

Roman Technology



Italia



Small Beginnings: Rome at 380 BC



TV
PG

ROME

Engineering an Empire



Overview

- Architecture
- Civil Engineering
- Transportation
- Mining

Architecture

Large Buildings: The Colosseum
Forum Romanum
The Basilica
The Pantheon

ROME (**Urbs**) at the time of Trajan



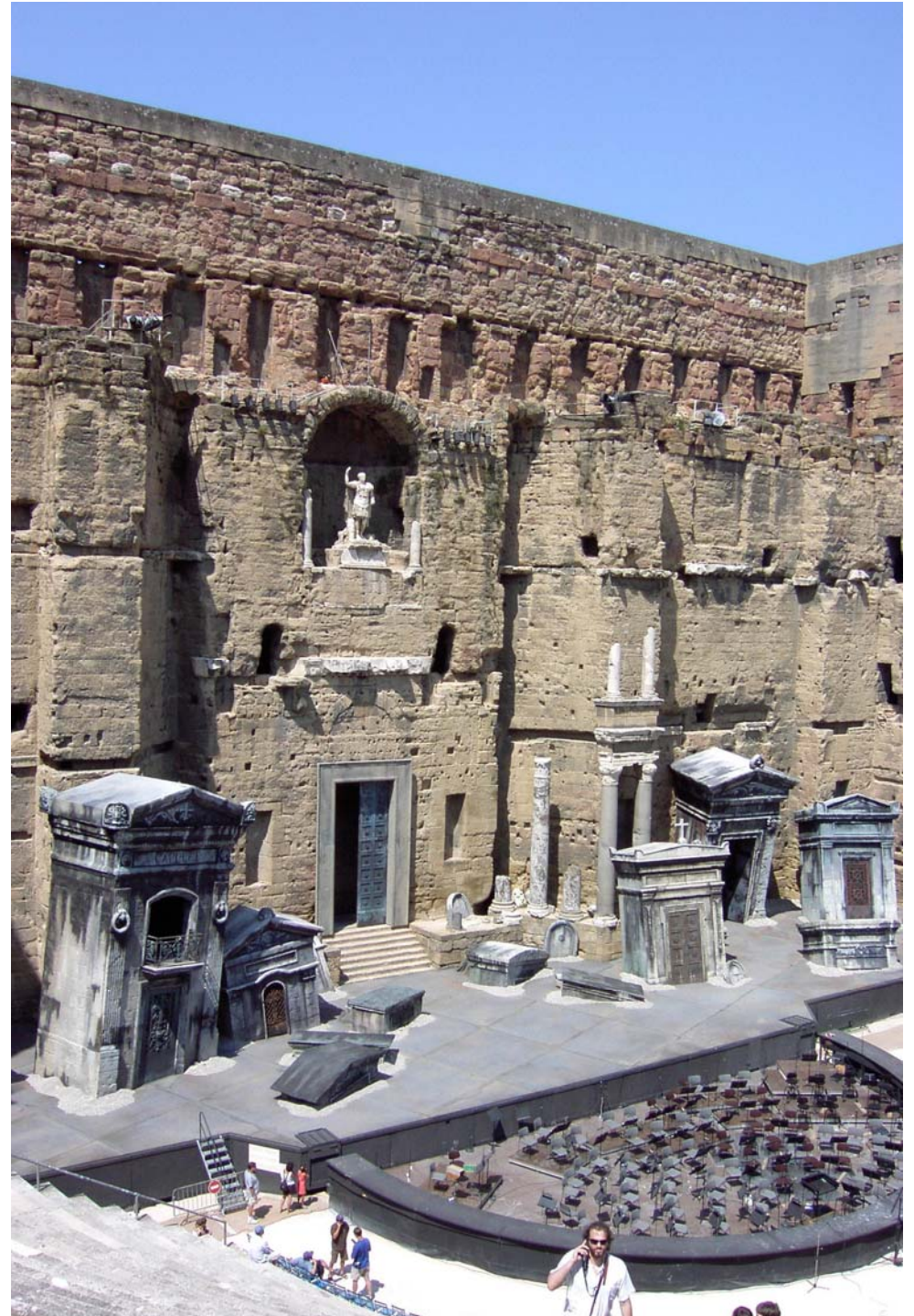
ROME (Urbs) map



Roma: Colosseum

Roman Theater in Arles

France





Roma: Colosseum

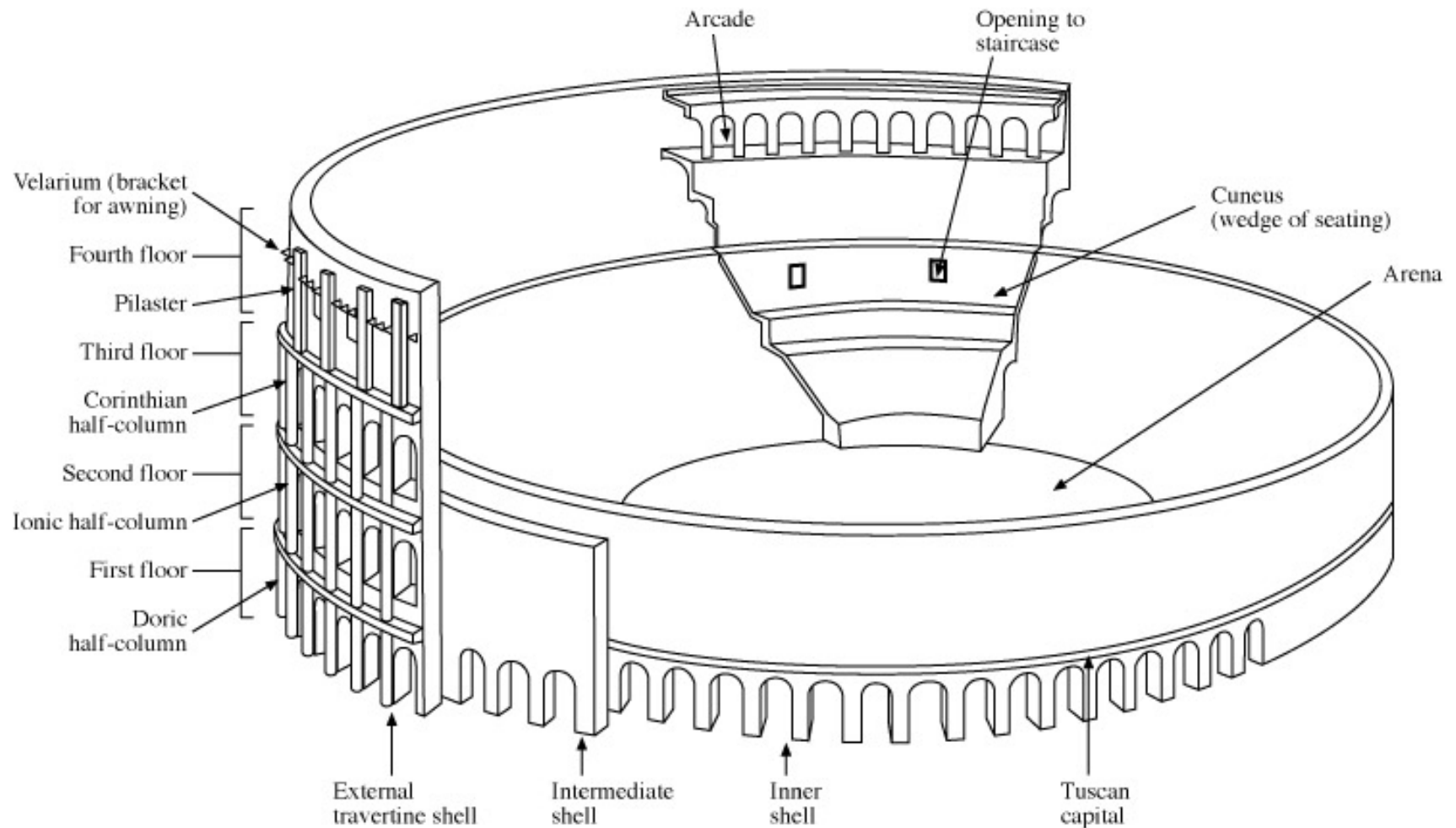


Colosseum: limestone facade,
brick & concrete with marble facing;
3 orders were superimposed
(Doric, Ionic, Corinthian)

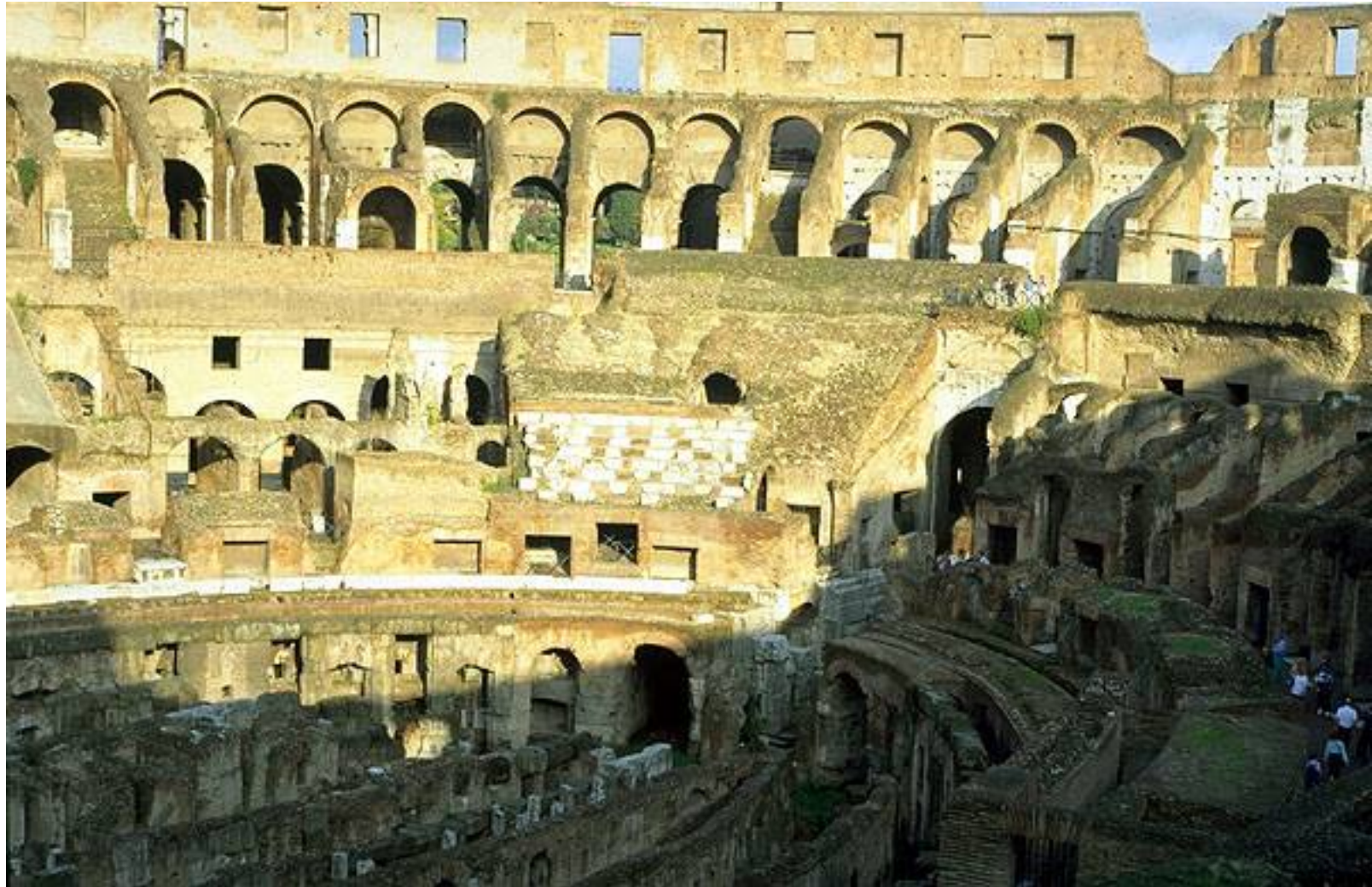
--**structure:** barrel vaults radiate from
elliptical center, weight carried on
travertine piers & vaults, marble only
lower tiers, wood higher up

--**velarium:** fabric canopy provided relief
from sun

The Colosseum



Colosseum Design



Roma: Colosseum



Colosseum: Hypogaeum

Colosseum: Concrete Arch





Colosseum: Brick Wall

Bricks laid at an angle to hold stucco facing



Rome: Forum Romanum



Forum Romanum



Forum Romanum



Forum Romanum



Temple of Vesta



Forum: Reconstruction



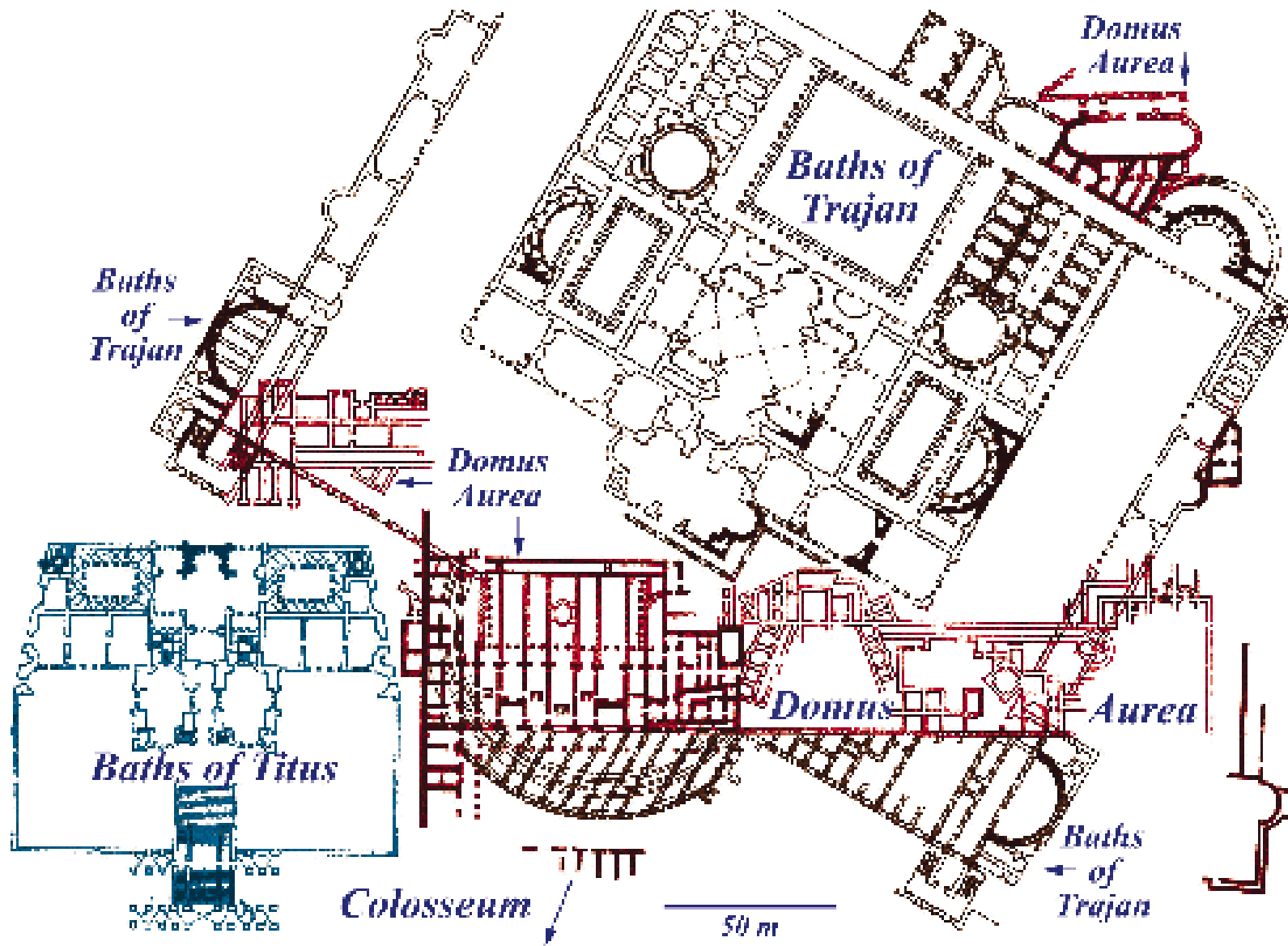
Forum Romanum

Temple to the Divine Antoninus Pius and Empress Faustina on the Roman forum (141 AD, now S. Lorenzo in Miranda)



The Palatine Hill

View of the Palatine complex from the Forum, with the columns of the Temple of Vesta in the left foreground.



Nero's Domus Aurea (Golden House)

The largest residence ever. It ranged from the Palatine hill to the Oppius Hill. Nero placed a lake at the site of today's colosseum.



HISTORY

Nero's Domus Aurea





Domus Aurea: Achilles in the Trojan War



ROME: Pantheon



ROME: Pantheon Portico



HISTORY

ROME: Pantheon

Hadrian (ruled 117-130 AD), adopted son and successor to Trajan, was called the Greekling by the Romans of his court because of his love of Hellenic language and culture.

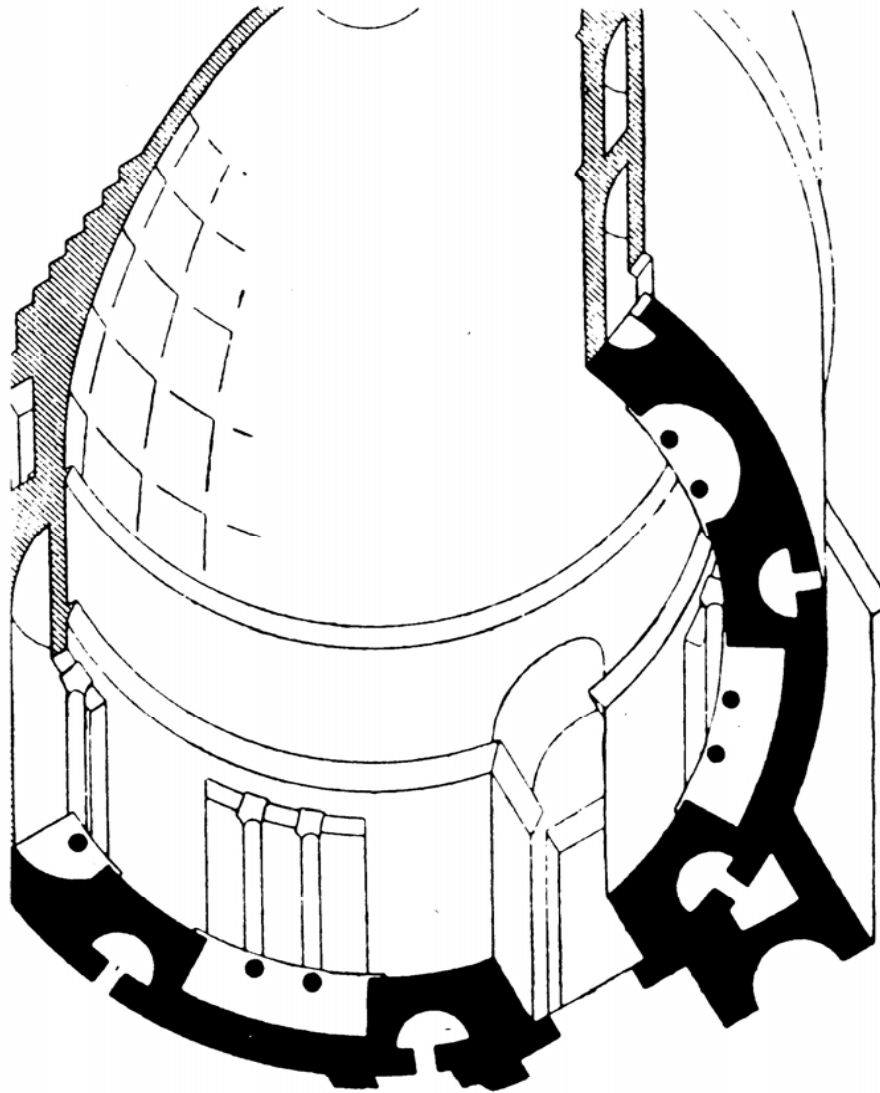
The Pantheon (118-128) now called S. Maria della Rotonda.

Dedicated to the twelve Olympian gods, the present temple replaced two earlier ones; the first, built by Marcus Agrippa in , was destroyed in the great fire of 80 AD, was rebuilt by Domitian but burned again in 110 AD.

The walls themselves were reinforced with hidden brick relieving arches. Rather than appearing as massive mural spaces, the walls were penetrated by alternating curved and square niches that act as piers to hold up the dome.

Pantheon cont'd

This most famous of Roman buildings was the inspiration for every domed structure built since, yet it has suffered greatly during the nearly two millennia since its construction. The original bronze rosettes of the coffered interior, the bronze sheets which clad the exterior of the dome, and the **bronze beams of the portico were stripped in the seventeenth century at the command of the Barberini pope, Urban VIII**. This pillaged material went into the **Baldacchino** structure of Bernini which stands over the high altar and tomb of St. Peter's. The interior of the Pantheon greets the visitor with an unexpected yet exhilarating explosion of space.



Pantheon, Rome. Sketch showing construction. This Roman temple (to All the Gods) is the antithesis of a Greek one: with a completely closed interior, a circular plan, a domed roof, and specifically Roman in structure, materials, and system of proportion.

Pantheon cont'd

To begin with, the height of the building from floor to ceiling is an incredible 142'. To this we can compare, for example, the height of the dome of St. Peter's (139') or the nave of Chartres Cathedral (140').

Unlike the aforementioned, the Pantheon was a completely free-standing building, and the first hemispherically domed structure. Its concrete drum, rising from a point beginning one-half the actual height of diameter of the building, circumscribes a complete sphere within its volume.



Pantheon Interior

ROME: Pantheon Interior



Pantheon

Rome; 118 A.D.;
interior,
aedicule





France: Interieur du Chateau d'Anet



T. Jefferson, Lawn, Univ. of Virginia,
Charlottesville; 1817-1826



Rome: Basilica di San Pietro

Capitol

Washington, DC



The Basilica of Maxentius and Constantine

The basilica originated as the Roman courts of law. One of the largest, known by the Romans as the Basilica Nova or New Basilica, was begun by Maxentius and completed by Constantine after his rival's defeat. The original building--a barrel vaulted central hall with windows adapted from the Roman bath-- was spectacularly decorated with mosaics, paintings, and sculpture which the plain brick-faced exterior belied.



ROME: Constantin's Basilica



Rome Tabularium

The Tabularium

The Tabularium was built to house the public archives of the state, probably built after the fire of 83 BC (probably around 78) by Q. Lucius Lutatius Catullus. The arcaded open gallery was carved into the live tufa of the Capitoline Hill.



Rome Palazzo Senatore



Federal Building



Rome: Temple to the Divine Hadrian, dedicated in 145 AD, now the Borsa (Campus Martius).



ROME: Teatro Marcello

Augustan Architecture: Theater of Marcellus

ROME:
Teatro Marcello
Augustan Architecture:
Theater of Marcellus



ROME:

Trajan's Markets

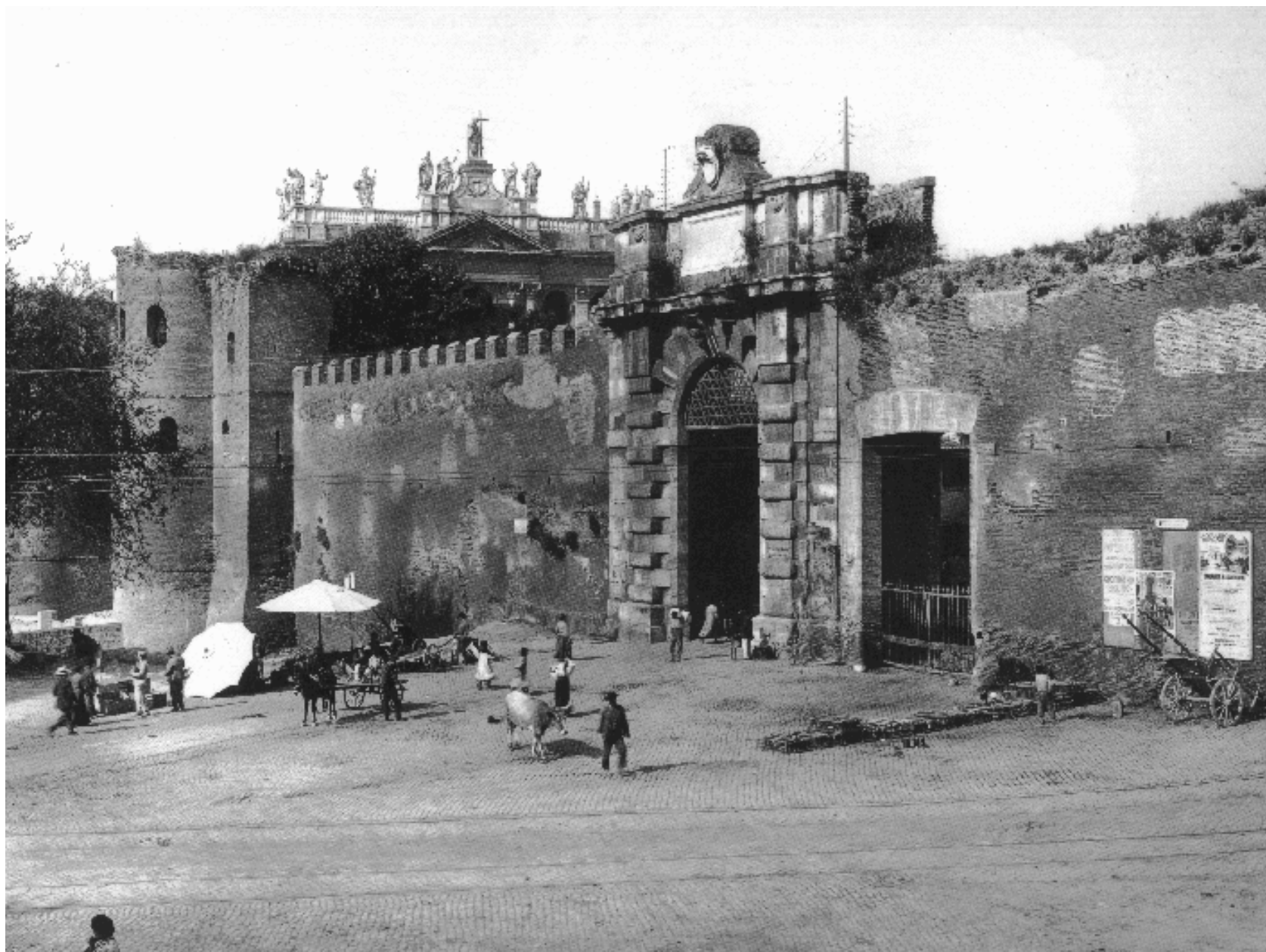




CONCRETE VAULTS, Trajan's Markets



ROME: Avanzi del frontone del Portico d'Ottavia



ROME: Porta S.Giovanni



ROME: Castello e Ponte Sant' Angelo



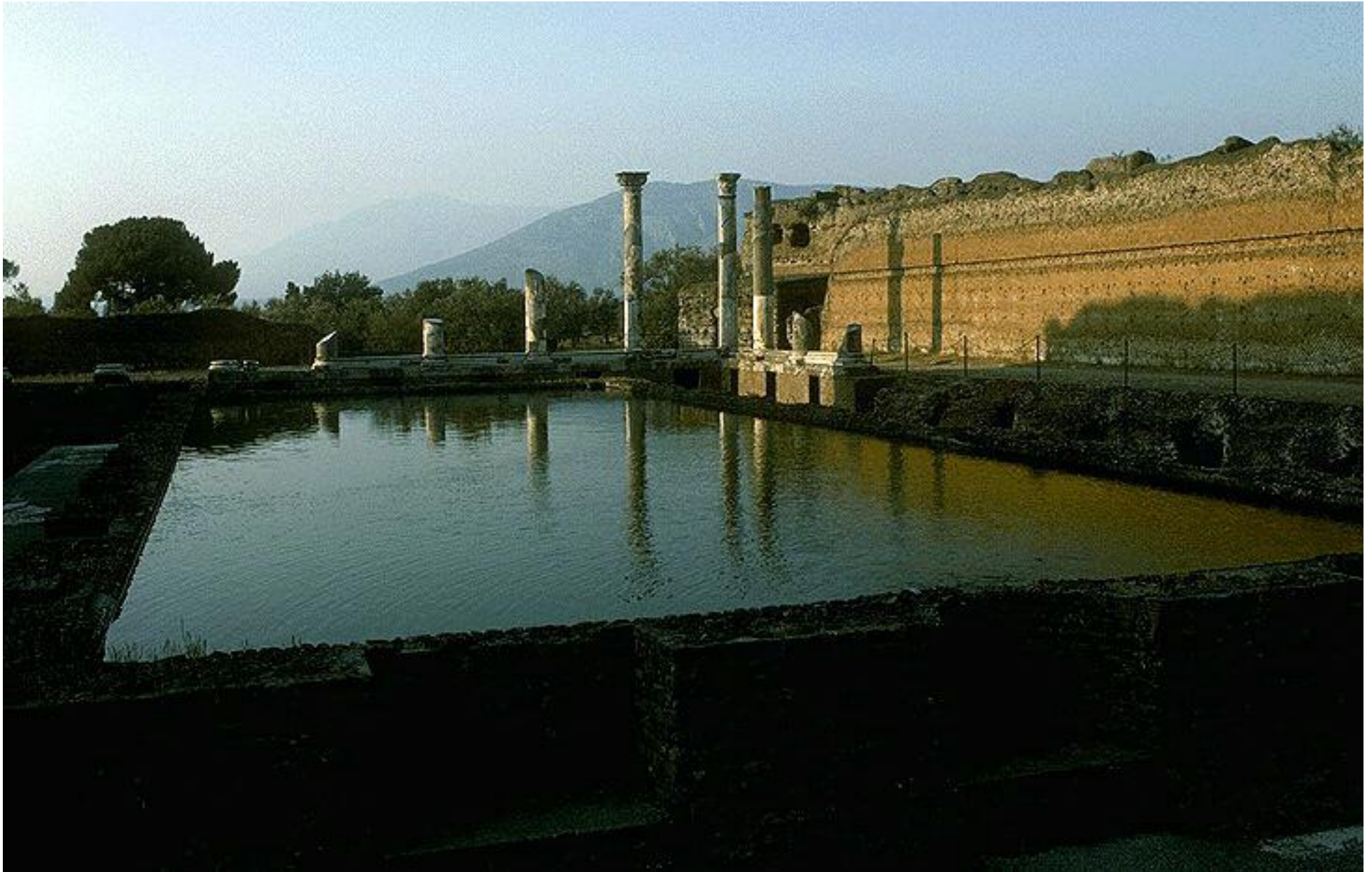
ROME: Castello Sant'Angelo (Hadrian)



ROME: Circus Maximus



ROME: Circus Maximus



Tivoli: Hadrian's Villa



Tivoli: Hadrian's Theater



Tivoli: Hadrian's Theater



Tivoli: Mosaic Floor

Gallia

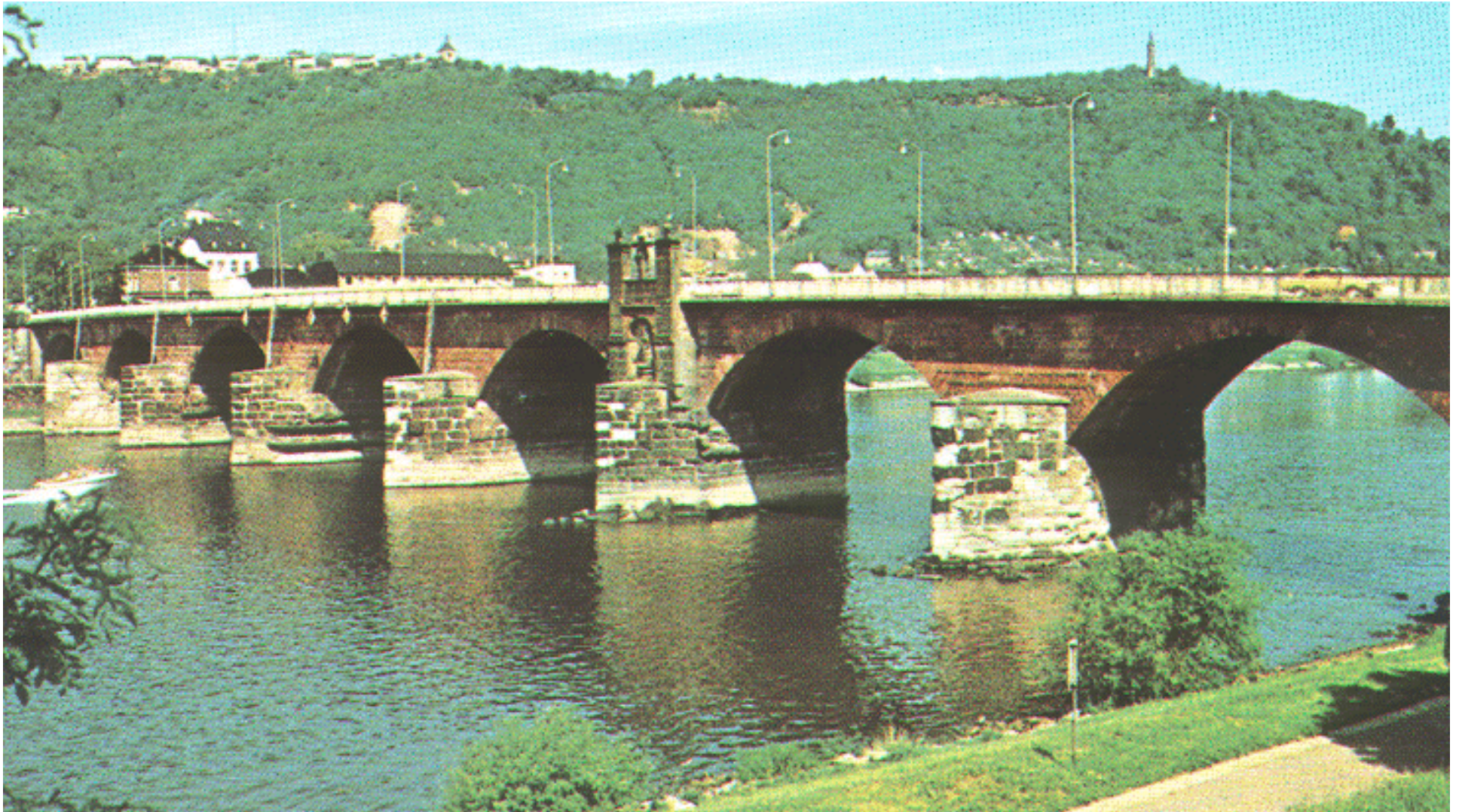




Trier (Augusta Treverorum): Basilika



Trier (Augusta Treverorum): Porta Nigra



Trier: Roman Bridge

Finis

Architecturae



Basilica di San Pietro: **Baldacchino**

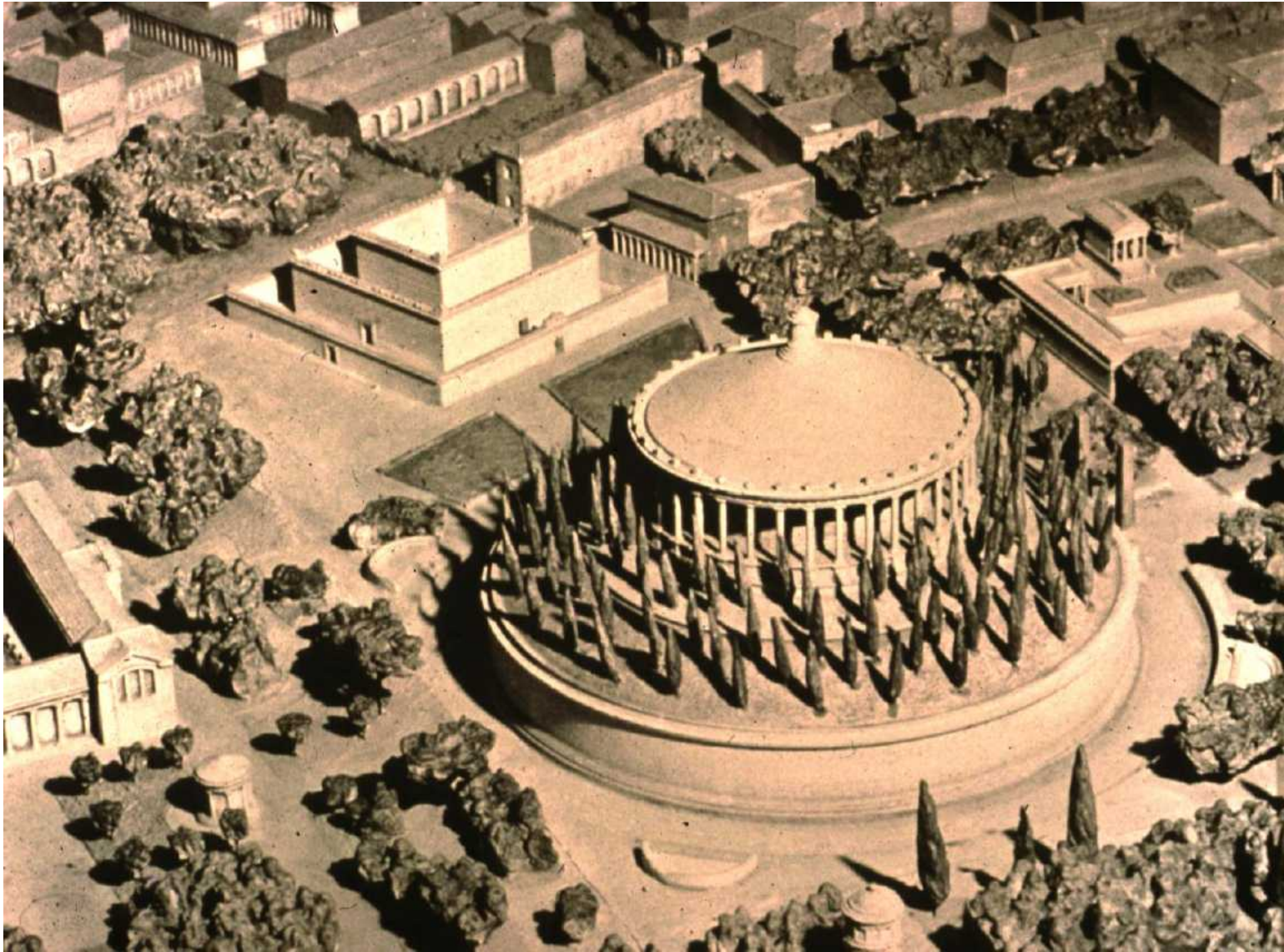


The Arch of Constantine

The Arch of Constantine

Erected in honor of Emperor Constantine, after battle to defeat Maxentius at the Milvian Bridge in 315 AD. Constructed of *spolia* stripped from earlier imperial monuments dedicated to Trajan (112) and Hadrian (128)

Inscription: "Constantine overcame his enemies by divine inspiration"



ROME: Mausoleum of Augustus, Reconstruction



ROME: Mausoleum of Augustus

The Mausoleum of Augustus, seen in the preceding image in a reconstruction, was begun in 28 BC, the year of Octavian's triumphs for his victories over Cleopatra and other foreign enemies, and the year before he was given the title of **Augustus**. It consisted of a series of rising concentric circles of concrete with stone or marble facing. Between the upper circles evergreen trees were planted. The circular burial chamber was in the center, and from it rose a column on which was set a bronze statue of Augustus. Two Egyptian obelisks stood at the entrance, near which (exactly where is unknown) were placed two bronze tablets inscribed with Augustus' **Res Gestae**. The diameter of the Mausoleum was about 88 meters and its height (excluding the statue) about 44 m. Around the Mausoleum was a public park containing trees and paths.

