremulant
Nightingale (5 pipes)
Cymbelstern (12 bells)
Drum (mahogany, 3 pipes)
Bagpipe F 6’
Bagpipe C 4’
Bagpipe G 2-2/3’

GREAT - Manual II
Quire Organ, unenclosed

Bourdon 16’ (mahogany)
Principal 8’
Bourdon 8’
Spitzflöte 8’
Octave 4’
Blockflöte 4’
Quint 2-2/3’
Superoctave 2’
Mixture IV 1-1/3’
Terz Zimbel III 1/2’
Trumpet 8’
Clarion 4’
Pontifical Trumpet 8’ (Solo)
Abbatial Trumpet 8’ (Solo)
Sub Octave
Unison Off

SWELL - Manual III
Quire Organ, enclosed

Flûte à Cheminée 8’
Viole de Gambe 8’
Voix Céleste 8’ (tC)
Gemshorn 8’
Prestant 4’
Flûte Creuse 4’
Nazard 2-2/3’
Octavin 2’
Tierce 1-3/5’
Plein Jeu IV 2’
Basson 16’
Trumpet Harmonique 8’
Hautbois 8’
Clarion Harmonique 4’
Tremulant
Sub Octave
Unison Off
Super Octave

SOLO - Manual IV
Quire Organ, enclosed

Lieblich Bourdon 16’ (mahogany)
Orchestral Flute 8’ (mahogany)
Doppelflöte 8’ (mahogany)
Salicional 8’
Unda Maris 8’ (tC)
Flûte Douce 8’
Flûte Céleste 8’ (tC)
Flauto d’Amore 4’
Harmonic Nazard 2-2/3’
Harmonic Piccolo 2’
Harmonic Tierce 1-3/5’
Bassett Horn 8’
Vox Humana 8’
Pontifical Trumpet 8’ (brass)
Abbatial Trumpet 8’
Tremulant
Sub Octave
Unison Off
Super Octave

(continued on page 7)

PEDAL
Quire Organ, unenclosed

Contrabass 16’ (mahogany)
Subbass 16’ (mahogany)
Bourdon 16’ (Great)
Lieblich Bourdon 16’ (Solo)
Quintflöte 10-2/3’
Octave 8’
Flûte Ouverte 8’
Nazard 5-1/3’
Superoctave 4’
Flûte 2’
Mixture IV 2-1/3’
Fagott 32’
Bombarde 16’
Basson 16’
Trompette 8’
Schalmei 4’

GRAND-ORGUE - Floating
West Gallery, unenclosed

Bourdon 16’
Montre 8’
Flûte Harmonique 8’
Bourdon 8’
Prestant 4’
Flûte Octaviante 4’
Cornet III 2-2/3-2’-1-3/5’
Doublette 2’
Plein Jeu III-V 2’
Clarinette 8’
Pontifical Trumpet 8’ (Solo)
Abbatial Trumpet 8’ (Solo)
Tremblant
Sub Octave
Unison Off

EXPRESSIF - Floating
West Gallery, enclosed

Violoncelle 8’
Violoncelle Celeste 8’ (tC)
Cor de Chamois 8’
Cor de Chamois Celeste 8’ (tC)
Prestant 4’
Trompette 8’
Clairon 4’
Tremblant
Sub Octave
Unison Off
Super Octave

PÉDALE
West Gallery, unenclosed

Soubass 16’ (mahogany)
Bourdon 16’ (Grand-Orgue)
Basse 8’
Bourdon 8’
Flûte 4’
Bombarde 32’ (mahogany)
Bombarde 16’ (mahogany)
Trompette 8’

100 ranks • 5,537 pipes
Two four-manual consoles with identical controls
Height adjustment for key desk and stop jambs at the Quire console
bone and ebony keyboards with “tracker touch”
concave and radiating pedalboards with oak and ebony pedals

SPECIFICATION -- CHURCH of S. NICOLÓ, FUSINE

Facade of 25 cylindrical wooden pipes from the stop “Principal”[4] , with the Tromboncini (8’)[5] , also made of wood, placed in front.

Manual: 47 notes (C1 to D5, with first “short” octave).
Pedalboard: 18 notes (C1 to A2, with first “short” octave), permanently connected to the manual.
Division between bass and treble at the notes C#3 and D3

Stop controls: draw stops in two vertical rows at the right side of the keyboard.
Other controls: Tiratutti (pedals activating all “ripieno” stops at once (from Ottava to XXIX)
Usignoli (Nightingale), a later addition.

I Principal
II Principal Bassi
II. Principal Soprani
Ottava
XVa
XIXa
XXIIa
XXVIa
XXIXa
Controbassi
VIII Bassi[8]
XV ai Bassi

Voce Umana
Flauto in VIII Bassi
Flauto in VIIIa Sop.ni
Flauto in XIIa
Flauto Dolce Sop.ni[6]
Nasardo Sop.ni[7]
Tromboncini Bassi
Tromboncini Sop.ni
Tromboni Bassi

[4]Rather than the Italian name “Principale”, the author here uses the equivalent “Principal” in Venetian language.
[5]A regal-type reed, typical of the XVIII and XIX century Venetian organbuilding school
[6]An 8’ flute stop, trebles only, stopped
[7]The author uses the wrong nomenclature. In reality the stop is a Tierce 1 3/5’, which in the Venetian tradition is normally referred to as Cornetta.
[8]The stop knobs of both the VIII Bassi (8’) and the XV ai Bassi (4’) are permanently connected to the Contrabassi (16’) and cannot be independently drawn.