

Stone: From Technique to Technology

Part 2: From Late Roman to Gothic

The Classical Style

–

Used ROUND arches



Early example of a Greek arch
at Corinth



Stoa of Eumens
Acropolis, Athens
197 BCE





Arch of brick and mortar in
Cumae, Italy



Pompeii
Italy
69 CE

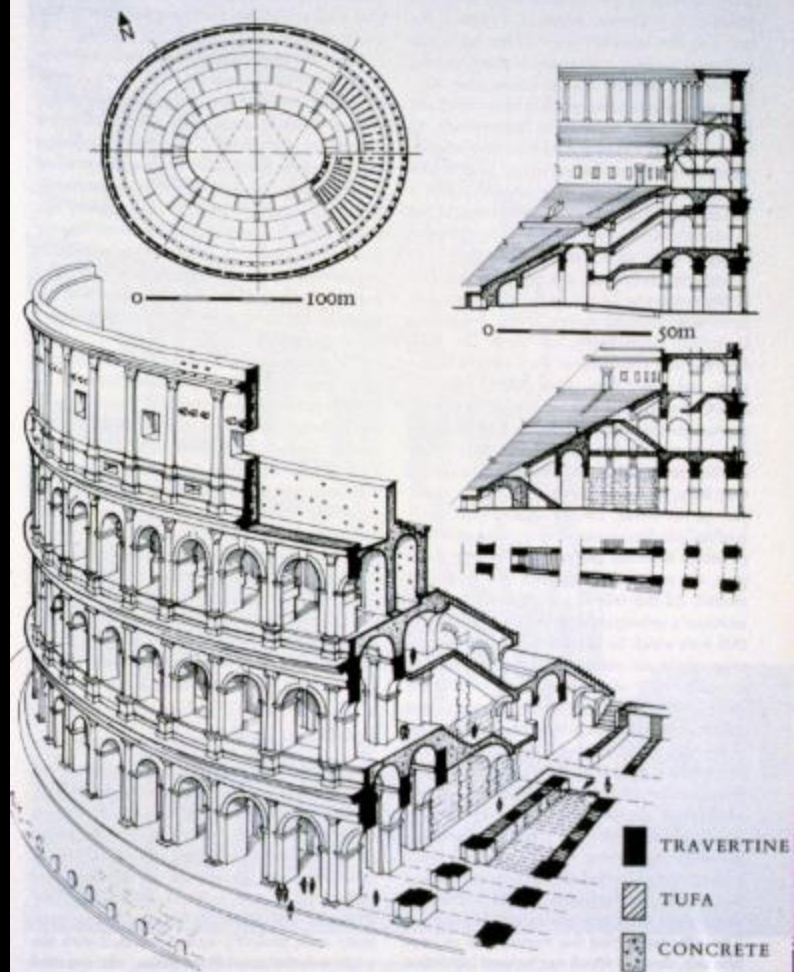






Coliseum/Flavian Amphitheatre
Rome, Italy
70 CE

31. Rome, Amphitheatrum Flavium (Colosseum), inaugurated in 80.
Plans, sections, and sectional view













Palatine Hill
Rome, Italy

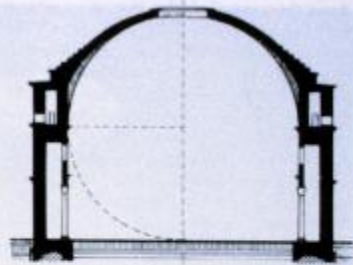




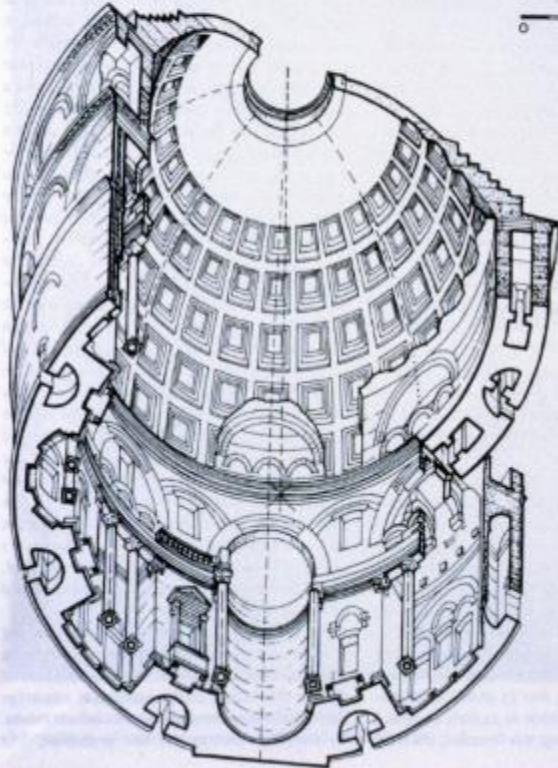
Pantheon
Rome, Italy
113 CE

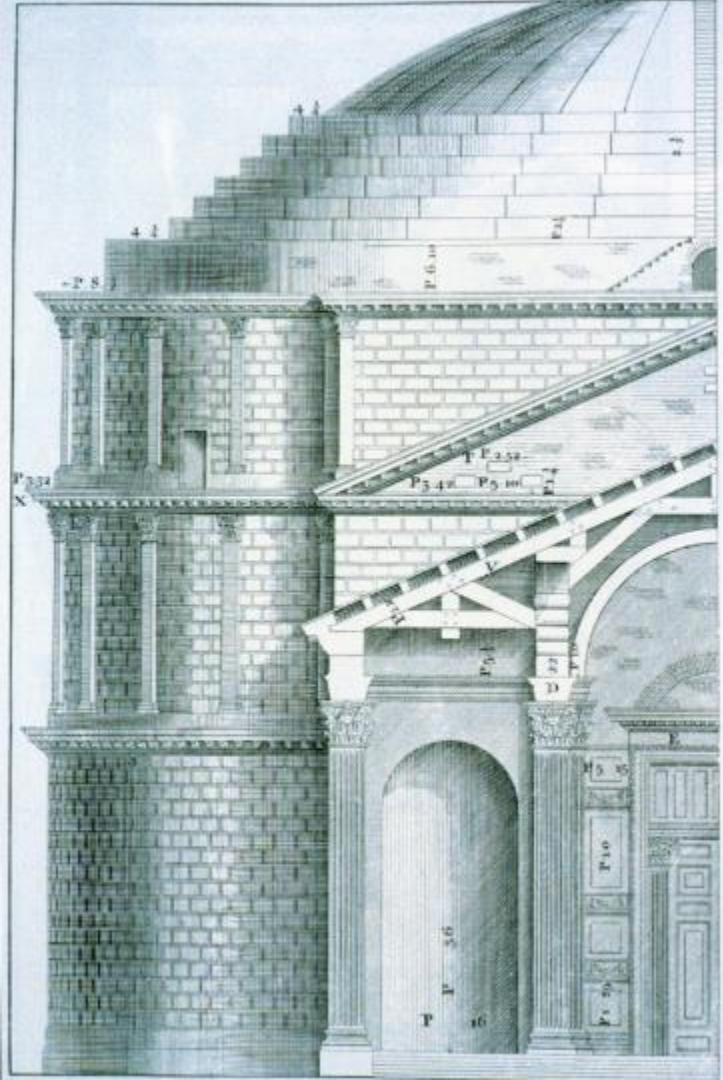
54. Rome, Pantheon, c. 118-c. 128.

Axonomic view and section. The stippled area in the section (here shown slightly exaggerated) represents the masonry added below the structural intrados of the dome so as to complete the visual curvature of the coffering



0 25m



















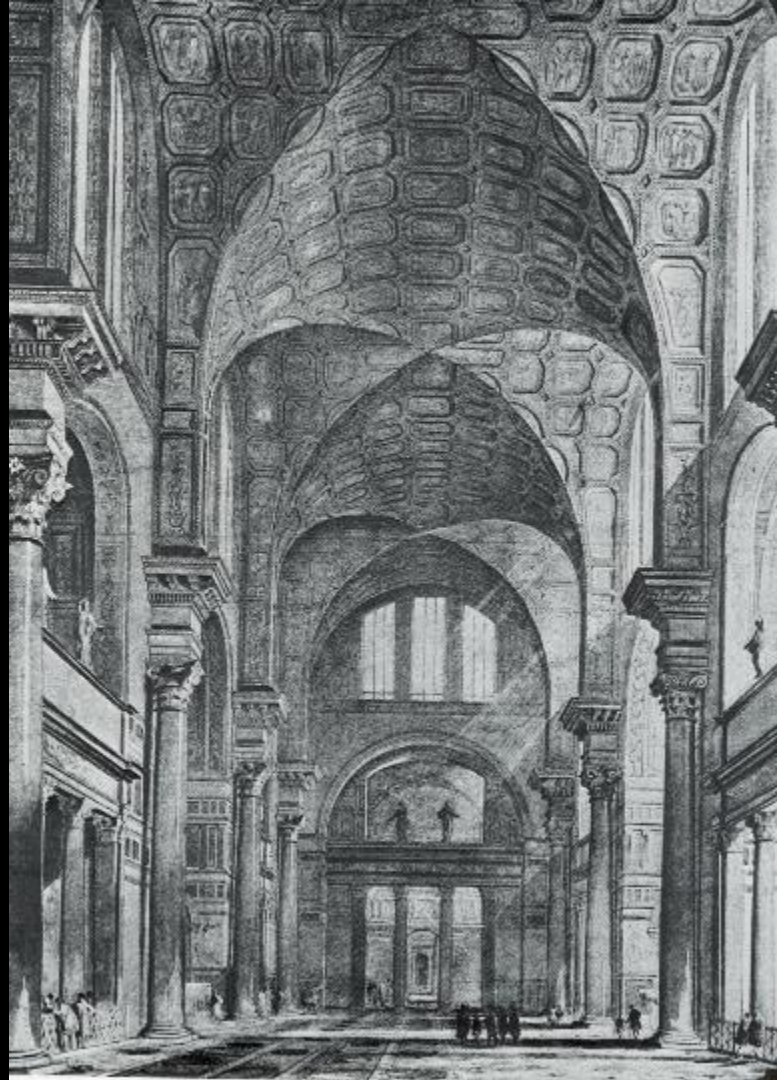








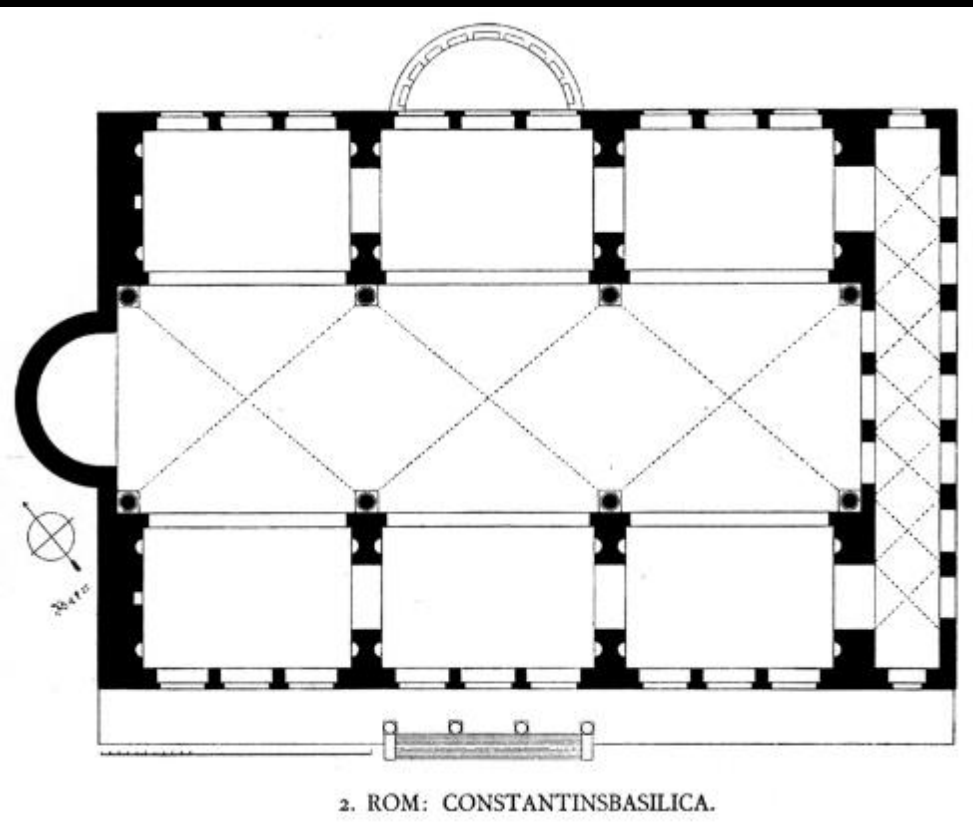
Baths of Caracalla
Rome, Italy
212 CE







Basilica of Maxentius and Constantine
Rome, Italy
312 CE











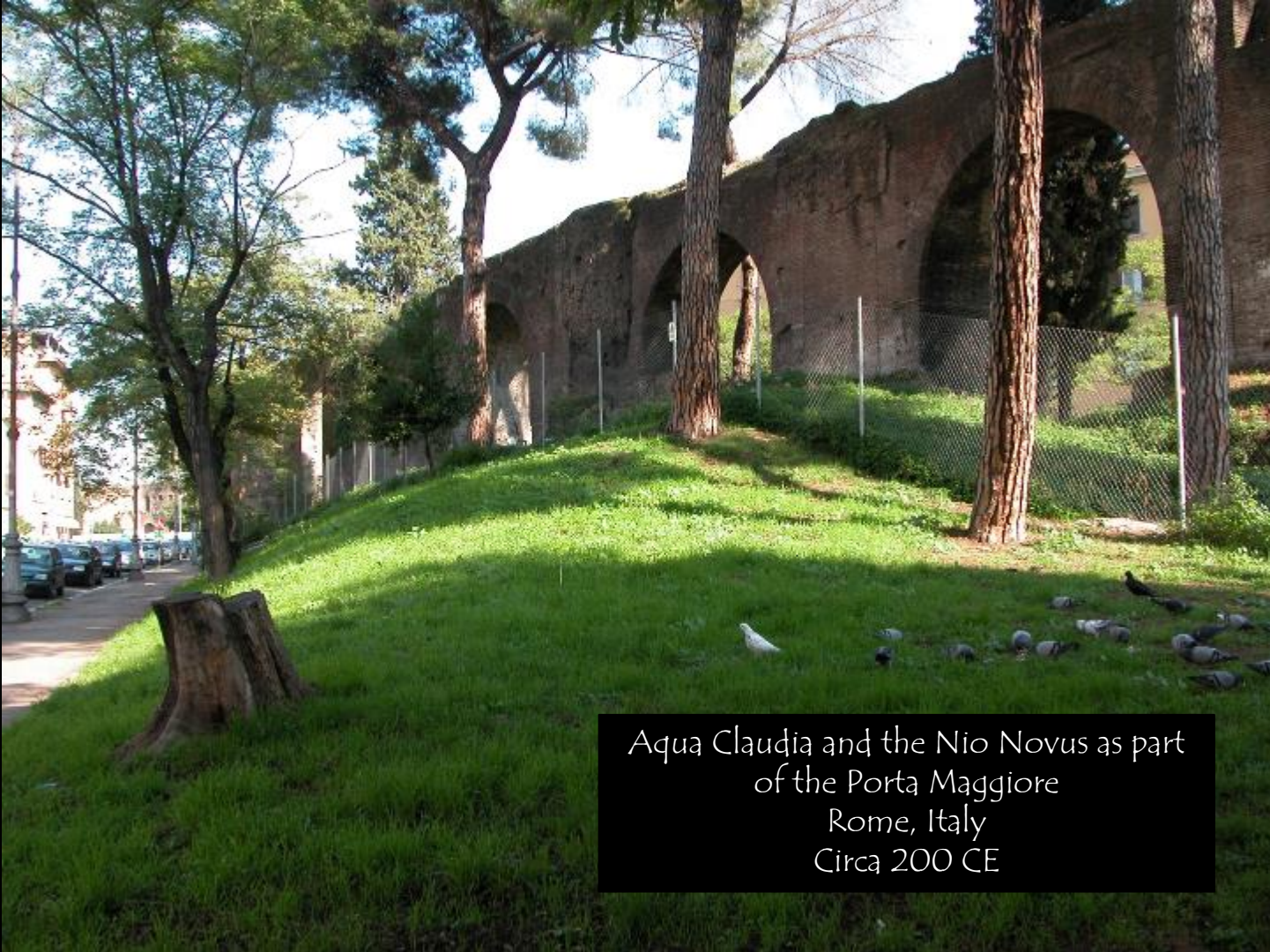
Arch of Septimius Severus
Roman Forum
203CE



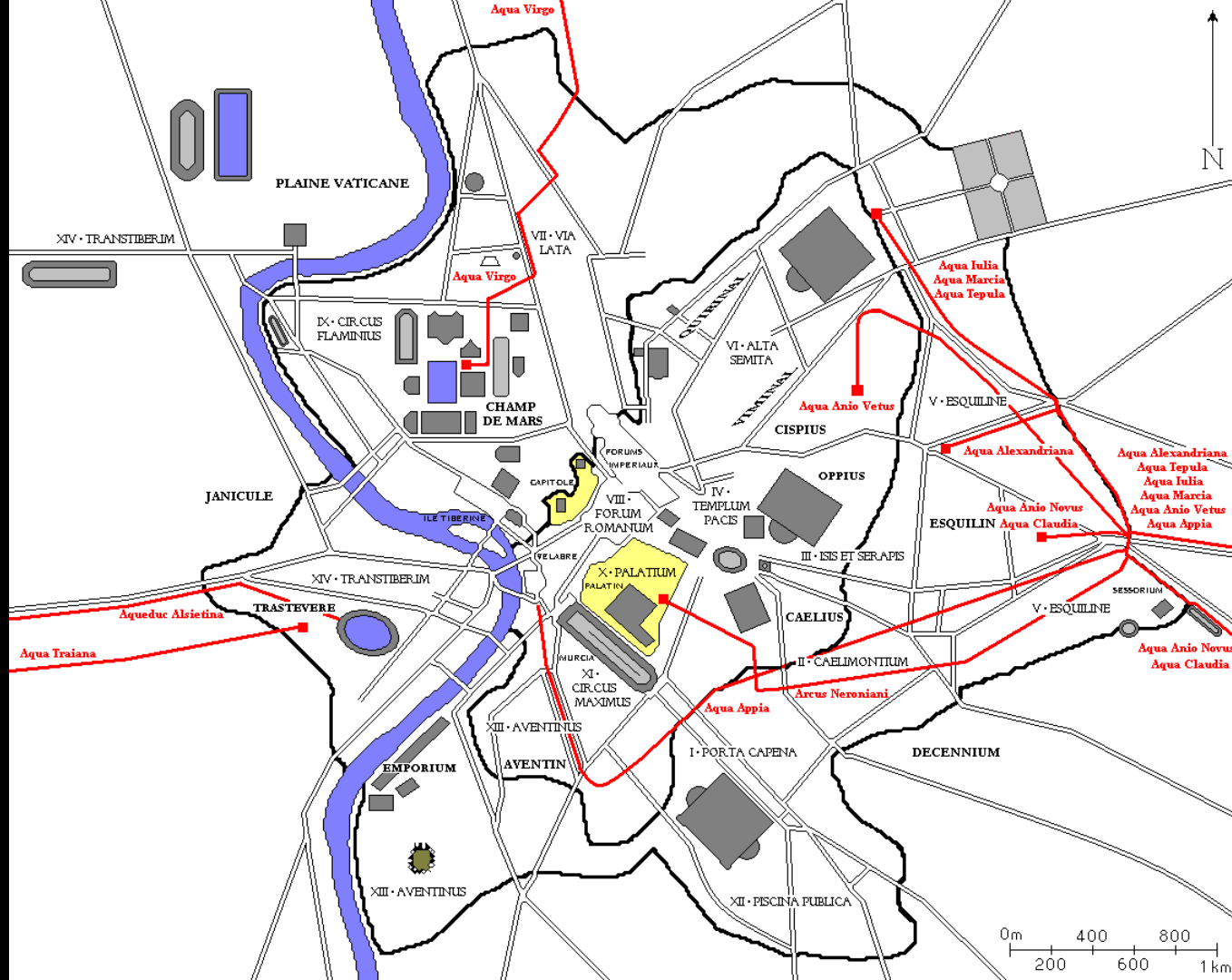


Arch of Constantine
Roman Forum
315 CE





Aqua Claudia and the Nio Novus as part
of the Porta Maggiore
Rome, Italy
Circa 200 CE















Suirokaku Aqueduct
Nanzenji Temple
Kyoto, Japan
1890



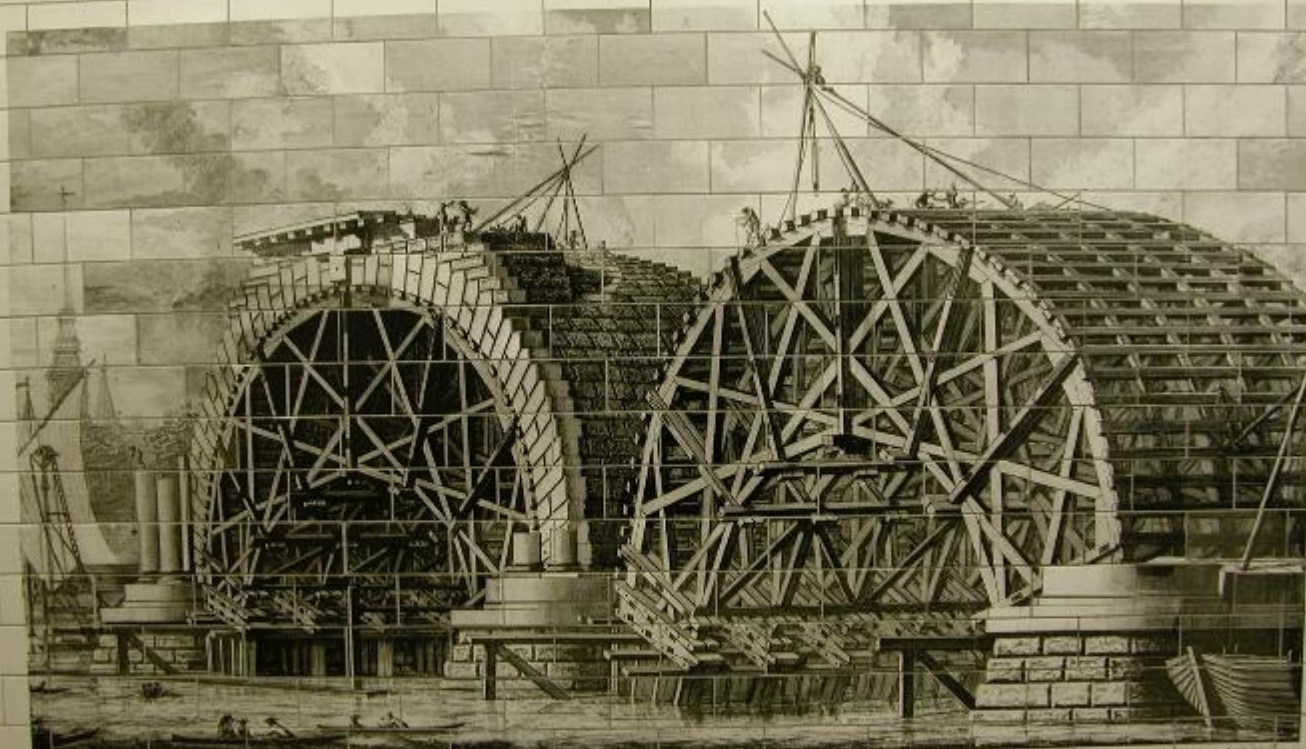








Bridges using the Roman Arch Method



A VIEW OF PART OF THE INTENDED BRIDGE AT BLACKFRIARS LONDON
BY ROBERT MYLNE ARCHITECT
ENGRAVED BY PIRANESI AT SOME

Construction of Blackfriars Bridge
London, UK



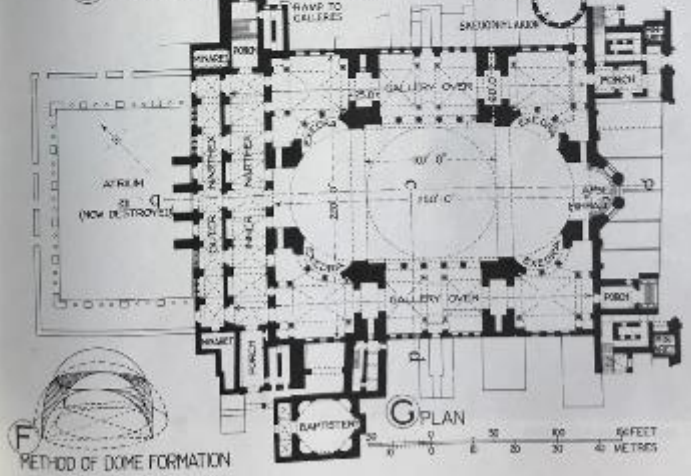
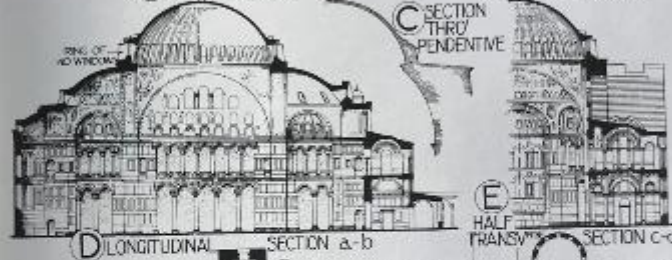




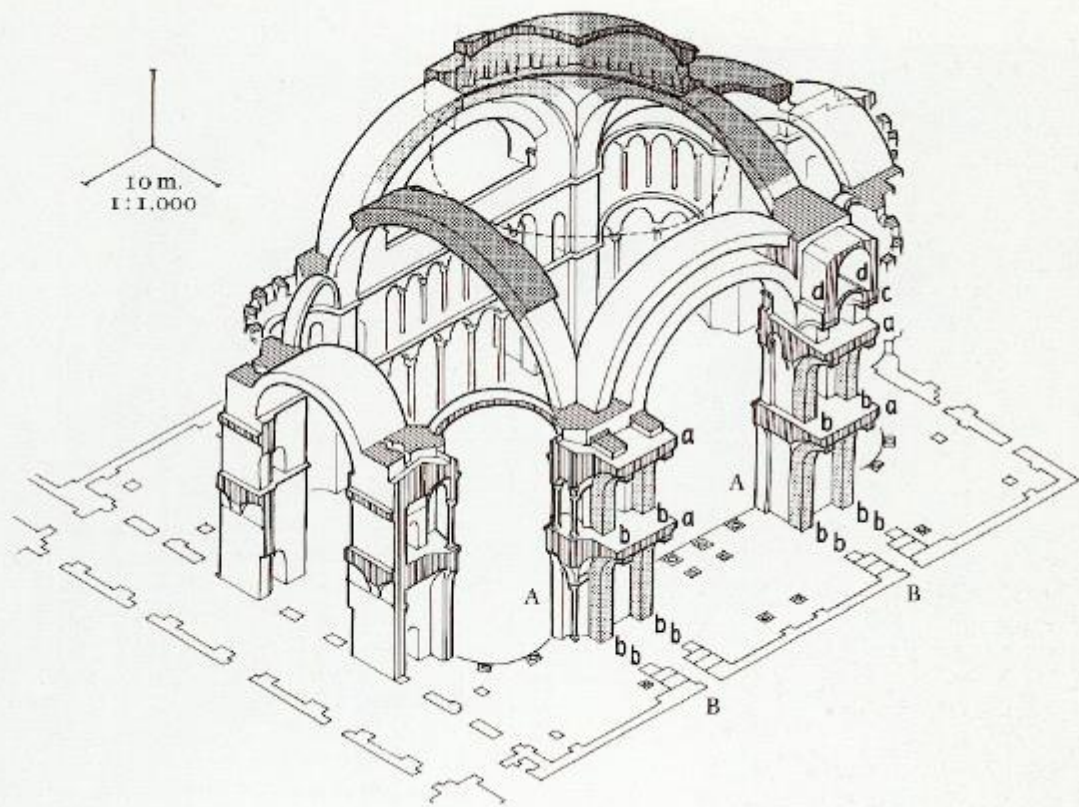


Hagia Sophia
Constantinople/Istanbul, Turkey
537 CE

S. SOPHIA CONSTANTINOPLE



16.6 St Sophia,
Istanbul, part cut-
away isometric sketch
from the south-west
showing the basic
structure as now
existing. Lightly-
stippled elements are
sixth-century additions
to, or, in the case of
the dome, modified
reconstructions of,
the original form. Heavily-
stippled elements are
later reconstructions,
tenth-century at the
west and fourteenth-
century at the east.











Mosque of Muhammad Ali
Cairo, Egypt
1848



تصميم: مهندسة
معمارية: مهندسة
معمارية: مهندسة
معمارية: مهندسة





















St. Mark's Basilica
Venice, Italy
978 CE





Mosque-Cathedral of Cordoba
Cordoba, Spain
784 (Islam) 1236 (Catholic)

















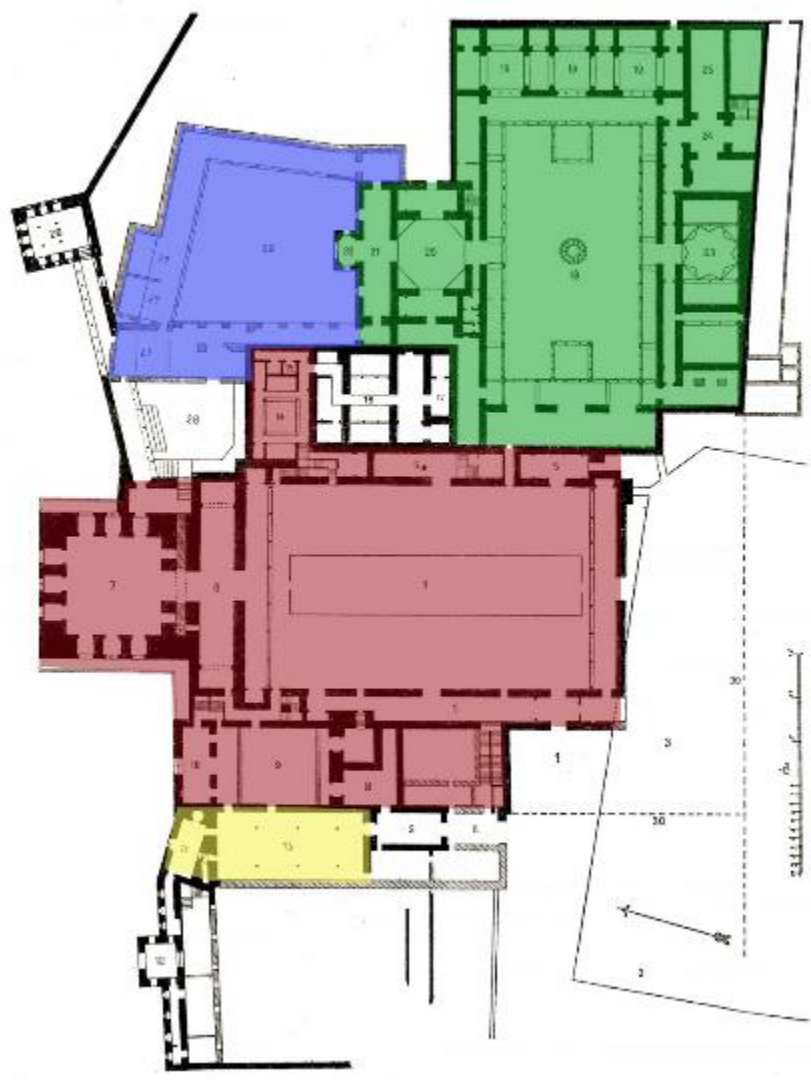








The Alhambra Palace
Granada, Spain
Moorish
1333 CE







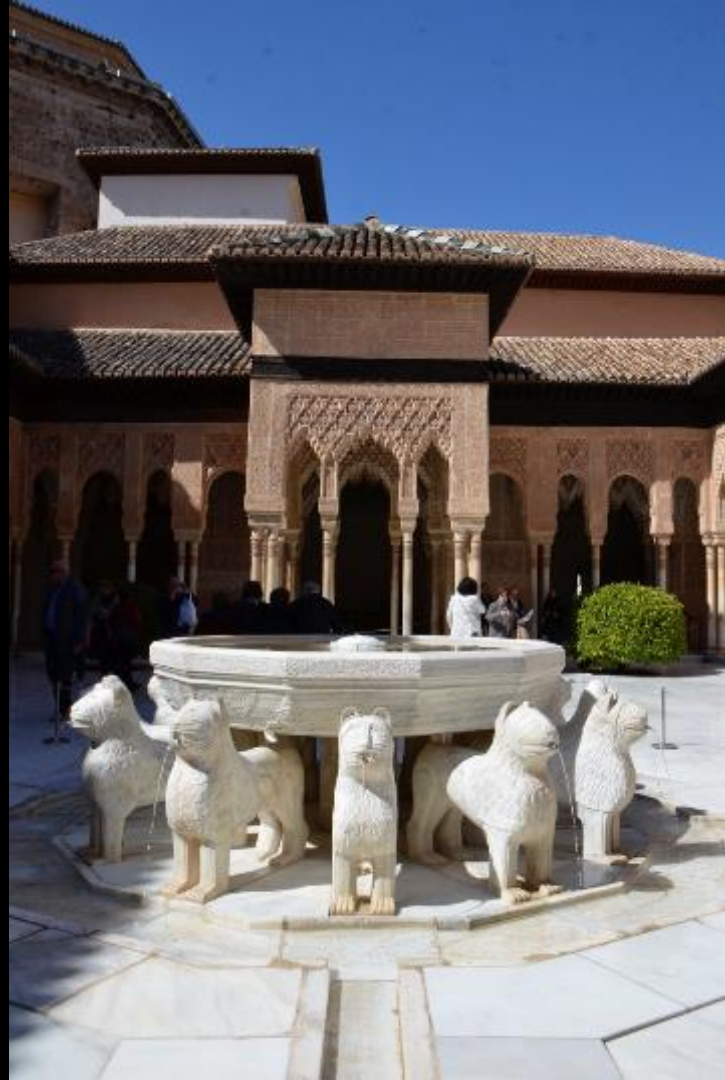
































Medieval Architecture
Including
Romanesque and Gothic
round arches vs pointed arches
6th to 12th century



Chateau de Chillon
Montreux, Switzerland
Started 1005 CE









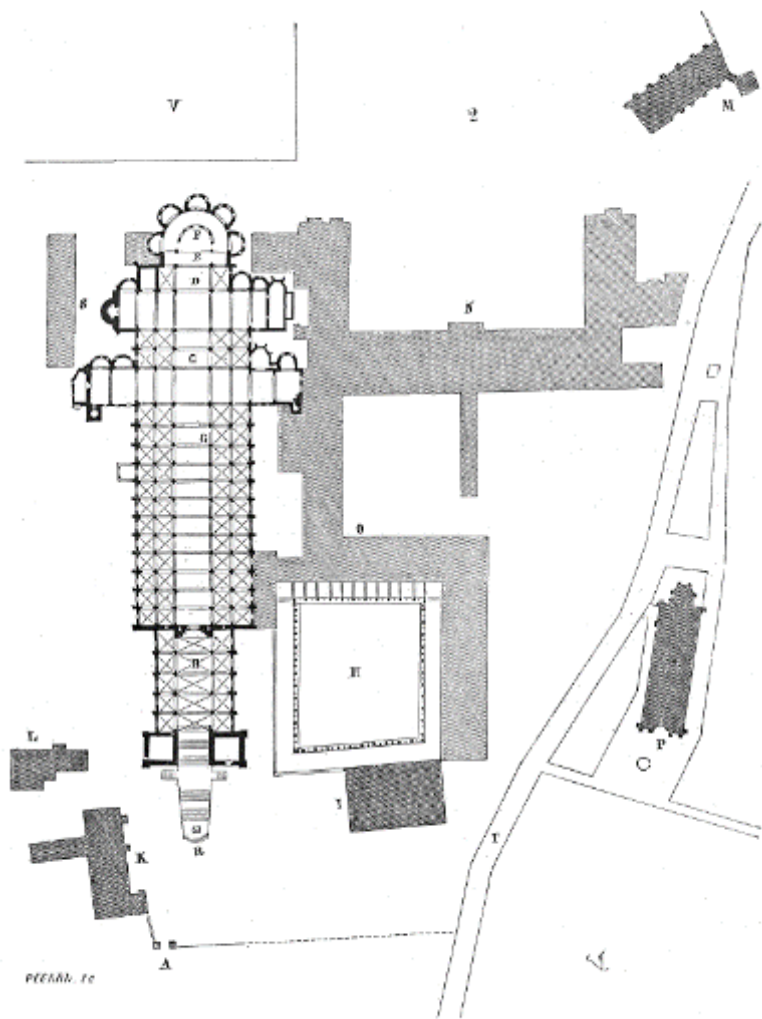
Saint-Philibert de Tournus
Tournus, France
11th century



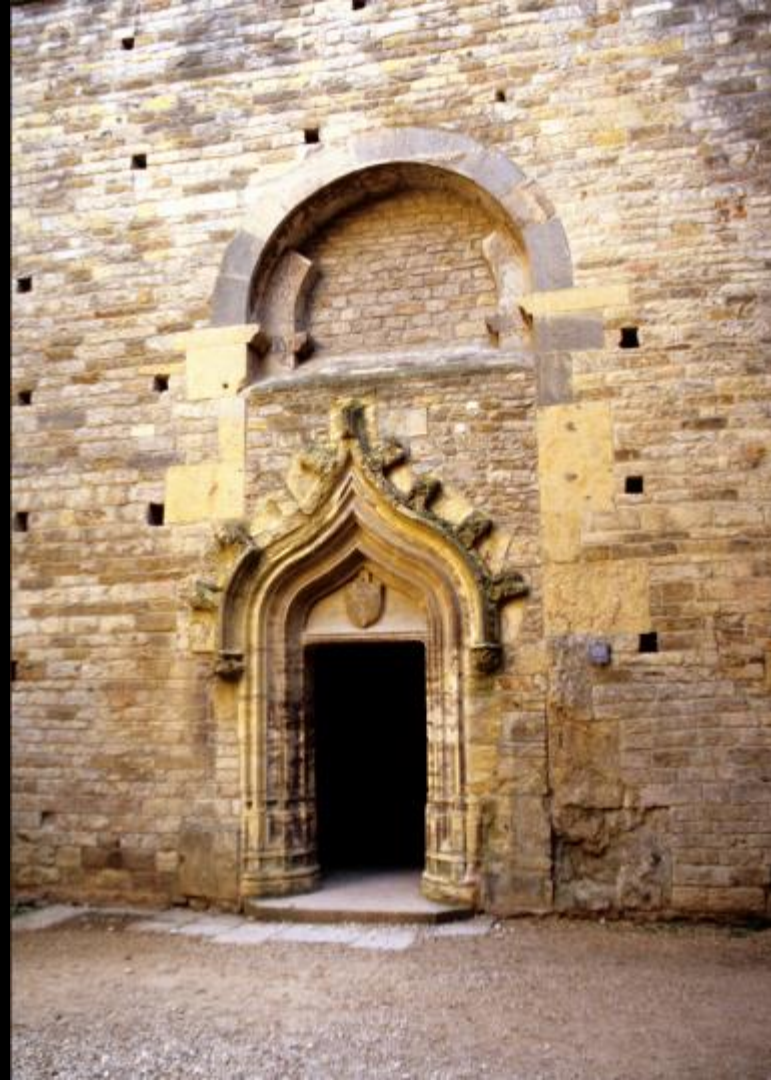








Cluny Abbey
Cluny, Saône-et-Loire,
France
12th century

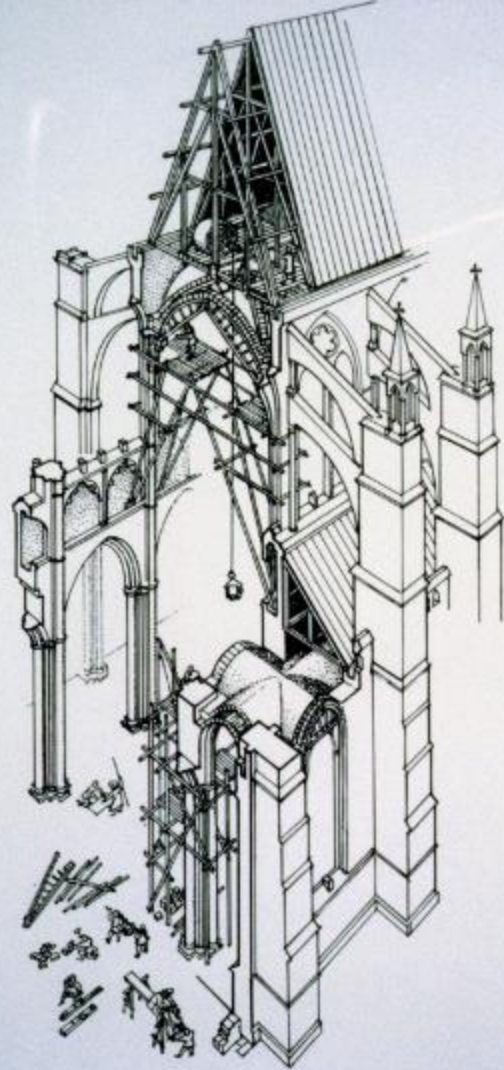






MEDIEVAL STRUCTURE:
THE GOTHIC VAULT

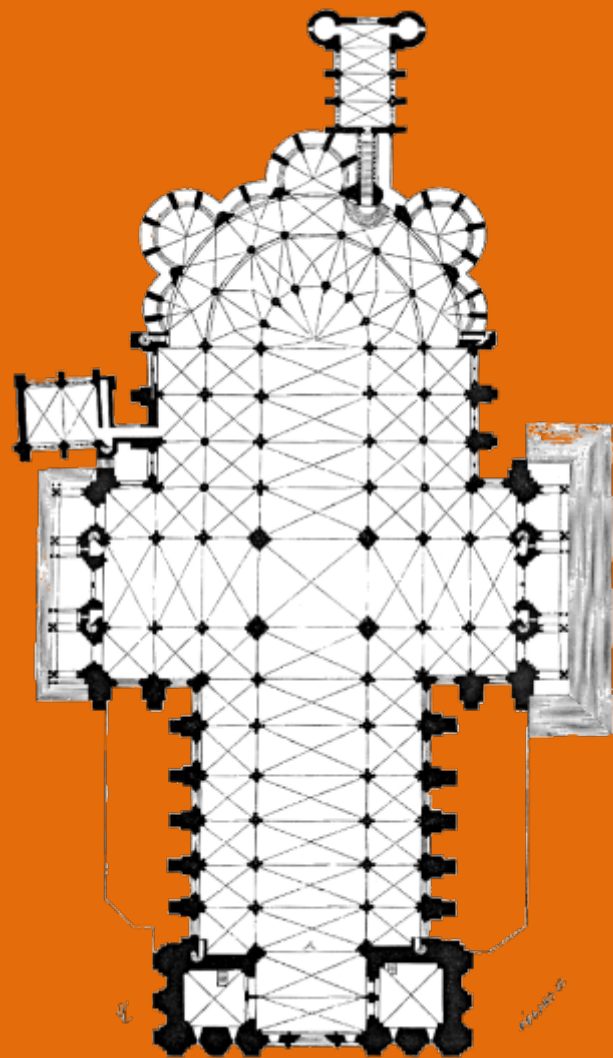
JAMES H. ACLAND





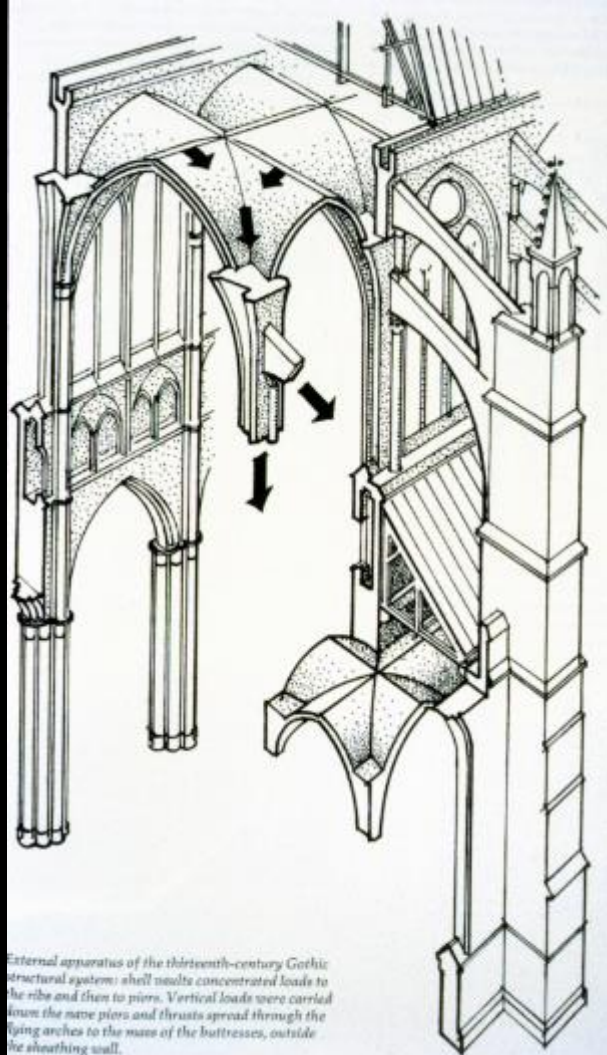
Chartres
Cathedral
Chartres, France
1194 CE







buttressing arrangement let the clerestory east
to carry large windows.

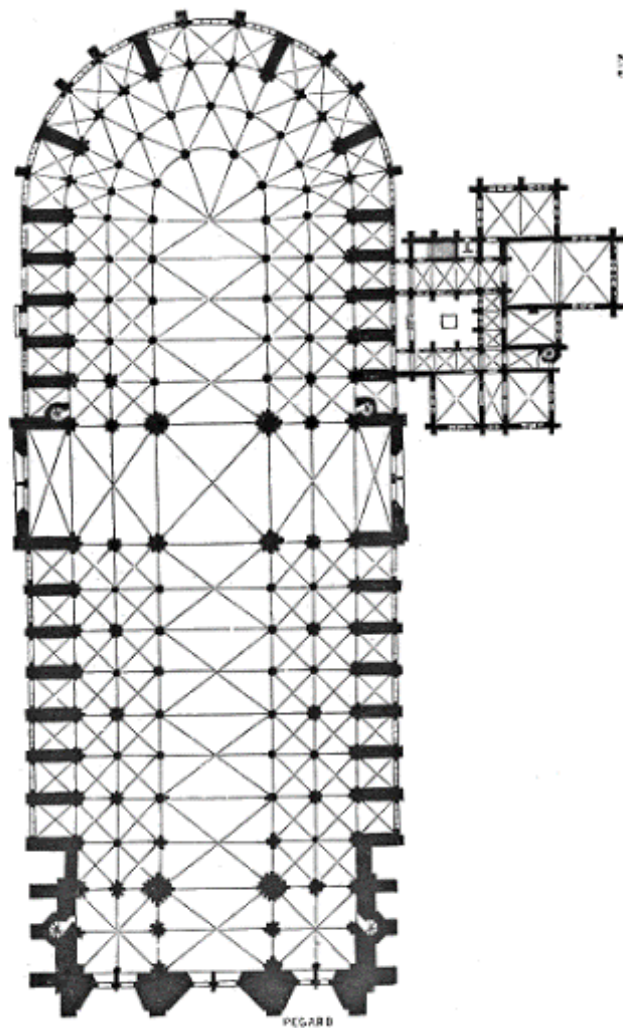


External apparatus of the thirteenth-century Gothic
structural system: shell results concentrated loads to
the ribs and then to piers. Vertical loads were carried
down the nave piers and thrusts spread through the
flying arches to the mass of the buttresses, outside
the sheathing wall.



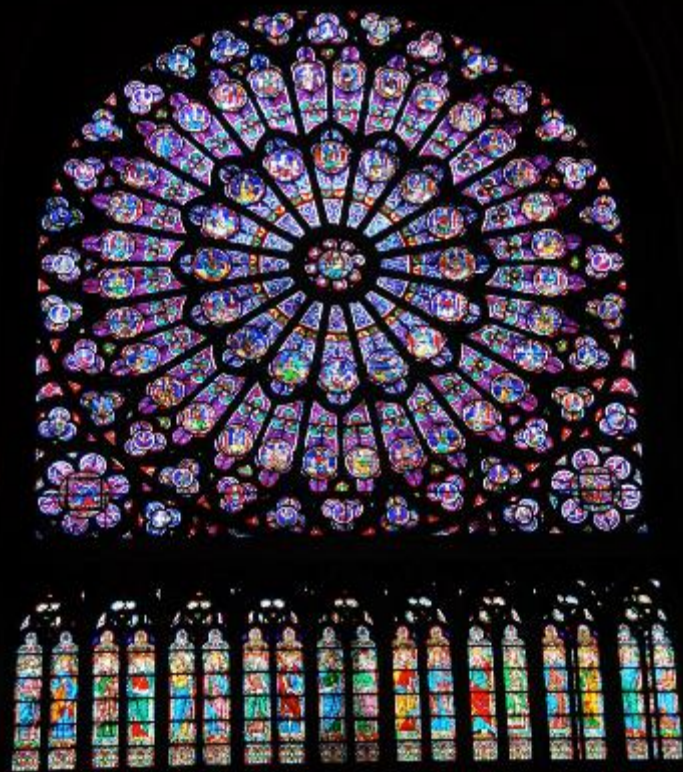


Notre-Dame de Paris
Paris, France
1163 CE



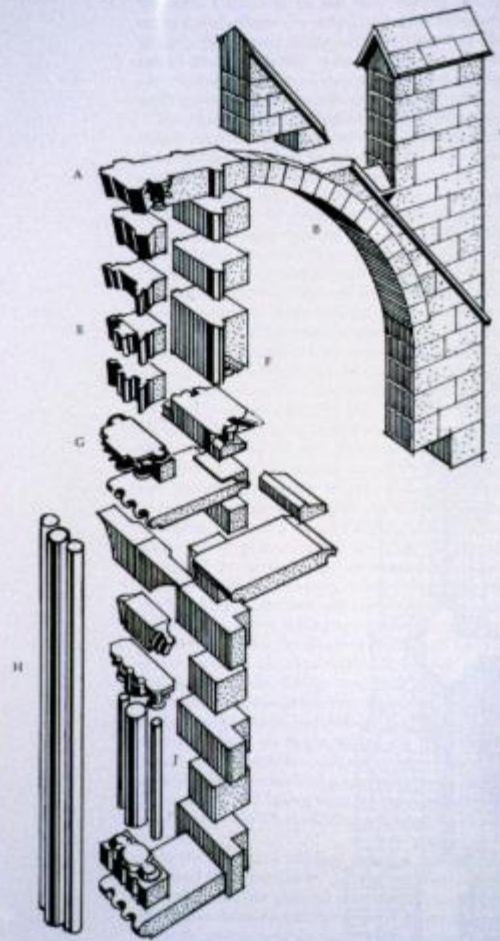








Thirteenth-century Gothic masonry engineering in the nave wall of Notre Dame, Dijon, c 1225. (after Viollet-le-Duc)



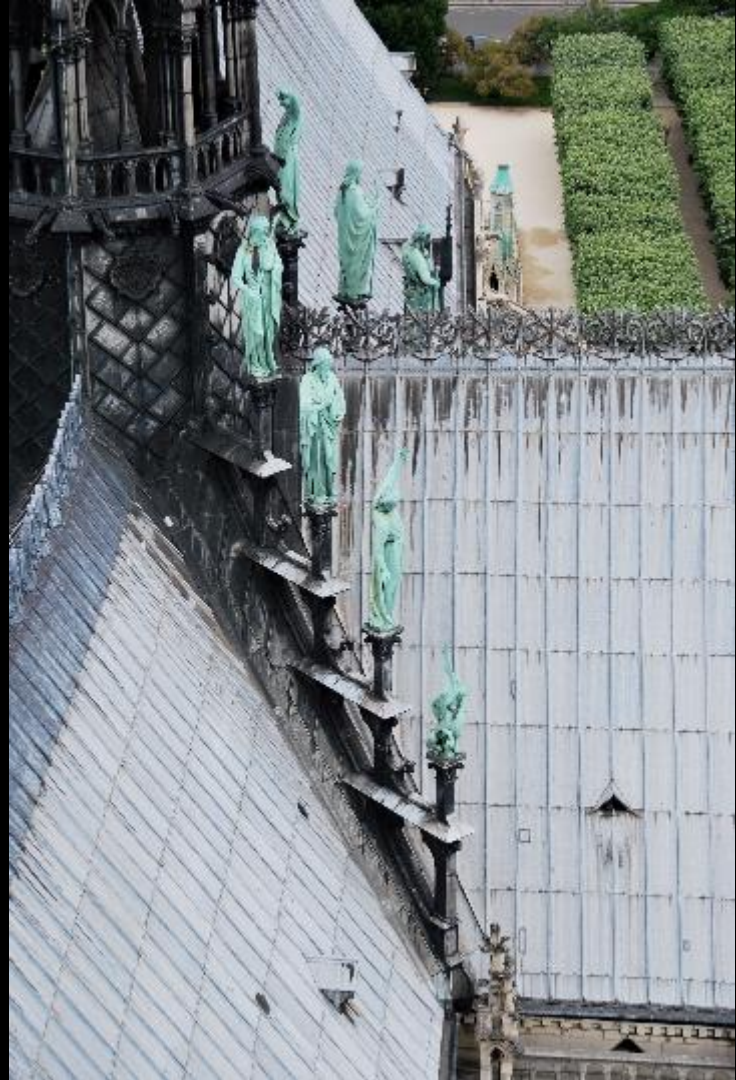














<https://www.nbcnews.com/video/paris-notre-dame-cathedral-spire-collapses-in-massive-fire-1494093379982>



Cathedral at Bayeux, France
Norman-Romanesque Style
1077











Bayeux Tapestry 1077

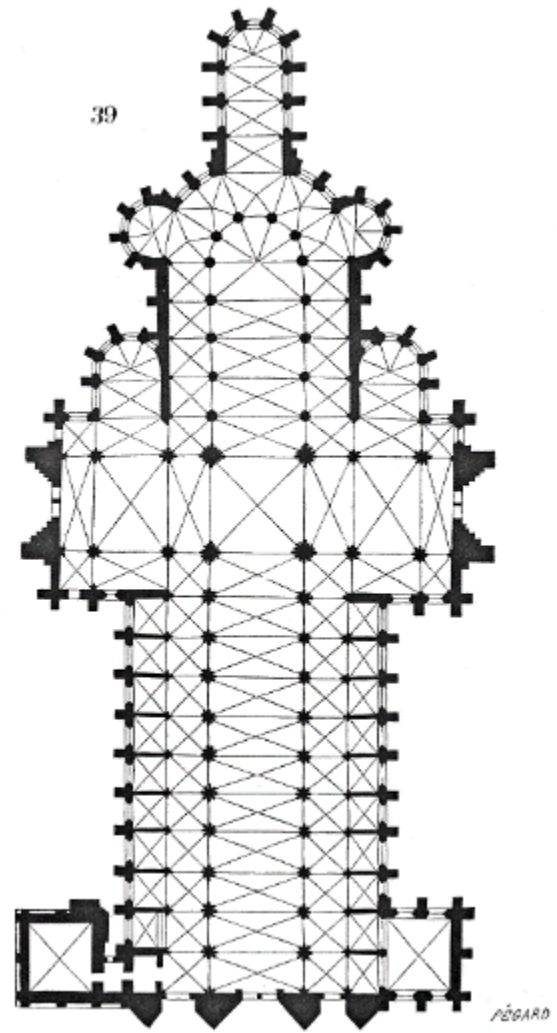
The Bayeux Tapestry is an embroidered cloth nearly 70 metres long and 50 centimetres tall that depicts the events leading up to the Norman conquest of England concerning William, Duke of Normandy, and Harold, Earl of Wessex, later King of England, and culminating in the Battle of Hastings.





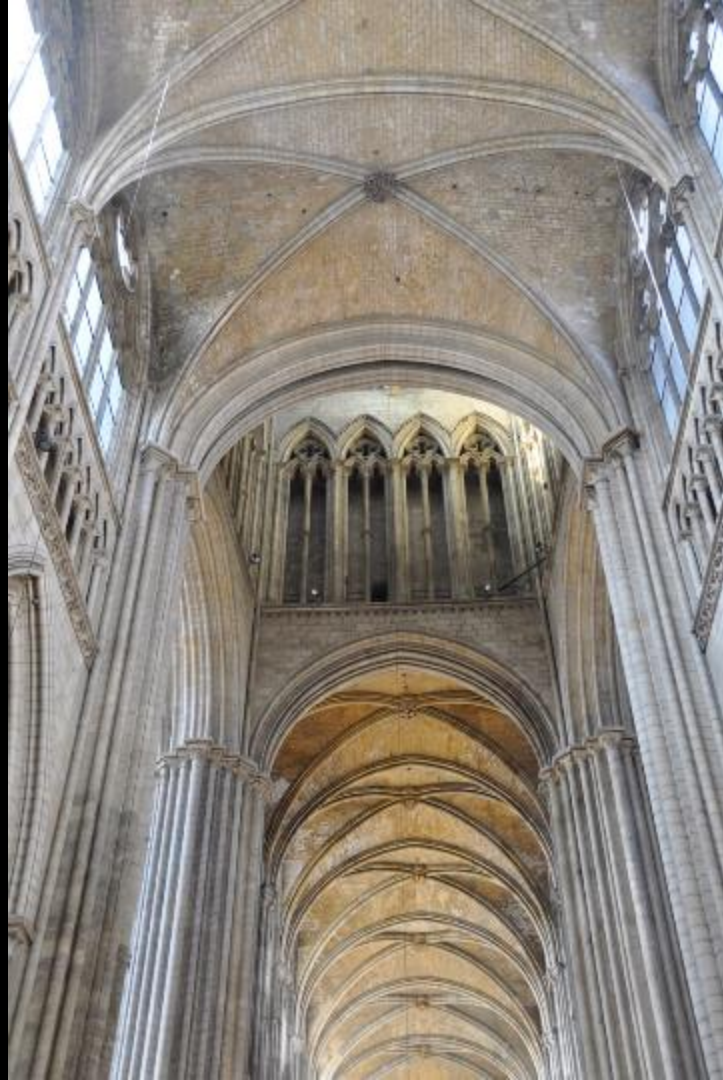


Rouen Cathedral
Rouen, France
High Gothic
1000 to 1500 approximately



















Westminster Abbey
London, England
1245 CE









St. George's Chapel, Windsor Castle
Windsor, England
14th century















