



Organ at San Bernardo, Granada, Spain, builder unknown, circa 1772



Divided keyboard of San Salvador organ, Granada, Spain



Trompetería of the organ of Santa Clara, Santiago, Spain: Orlos (regals) and Trompeta Real 8

The Early Iberian Organ

Design and Disposition

By Mark J. Merrill

The development of early Spanish organs

At the beginning of the 16th century, organs in Spain resembled those in the rest of Europe. During the last third of the century, Spanish organs gradually began to take on characteristics of their own, becoming transformed into several local organ types.

The first noticeable development of the Spanish organ was the gradual differentiation of individual registers from the *Blockwerk*, which also occurred elsewhere in Europe. Little by little, the keyboard compass expanded to cover more than three octaves and windchests began to be constructed larger, especially towards the bass. Divided registers began to be built on Spanish organs in the 1560s. Two separate lines of evolution existed in regard to the increasing versatility of sonorities, namely, adding more keyboards and dividing registers.

Three different kingdoms coexisted on the peninsula: Castile, Aragon, and Portugal. Due to the occupation of the Moors (711–1497) the Spanish court was forced to take up residency in Barcelona, Spain, located at the heart of the region of Catalonia. It is for this reason that the development of the early organ in Spain finds its beginnings in Catalonia.

Generally speaking, the instruments were quite large and were frequently built on a 16' basis (Flautado de 26 = Principal 16'). Flautado de 26 (made of metal) was a stop frequently included in Catalonian organs. It was common to have at least two manuals: a *Cadira*, and the *Rückpositiv*. In Catalonia, there were no divided registers until the 18th century, and the windchests were large in size and diatonic by arrangement. It is noteworthy that when divided registers appeared later in Catalonian organs, the division was made between b and c1, while the division point in the Castilian organs was between c1 and c1-sharp.¹

The high point of the Castilian organ was around 1750, considerably later than that of the Catalonian organs. Castilian organs were commonly built on an 8' basis (Flautado de 13' = Principal 8'). Flautado de 26 was rarely found in these organs. There was usually only one manual, but there could be as many as three in exceptional cases. (For instance, the Gospel organ of the Segovia Cathedral has three keyboards.) There was usually no *Cadereta* (Swell). The registers were divided, and the windchests were small and chromatic. The largest pipes were placed in the center of a façade, and there was usually a horizontal *trompetería* (reed division).²

Gabriel Blancafort describes several features of the Castilian organ, which reveal its close resemblance to the positive organ. First of all, the windchest of the Castilian organ always maintains its chromatic structure, which is the

origin for other special characteristics of this organ type.³ The dimensions of the windchest, consisting of one single piece or of two pieces, are often small. There are usually 45 channels (for four octaves, the short octave included), of which 21 are for the left-hand side and 24 for the right-hand side—if the windchest is made of two pieces. The structure of the organ permits a different number of registers for each hand, always more for the right hand. It is necessary in many cases to place the majority of the large bass pipes outside of the windchest, due to its restricted dimensions. This has contributed greatly to the development of the techniques of conducting wind to the façade, and later, to the *trompetería de batalla* (Battle Trumpets). The *tablonos* (channel boards) distribute wind to different parts of the façade and are one of the ingenious inventions of the Spanish organ builders to cope with the tricky problems of guaranteeing wind to all the pipework. The action is always suspended, creating a touch that, according to Blancafort, is “the most sensitive and subtle that exists.”⁴ The mechanism of the draw stops is simple.

Although examples of divided stops exist elsewhere in Europe—in Brescia, Italy, in 1580, for example—“Spain certainly seems to be the first country to have used them systematically for colourful solo effects.”⁵ The principle of the divided registers is simple and ingenious. The keyboard is divided into two halves, both of which possess a variety of stops. Because the descant and bass halves can be registered independently, even rather small one-manual organs offer versatile and rich possibilities for registration. It is common to find a few of the same stops on both halves of the keyboard, but the majority of registers belong exclusively to the descant or to the bass half. The growing popularity of the divided registers gave birth to a new type of organ composition, namely, the *tiento de medio registro*, in which either one or two solo voices figured in the soprano (*tiento de medio registro de tiple/de dos triples*), or in the bass (*tiento de medio registro de baxón/de dos baxones*), against a softer accompaniment, which was played on the other half of the keyboard. I consider the technique of divided registers to be one manifestation of the Spaniards' love of fanciful, colorful sounds, contrasts, and variety in sonority.

A variety of surprising special effects could be created by the different toy stops that especially large Baroque organs contained. It is usual to have *Tambores* or *Timbales* (drums) in the pedal, providing a timpani effect. *Tambores* often include D and A. *Pajaritos* (little birds) produce a twitter resembling the *Usignoli* (nightingale) of the early Italian organs. There are also a variety of accessories generating sounds of sleigh bells. One is a Zymbelstern-like apparatus.

Characteristics of the early Iberian organ

The vast majority of Iberian organs are small instruments. In fact, the typical instrument consists of a single manual. Instruments of two or three manuals are the exception and then only found in the largest cathedrals. Early instruments with four manuals simply do not exist. It should also be mentioned that these instruments do not have a highly developed independent pedal division, but rather utilize a minimal octave or pull-downs.

The organbuilder and writer of many treatises, Mariano Tafall y Miguel, gives the following classifications of early organs based upon their disposition.⁶ Early builders were accustomed to using the following names to describe their organs based upon the size of the instrument and basis of pitch. Such common names are *órgano entero/completo* (based upon 16'), *medio órgano* (based upon 8'), *cuarto de órgano* (based upon 4'), and *octavo de órgano* (based upon 2' stopped and sounding at 4').

The manuals, *órgano mayor* (Great) and *cadereta* (Swell), can also be classified into the following five categories, depending on the number of manuals:

1 manual

Órgano Mayor

2 manuals

Órgano Mayor

Cadereta

or

Órgano Mayor

Cadereta Interior

2½ manuals

Órgano Mayor

Cadereta

Cadereta Interior (Arca de Ecos: enclosed within a chamber)

3 manuals

Órgano Mayor

Cadereta

Cadereta Interior (Arca de Ecos: enclosed within a chamber)

Órgano de la Espalda (speaking into the side of the nave from rear façade of the organ)

Cadereta de la Espalda (speaking into the side of the nave from rear façade of the organ)

The casework of early Iberian organs

The casework, generally speaking, is either very decorative or very plain. Larger instruments found in cathedrals, however, are highly ornate. Two opposing instruments are located above the choir; they are nearly identical and very ornate: one instrument will have two or three manuals and the other possibly just one manual. The casework of early instruments also has a secondary function, that of adding embellishment and aesthetic value to the artistic integrity of the building.

Pipework on early Iberian organs

Early builders used the term *caños* (pipes) and *cañería* (pipe building) extensively until the Romantic and Post-Romantic periods, at which time the term *tubo* came into use, most likely due to the impact of the French school of symphonic organbuilding, which came from the French term *tuyau* (tube).

The term *tubo* is divided into two distinct classifications, as *tubos de boca* (labials) and *tubos de lengua* (linguals). *Tubos de boca* (or labials) can then be

divided into two defined families: *flautados* (principals) and *nasardos* (nasard as in the Netherlands, *nachsatz*), which form two distinct choruses of labial pipes: the *coro estrecho* or *claro*, and the *coro ancho*. The terms *estrecho* or *claro* refers to cylindrical open pipes with a 1/4 mouth to circumference relationship. The terms *estrecho* and *ancho* refers to the diameter of the pipe in relation to the length. Early Iberian instruments measured pipe lengths oddly enough in *palmas* (palm or hand widths).

The following stop names are typical of early instruments.

Flautado Mayor de 26 Palmas (16')

Flautado de 13 (8')

Octava (4')

Docena (2½')

Quincena (2')

Decinovenena (1½')

Veintidosenena (1')

Lleno* (mixture)

Cimbala

Sobrecimbala

**Lleno general* or principal chorus.

The nasardos can be open or stopped, conical or cylindrical pipes. Generally there is a 2/9 mouth to circumference relationship.

Violon Mayor de 26 Palmas (16')

Violon de 13 (8' stopped)

Nasardo en 8° (4' stopped)

Nasardo en 12° (2½' stopped or open)

Nasardo en 15° (2' open)

Nasardo en 17° (1½' open)

Nasardos

Claron

Corneta

Generally speaking, nasardos 4' and above are semi-open or chimney-style pipes. The Swiss-German organbuilders Juan Kiburz y Francisco Otter, who were established in Barcelona, Spain, proposed the addition of several new stops in the organ at the Iglesia de Nuestra Señora del Pi, recommending the inclusion of a Gamba, Quintatón, Fagotto, and Soncional. However, as early as 1587, organbuilder Maese Jorge added a *Flautas Tapadas de 14 Palmas*, called a Quintaden, deriving its name from the sound that produced a prominent fifth overtone.

In fact, by the end of the 18th century many early organs in Spain contained such stops as *Flauta travesera* (traverse flute), *Flauta con boca redonda* (flute with round mouth), *Flauta Alemana* (German flute), *Salicional*, and *Gamba*.

Reeds

Without a doubt, the stops most associated with early Iberian instruments are the *lenguas* (reeds). The *Lenguetería* (reed division) makes up the third chorus on a typical Iberian instrument. Reeds are divided into two categories: *reales* (normal or full length) and *cortos* (half length) resonators.

Early in the development of the Iberian organ, *lenguas cortos* (half-length resonator stops) such as *Dulzainas*, *Orlos*, and *Regalías* were introduced. Little by little appeared the *Trompetas Bastardas* (harmonic trumpets) with half-length resonators, as well as the *Trompetas Reales* (full-length trumpets). The *Trompeta Real* (8') is always an interior stop and vertical in its placement. The *Obué* and the *Clarinete* (which is the *Cromorno* for Iberian instruments) can also be found on many early instruments.

The *Trompetas* can be further divided into two distinct categories: *Trompetas*

de Batalla (exterior and horizontal) and *Trompetas Interior* (interior and vertical). Early instruments almost always had at least one, if not two stops *en Batalla* even in the event that the instrument might not have a single interior reed stop.

The most frequently found *Trompetas de Batalla* (exposed and horizontal) are:

Left hand stops

Bajoncillo (4')

Clarin en 15° (2')

Clarin de Bajos (8')

Clarin en 22° (1')

Trompeta Magna (16')

Trompeta de Batalla (8')

Right hand stops

Oboe (8')

Chirimia Alta (4')

Trompeta de Batalla (8')

Clarin (8')

Trompeta Magna (16')

Trompeta Imperial (32')

It is also common to find *Dulzainas*, *Orlos* (regals), *Viejos*, *Viejas* (rankets), and *Gorrinitos* (clarions) mounted horizontally on the exterior of the case: 8', 4', 2' for the left hand and 16' and 8' for the right hand. These batteries of reed stops serve two roles within the literature: one as a solo stop and the other as a complement to the reed chorus. The voicing is formidable, harmonic, and richly distinctive in comparison to the interior reeds, which are sweet and broader in scaling. In the largest cathedrals (Zaragoza, Salamanca, Toledo, Málaga, Granada, Santiago de Compostela, Sevilla) the organs have *Trompetas de Batallas* mounted on the front façades (speaking into the choir)

as well as the rear façades (speaking into the nave), which allows for dazzling echo effects alternating between exterior and interior reeds.

Windchests and distribution of wind on early Iberian organs

Windchests on early instruments are always laid out chromatically, never diatonically or symmetrically. Additionally, each chest is divided between *bajos* (bass) and *tiples* (treble). The division occurs between c' and cs' (c³ and c^{#3}). In Catalonia the division occurs between b and c' (b² and c³), but is the exception to the rule and is very seldom encountered.

Keyboards (Teclados)

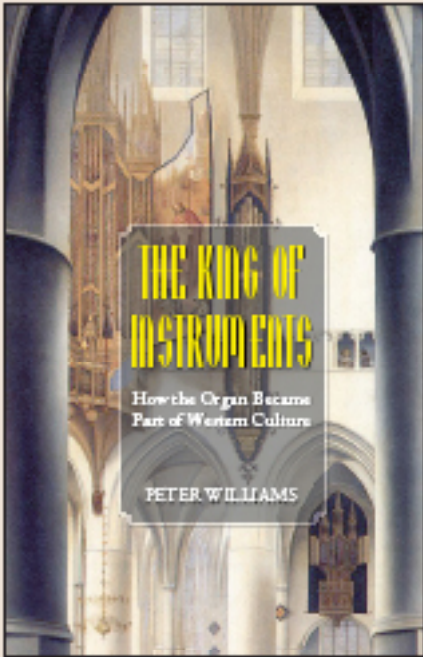
Of course, early instruments always utilize mechanical key and stop action. The action on most early instruments tends to be extremely responsive and light, necessitating a highly developed level of technique. Divided registers (*partidos*) predominate the peninsula and, as previously stated, allow the organist to have two distinct registrations on a single manual.

Thanks to the divided registers, it is always possible to register a work with contrasting registrations for the right and left hand. This may explain the existence of so many small instruments with only a single manual, however, one which serves as two! When considering the early Iberian repertoire it is important to realize the significance of a title such as *Tiento de tipples* (melody in the right hand) or *Tiento de bajos* (melody in the left hand).

On the earliest of instruments, it is possible to find stops that were enclosed within an *Arca de Ecos* (echo

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Pipe Organ History



Pedal keys (contras) on the organ at San Salvador, Granada, Spain, builder unknown, circa 1767

chamber) foreshadowing the future *Caja Expresiva* (expressive box; swell box). Initially, these Arcas were open, non-expressive boxes containing a single stop such as a Corneta or Trompeta placed within the Arca, producing a slightly distant sound quality. Over time, a lid was placed on top of the box and a lever, operated by the foot or knee, would open or close the lid. Initially this effect was referred to as *suspensión*, referring not to a musical structure, but rather the emotion produced in response to the overall effect.

Earliest examples typically affected only one *Tiples* (right hand) register or stop, usually the Corneta. Later, the Arca de Ecos came to include a variety of stops. The terms *Eco* and *Contraeco* seem to be used quite often in early treatises, which describe the effects created by the Arca de Ecos, the sensation of far (*lejania*) and near (*cerca*), not that of loud and soft. These Arcas de Ecos were not utilized to create a “swelling” sound (*crescendo*). Aristide Cavaillé-Coll incorporated this concept with his organ at Santa María de San Sebastián, in which the third manual operates in the same manner as an Arca de Ecos, which he called an *Organo de Ecos*, which in France would be called a *Récit Expressif*.

The compass of the manuals, as one would expect, increased gradually as newer instruments were being constructed. Bigger is better! Correa de Arauxo makes mention of this fact in his treatise, *Facultad Orgánica*, 1626: the organbuilders Hernando de Córdoba and Hernando Alonso de Córdoba, father and son from Zaragoza, Spain, were given the task of expanding the compass of the organ for the Parroquia de San Gil de Zaragoza, Spain in 1574.⁷ In order to amplify the compass from Fa to Do they only had to add one natural

key and two keys as if they had been accidentals. It is interesting to discover that the Spanish word for a key on the keyboard is *tecla* (from the Latin, *teja*), further supporting the hypothesis that the early Iberian organ is much older than originally thought.

The old manual compass was as indicated below until the mid-15th century:

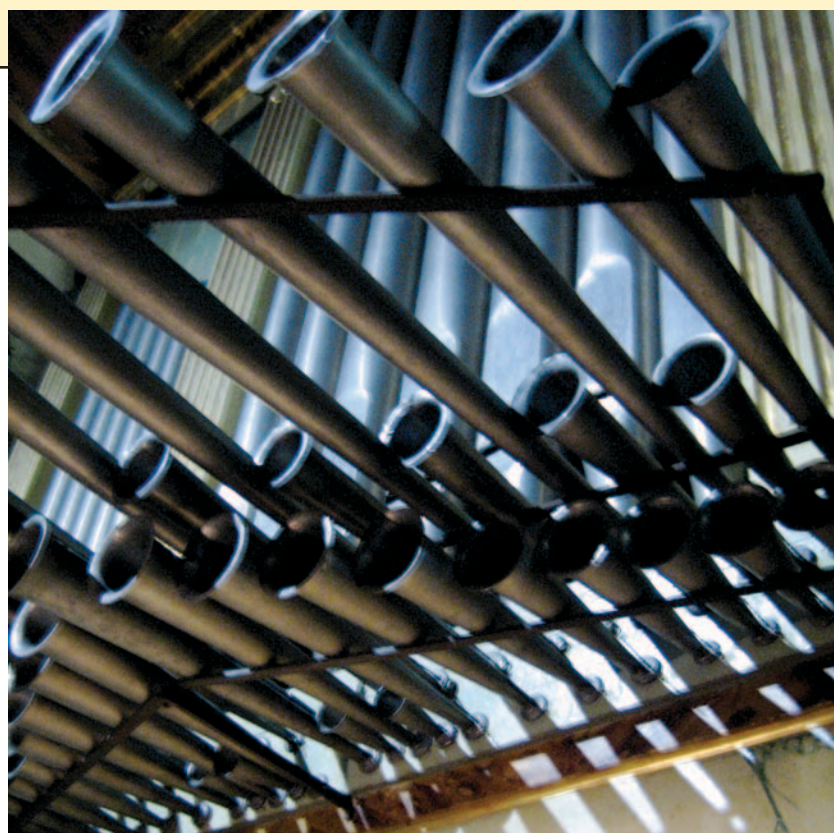
| Fa | Sol | La | b | Si | Do | # | Re | b | Mi | Fa | etc.

The new layout was as follows:

| Do | Fa | Re | Sol | Mi | La | b | Si | Do | # | Re | b | Mi | Fa | etc.

This manual layout, which ended on La 4, is the format that was prevalent during the 17th century. It consisted of 42 notes: 21 notes for each hand [divided registers]. In the 18th century, the compass was further enlarged in the right hand up to Do 5 and later enlarged in the left hand to complete the *octava grave*.

At the end of the 18th century, Julian de la Orden installed in the Catedral de Malaga three new manuals of 51 notes (Do 1–Re 5), and in the Catedral de Toledo he renovated the *Organo de Emperador* in 1770 with two manuals of 54 notes (Do 1–Fa 5). In 1797 José Verdalonga enlarged the *Órgano de evangelio* to three manuals of 56 notes (Do 1–Sol 5). These 56-note manuals took on the name *teclados de octavas segundas*, which meant that all of the octaves were like the second octave. Verdalonga also constructed the organ in the Iglesia del Salvador de Leganés in 1790 with a manual compass of 45 notes (Do 1–Do 5), with a diatonic short octave (*octava corta*). In 1771 Josep Casas renovated and enlarged the *Órgano Prioral* at the Escorial, where Antonio Soler was the organist. The outcome was an organ of three manuals: *Órgano Mayor* of 61 notes



Trompetería of the organ at Monasterio de San Pelayo, Santiago, Spain: Trompeta Real 16, 8, 2 and Clarines 4

(Sol 1–Sol 5); Cadereta of 51 notes (Do 1–Re 5); Ecos of 51 notes (Do 1–Re 5).

The tessitura of the manual is divided and labeled in the following manner:

- 1° Octava = Grave
- 2° Octava = Baja
- 3° Octava = Media
- 4° Octava = Aguda
- 5° Octava = Sobreaguda

The short octave

The limited pedal division is no doubt due to the use of short octaves in these early instruments. The lowest notes of the keyboard, which would normally be E-F-F#-G-G#, were tuned to pitches below their usual pitches; the C/E short octave (*octava corta*) keys were tuned as C-F-D-G-E. Since the pedal division was so limited, this allowed the performer to play intervals in the left hand that would otherwise be impossible. The use of the short octave was popular for many reasons:

Benefits for the organist

1. It allowed the organist to play the lowest bass note and inner voice with the left hand. The short octave was in a sense the pedal on these instruments.
2. It extends the lowest octave of the instrument, omitting chromatic notes, since the bass part of the keyboard repertoire was predominantly diatonic.
3. It allowed the organist's feet to be free for other tasks:

- To operate the Arca de Ecos
- To operate foot-activated stops

Benefits for the organbuilder

- It was more economical,
- When space was at a minimum
- When cost was a factor

The stops are located on either side of the *teclado* (manual) according to the divided registers, *bajos* and *tiples*, left and right, respectively. Stops can be found in the shape of paddles or knobs, ornate or plain. Occasionally, it is possible that the stop knobs can be located beneath the manual and activated by the knees. On organs with a short octave the stops may be located where the pedals ought to be, since on such an instrument, there was no basic need for pedals.

The pedals

The use of pedals was limited to emphasizing cadences in early

repertoire, so it goes without saying the pedals are very simple in design, usually consisting of wooden *pisas* (round knobs) or *peanas* (blocks), but never more than an octave. When the pedals are a pull-down (coupled from the manual) they are called *pisas*. If, on the other hand, the pedals have their own appropriate pipes, they are called *contras*. These pedals first appeared diatonically—Do, Re, Mi, Fa, Sol, La, Sib, Si—eight pitches total. Later they were expanded chromatically—Do, Do#, Re, Mi^b, Mi, Fa, Fa#, Sol, Sol#, La, Si^b—twelve pitches total. The usual stop for the Contrás is the Flautado 26 palmos (16'). In some instances, the pisa being a pull-down works much like a coupler, so the sound will reflect the registration used in the left-hand, lowest octave. ■

Mark J. Merrill holds a B.M. in church music and an M.A.T. in Spanish from Drake University, Des Moines, Iowa. He has studied organ with Montserrat Torrent for nearly 30 years, earning his *Maestría* in Organ from the Conservatory of Music in Barcelona, Spain, as well as his *Título de Doctorado* from the Real Academia de Bellas Artes in Spain. He has dedicated the past 30 years to documenting, recording, and analyzing nearly 168 historical instruments in Spain. His dissertation, “The Effects and Implications on the Performance Practices of Early Iberian Keyboard Music,” earned him a special citation of merit from the Spanish Department of Culture. He has presented numerous concerts and lectures in Spain and has been heard in recital numerous times on Spanish National Radio.

Notes

1. Gabriel Blancafort, “El órgano español del siglo XVII,” in *Actas del I Congreso Nacional de Musicología* (Zaragoza: Institución “Fernando el Católico,” 1979), 133–142.
2. *Ibid.*, 121.
3. *Ibid.*, 138.
4. *Ibid.*, 138–139.
5. Peter Williams, *The European Organ 1450–1850* (Bloomington: Indiana University Press, 1978, third impression), 245.
6. See James Wily, “The Pre-Romantic Spanish Organ: Its Structure, Literature, and Use in Performance.” D.M.A. dissertation, University of Missouri at Kansas City, 1964, 280–283.
7. This is the eleventh (unnumbered) page in Kastner's preface to his edition of Correa's *Facultad orgánica*, first published as volumes VI (1948) and XII (1952) in the series *Monumentos de la Música Española* (Barcelona: Instituto Español de Musicología).

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