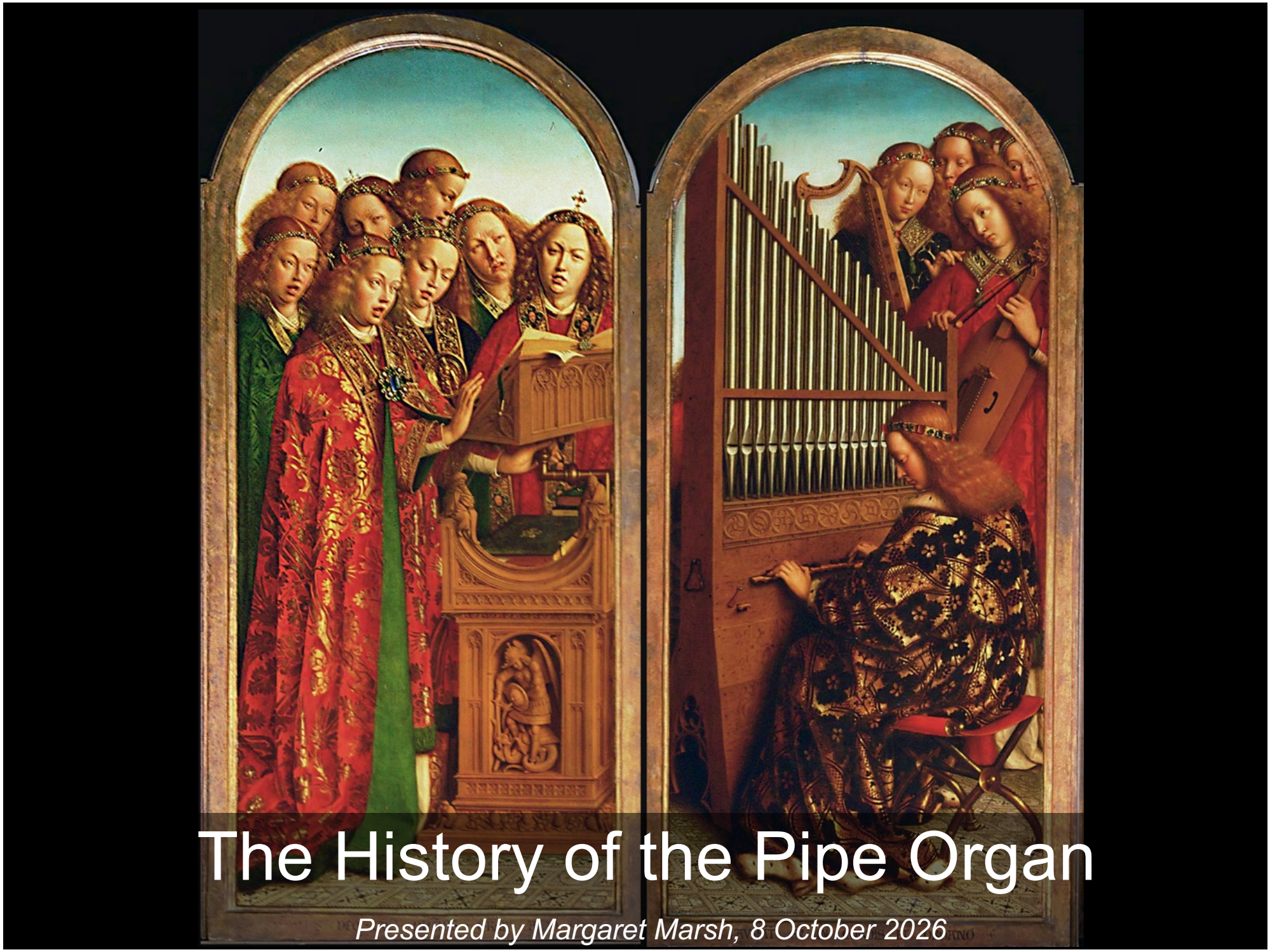


The History of the Pipe Organ

Presented by Margaret Marsh, 8 October 2026



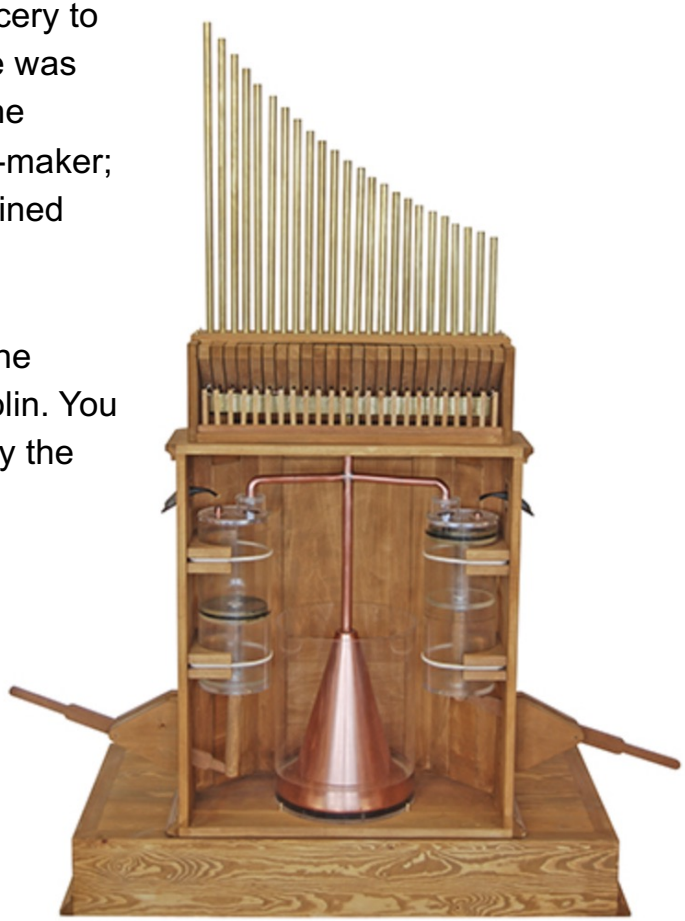
THE GREEK WATER ORGAN

3RD CENTURY BC

The Hydraulis : The Greek Water Organ

Invented by Ctesibius of Alexandria, Egypt in the 3rd century BC.
Aerophone (Keyboard Instrument), Water-regulated air pressure,
Bronze, Copper, Wood, Leather; used in Arenas, Theaters, and Aristocratic Homes

Imagine a musical instrument so advanced for its time that it seemed like sorcery to the ancient world. Before the grand pipe organs of medieval cathedrals, there was **the Hydraulis**. It was not powered by electricity or massive bellows, but by the sheer physics of water and air working in harmony. This was not just a music-maker; it was the world's first keyboard instrument, a technological marvel that combined engineering genius with musical artistry.



Walking through the bustling streets of ancient Alexandria or the massive stone arches of a Greek or Roman amphitheater, you wouldn't hear a piano or a violin. You would hear the piercing, powerful sound of bronze pipes singing out, driven by the steady pressure of water.

It is an engineering marvel that set the stage for Western music history.

The Hydraulis : The Greek Water Organ. 1.35.
https://www.youtube.com/watch?v=US50QmZaeyE

~~~
~~~

Kotsanas Museum – Ancient Greek Technology:
https://kotsanas.com/exhibits/music/the-hydraulis-of-ktesibios/

The Hydraulis : The Greek Water Organ
It was the first worldwide keyboard instrument, invented by Ctesibios in the 3rd century B.C.
The hydraulis constitutes the forerunner of the contemporary church organ.

Technical information – how it worked:
It consisted of two pumps that supplied the air (of piston pump type), the **pnigeus** for the regulating of constant air pressure, the keyboard, and the musical pipes **auloi**. The pumps were placed at both sides of the pnigeus and allocated non-return valves that were controlled automatically by **two bronze dolphins**, while their pistons reciprocated with the help of hand levers. The pnigeus consisted of a **cylindrical container** with water, which had a sunken inverted **cone-shaped funnel** fitted on holders at a small distance from its bottom.

Two **air supply pipes** converged at the top of the funnel while another pipe led the air with constant pressure to the **collector of the keyboard**. The stability of the air pressure was achieved due to the escaping of the redundant air from the bottom of the funnel and thus the stability of musical notes was ensured henceforth only depending on the length of the musical pipes.

The keyboard of the reconstructed hydraulis consists of 24 keys that control the equal in number bronze air supply valves to 24 unequals in length musical pipes (like the Hydraulis of the ancient Dion), which produced two complete octaves. The keys-valves spring back with the help of small flexible wooden boards from maple tree.

SOURCES: Vitruvius, On Architecture, Heron of Alexandria, Pneumatics.





THE MEDIEVAL ORGAN :: 450-1450

The Pipe Organ of Valère Basilica in Sion, Switzerland. 1435.

The Medieval Organ



After the fall of Rome in 476 and the loss of the organ in western Europe, it continued to be used in the Eastern Empire. It's reintroduction to western Europe occurred in 757, when an instrument arrived from Byzantium to the court of Charlemagne's father, Pepin the Short.

Other references to organ gifts are found in the following century, and enough reports survive to make it a safe assumption that, indeed, the organ was, after the 9th century, a part of the cultural life of western Europe. Although that much can be assumed, we don't really know any reliable details about the organ itself or how it was used in the early years of the Middle Ages.

At this time it developed into three different types of instrument:



1. The Portative Organ: the smallest of the medieval organs, its name comes from the Latin for 'carry'. It had a single manual (keyboard) with less than two octaves range. Only one or two ranks of pipes, and a bellows attached to the back of the organ, so that while one hand played the other operated the bellows. 3.40. https://www.youtube.com/watch?v=Uk4iVold0eU

2. The Positive Organ: larger than the Portative, having a manual and bellows that allowed the player to use both hands to play polyphonic secular and church music. In later versions it allowed the use of stops. 2.06. https://www.youtube.com/watch?v=oqiBDNoETJ0



3. The Church Organ: the Church had taken a dim view of the organ, it was not part of Christian worship until some time during the 10th century. It went through a process of development that is ultimately responsible for all the great instruments that have appeared since that time. Without the encouragement of the Church, it is probable that the organ would never have developed beyond the scope seen in the organs above. The world's oldest (1435) still playable organ is in the Valère Basilica in Sion, Switzerland. 2.29. https://www.youtube.com/watch?v=o-rEen0HVS8

Technical wording: Manual=keyboard. Compass=number of notes available.

~~~~~~

More info:

https://organhistoricalsociety.org/OrganHistory/history/hist002.htm

~~~~~~



THE RENAISSANCE ORGAN :: 1450-1600

The Grand Pipe Organ of the Cathedral of Barcelona, Spain. 1538.







The Renaissance Organ

They were versatile pipe instruments that transitioned from medieval unselective sound systems to complex multi-stop configurations, perfectly suited for the polyphonic textures of 15th- and 16th-century sacred and secular music.

Key design and structural features:

Transition from Blockwerk: Older medieval instruments played all ranks at once (Blockwerk), while Renaissance organs introduced slider and spring chests that allowed players to isolate specific ranks using stop controls.

Manuals and Pedals: Most church instruments featured one or two manuals (keyboards) and occasionally a basic pedalboard for the feet.

Tonal Architecture: Italian designs favoured a single manual with an expansive ripieno (a chorus of individual principal-scaled ranks rather than mixed stops) and a deliberately out-of-tune voce humana (human voice), whereas northern European builders incorporated more varied flutes, early metal reeds, and multiple divisions.

Common Types of Renaissance Organ:
Together with the Portative, Positive and Church organs, we also have::

1. Renaissance Organ, Lorris, France. **Tordion by Pierre Attaingnant** (1494-1552). 0.55.
https://www.youtube.com/watch?v=tUpiH-8W-zk

2. The Regal Organ: a small tabletop organ with striking reed pipes instead of flues giving a buzzy tone. During the 16th and 17th century it was omnipresent as a portable instrument fitted with one reed-stop. In the 18th century the regal enjoyed a late bloom due to the ingenious inventor and organ-builder Jean-Baptist Micot (1712-1784) 3.40.
https://www.youtube.com/watch?v=4N_erre1f4o

3. The Clavioganum (aka Claviorgan): a hybrid combining an organ mechanism with a harpsichord or spinet, fitted with strings as well as organ pipes. 3.31.
https://www.youtube.com/watch?v=JnJtSw7oU00&t=1s



THE BAROQUE ORGAN :: 1600-1750

Braga Cathedral, Portugal. 1730.



The Baroque Organ

Baroque organ music represents the "**Golden Age**" of the pipe organ, spanning roughly from 1600 to 1750, and is defined by complex counterpoint, dramatic tonal contrasts, and structured improvisation. During this era, regional innovations in organ building radically transformed how music was written across western Europe.

Key Composers:
The Baroque organ repertoire contains some of the most complex keyboard music written:

1. **Johann Sebastian Bach: Toccata and Fugue in D Minor, BWV 565**, this is the single most famous organ work in existence, loved for its dramatic opening and fierce energy. 2.57.
https://www.youtube.com/watch?v=vfySQBxAA4w

2. **Johann Sebastian Bach: The Orgelbüchlein (Little Organ Book), BWV 599–644**, is a celebrated collection of 46 short chorale preludes for organ, composed primarily during his time in Weimar between 1708 and 1717, that serves as the ultimate manual for liturgical melodies.
Nun komm der Heiden Heiland BWV 599. 1.26.
https://www.youtube.com/watch?v=m696eJ9qdIg

3. **Dieterich Buxtehude: Passacaglia in D Minor, BuxWV 161**, this work features a recurring bass line that shifts through dense, brilliant variations. 5.48.
https://www.youtube.com/watch?v=twydwjesd8A

4. **Johann Pachelbel: Hexachordum Apollinis (Apollo's Hexachord)**, is a collection of keyboard music published in 1699 comprising six arias with variations, on original themes. It is generally regarded as one of the pinnacles of Pachelbel's cannon, and includes a preface in which Pachelbel dedicates the work to Dieterich Buxtehude and Ferdinand Tobias Richter and briefly discusses the nature of music. (A hexachord is a six-note musical scale or pattern that features a specific arrangement of whole tones and a central semitone.) 1.20.
https://www.youtube.com/watch?v=7E0RnvcB7_A

5. **Girolamo Frescobaldi - Canzona from Fiori Musicali**, the premier Italian organist of the early Baroque era, renowned for his highly experimental and expressive Fiori Musicali (Musical Flowers), a collection of liturgical organ music published in 1635. 2.30.
https://www.youtube.com/watch?v=0HI_IZkI80o

<< Hiding in the upper choir of Braga Cathedral, Portugal, is this incredible double baroque organ. While the two organs look identical, they are slightly different, representing different aspects of music and virtues.



THE CLASSICAL ORGAN :: 1750-1825

Organ of the Basilica of St. Martin, Weingarten, Germany. 1750.



The Classical Organ

The organ fell out of favour with the major composers of the Classical era as public taste shifted toward the piano and orchestral symphony. While Mozart wrote a select number of works for the organ, and Haydn explored the instrument's potential as a solo instrument in the concerto form, little in the organ repertoire of the Classical period is considered seminal. Indeed, it was not until the late Romantic era that the organ returned to prominence.

The period is mainly homophonic, using a clear melody line over a subordinate chordal accompaniment, but counterpoint was by no means forgotten, especially in liturgical music and, later in the period, secular instrumental music. It also makes use of *style galant* which emphasises light elegance in place of the Baroque's dignified seriousness and impressive grandeur. Variety and contrast within a piece became more pronounced than before.

Key Composers:

1. Haydn - The Austrian Hymn, St. Augustine Church in Vienna, Diane Bish. 2.17:
https://www.youtube.com/watch?v=fK07Gdv-Vxw

2. The Haydn Niemecz Mechanical Organ. Built in 1793 by Niemecz, Primitivus, Eszterháza, Austria. 1.10.
https://www.youtube.com/watch?v=A9Xsi_0ZMPE

3. Antonio Salieri, 1750-1825, an Italian composer and teacher of the classical period.
Orchestra Concerto Allegro assai. written in 1773. 6.12.
https://www.youtube.com/watch?v=Ru3ivY6gMg0

4. Wolfgang Amadeus Mozart, 1756-1791
Organ Solo – Marriage of Figaro Overture. 4.24
https://www.youtube.com/watch?v=FUT5hG8lgKQ
~~~~~~

Haydn composed early concertos and famous sacred choral works with prominent organ parts like the **Little Organ Mass**: (https://www.youtube.com/watch?v=m2OQ0rNMZOk)
~~~~~~

The Evolution of Organ Music from Baroque to the 20th Century
https://bachtrack.com/feature-at-home-guide-organ-music-baroque-july-2017

It wasn't until the late Romantic era that the organ returned to prominence. Mendelssohn and Josef Rheinberger composed extensively for organ, particularly in the sonata form, blending the tonalities of Romanticism with the contrapuntal style of Bach and his like. However, during this period it was largely France that held claim to innovation in the organ world.

A French organ designer named Aristide Cavaillé-Coll created a unique pedal which would allow the organist to control the shutters of the swell box – the part of the organ which encloses the pipes and controls the loudness of the sound they produce. Now, the player could easily control and traverse the dynamic range of the instrument, from its very quietest to its loudest capabilities. For composers such as the Belgian-French organist César Franck, this opened up a whole new vista of compositional possibility. It was Franck who, with his Grande pièce symphonique of 1862, introduced the notion of the organ symphony – a work scored only for the organ but which retained the dynamic scope and multi-movement form of a traditional symphony.

Camille Saint-Saëns would complicate this notion further, however, with his own **Symphony no. 3 in C minor, commonly known as the "Organ Symphony"**. This was a full-blown symphony in the conventional sense, though the composer took the unprecedented step of using a pipe organ in two of its sections (it is organised into two movements, though it sounds like four) to add tonal colour. During the "Maestoso" and "Poco Adagio" sections, the organist plays low pedal notes which are almost inaudibly low. In the finale, these low notes combine with rumbling timpani to create a thunderous bottom end, and the organist reiterates the plainchant-derived themes of the symphony to add to the overwhelming effect.

~~~~~~

Further listening:
Haydn St Anthony Chorale: All Saints Church Oystermouth Swansea. 2.52.
https://www.youtube.com/watch?v=oVyIIShFAdQ

Haydn, Musical Clocks. 2.14. https://www.youtube.com/watch?v=vKZTOiFO7a0
~~~~~~



THE ROMANTIC ORGAN :: 1825-1900

The Collegiate Church of St. Michael in Neunkirchen am Brand, Bavaria, Germany. 1885.



The Romantic Organ

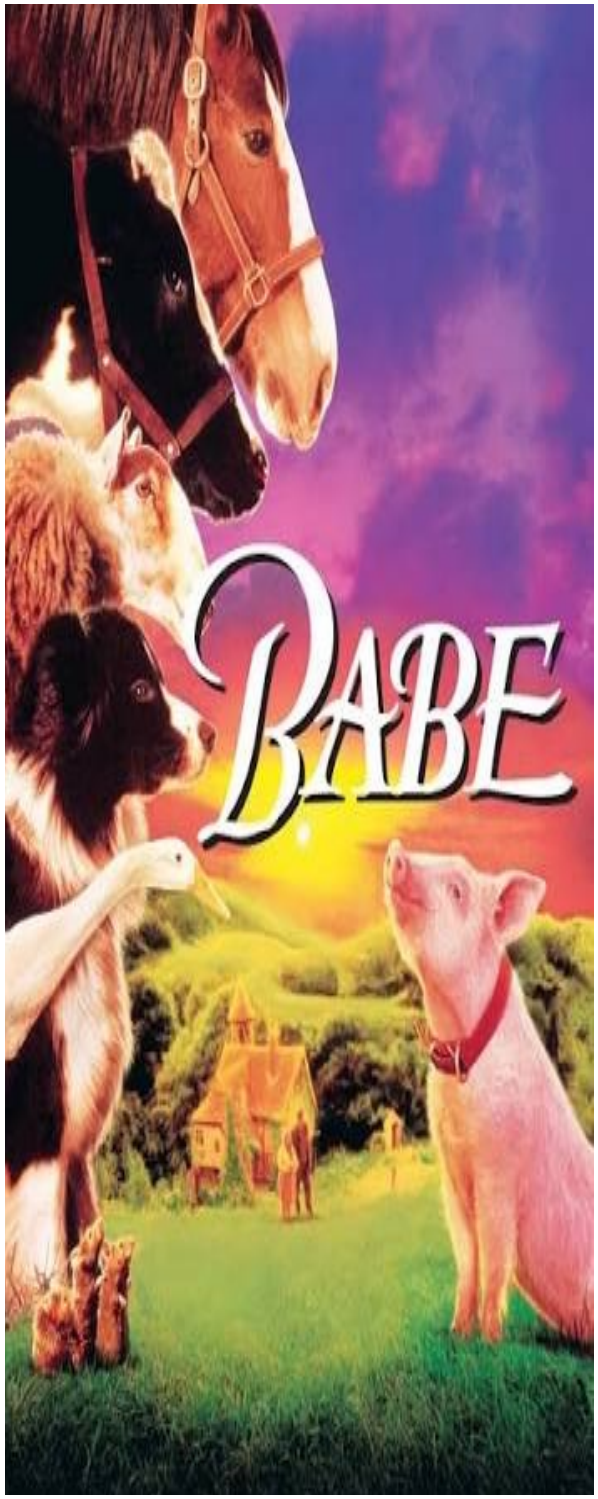
It wasn't until the late Romantic era that the organ returned to prominence. Mendelssohn and Rheinberger composed extensively for organ, particularly in the sonata form, blending the tonalities of Romanticism with the contrapuntal style of Bach, etc. However, during this period it was largely France that held claim to innovation in the organ world. Major composers of organ music in the Romantic period included:

1. Felix Mendelssohn - Prelude in G Major, Op.37, No.2. 3.22.
https://www.youtube.com/watch?v=R_tkxRUVCfU
Mendelssohn's masterful synthesis of Bachian contrapuntal technique with Romantic expressiveness. Along with the Six Sonatas, Op. 65, these important organ works of the 19th century ushered in the "**second golden age of organ music**" following the decline of the Classical era.

2. Josef Rheinberger - Andante from Organ Sonata 1 op. 27. 3.07.
https://www.youtube.com/watch?v=SPDgQ2UQqhk
Some have considered his organ works to be the greatest since Mendelssohn, while others have never even heard his music. He has become better-known than other contemporary organ composers because his high-quality mass settings have long been popular among Catholic choir-masters.

Saint-Saens – Organ Symphony No 3 – Finale.

~~~
~~~



Saint-Seans – Organ Symphony 1886

Late Romantic Period.
The Symphony No. 3 in C minor, Op. 78, was completed by Camille Saint-Saëns in 1886 at the peak of his artistic career.

It is popularly known as "**the Organ Symphony**", since, unusually for a symphony of the late-Romantic period, two of the four movements use the pipe organ.

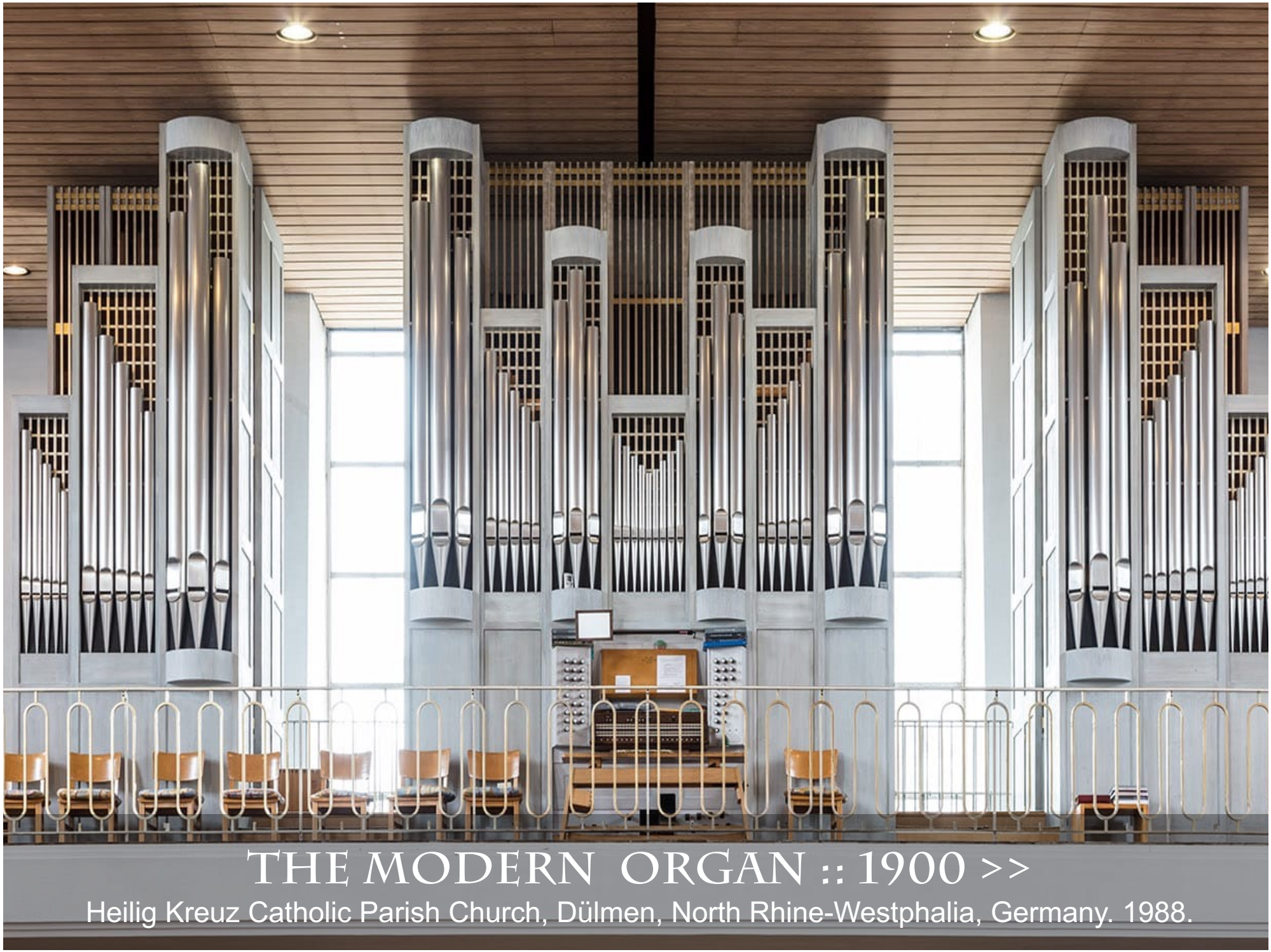
3. Saint-Saëns Organ Symphony No 3 - Finale. 8.08.
https://www.youtube.com/watch?v=swDuXAKLy8U

The Full work: Saint-Saëns Symphony No 3 Organ. 45.30.
https://www.youtube.com/watch?v=_zRHVSJkCjw

~~~~~~

4. A Dance for Babe. 3.04.
https://www.youtube.com/watch?v=83LNTbeatHE

5. The Pig who became a Shepherd. 10
https://www.youtube.com/watch?v=UNUi2GUbBE0
~~~~~~



THE MODERN ORGAN :: 1900 >>

Heilig Kreuz Catholic Parish Church, Dülmen, North Rhine-Westphalia, Germany. 1988.

The Beauty of Bavaria's Modern Church Organs

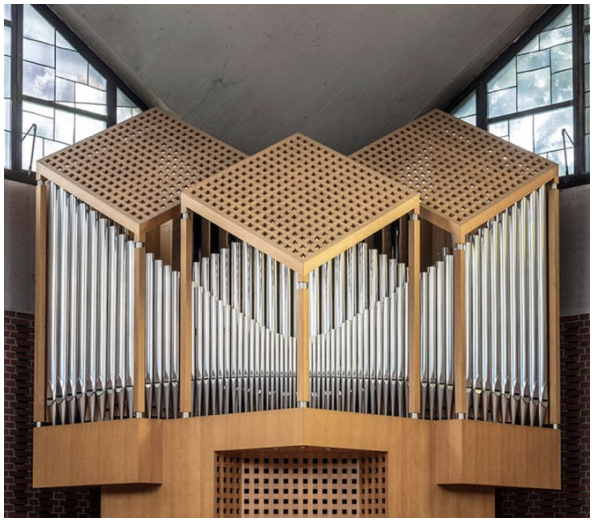












https://thespaces.com/bavarian-church-organs/8/



The Modern Organ

Fanfare for the Common Man is a work composed in 1942 by Aaron Copland. It was inspired by a speech made earlier that year by US Vice President, Henry Wallace, in which he proclaimed the dawning of the "*Century of the Common Man"*.

1. Fanfare for the Common Man. Aaron Copland. 3.45.
https://www.youtube.com/watch?v=iW19ixYUllU

2. Tocata into Insomnia by Faithless. Never in Bach's wildest dreams could he have imagined this. A concert by Ministry of Sound Classical and Anna Lapwood at the Royal Albert Hall, June 2026. 5.25.
https://www.youtube.com/watch?v=G6WidVbOFIE

3. Intermezzo, Cavalleria Rusticana. Pietro Mascagni. Organ of the Sanctuary of the Divine Mercy, Zych, Poland. I have played it before ... but I love it! 4.33.
https://www.youtube.com/watch?v=Vw9IoA8BB24

4. Widor's Toccata Symphony No. 5. Popularised for royal weddings by *Katharine Worsley* who married the *Duke of Kent* in 1961, *Catherine Middleton* and *Prince William* in 2011, *Lady Diana Spencer* and *Prince Charles* in 1981. And also played at my 1968 wedding !
Organist: 10 yr old Nykoda Icke ... and Anna Lapwood working the stops! 6.44.
https://www.youtube.com/watch?v=Fq7B39rm-IU

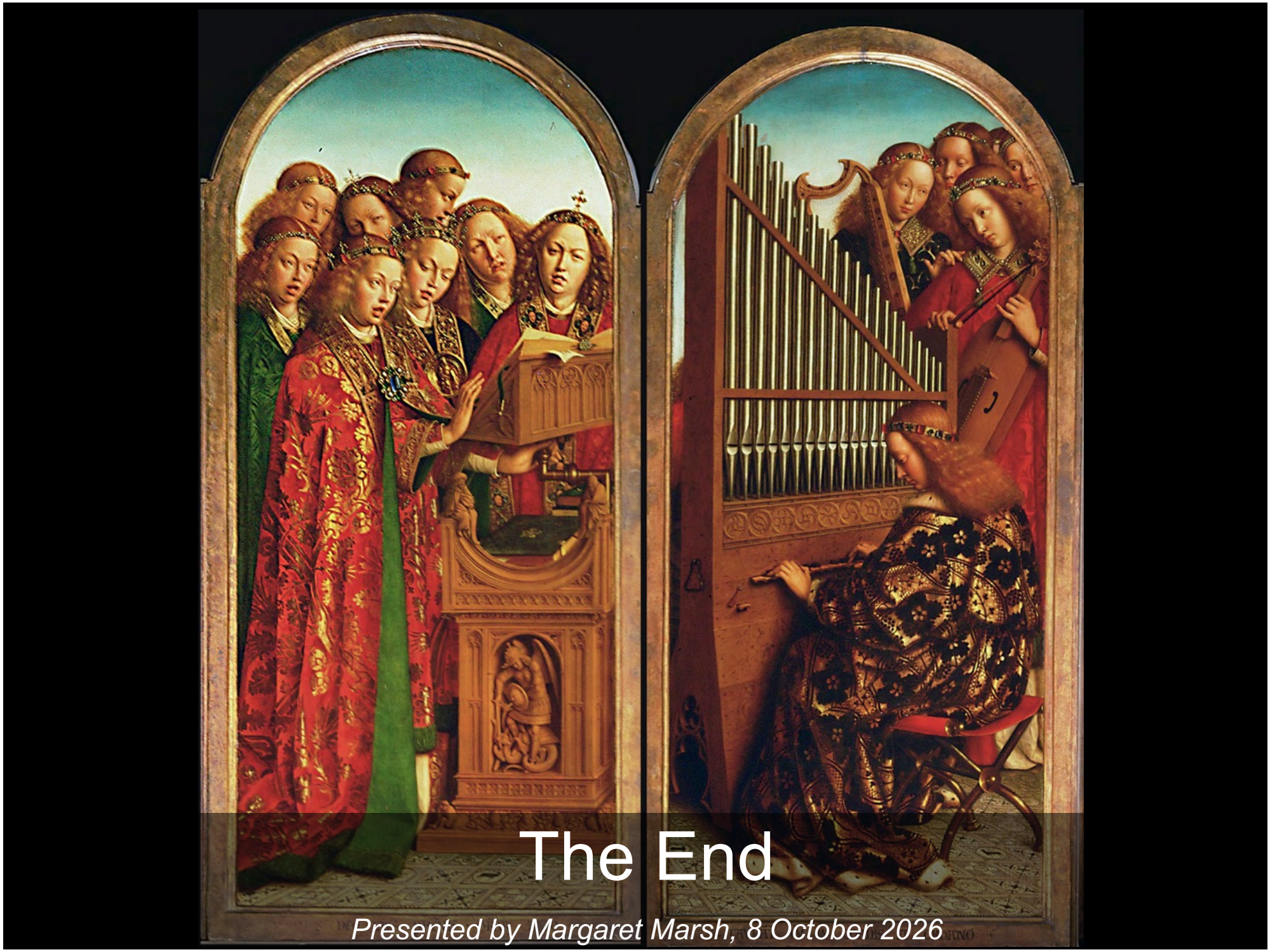
5. Bill Bailey playing the 9,999 pipe organ at the Royal Albert Hall Proms. 0.55.
https://www.youtube.com/shorts/HzSyFvG_dNQ

6. Max plays Bach.
My grandson and Vaughan's student, at Holy Trinity's Spring Festival. 6.20.
Private video.

Anna Lapwood : How does a pipe organ actually work?

https://www.youtube.com/watch?v=TzK-tYFGQx4





The End

Presented by Margaret Marsh, 8 October 2026