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PULL OUT ALL THE STOPS

The pipe organ is one of the most demanding and particular of instruments, not only in its handling but in its construction. Yet the size and complexity of this musical device seem only to have spurred creativity in its design during the twentieth and twenty-first centuries

Pipe organs, powered by pressurized air and played from a keyboard, have a history that stretches back to ancient Greece, yet their technology and design continue to develop and evolve. Until the Industrial Revolution, organs were the most complex man-made machines ever to have been built, and their modern successors can still take years and thousands of hours to construct. Their golden age is often considered to be the seventeenth and eighteenth centuries, when J.S. Bach and his contemporaries were writing sublime music for the instrument, but the twentieth century enjoyed a remarkable renaissance in organ design that produced some spectacular examples.

The story behind pipe organ development is a long and complex one. The organ originally had secular origins, but from the tenth century onward it was a well-established feature of European Christian churches, and, by the twelfth century, had a fundamental part to play in the liturgy. “[Organs] were thought of as interlocutors between the human and the divine,” says the internationally acclaimed organist James McVinnie.

After the sixteenth century, the story of the organ greatly differs from nation to nation, not only in design but in its sound. As time went on, the distinctions between organs from different countries grew, and so did the variety of ways in which the instrument was used.

In the final quarter of the nineteenth century, composers started to use the organ as a symphonic instrument, and, in 1878, the first concert-hall organ in France was installed in the Palais du Trocadéro in Paris. One of the earliest performances was of Charles-Marie Widor’s *Symphony for Organ No. 6*, a work that sparked many French organ symphonies including the perennially popular 1886 *Symphony No. 3* by Camille Saint-Saëns.

As organs began competing with the full force of a symphony orchestra, achieving the same range and expressiveness as the

ensemble was all-important, and between the 1890s and the 1920s the instruments grew to monstrous sizes. The 1890 Sydney Town Hall Grand Organ in Australia has nearly 9,000 pipes and five manuals (keyboards that control the pipes), but that is nothing compared with the Boardwalk Hall organ in Atlantic City, New Jersey, USA; completed in 1932, that behemoth has seven manuals, 314 stops (controls that adjust the air flow to the pipes), and an astonishing



Previous pages and above: when Daniel Kern designed the organ in Saint-Thibaut church, Le Pecq, France, he created a case that is divided in two in order to reveal the church’s 115 ft tall stained-glass roof. The sweeping contours of the organ’s case mirror those of the church’s ceiling. The instrument has two manuals and roughly 1,500 pipes (see above), the tallest of which is 17 ft. Opposite: the organ of the Danish National

Academy of Music in Esbjerg, Denmark, was custom-built for the hall in 2002 by Marcussen & Søn. The instrument has 44 stops and 2,828 pipes. The Zimbelstern stop (the star at the organ’s center) rotates when it is engaged, making the several bells that are mounted on it ring. The organ’s case is made of Danish “navy oak,” a type of nineteenth-century oak that was originally cultivated for use as timber for the Danish Royal Navy ships

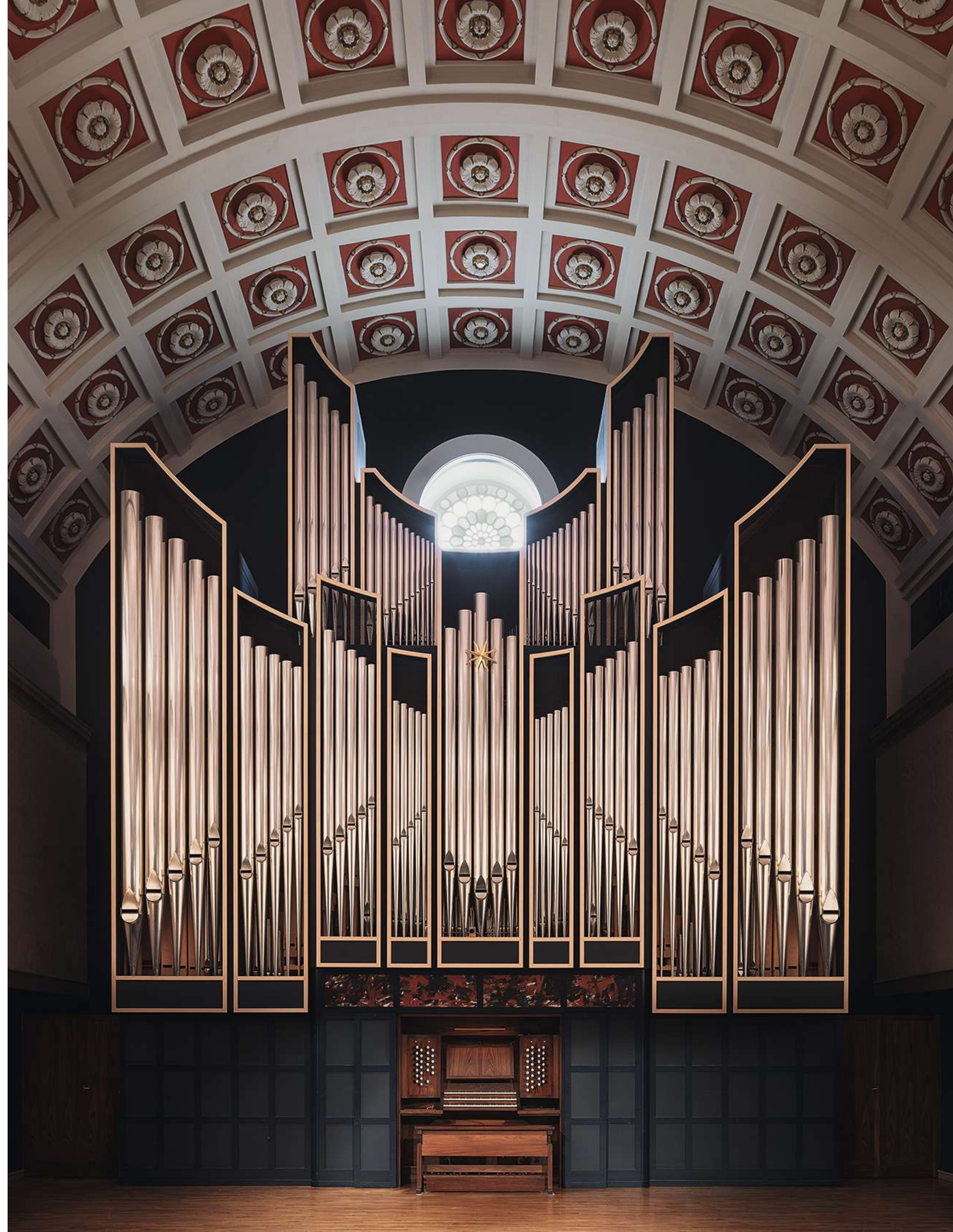
33,112 pipes. Almost inevitably, resistance to this complexity set in, led by the Nobel Prize-winning organist and mission doctor, Albert Schweitzer, who in 1906 called for a return to the “purer” sound and simpler construction of baroque organs. The *Orgelbewegung*, or Organ Reform Movement, that followed had an enormous impact on organ design in the twentieth century, promoting the restoration of older models and a focus on the organ’s ability to perform the polyphonic music of the seventeenth and eighteenth centuries.

The organs pictured here, however, all date from after the Second World War, which caused such terrible destruction yet also gave organ builders an unprecedented opportunity to create new instruments that were informed by the past but also capitalized on new musical and technical advances. Arguably the most influential example of its time is the 1954 organ at the Royal Festival Hall in London, UK. It was designed by Ralph Downes, an organist and academic, and was paid for with public funds, which led to it being dubbed “the taxpayer’s organ.”

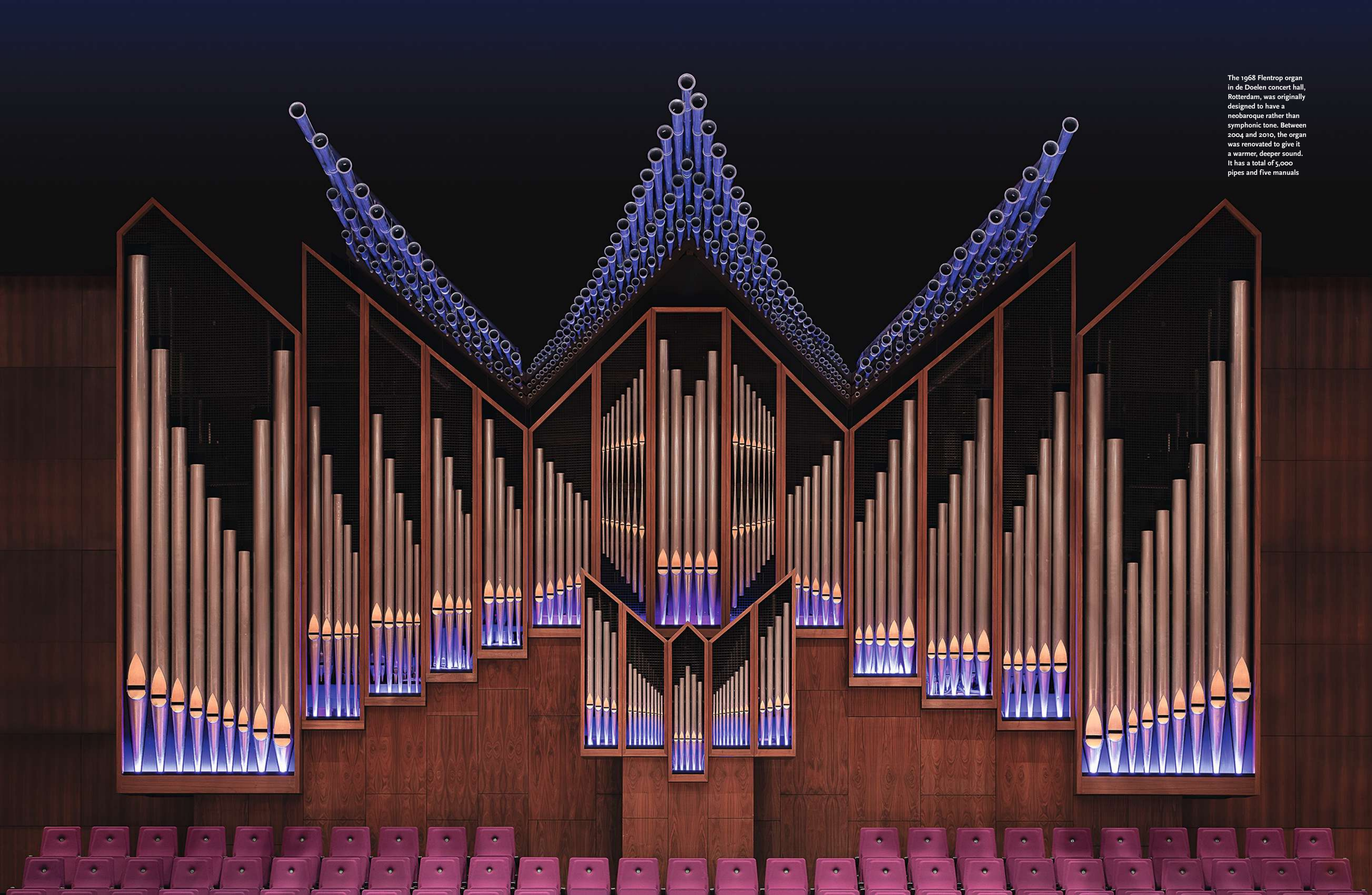
Though it was built a decade later, de Doelen concert hall in Rotterdam, the Netherlands, is aesthetically similar to the Royal Festival Hall, and similarities can also be drawn between its 1968 organ (see pages 40–41) and that in the London concert venue. The Dutch organ builder Dirk Flentrop conceived the distinctive horizontal design, crowned with a spectacular array

of trumpet-like pipes in an arrangement known as *en chamade*, which despite its French name originated in Spain.

Though it has some stylistic similarities, the 2002 organ at the Danish National Academy of Music in Esbjerg, Denmark, (see opposite) is remarkable, not just for its sound but also for its setting. The concert hall, with its elegant, coffered barrel roof, was actually constructed as the turbine hall of a power station in 1907. It is now one of Europe’s most renowned chamber music



The 1968 Flentrop organ in de Doelen concert hall, Rotterdam, was originally designed to have a neobaroque rather than symphonic tone. Between 2004 and 2010, the organ was renovated to give it a warmer, deeper sound. It has a total of 5,000 pipes and five manuals



venues, best known for its superb acoustics and its organ, which was made by Marcussen & Søn (the firm that also created a 5,500-pipe instrument for Bridgewater Hall in Manchester, UK). Poul-Gerhard Andersen, who apprenticed at the company, designed the geometric, gold-accented organ case at the cathedral of Saint Peter in Geneva, Switzerland (see page 44 and page 45, top left). Metzler Orgelbau of Zurich built the organ itself, which was completed in 1965. Its shape is reminiscent of an angel's wings.

France also has a long and distinguished tradition of organ building and boasts some remarkable modern instruments. One of the best examples can be found high in the Alps, in the ski resort of Alpe d'Huez, where the architect Jean Marol built Notre-Dame des Neiges (Our Lady of the Snows), a soaring glass-and-concrete church with a lighthouse-like tower, completed in 1970. Its organ

SOME OF THE MOST VISIONARY MODERN ORGANS ARE DESIGNED BY ARTISTS AND ARCHITECTS

(see right) was designed by Marol with the German organ builder Detlef Kleuker and takes the form of the Hand of God, in an ingenious arrangement where one set of pipes forms the four fingers while another forms the thumb, with the swell box (an adjustable volume control device) in the hand's palm. A more recent French organ can be seen just outside Paris in Le Pecq, where, in 2008, the builder Daniel Kern created the art nouveau-inspired organ at Saint-Thibaut church (see pages 36–38).

Some of the most visionary modern organs are, unsurprisingly, those designed by artists and architects, such as the huge instrument built by Manuel J. Rosales that dominates Frank Gehry's 2003 Walt Disney Concert Hall in Los Angeles. Gehry himself compared the organ's aesthetic with giant French fries. In the medieval church of Saint Johannes in Kitzingen, Bavaria, the

The church of Notre-Dame des Neiges was constructed between 1968 and 1970 at the Alpe d'Huez ski resort, France. It is home to an organ that was completed in 1978. The congregation treats the organ, which is positioned under a skylight, as a central point, sitting around it in a semicircle. Unusually, the organ's two manuals face the audience, meaning that the attendees can see the organist play





1996 organ (see above, bottom left and right) has swooping, hand-painted panels by Jacques Gassmann, a contemporary German artist who paints with ink. These add an extra touch of dynamism to an instrument built by Johannes Vleugels, who explains that, “This was our first collaboration with an artist who used the organ case as his canvas.”

Yet not all innovations are visual or even visible. As James McVinnie remarks, “Basic organ mechanics haven’t changed much since the Middle Ages, so to listen to a historic organ is like stepping back in time.” Pneumatic and electronic components have long made some aspects of performance easier, but recent developments address two of the instrument’s most basic constraints.

Traditional organs rely on moving levers, or stops, to activate a number of pipes at

Opposite and this page, top left: the organ in the cathedral of Saint Peter, Geneva, Switzerland, was installed in 1965 and is one of the largest in the country with nearly 6,000 pipes and 67 stops. Its tonality is largely attuned to the neobaroque style. This page, above, bottom left and

right: the pipes of the Saint Johannes church organ in Kitzingen, Bavaria, are set at different depths, while the painted panels that swirl across the organ case mimic the arched curves of the church’s ceiling and reflect the dappled colors of the stained-glass window opposite the instrument

once, but so-called hyper organs allow the player to control each individual pipe (of which there may be thousands), and MIDI-enabled consoles mean the organs can be played remotely from anywhere in the world. Similarly, the smARTvalve system, invented by the Belgian company Orchestrionix, controls the amount of air each individual pipe receives and thus its sound quality (until now the air supply had operated in a

simple binary way, being either on or off). Meanwhile, new, sophisticated Espressivo key contacts lend an electronic keyboard the same sensitivity of touch that a player would enjoy on a purely mechanical version.

Mozart was the first to call the organ the king of instruments, and it is easy to see why the title has endured. One might have expected the organ’s long history and strong traditions to have stifled innovation, but the opposite seems to be true. The instruments remain stubbornly individual and varied, and for organists that seems to be part of the appeal. For James McVinnie, at least, “Part of the fun of playing the organ is dealing with each instrument’s particular quirks.” ♦



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