



Making of the Western Mind

Institute for the Study of Western Civilization

Week 20, Brunelleschi







1401-1402: The Political Crisis That Changes Everything




Gian Galeazzo Visconti
1351-September 3, 1402

Castello Visconteo(Sforza), Milan

Milan has overwhelmed Verona, Pisa, Siena



June 1402: Milanese troops enter Bologna, Florence surrounded



Summer 1402: Florence totally isolated.
Empire cant help.
France cant help-royal chaos.
England cant help: political upheaval
Pope cant help: Schism
Siena, Pisa, Bologna in hands of enemy.



September 3, 1402: Giangaleazzo Visconti died of plague.



In Florence,
in leadership circles
the Crisis was a sign.
The meaning was
visible in Gregorio Dati
History of Florence:
“...all the freedom of
Italy lay in the hands of
the Florentines alone...
every other power
deserted them.”
Freedom won.
Free Flo Republic won.



THE CRISIS
OF
THE EARLY
ITALIAN
RENAISSANCE



By Hans Baron



1900-1988



A NEW
VIEW
OF
HISTORY
EMERGES
FLORENCE
AS
HEROIC
REPUBLIC
FREEDOM
WINS:
CULTURE
POLITICS
HISTORY

THE CRISIS
OF
THE EARLY
ITALIAN
RENAISSANCE



By Hans Baron



I 400-I 405: Circle of scholars, politicians, businessmen



Salutati

Poggio
Bracciolini



Fra Luigi Marsili



Palla Strozzi



Coluccio Salutati
Florentine Chancellor
1331-1406



COMES TO
FLORENCE
1400 TO
TEACH
GREEK

Manuel
Chrysoloras
1355-1415



Dante
1265-1321



Petrarch
1304-1374



Brunelleschi
1377-1446



THE RENAISSANCE AND FLORENCE

Brunelleschi's neighborhood





grew up
in
neighborhood
at foot of
the unfinished
Cathedral





father a
"notaio"
ie
accountant/
lawyer
Brunelleschi
Flo
upper
mid class
good edu
some Latin
+
Tuscan
(Dante/Pet/
Bocc)



c. 1395
Filippo
joins
the
Arte
della Seta
the Silkmakers
(Porta Rossa)
guild
which also
includes
goldwork
“Master” 1398





c. 1395
Filippo
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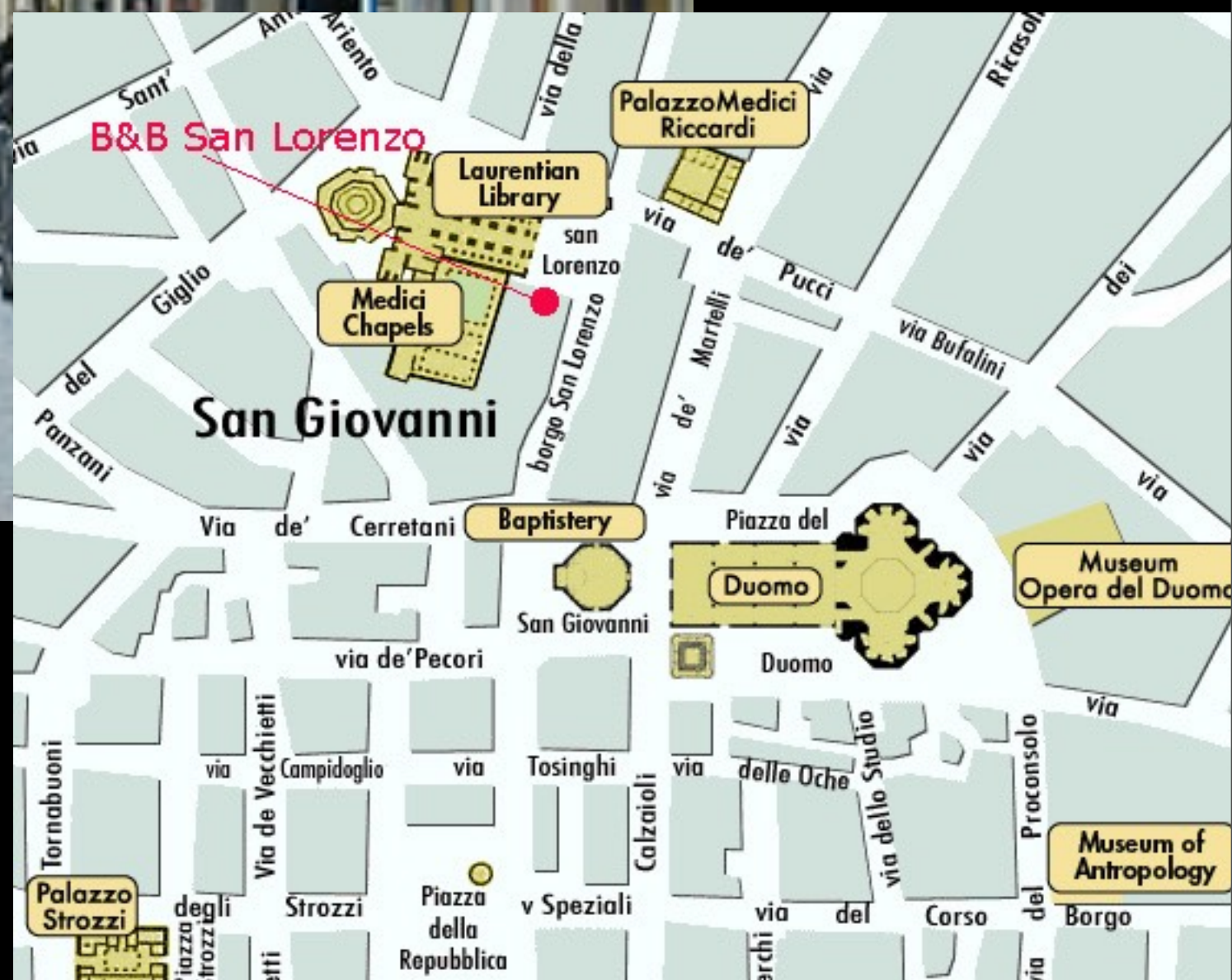
| 40 | Competition for the Baptistry Doors (Brun 23)

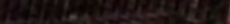
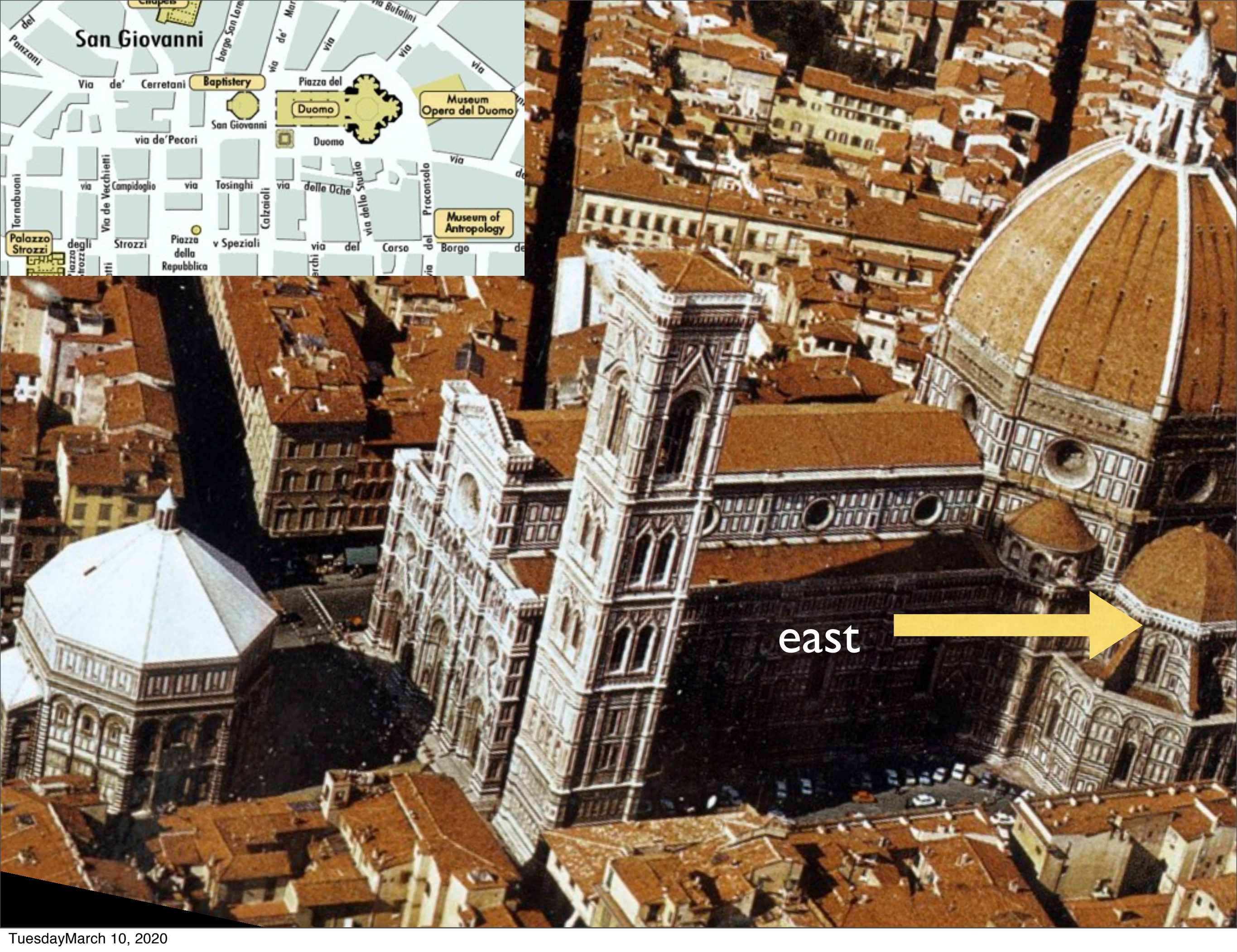


| 40 | Competition for the Baptistry Doors

North side, North Gate, Borgo San Lorenzo









Looking West







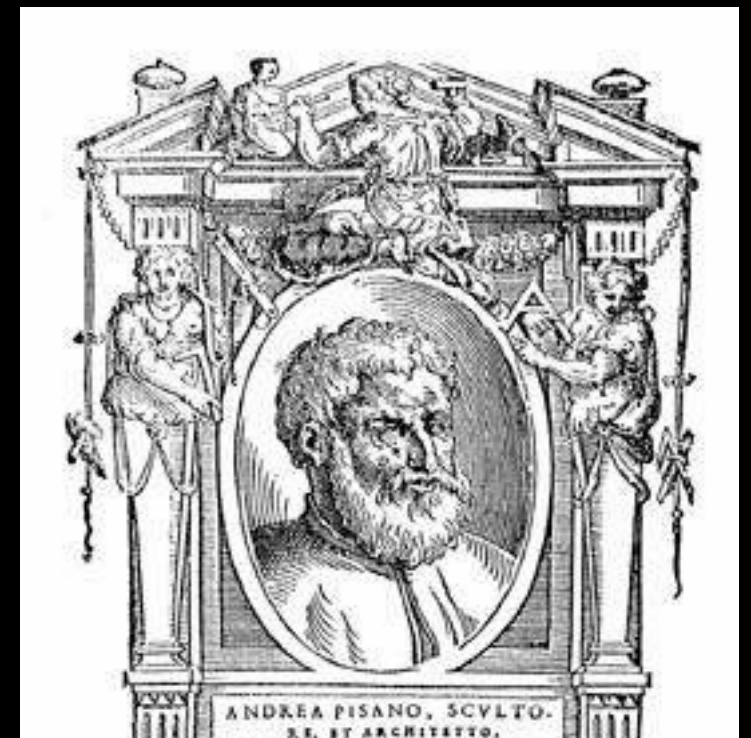
The Baptistry Doors

South Doors

Stories of John the Baptist

Andrea Pisano (1290-1348)

Project Superintendent:
Giovanni
Villani

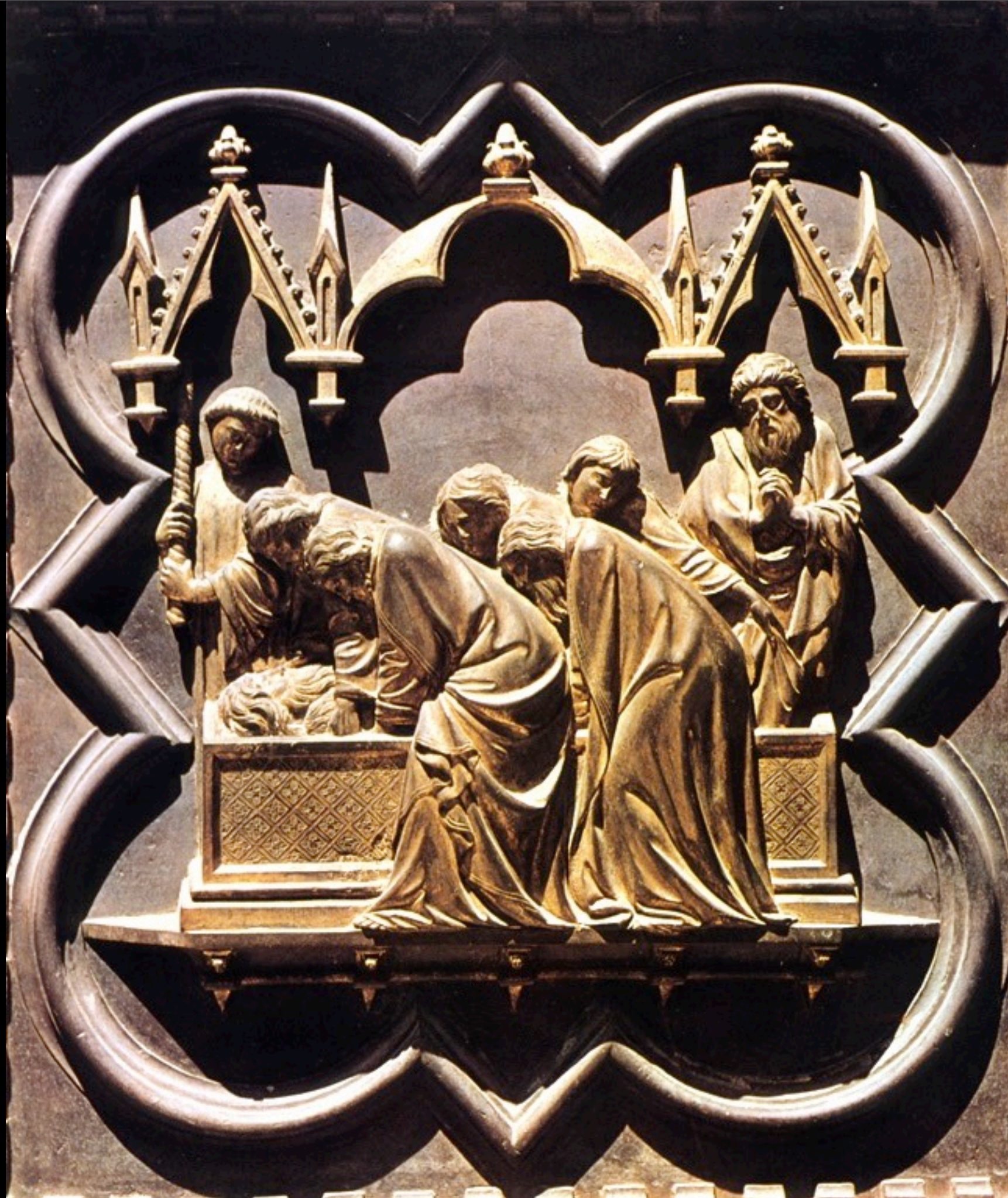




QUATREFOIL

The word quatrefoil means "four leaves", from Latin *quattuor*, four, plus *folium*, a leaf) and applies to general four-lobed shapes in various contexts.









The North Doors, 28 panels



THE COMPETITION: I 401



A Civic Commission
Citizen members
Major art project
at time of war.

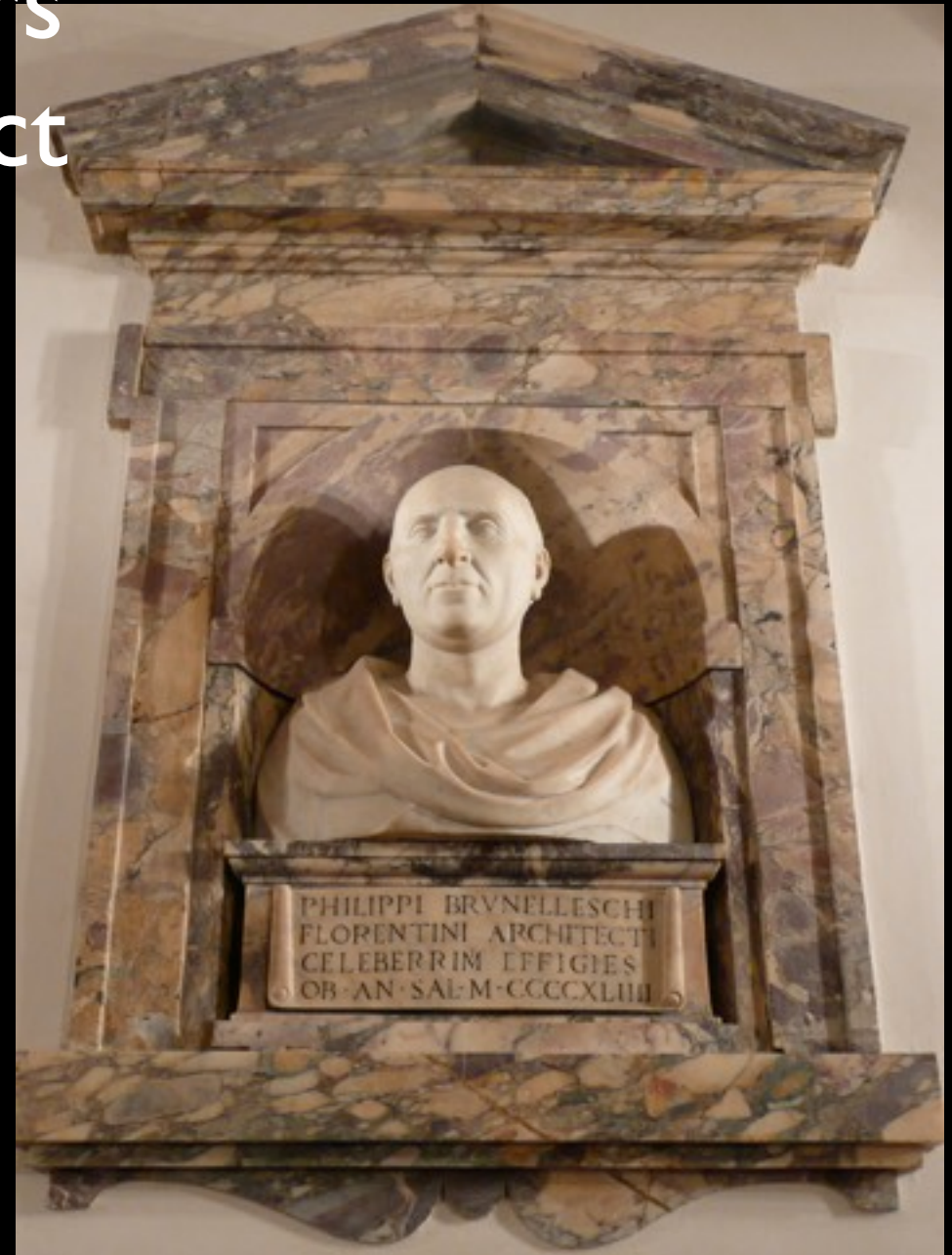
THE COMPETITION: 1401

A Civic Commission

Citizen members

Major art project
at time of war.

Warning! Copyright Codes Inside, New Crafts Co.



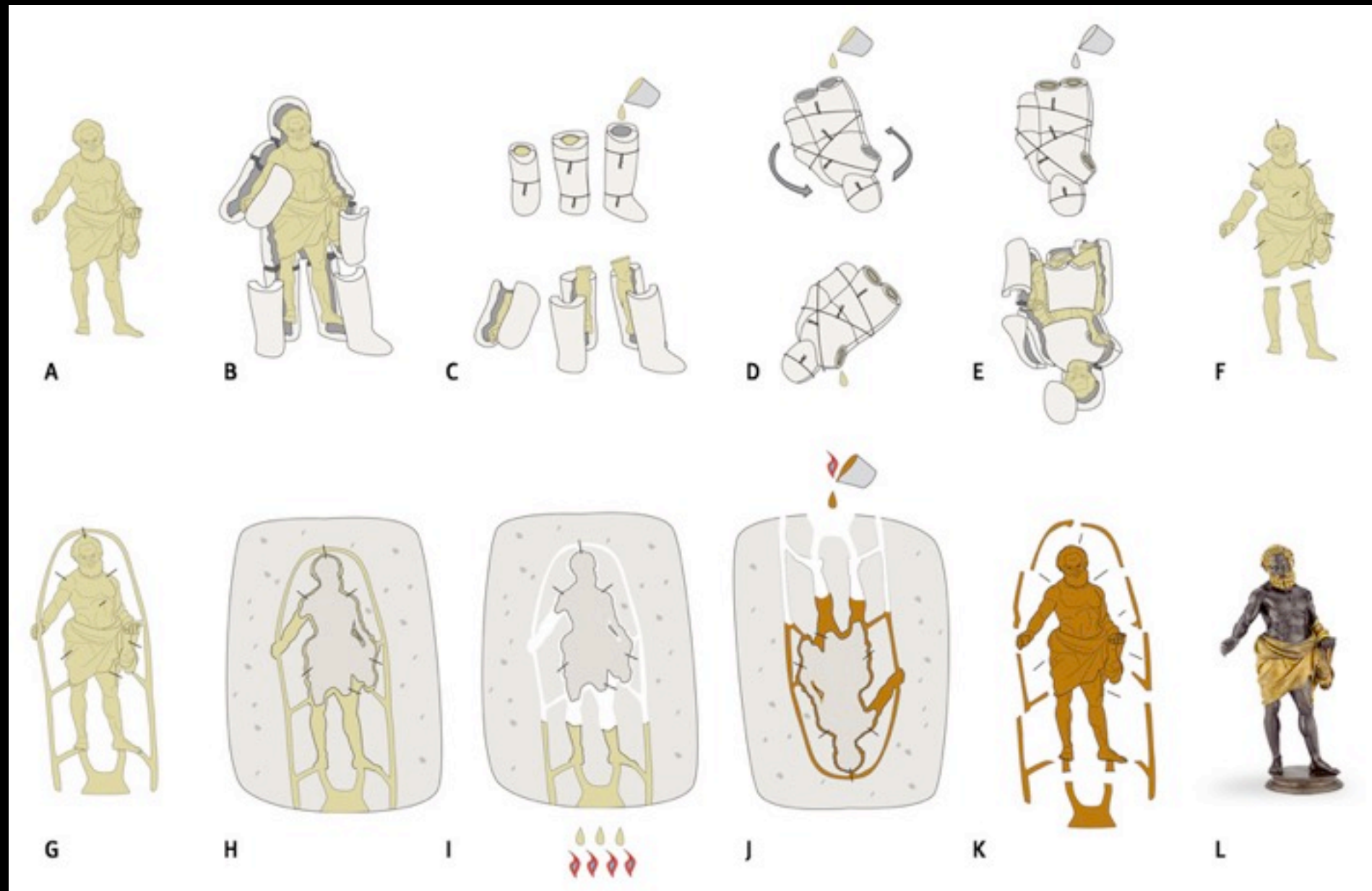
THE COMPETITION: 1401, Subject, Sacrifice of Isaac

Bronze panel

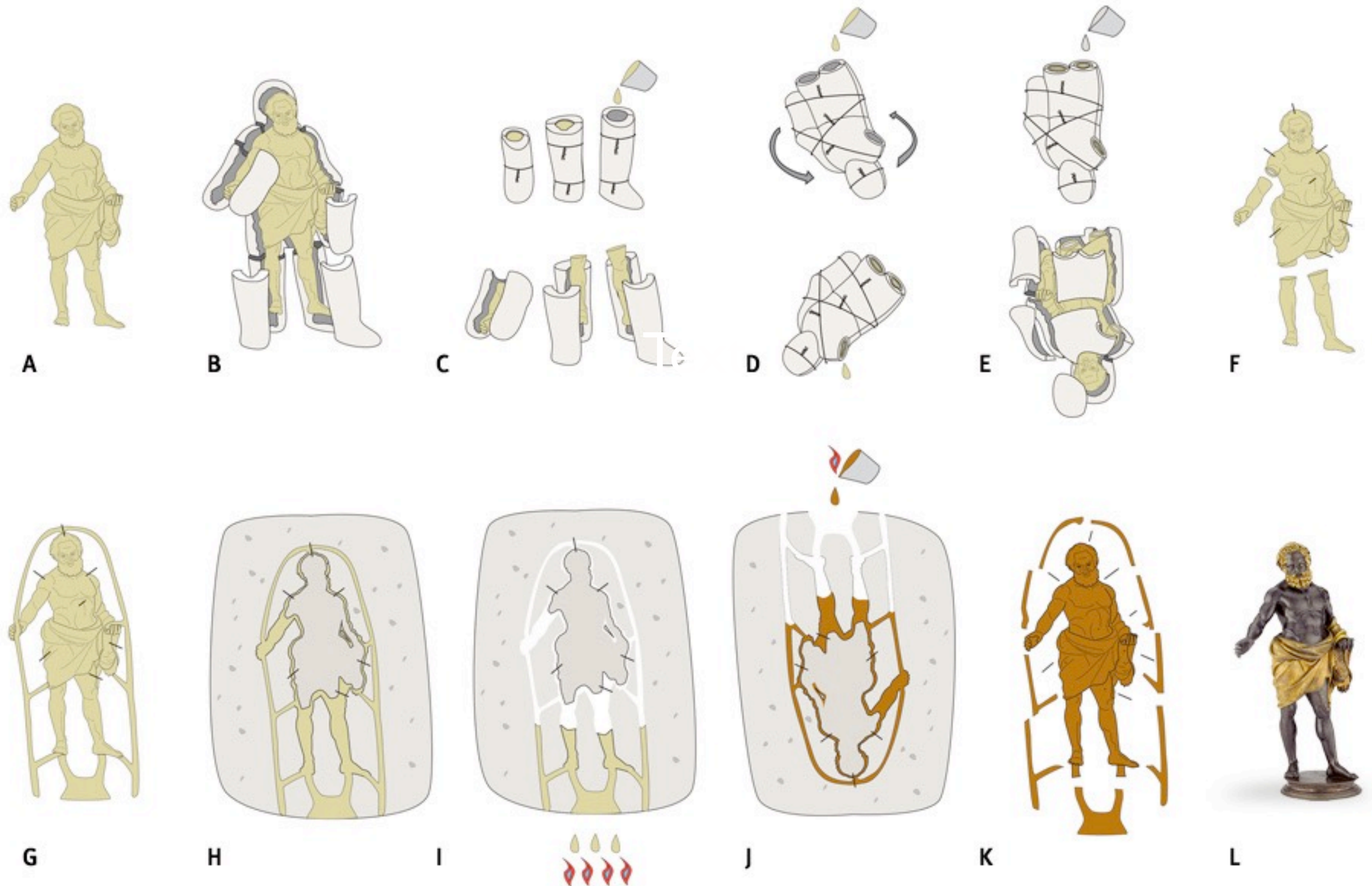
Finalists: Brunelleschi and Ghiberti



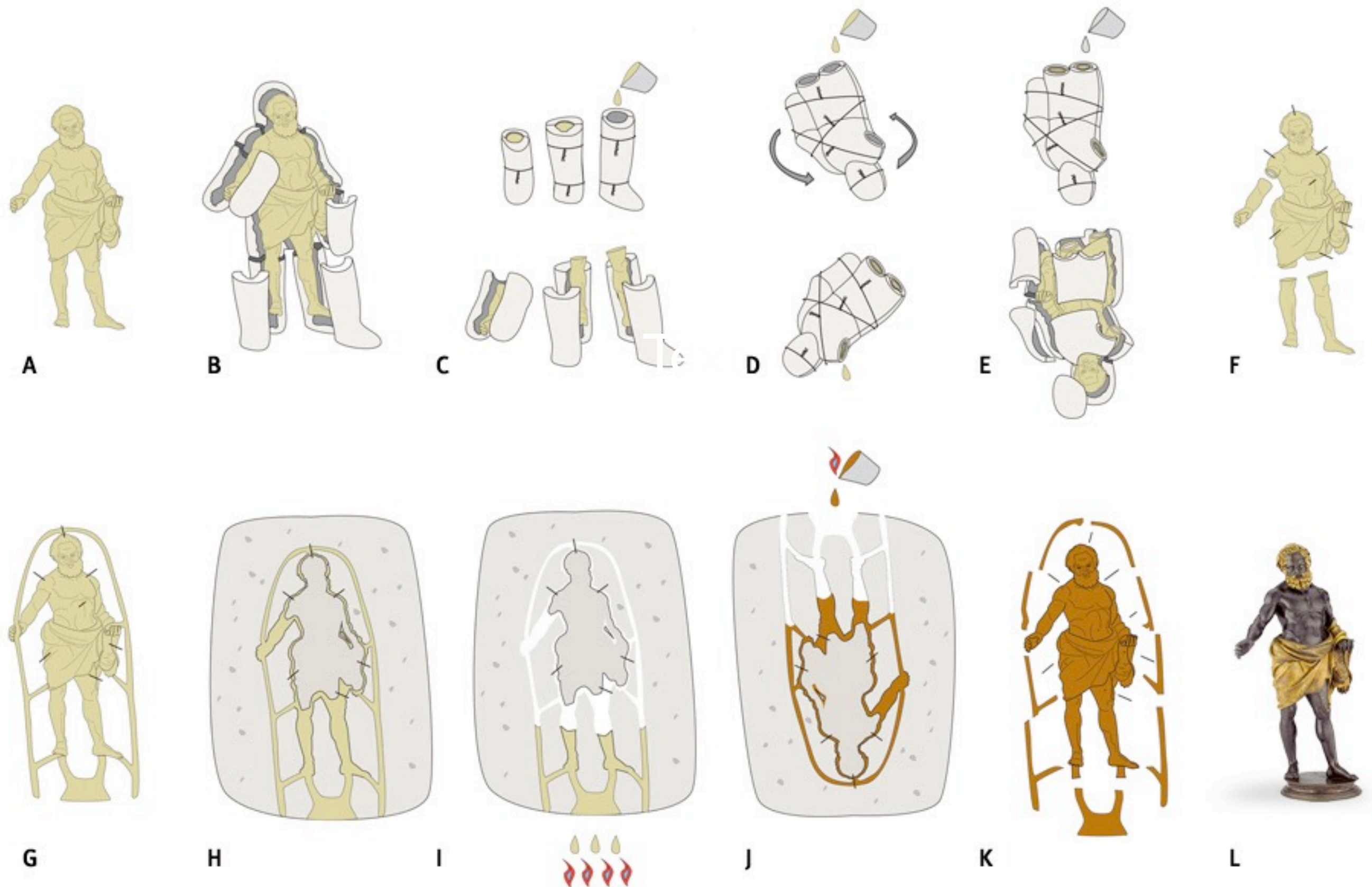
Bronze Casting: The Lost Wax Method



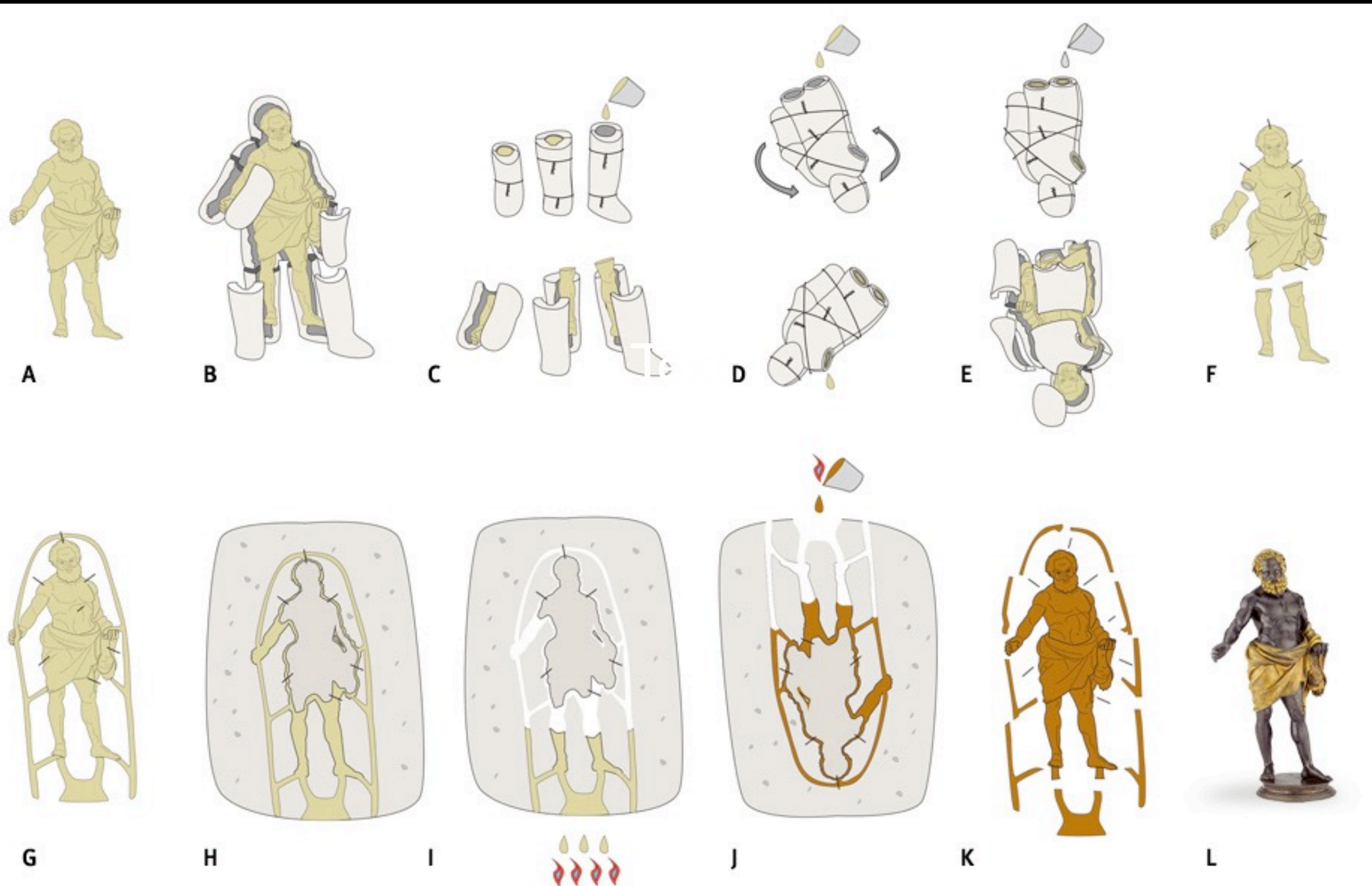
1. The first step in the process was to model the figure roughly in carefully seasoned clay . This will be clay core to whole structure.



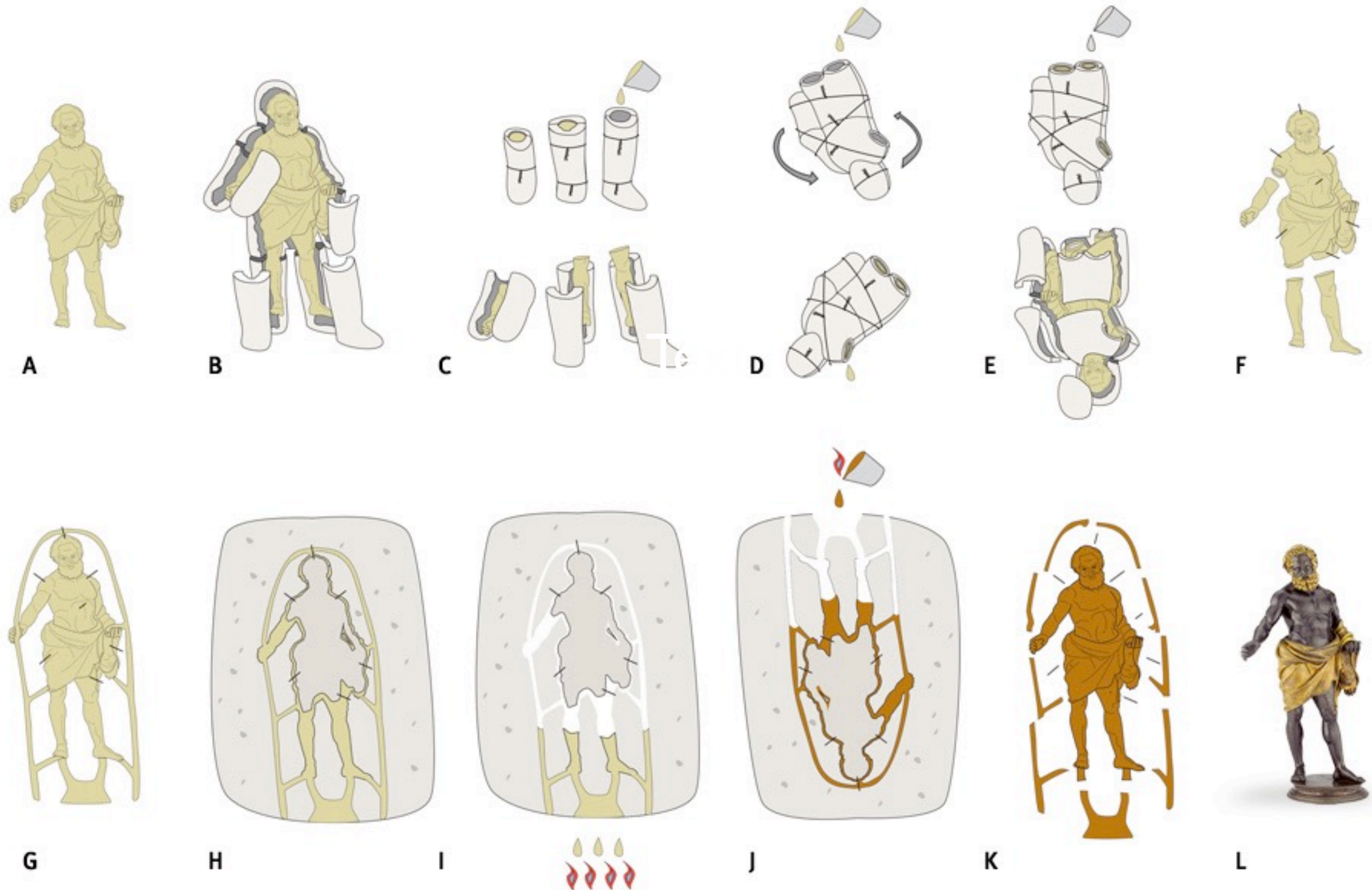
2. Over which, once the clay had dried, a coating of wax was laid
AND Carve more precise wax model. ...the shape of the desired
statue or relief-work of extreme sculptural



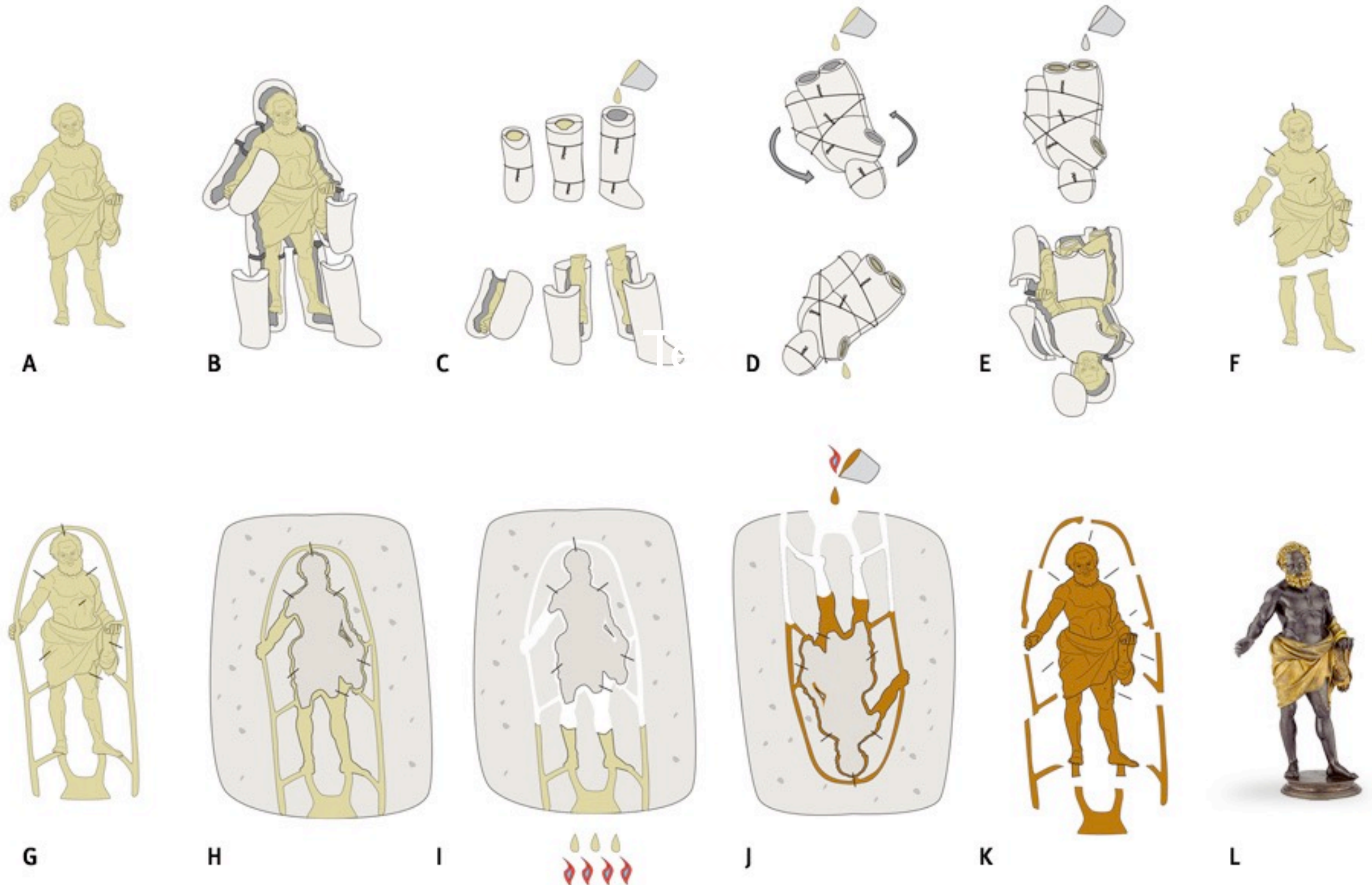
3. New covering exterior layer was laid over it: a combination of clay, burned ox horn, iron filings, and cow dung was mixed together with water, worked into a paste, and spread over the wax-coated model with a brush of hog sables.



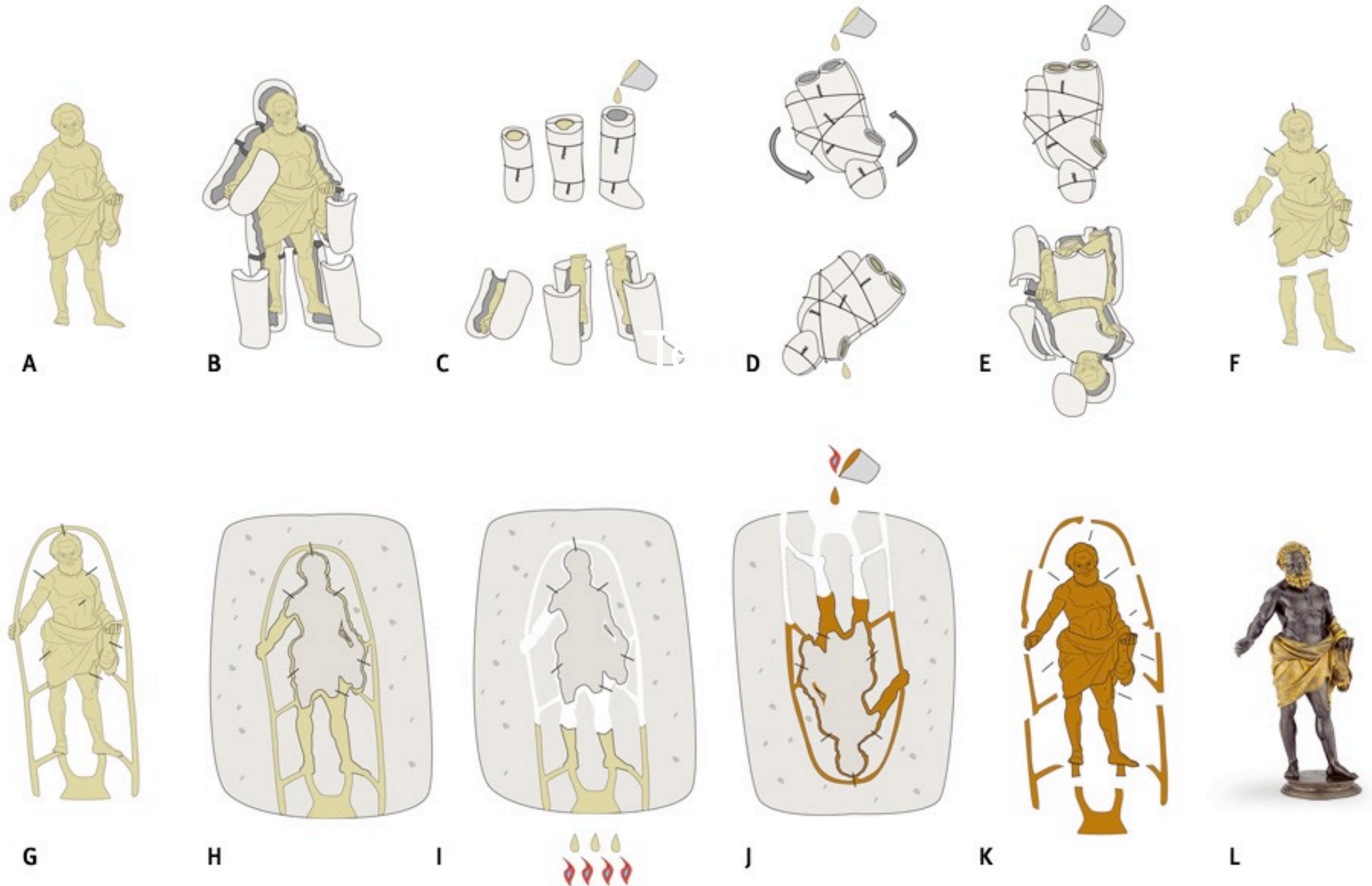
4. Several layers of soft clay were then applied, each of which was allowed to dry before its successor was overspread.



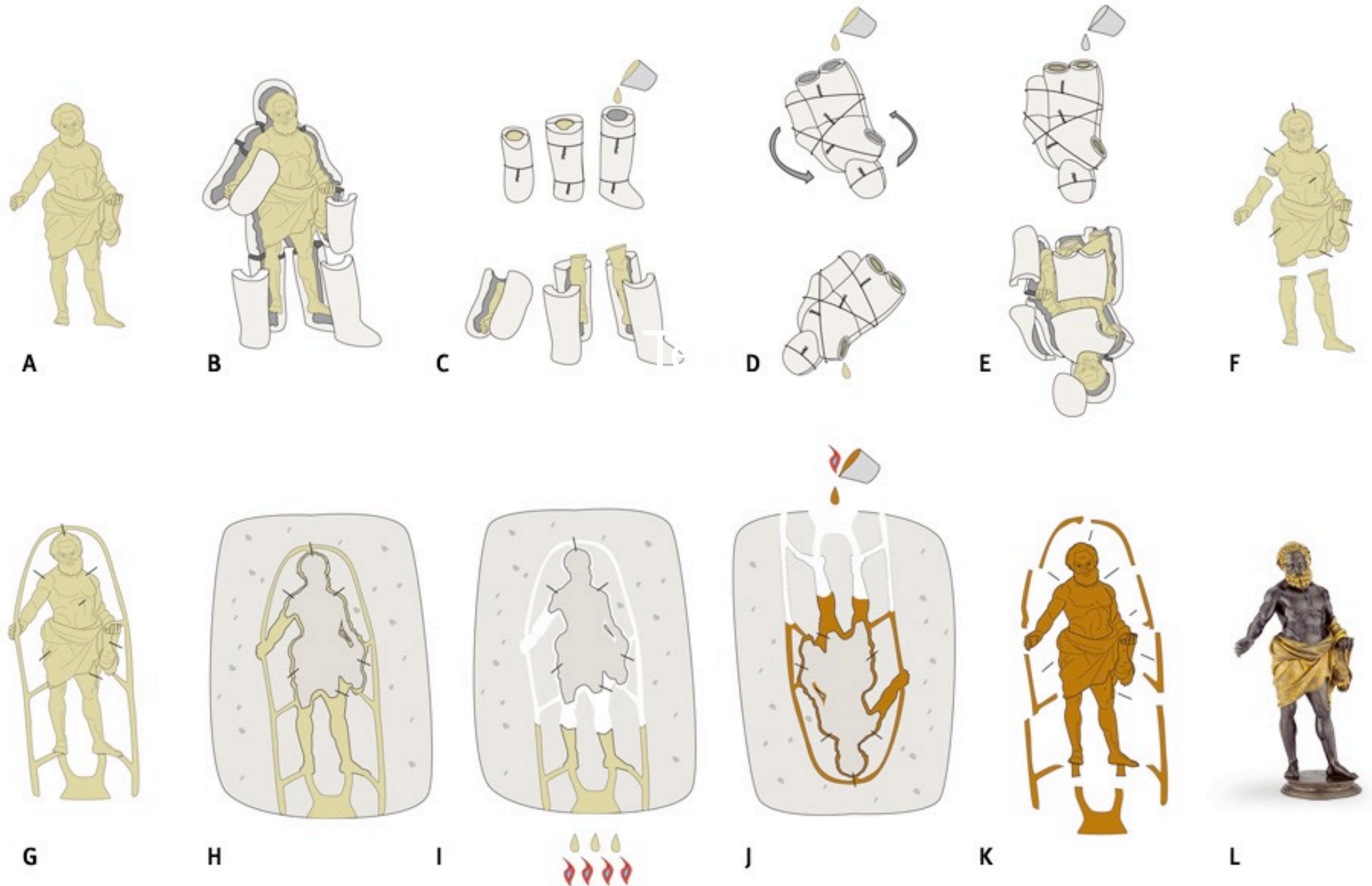
5. The result was a shapeless mass bound together with iron hoops—the lumpy chrysalis from which the bronze statue was to emerge.



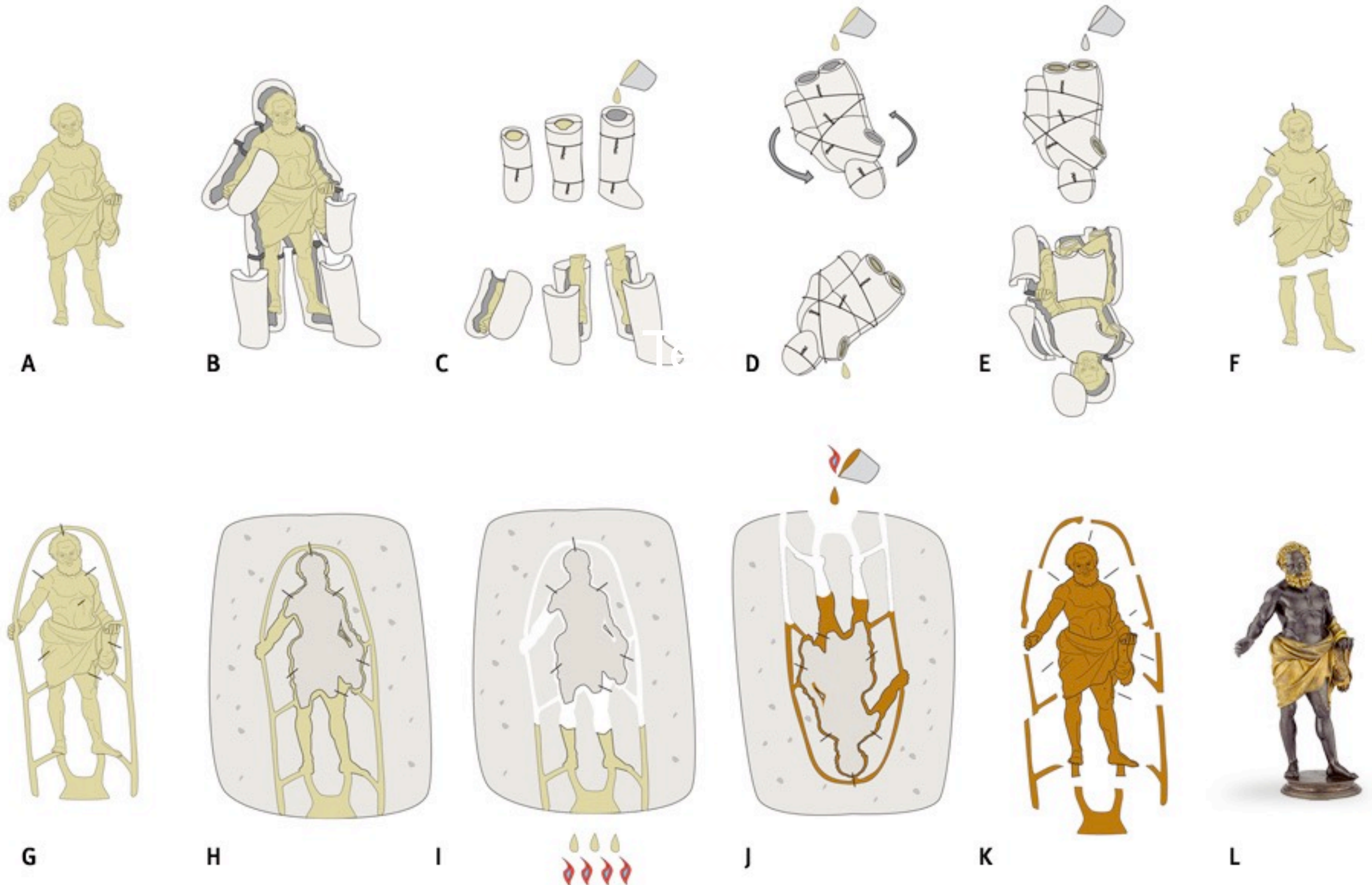
6. KILN. This creation was placed in a kiln and baked until the clay hardened and the layer of wax, as it melted, oozed through small vent holes made for that purpose, usually at the base. (Called the "Lost Wax Method")



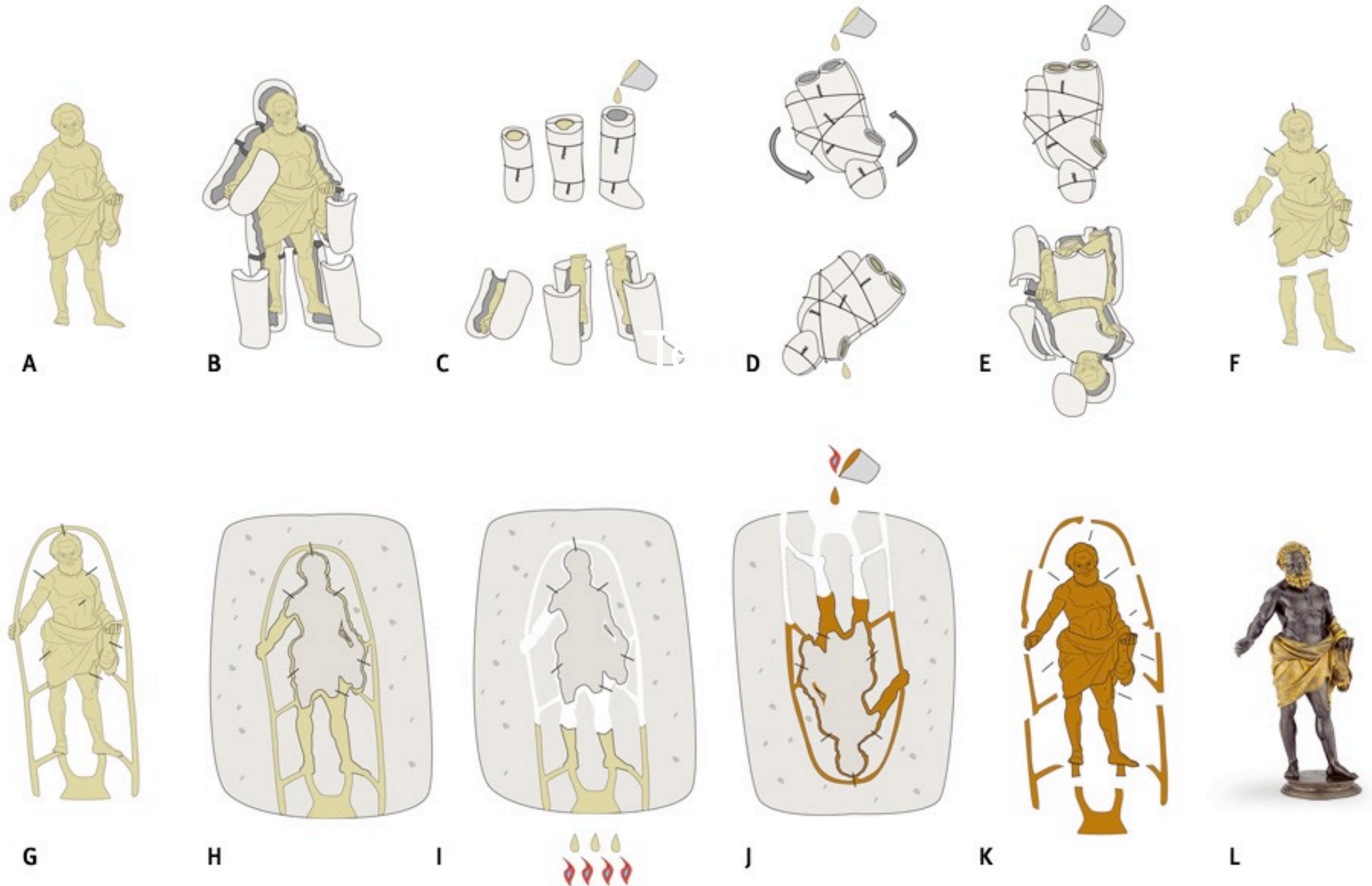
7. INTRO THE MOLTEN BRONZE. A hollow was thereby left into which bronze, melted in a furnace, was poured.

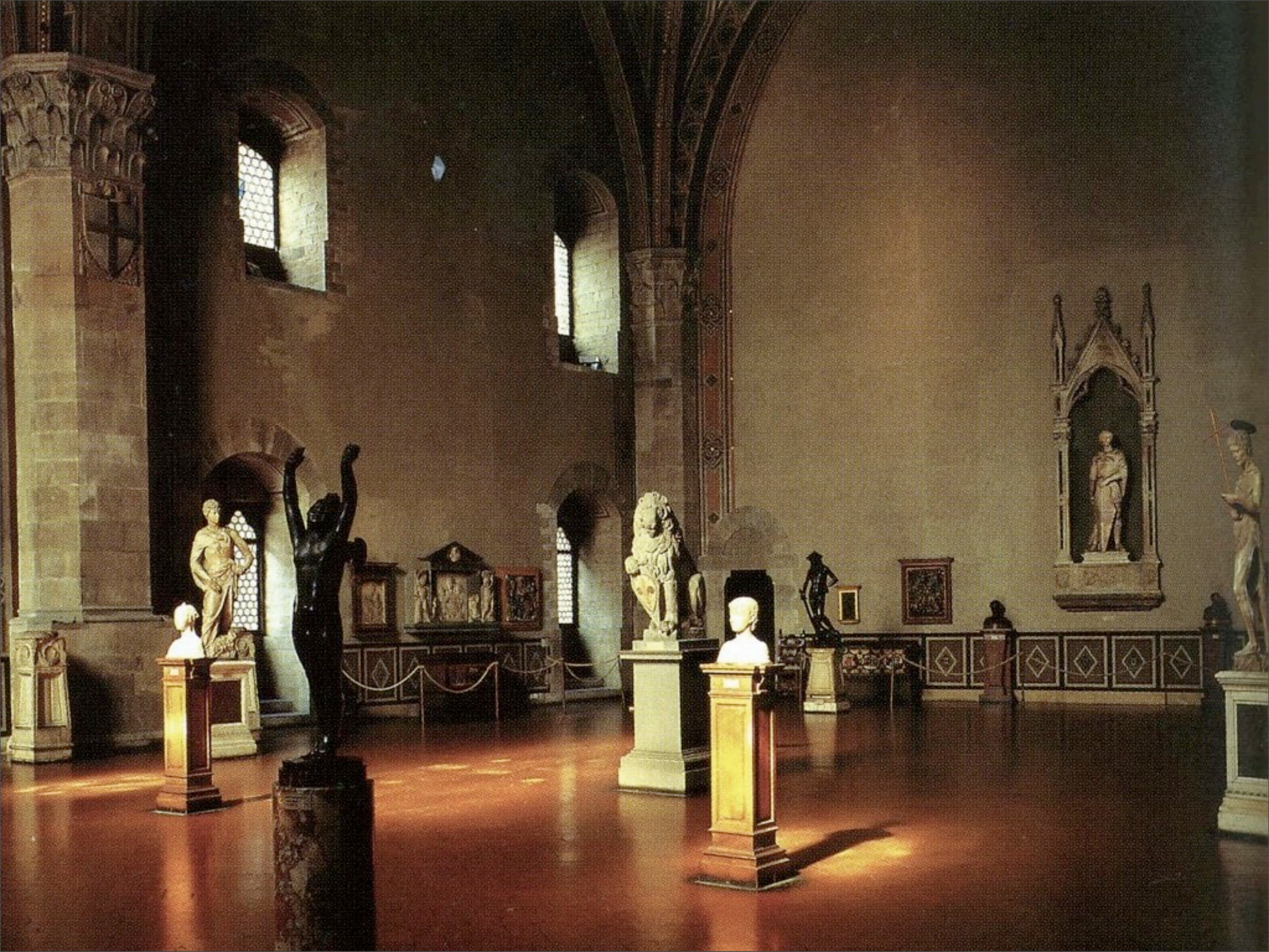


8. whole thing is left alone to cool for many days.



9. The final step in the process was to break away the shapeless husk of baked clay and expose the bronze figure, which could then be chiseled, engraved, polished, and, if necessary, gilded.







PIETRO DEL VELLERIO
Descent from the Cross
16th century
Gilded bronze
Height: 18 cm
Weight: 1.2 kg
Inventory number: 1000.1.1.1



VITTORIO BIANCHI
1877-1940
Sacrifice of Isaac *Sacrifice of Isaac*
1937
Gilded bronze
From the Museum
of the Vatican Museums



RENZO CRIVELLI
1871-1911
Sacrifice of Isaac
1901
Fondazione
1901-1911

FILIPPO BRUNELLESCHI
ca. 1475-1500
Sacrificio di Isaac *Sacrifice of Isaac*
1493
Donazione
Donazione
1493-1500
Dalle collezioni mediceo-granducali
From the Medici-Granducal collection













Filippo Brunelleschi



Lorenzo Ghiberti



The Sacrifice of Isaac, competition panels for north doors, Baptistery of Florence Cathedral, Florence, Italy, 1401–1402, 1' 9" x 1' 5", Museo Nazionale del Bargello, Florence.

The body







Lorenzo Ghiberti, 1378-1455



Lorenzo Ghiberti, The North Doors, 28 panels

























Lorenzo Ghiberti, 1378-1455











INTERMISSION





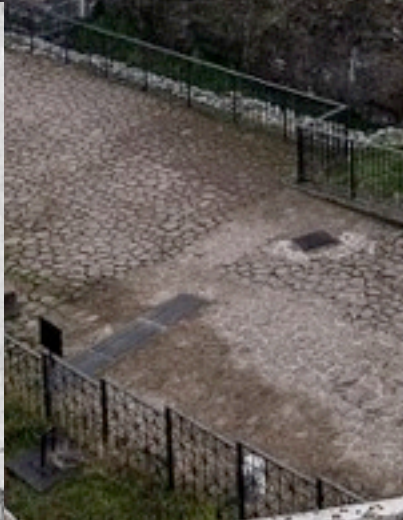
Donatello and Brunelleschi to Rome, 1405-15

Brunelleschi and Donatello come to Rome, dig, draw





Searching for the Past





BACK IN FLORENCE BY 1415:
COMPETITION FOR DOME



1415

State of the arts
in Florence

1415

1. competition panels
advances, experiment

2. Rome
archaeology
new finds

3. new manuscripts
Poggio finds Vitruvius
in Switzerland



1415 BRUNELLESCHI
RETURNS TO A
FLORENCE WITH
NEW
DOCUMENTS
POGGIO HAS
FOUND
VITRUVIUS



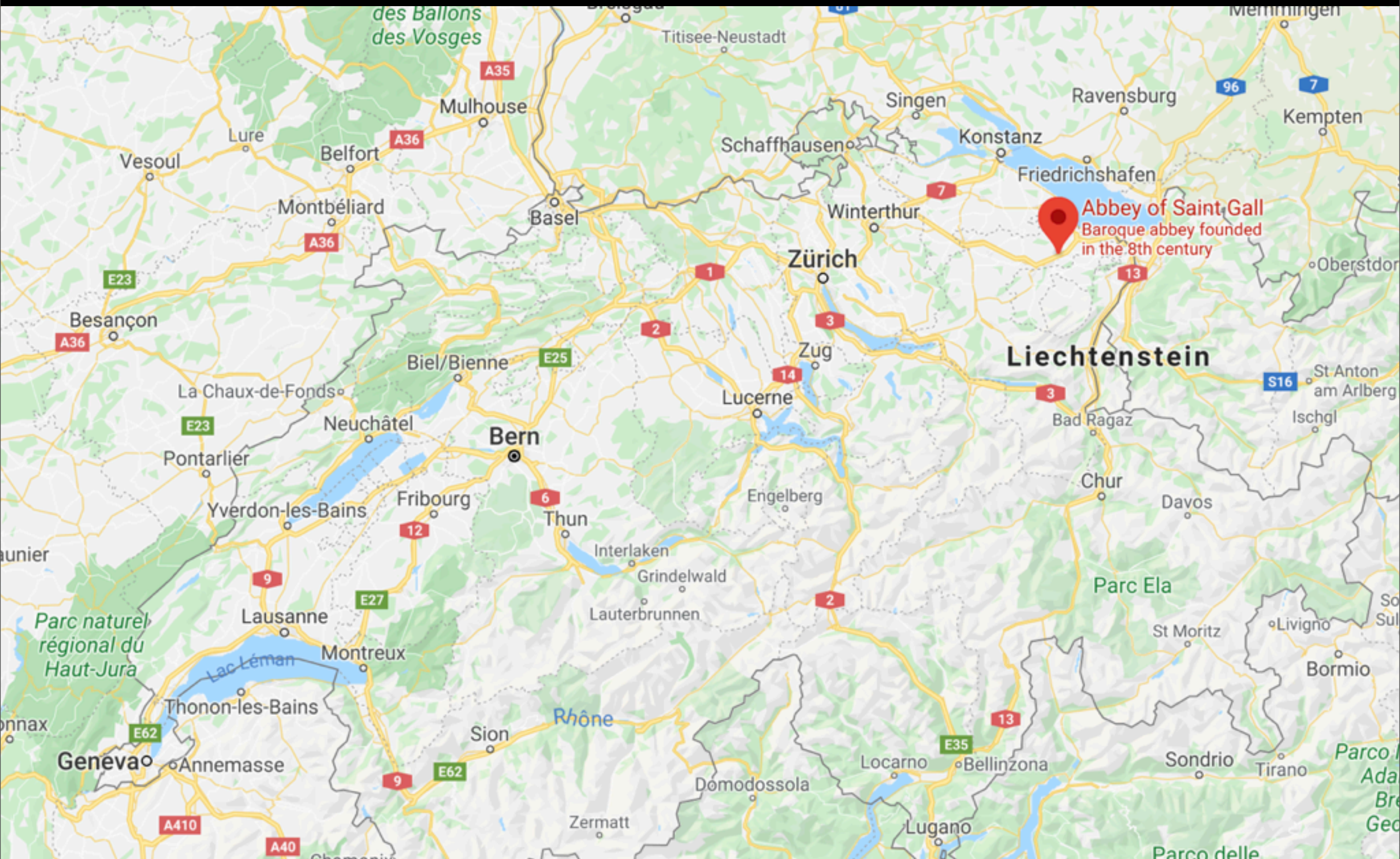
Poggio
Bracciolini
1380-
1459



FR. POGGIO



1414:
Poggio comes here
to the Abbey
of St Gall
in the city of
St Gallen
Switzerland,
founded by
Carolingians in
747







FR. POGGIO



Vitruvius, De Architectura, Bk X
St Gall manuscript on parchment (Vellum)
Dated: 750-987

dragenos eris diuisit. Morte subtractus spectaculo magis hominū q̄ triūphantis glorie syphax est tibur^{us} audita multo ante mortuus q̄ ab alba triductus fuerat. Conspecta tamen mors eius fuerit quia publico funere est elatus. hunc regem in triūpho ductum polibius haud quāq̄ spernendus auctor tradit. Secutus scipionem triūphantem est pilleo capiti imposito. Q. terentius culleo; omniq; deinde uita ut dignū erat libertatis auctorem coluit. Africani cognomen militaris primū fauor an popularis aura celebrauerit. an sicuti sylle magniq; pompey patrū memoria ceptum ab assentione familiari sit parum compertum habeo. Primus certe hic impator nomine uicte a se gentis est nobilitatus: exemplo deinde huius nequaq̄ uictoria pares, insignes imaginū titulos, claraq; cognomina familie fecere.

Poggio's handwriting



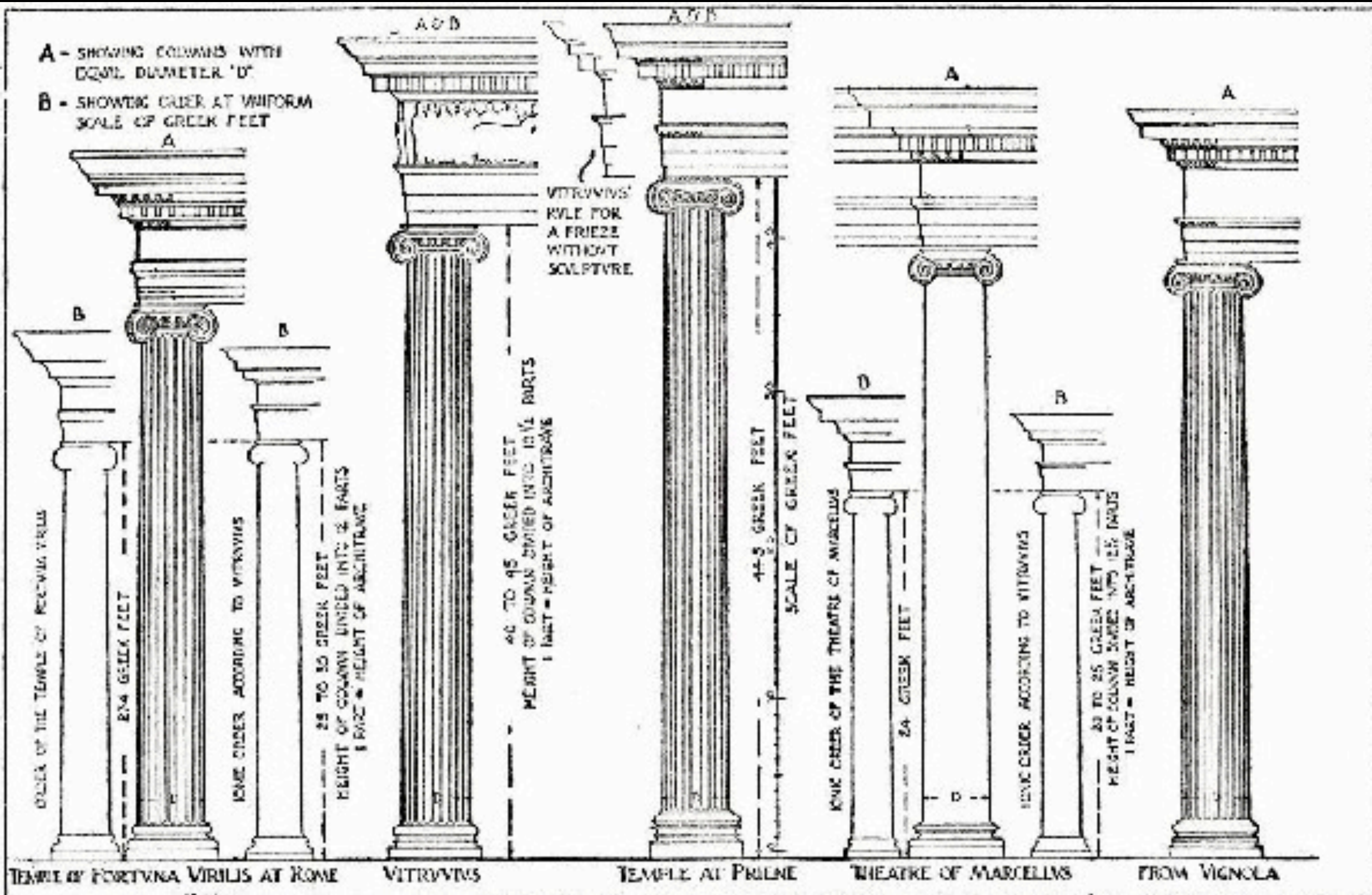
FR. POGGIO



Vitruvius, De Architectura, Bk X
St Gall manuscript on parchment
Dated: 750-987

1415: Poggio Bracciolini Brings Vitruvius to Florence
Brunelleschi reads Vitruvius

- A - SHOWING COLUMNS WITH
EQUAL DIAMETER 'D'
- B - SHOWING ORDER AT UNIFORM
SCALE OF GREEK FEET

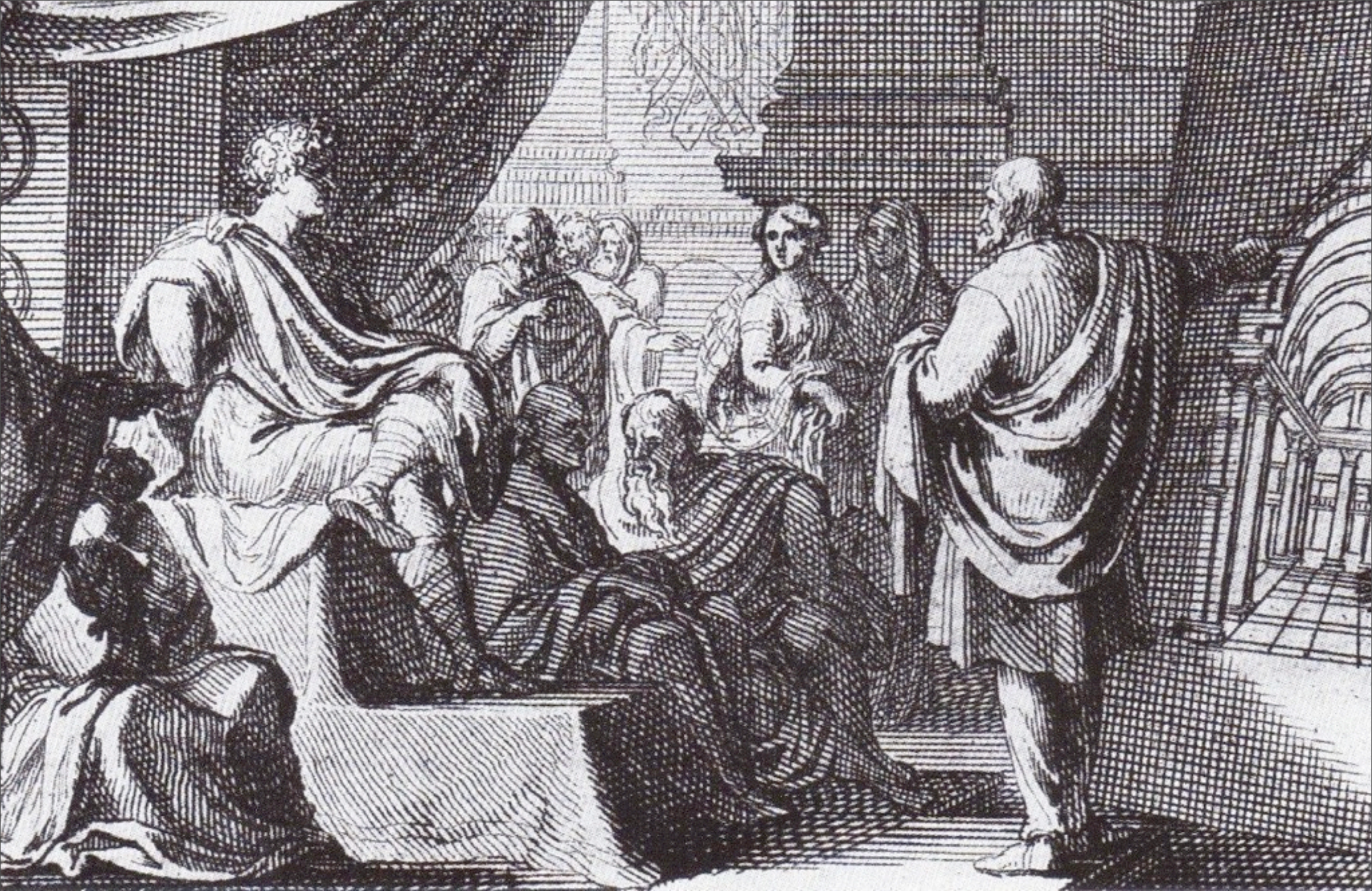


TEMPLE OF FORTUNA VIRILIS AT ROME VITRUVIUS TEMPLE AT PRUENE THEATRE OF MARCELLUS FROM VIGNOLA



PHILIPPI BRVNELLESCHI
FLORENTINI ARCHITECTI
CELEBERRIM EFFIGIES
OB AN SAL M CCCXLIII





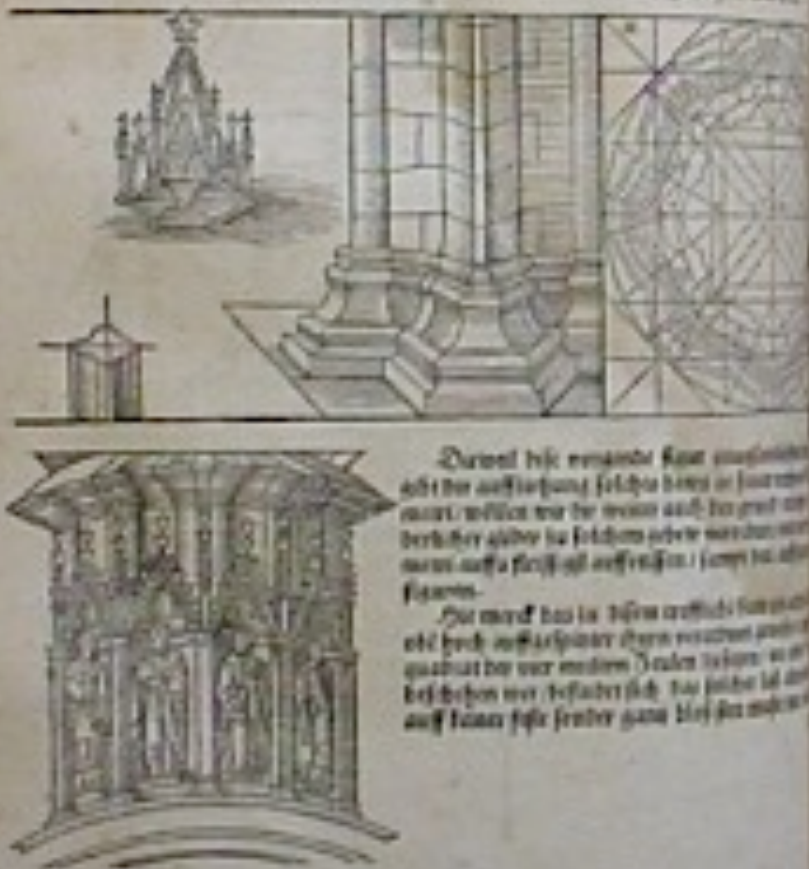
Vitruvius Presents His Book on Architecture to the young Emperor Augustus, 20 BC



Das Erstbuch Satirisch

[illegible]

Eigentliche aufrichtung des grunds der Seelen mit ich 24
mit Sapientia auch wie solch Seelen aufgelegt werden



Von der Archibuteus 2. 18. 2. Cap.

xxx

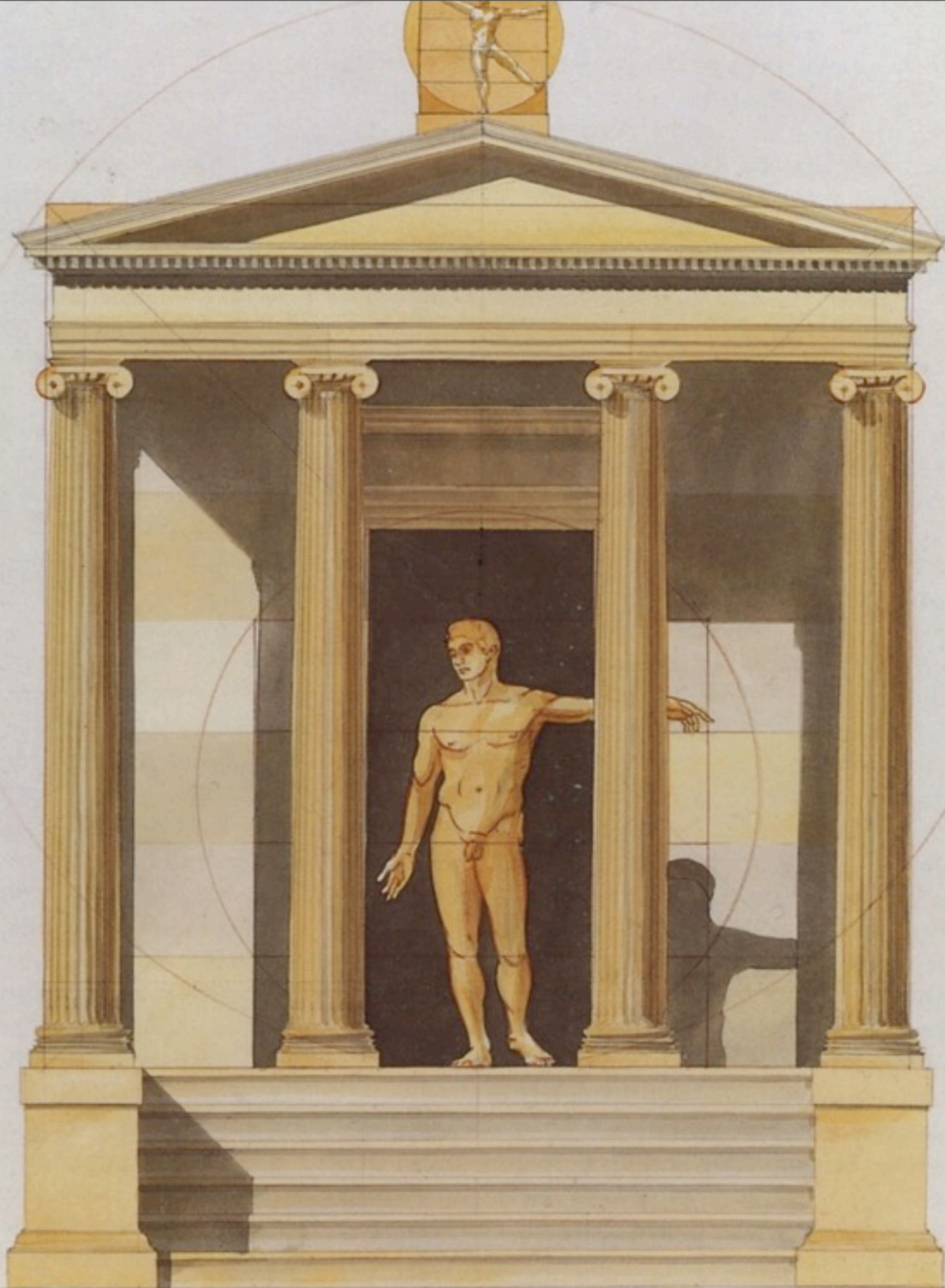
Die deutsche geographische Gesellschaft hat sich zum Zweck gesetzt, die geographischen Kenntnisse der Deutschen zu verbreiten und zu fördern. Sie ist eine Vereinigung von Gelehrten, Künstlern und Liebhabern der Geographie, die sich zu gemeinsamen Studien und Reisen vereinigen. Die Gesellschaft hat eine Reihe von Vereinen in verschiedenen Städten gegründet, die sich zum Zweck gesetzt haben, die geographischen Kenntnisse der Mitglieder zu verbreiten und zu fördern. Die Gesellschaft hat eine Reihe von Vereinen in verschiedenen Städten gegründet, die sich zum Zweck gesetzt haben, die geographischen Kenntnisse der Mitglieder zu verbreiten und zu fördern.



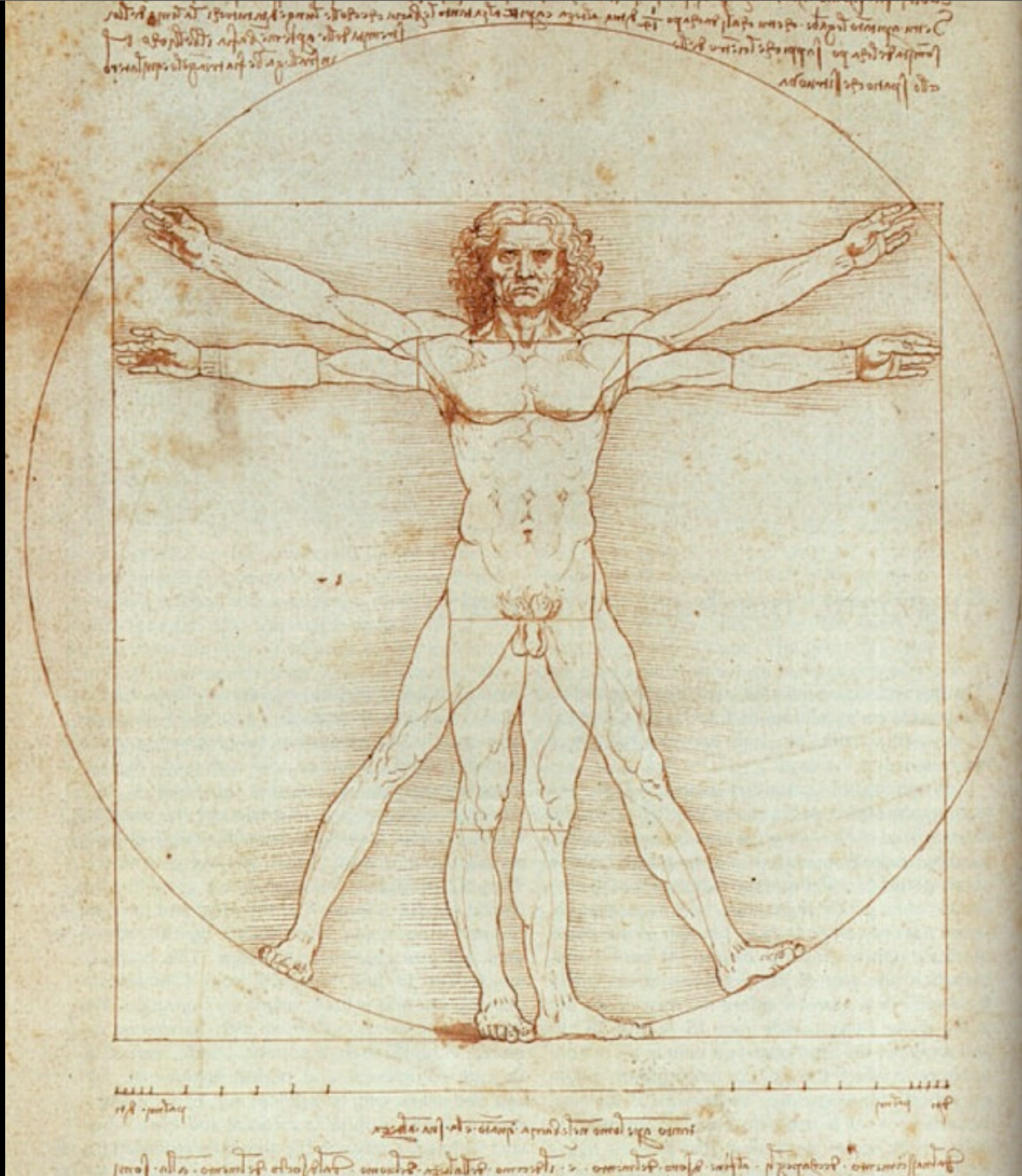
De architectura – Ten Books on Architecture

1. Town planning, architecture or civil engineering in general, and the qualifications required of an architect (Education)
2. Building materials
3. Temples and the orders of architecture
4. 'continuation of book IV'
5. Civil buildings
6. Domestic buildings
7. Pavements and decorative plasterwork (FRESCO)
8. Water supplies and aqueducts
9. Sciences influencing architecture – geometry, measurement, astronomy, sundial
10. Use and construction of machines - Roman siege engines, water mills, drainage machines, Roman technology, hoisting,

Vitruvius is famous for asserting in his book *De architectura* that a structure must exhibit the three qualities of *firmitas, utilitas, venustas* –
that is,
it must be solid,
useful,
beautiful.



Architecture The Body and the Order of the Universe: The Cosmos



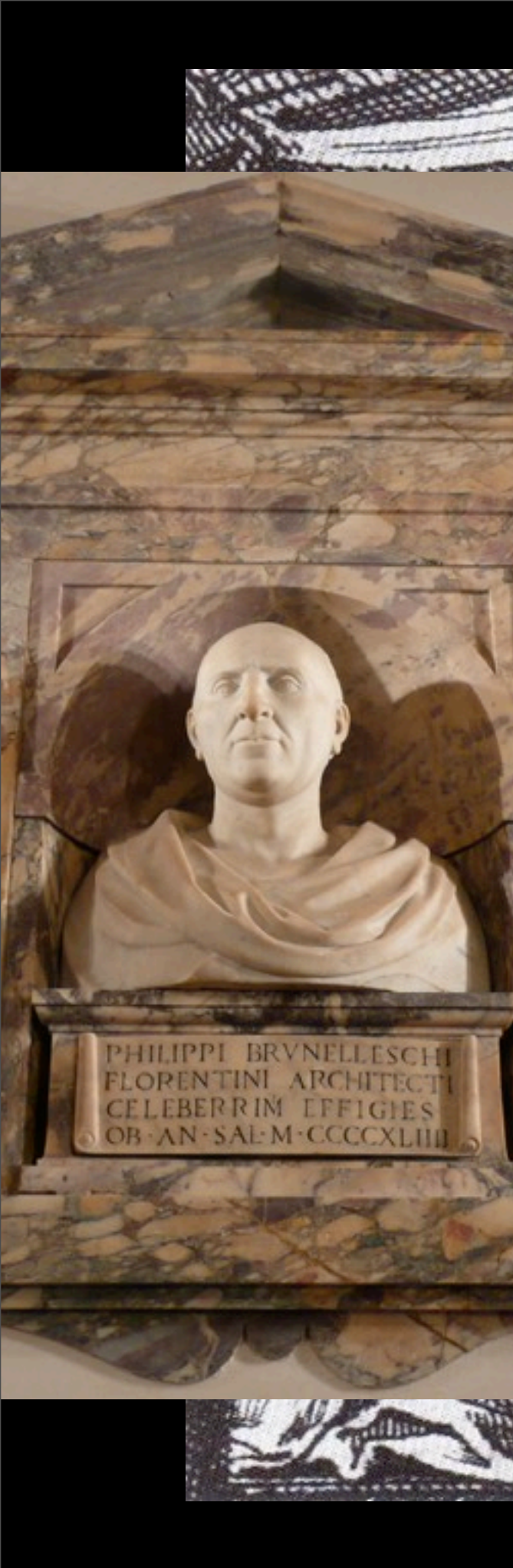
Man and the city, the civilization Greeks, Romans, Brunelleschi, Alberti





What Vitruvius
Gave Brunelleschi

1. Greek idea of order
2. arch mirrors that order
3. "Orders"
4. Edu of arch.
5. Role of arch=someone special (= all artists)
6. Brunelleschi BECOMES the civic art role Vitruvius imagined
7. Hoists etc



Chronology: History of Linear Perspective

- 300 B.C. Euclid's Optica
first written application of the laws of geometry
to problems of how people see
Definition of the rectilinear "visual ray" and the "visual cone"
- 25 Vitruvius' De architectura, reference to antique stage designs
which implies understanding of the "vanishing point" notion of
linear perspective in ancient Roman art
- 140 A.D. Ptolemy's Optica, application to Euclid's Optica of the geometric
laws of refraction. Definition of the unrefracted and therefore
crucial "centric" visual ray.
Ptolemy's Geographia, application of the laws of optics to the
projection of the spherical form of the earth onto a two-
dimensional surface.
EARLIEST KNOWN LINEAR PERSPECTIVE CONSTRUCTION
(for drawing a map of the world).
- 175 Galen's De usu partium, early effort to define the physiological
structure of the eye.

1401

1415.

1424

arrival in Florence for the first time anywhere in the West since classical antiquity of Ptolemy's Geographia(translate to Latin)

Brunelleschi returns to Florence

return to Florence of Paolo dal Pozzo Toscanelli
medical doctor, mathematician, geographer
possible author of treatise on optics
close friend and teacher of math to Brunelleschi

1425

Brunelleschi with possible help of Toscanelli makes first linear perspective paintings since classical antiquity
now-lost panel of Baptistry which he demonstrates with mirror.

1428

Masaccio paints Trinity, Santa Maria Novella, Florence
first surviving picture painted with clear-cut linear perspective
ideas of Brunelleschi.

1434

Leon Battista Alberti (1404-1472) comes home to Florence after family's long exile from city due to old political alliances.

1435

Alberti writes On Painting writing down Brunelleschi's ideas and dedicating it to Filippo(Brunelleschi) and Masaccio, Donatello, Ghiberti, and Luca della Robbia.
FIRST DOCUMENT EVER IN ALL OF HUMAN HISTORY TO RELATE THE MATHEMATICAL PRINCIPLES OF LINEAR PERSPECTIVE TO THE ART OF PAINTING.
THIS IMAGINATIVE LEAP OF 1425-1435 OF BRUNELLESCHI-ALBERTI IS AT THE CENTER OF THE ACHIEVEMENT OF THE RENAISSANCE IN ITALY· CREATES NEW VISION FOR WEST



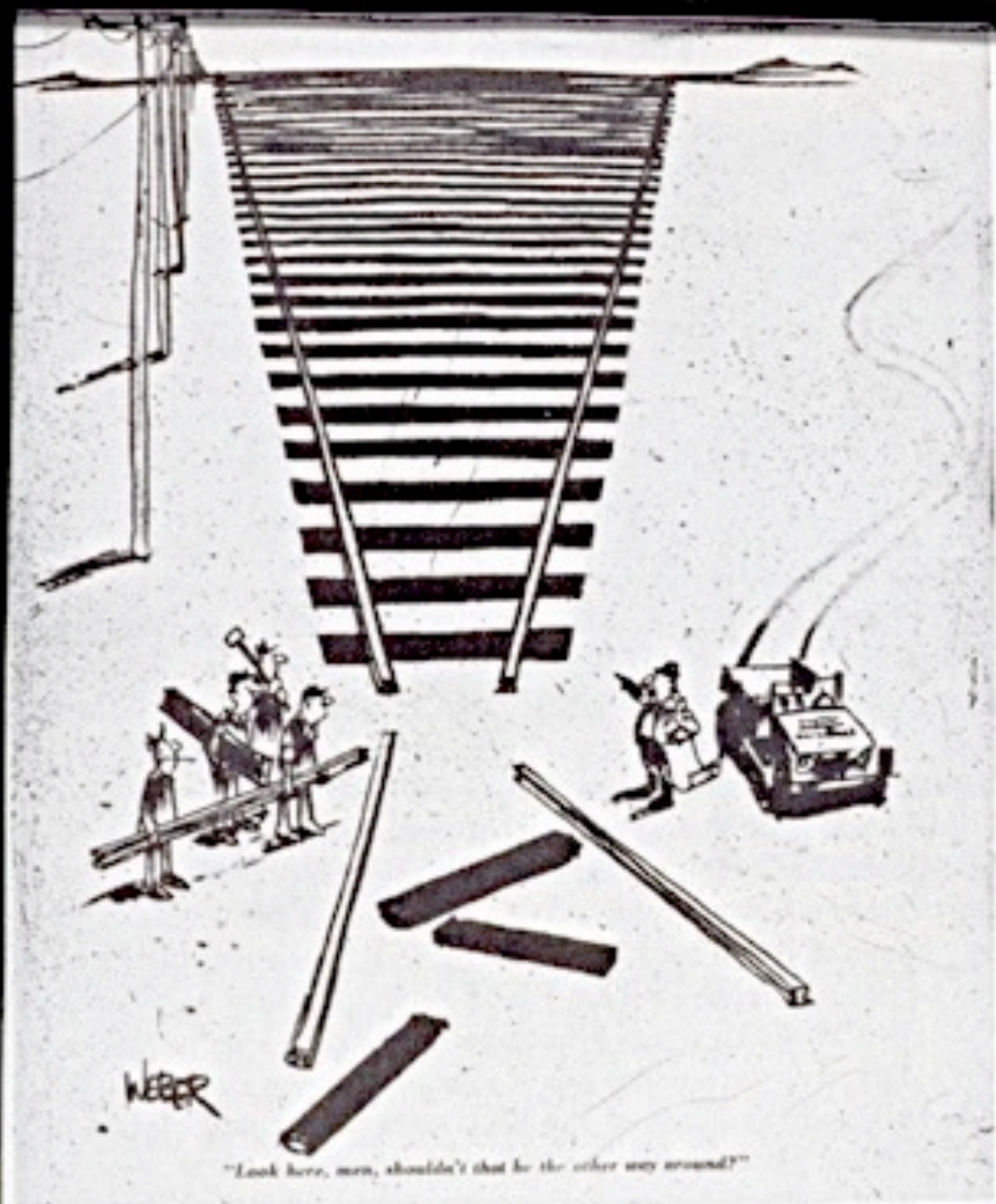
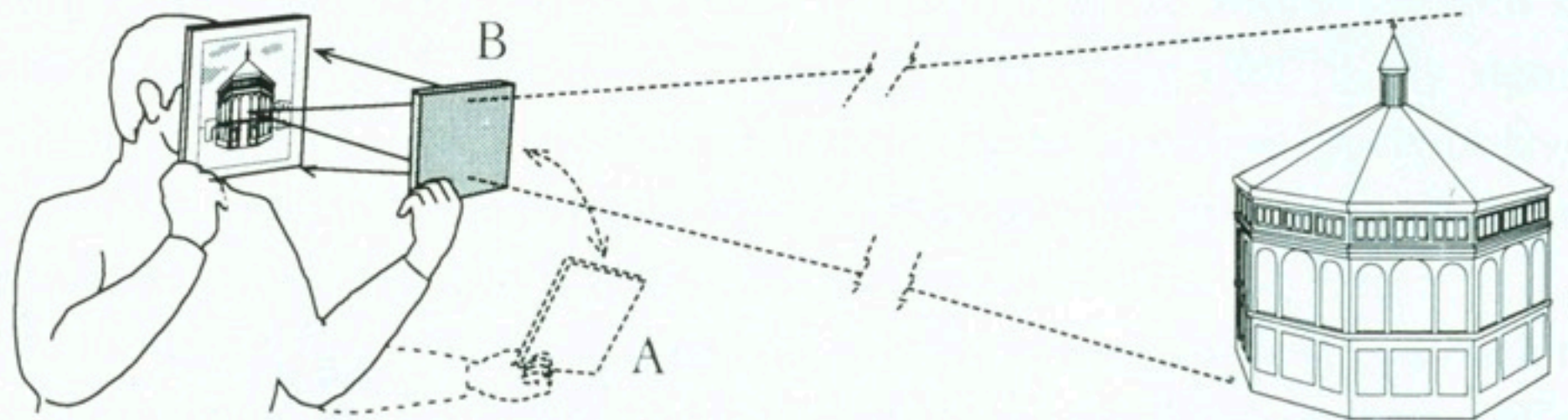


Illustration 1-4: "Look here, men, shouldn't that be the other way around?"
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third dimension, is by no means unique to the Studenica painting.
There are innumerable examples of it in pictures from all over the

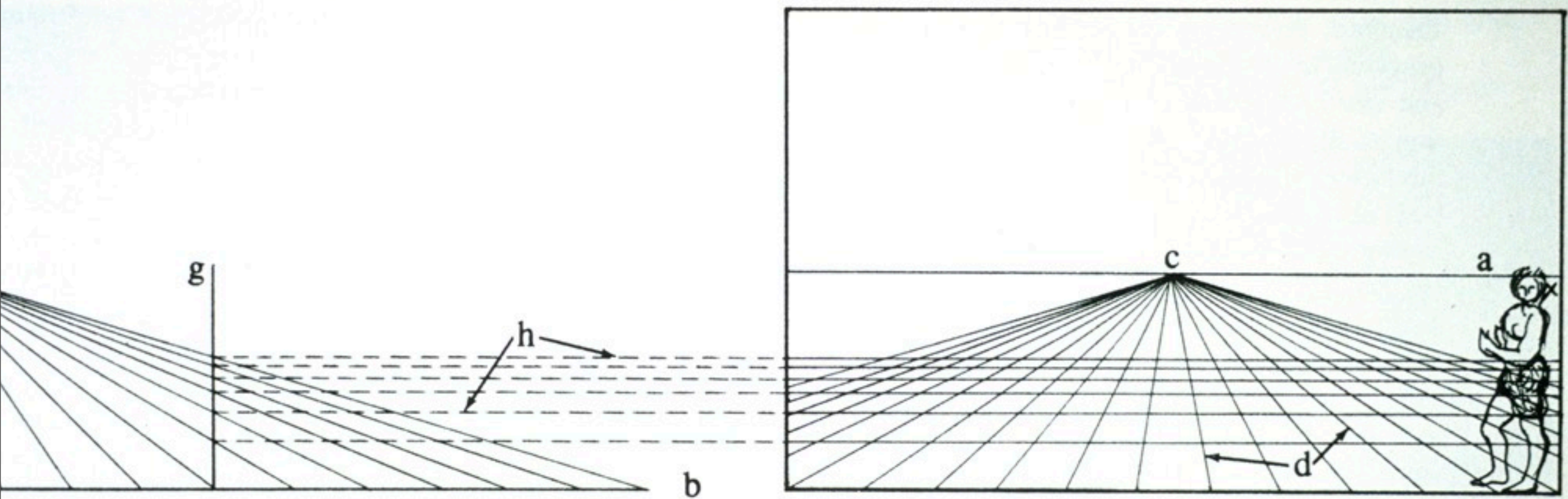


polished metallic surface, like a mirror, took the place of the sky and reflected real clouds: as a trick, an amusing gimmick to increase verisimilitude. With this Brunelleschi's 'mechanical' genius had conceived a scenic contrivance more than a painter's tool, a piece of persuasive equipment that would give the method all its



Brunelleschi's experiment with his panel painting of the Baptistery. The observer holds the painting in one hand and looks out through a hole in it. In the other hand he holds a mirror. With the mirror down (A) he looks directly at the Baptistery; with the mirror up (B) he sees a reflection of his painting of the building.

credibility when applying it to the more frequent situation of angular or oblique vision demonstrated in the second panel



232. Design of Alberti's Perspective Construction, according to recent discoveries

a. height of human being b. base line c. vanishing point d. orthogonals
 e. "little space" f. distance point g. vertical intersection h. transversals

unelleschi's perspective theory provided no system projecting imaginary spaces and their contents within torial field. Alberti's formula, however questionable a modern scientific standpoint, produced a result was aesthetically attractive and visually convincing

across to the first. These horizontal lines would become the desired transversals in the first construction, and form trapezoids in conjunction with its orthogonals. The results can be easily counterproved by drawing diagonals through the corners of the trapezoids. These diagonals

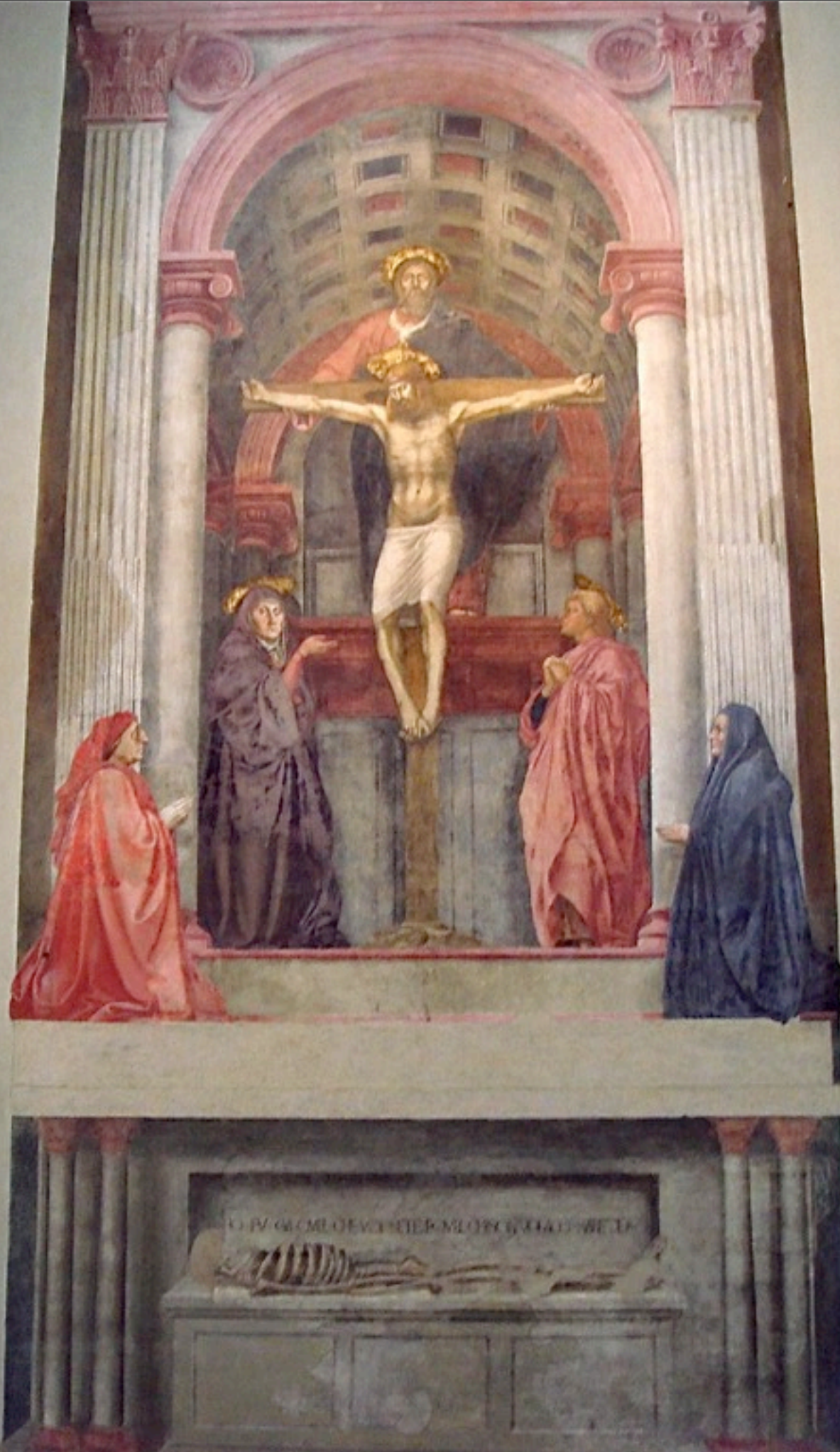


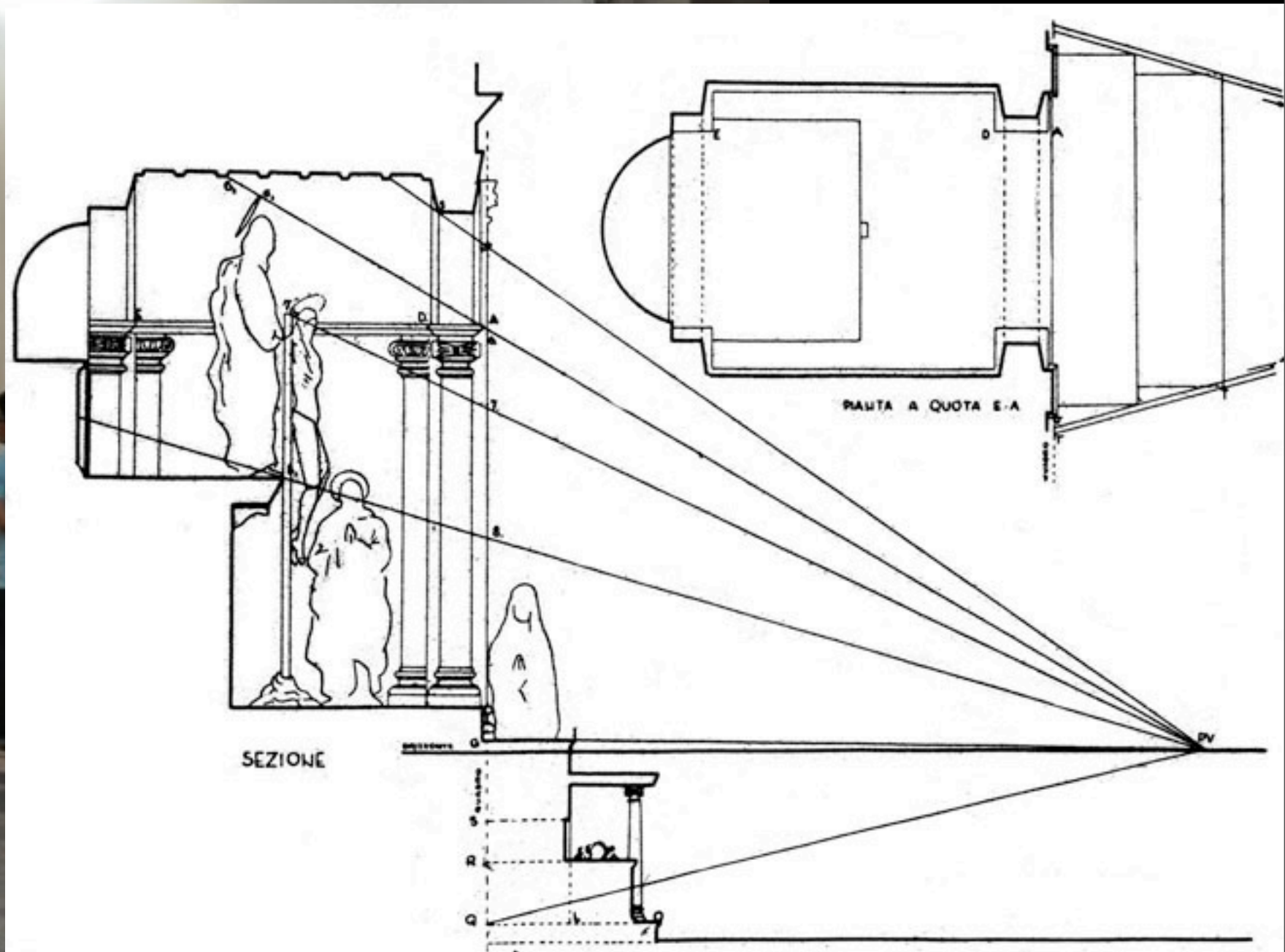


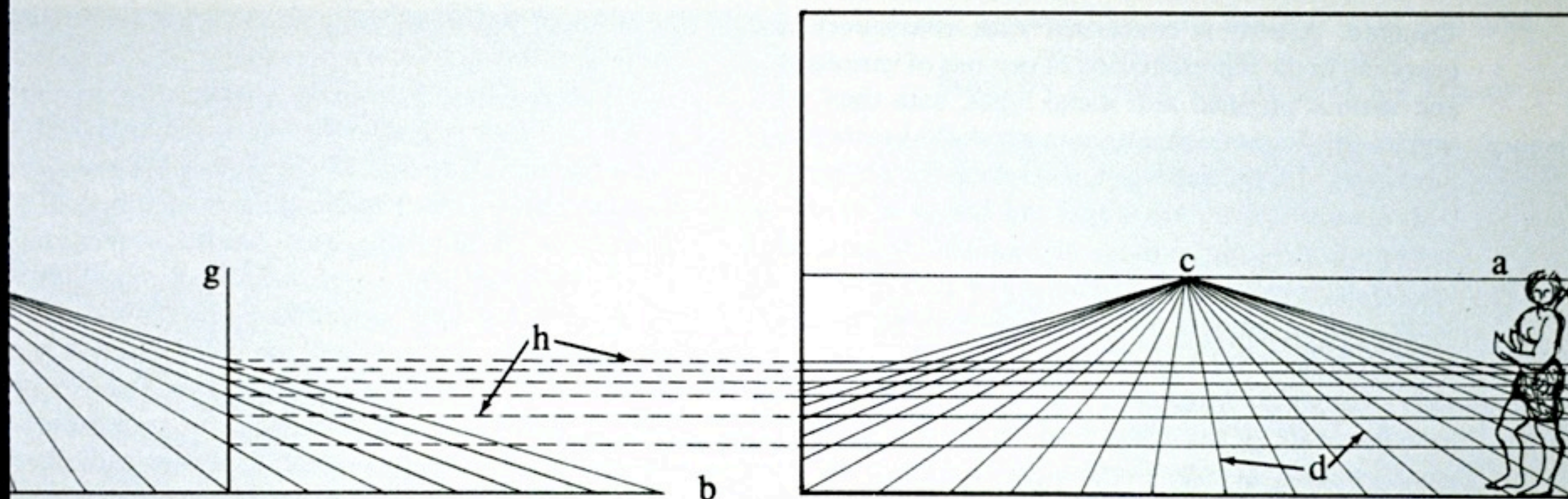




Masaccio
The Trinity
Santa Maria Novella
Florence
1425





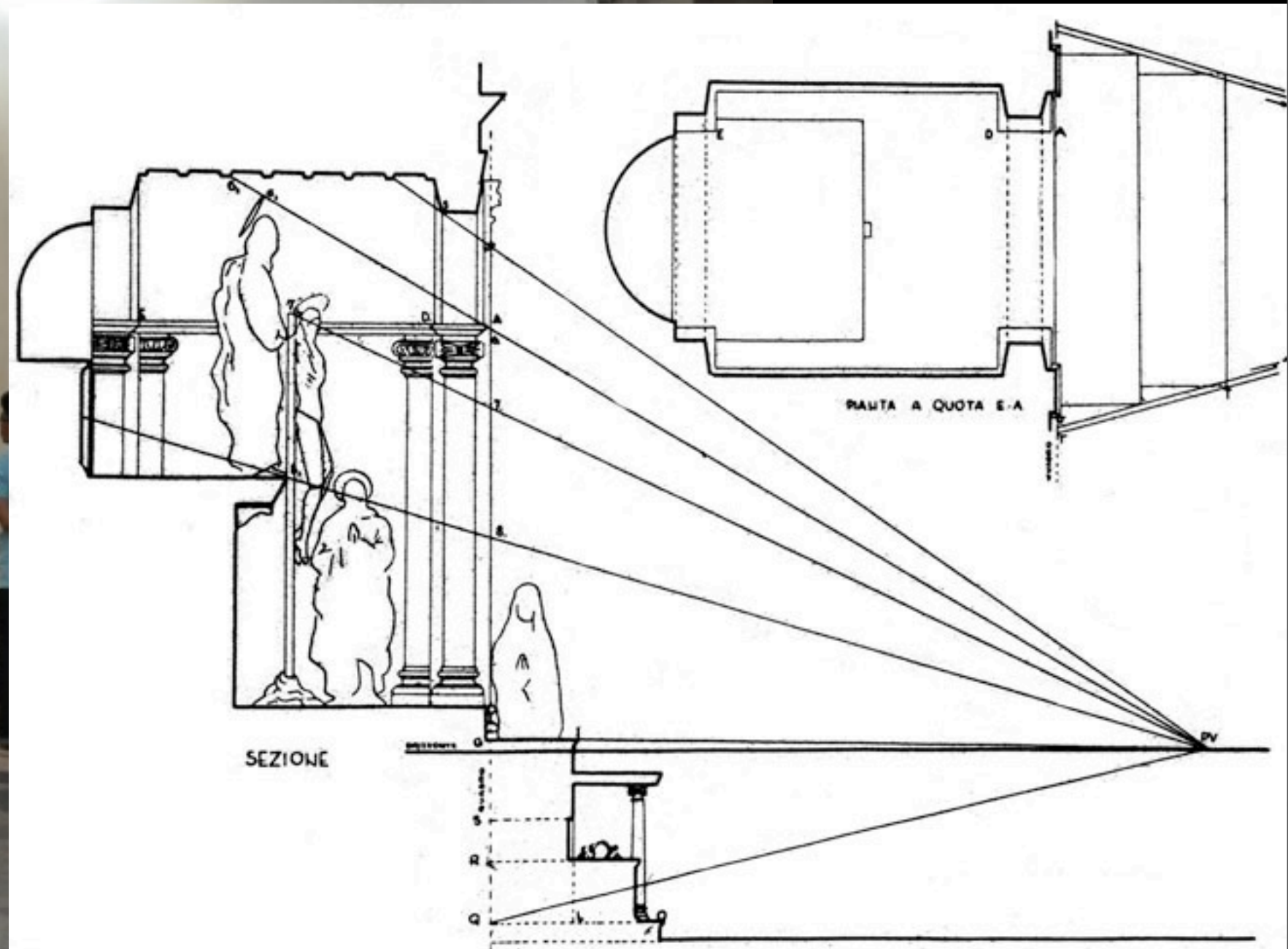


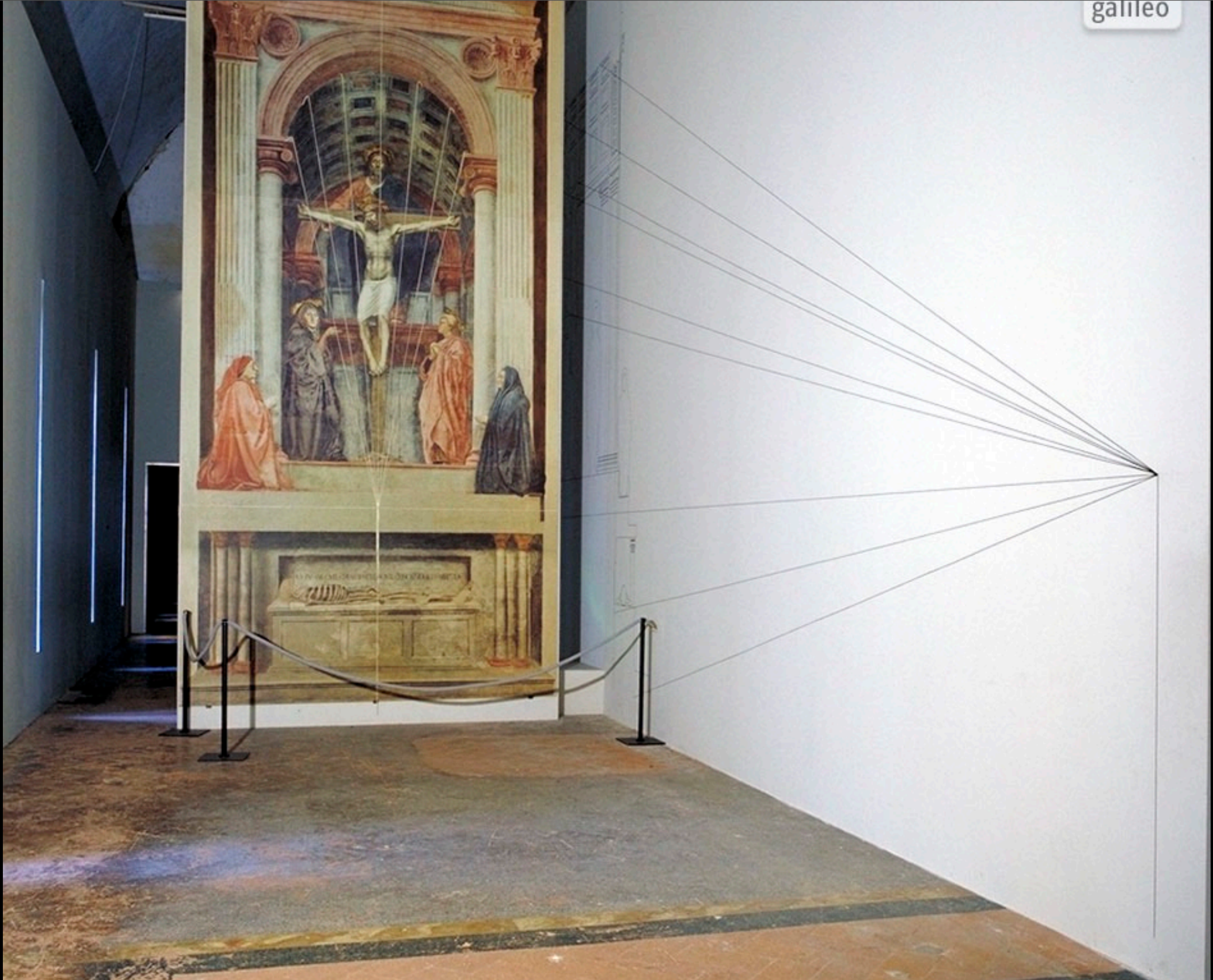
232. Design of Alberti's Perspective Construction, according to recent discoveries

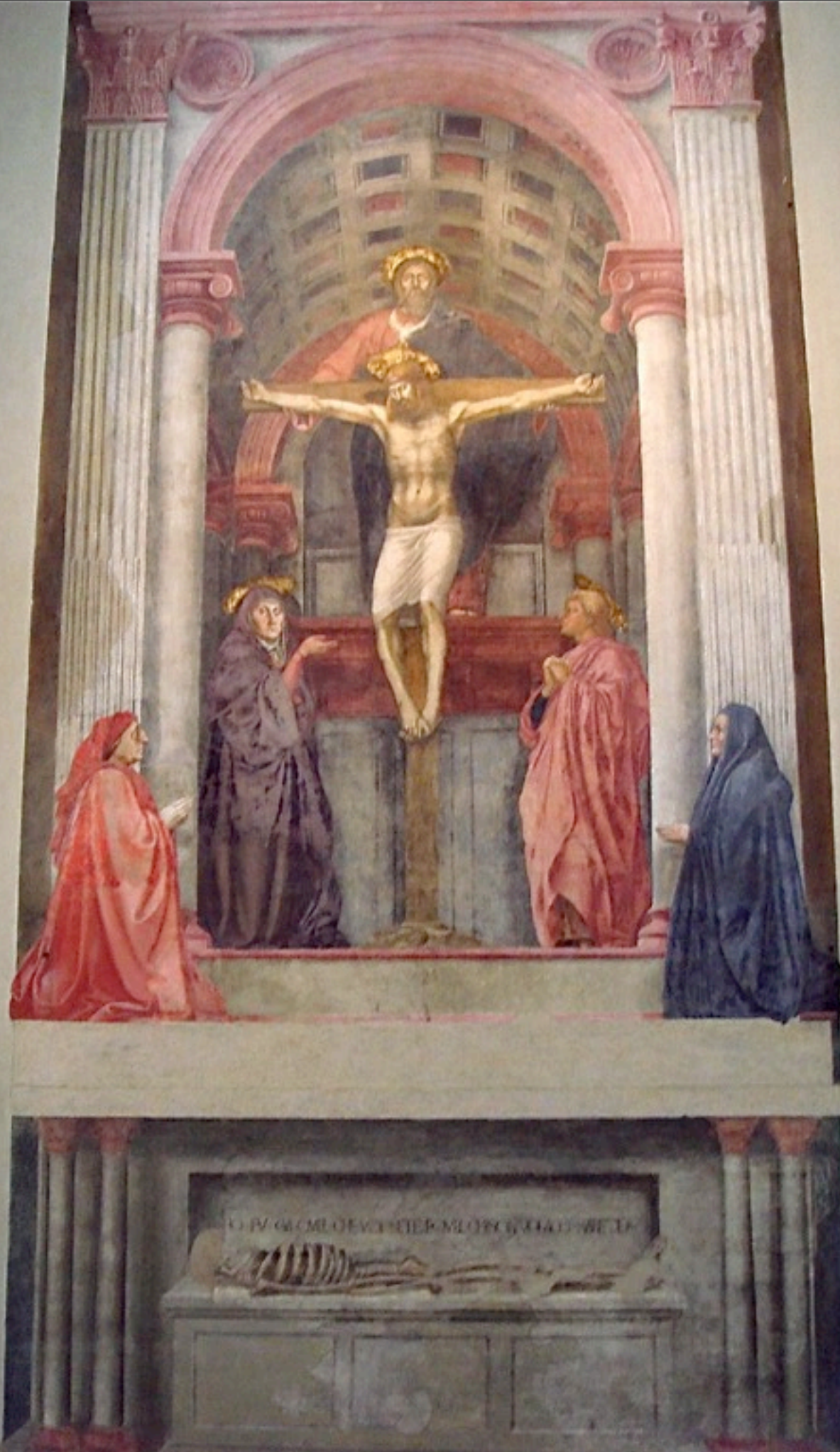
a. height of human being b. base line c. vanishing point d. orthogonals
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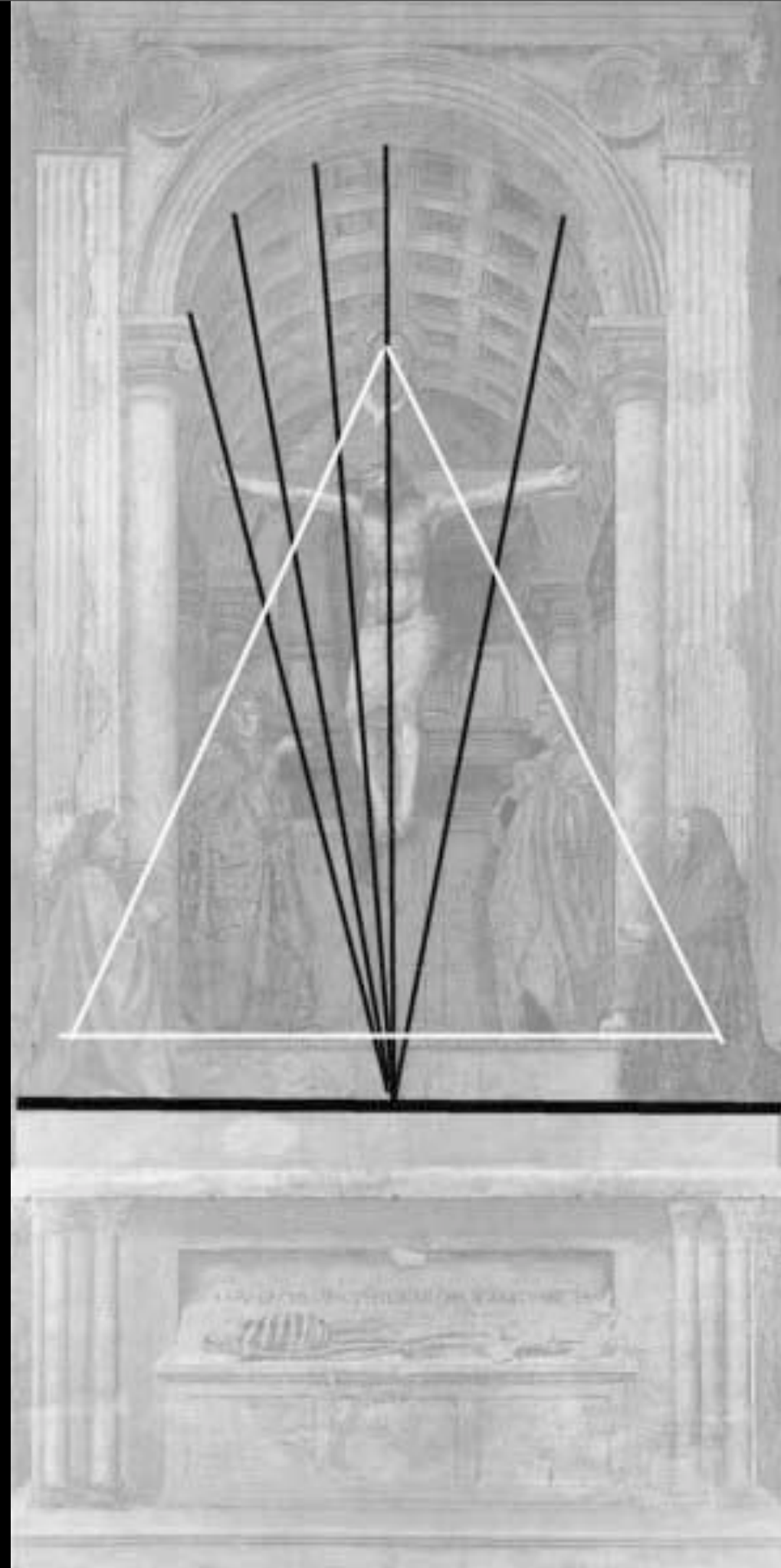
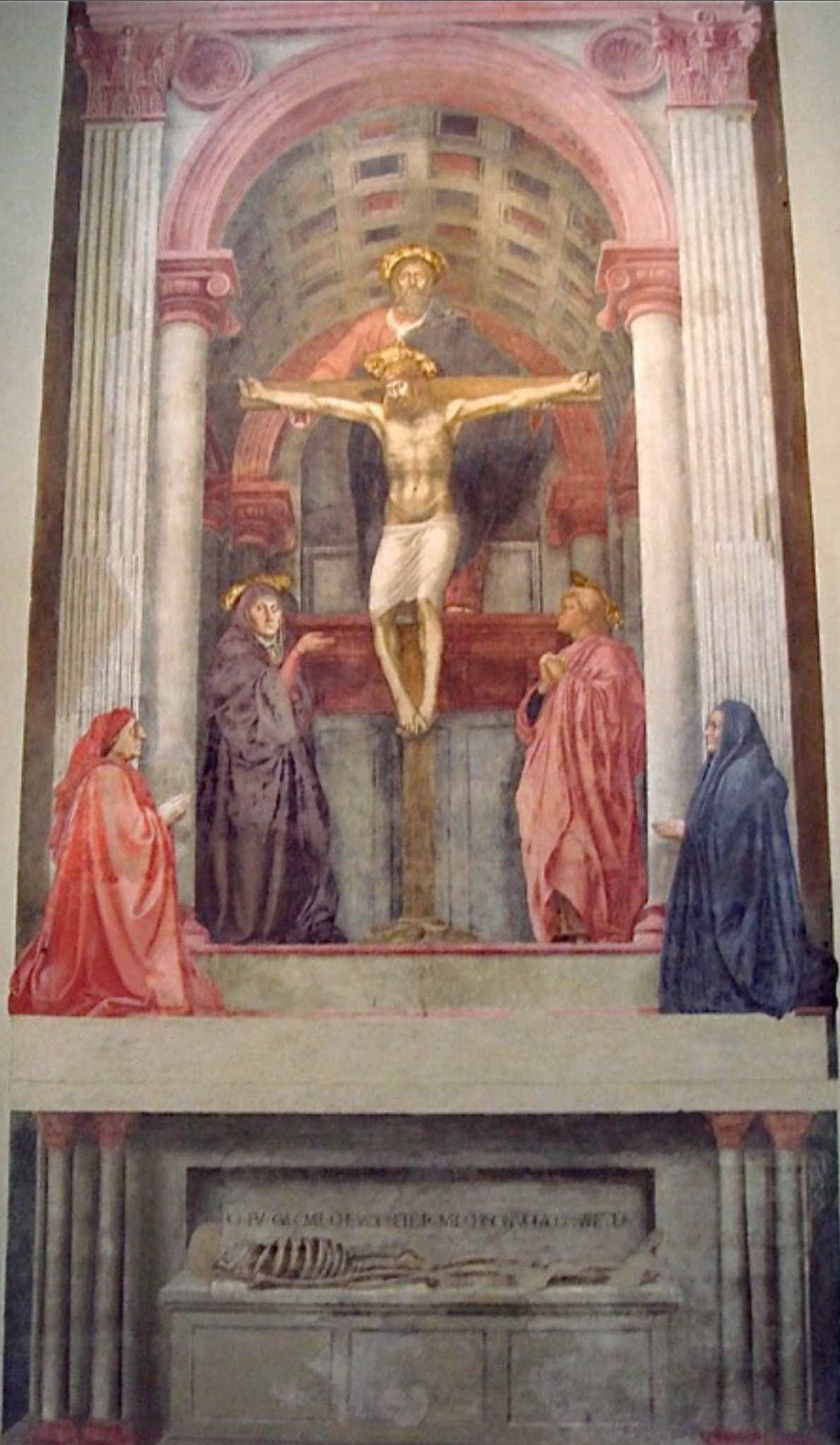
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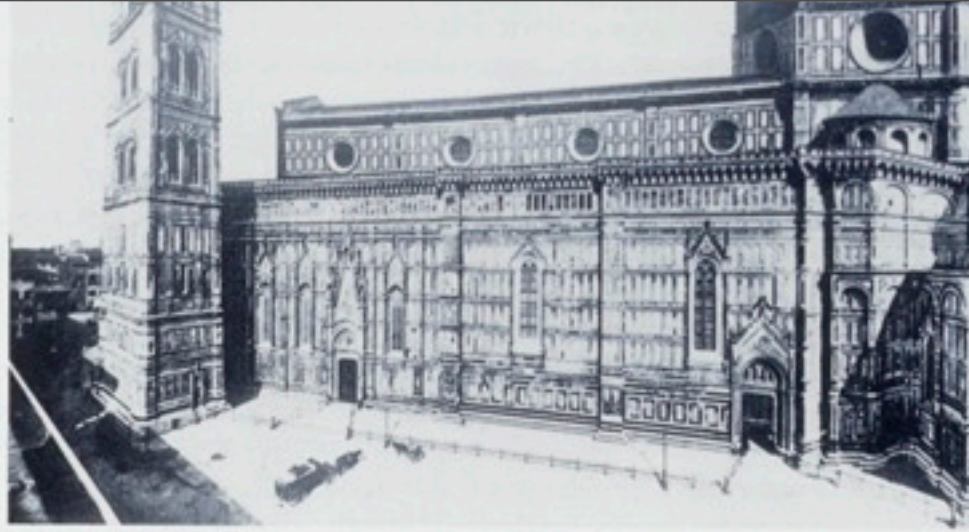




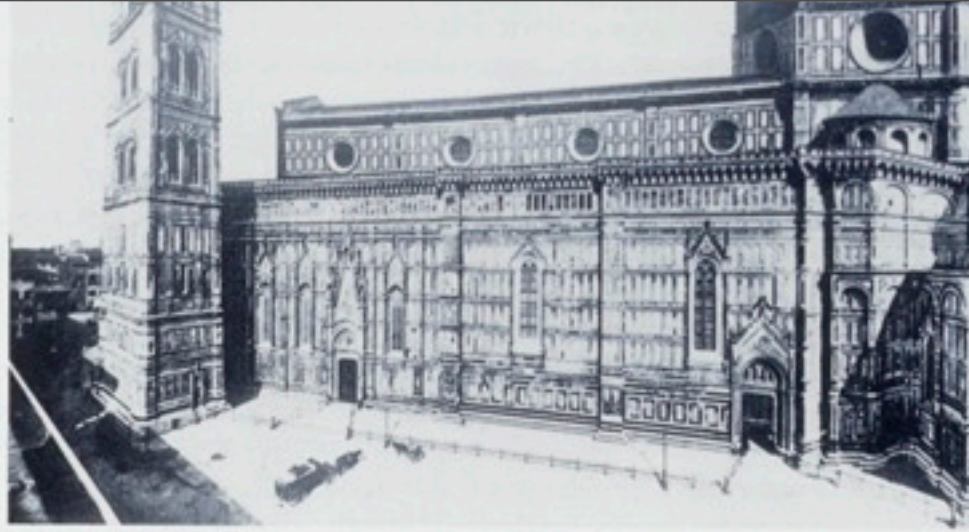
PHILIPPI BRUNELLESCHI
FLORENTINI ARCHITECTI
CELEBERRIMÆ EFFIGIES
OB · AN · SAL · M · CCCCXLIII



1415-1420 Competition for Dome project



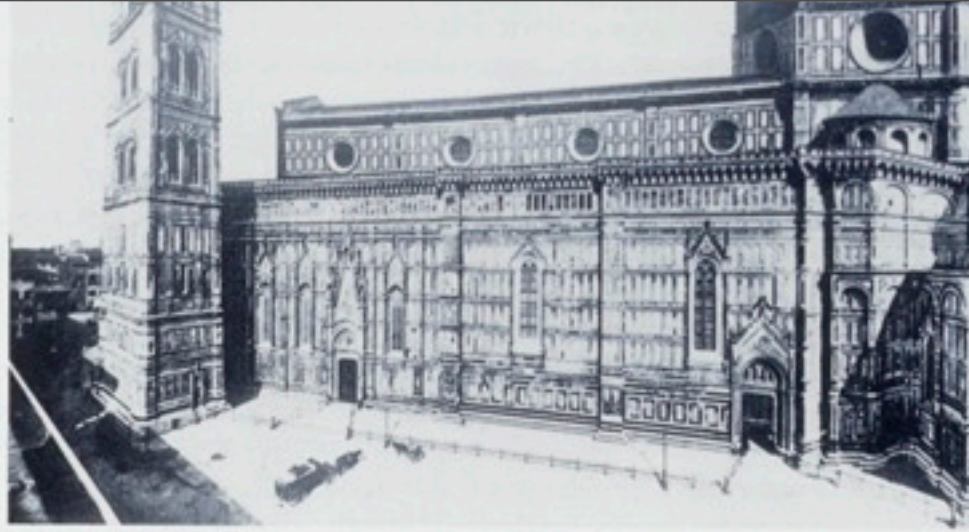
1415-1420
Competition
for
Dome
project



The meaning
Of the
Dome
Project

I. Surpass the
Ancient
World
Surpass the
Pantheon

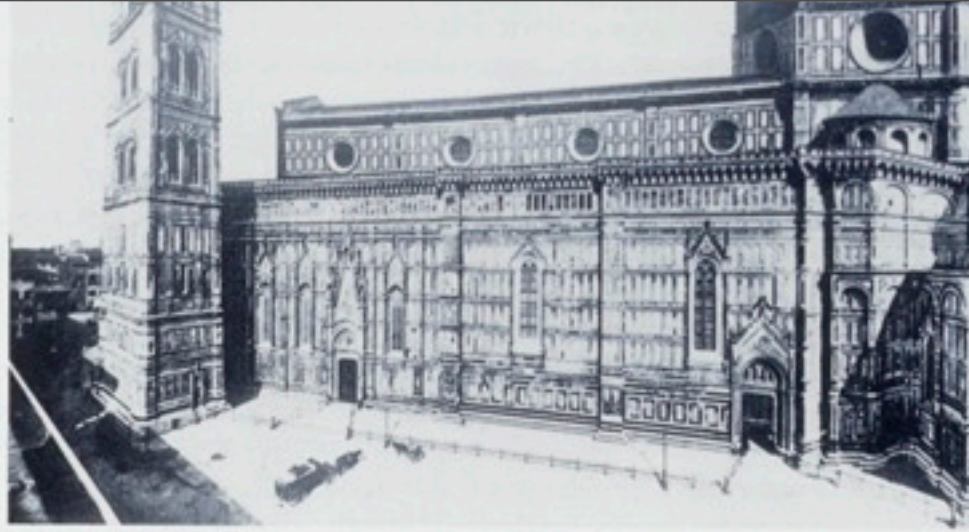
1415-1420
Competition
for
Dome
project



The meaning
Of the
Dome
Project

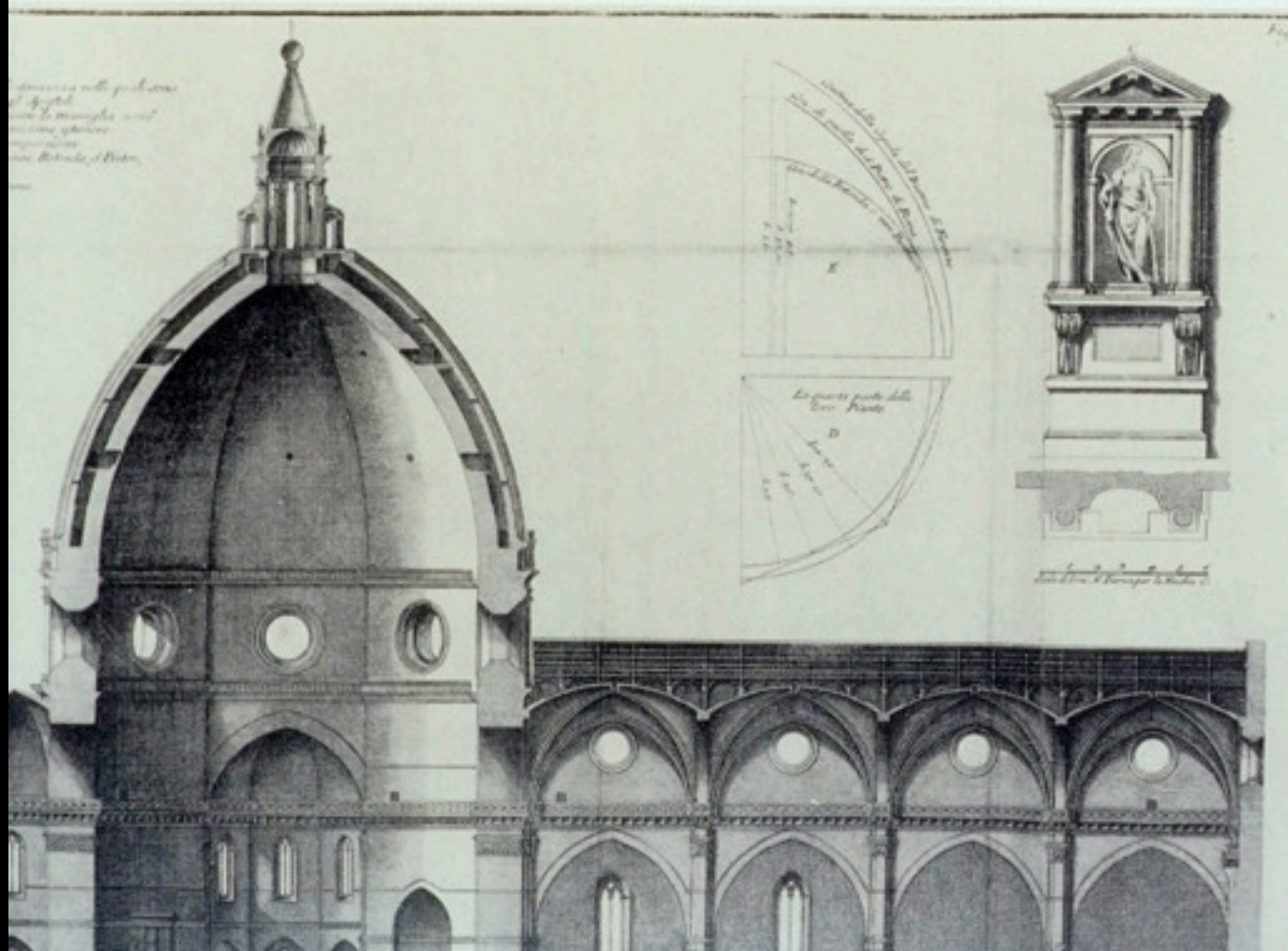
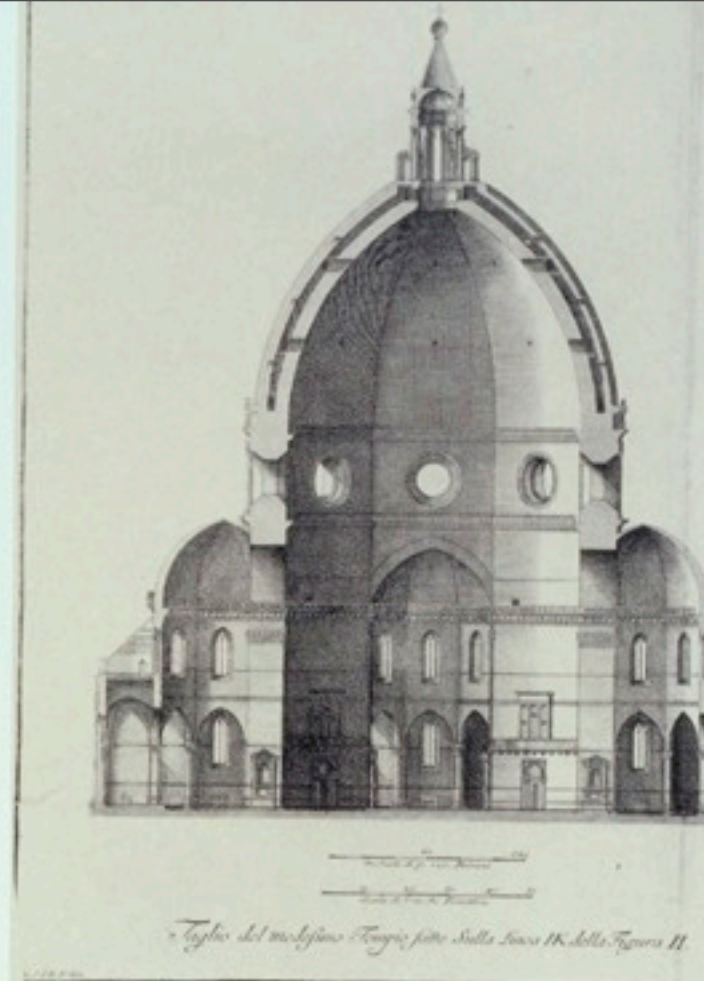
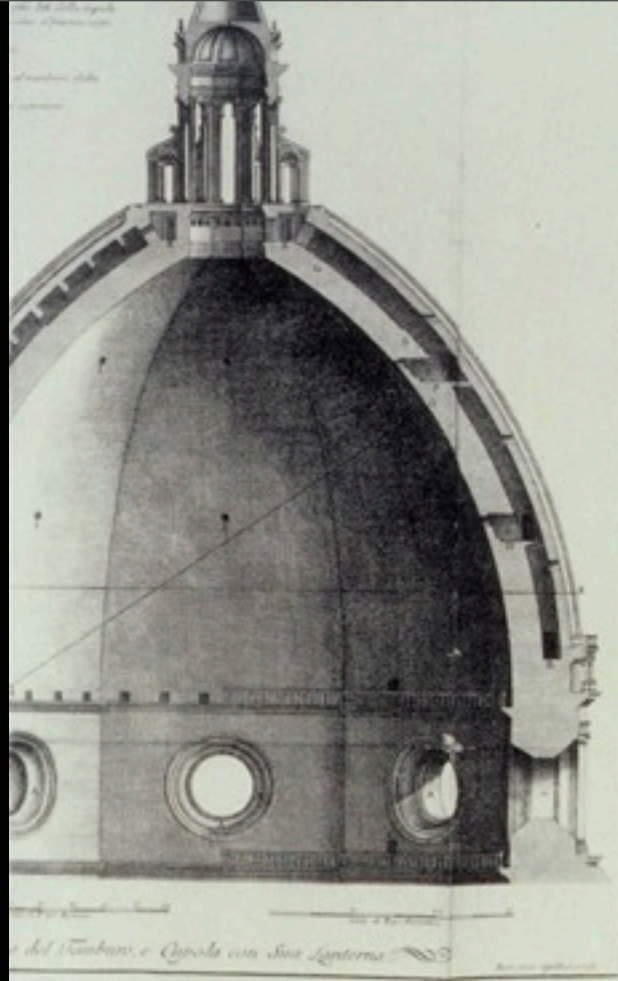
2. The new
Globe
The world
Looking
Out at the
Whole
World

1415-1420
Competition
for
Dome
project

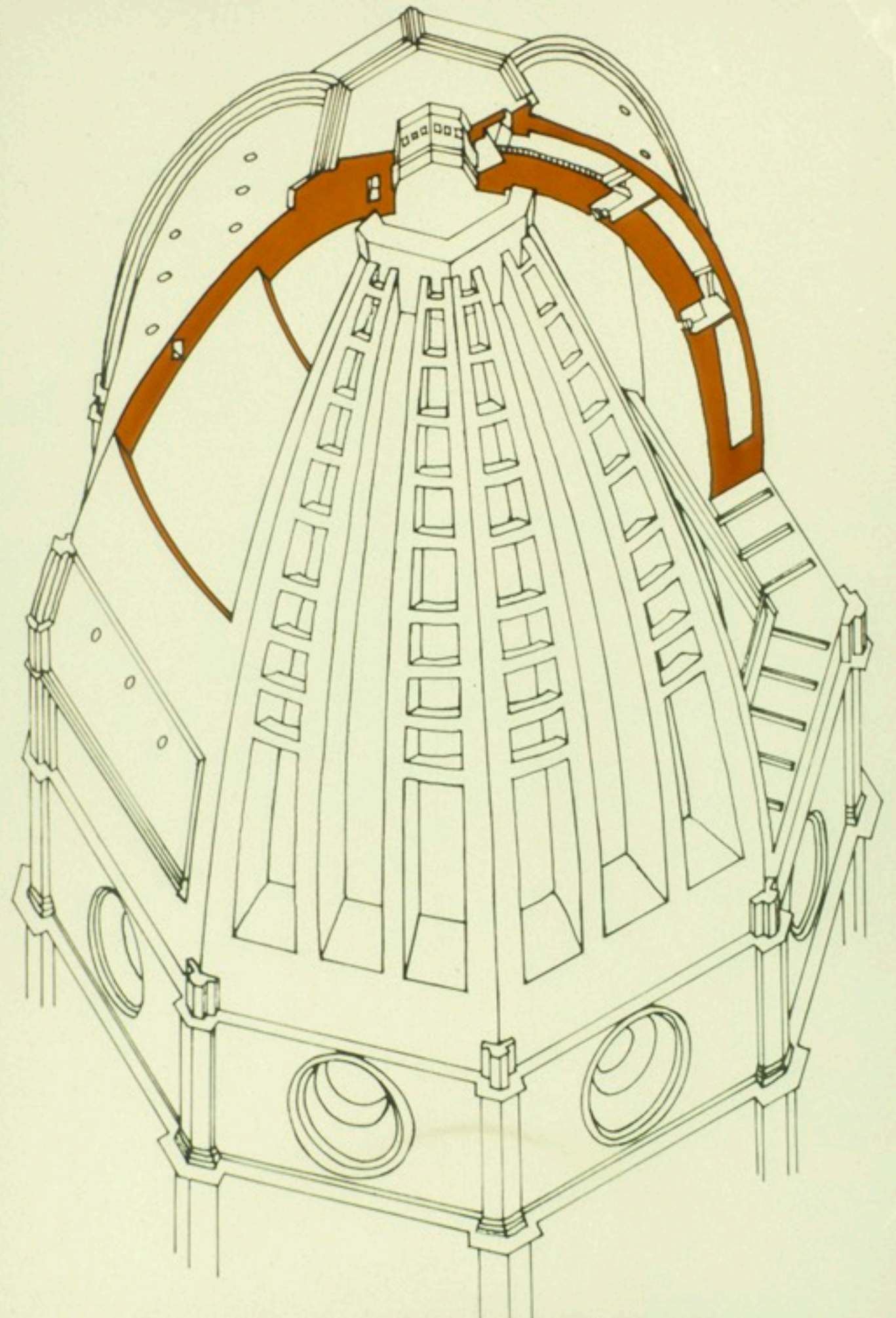


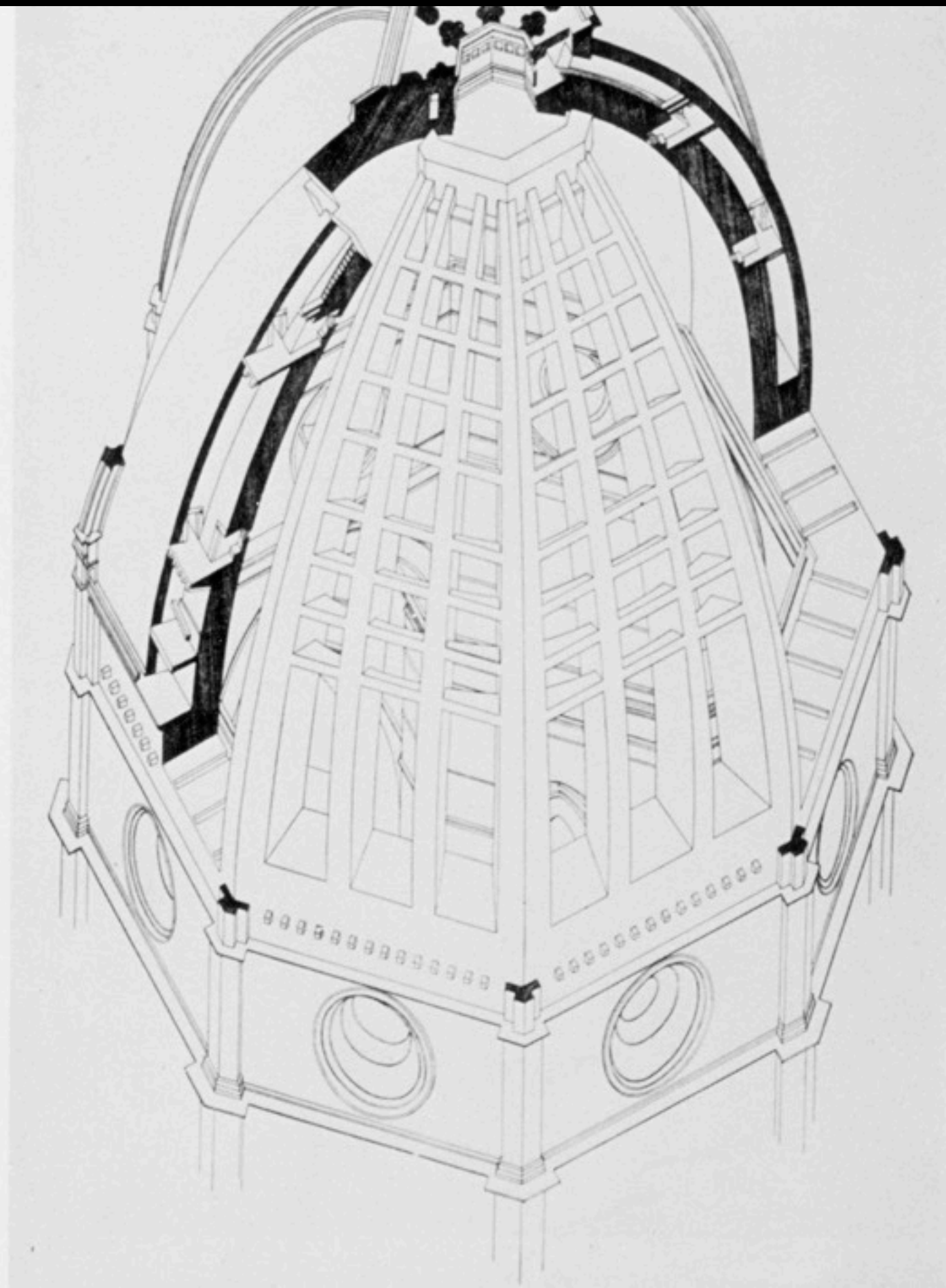
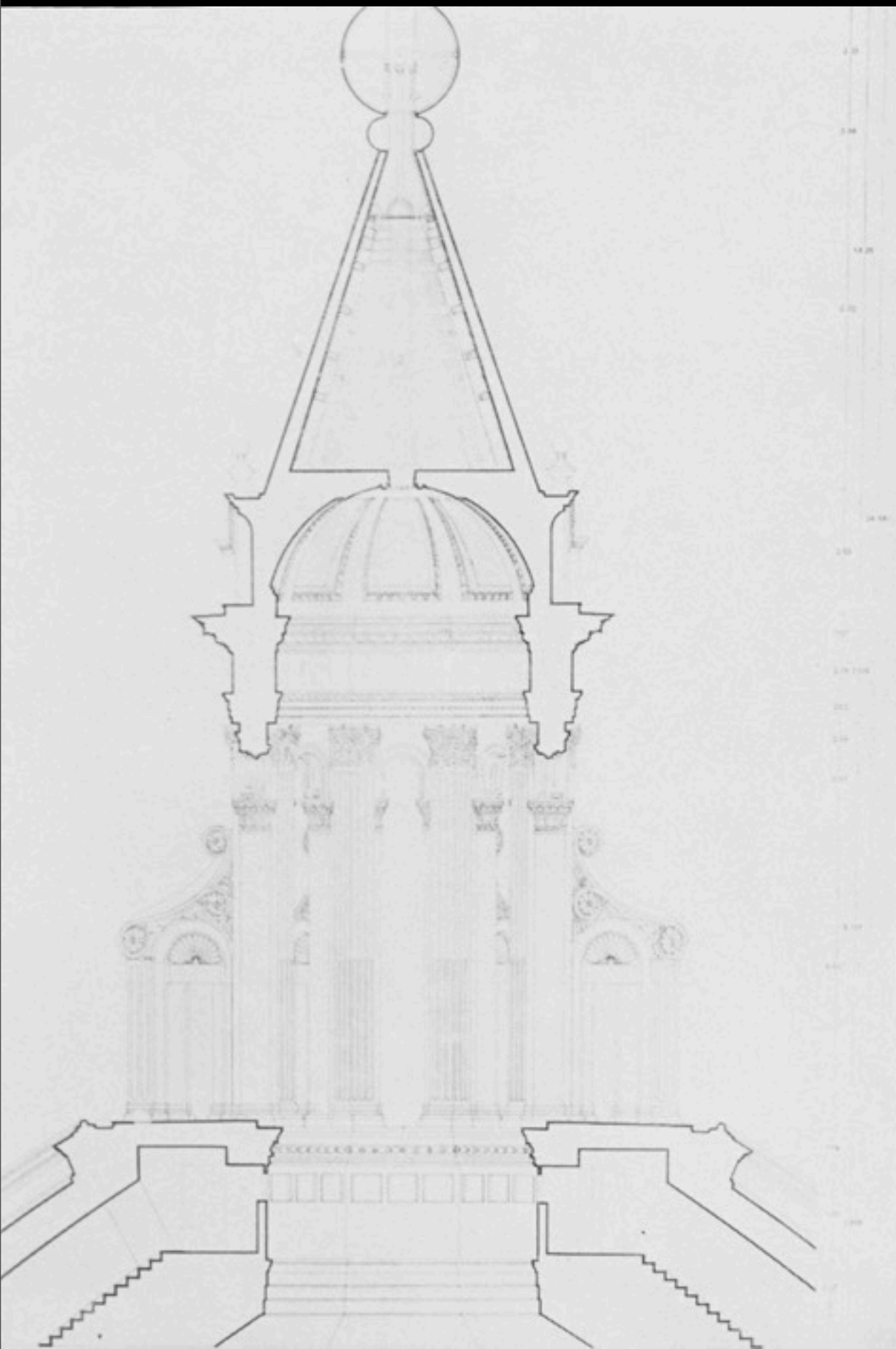
The meaning
Of the
Dome
Project

3. Ren
Florence
Among the
Giants
Of
Civilization

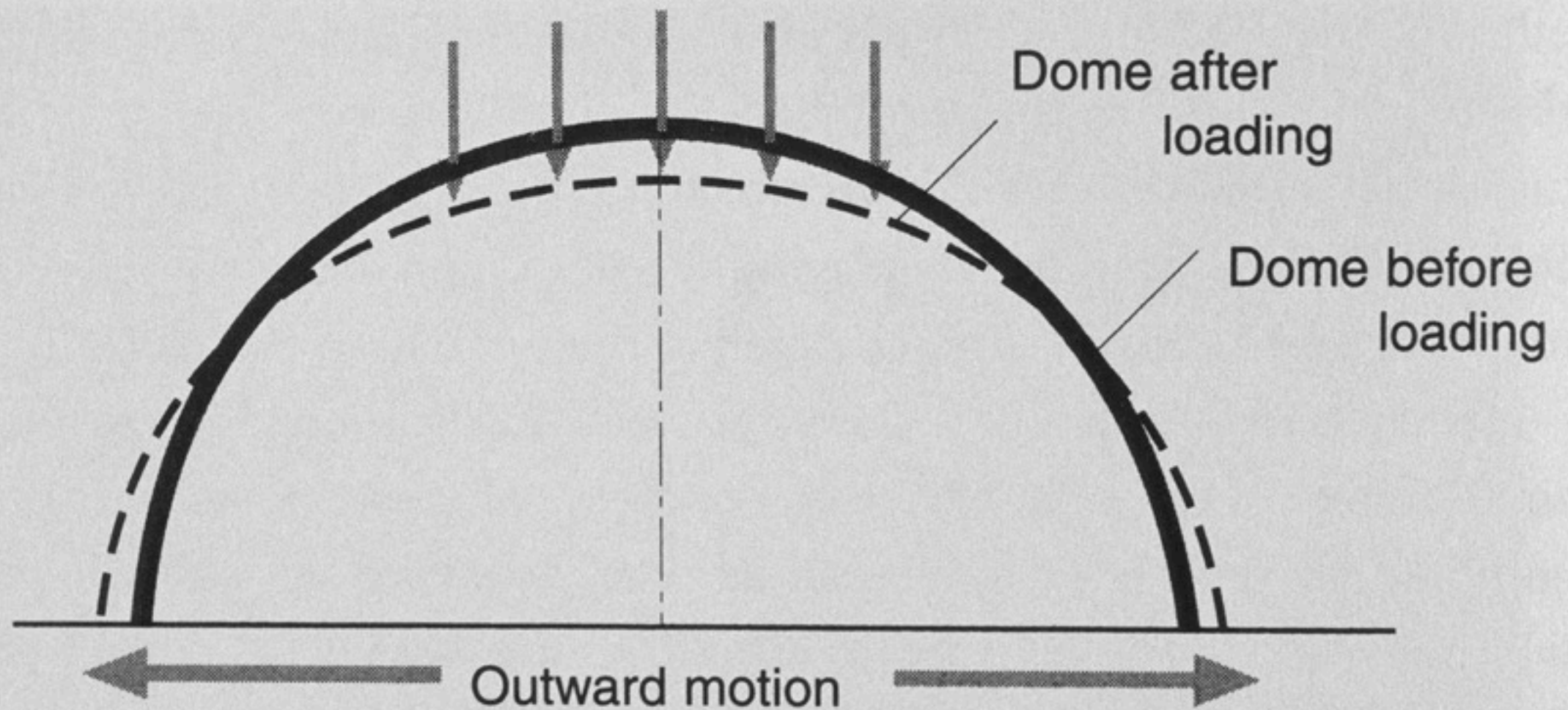


Brunelleschi's
solution:
two
domes.

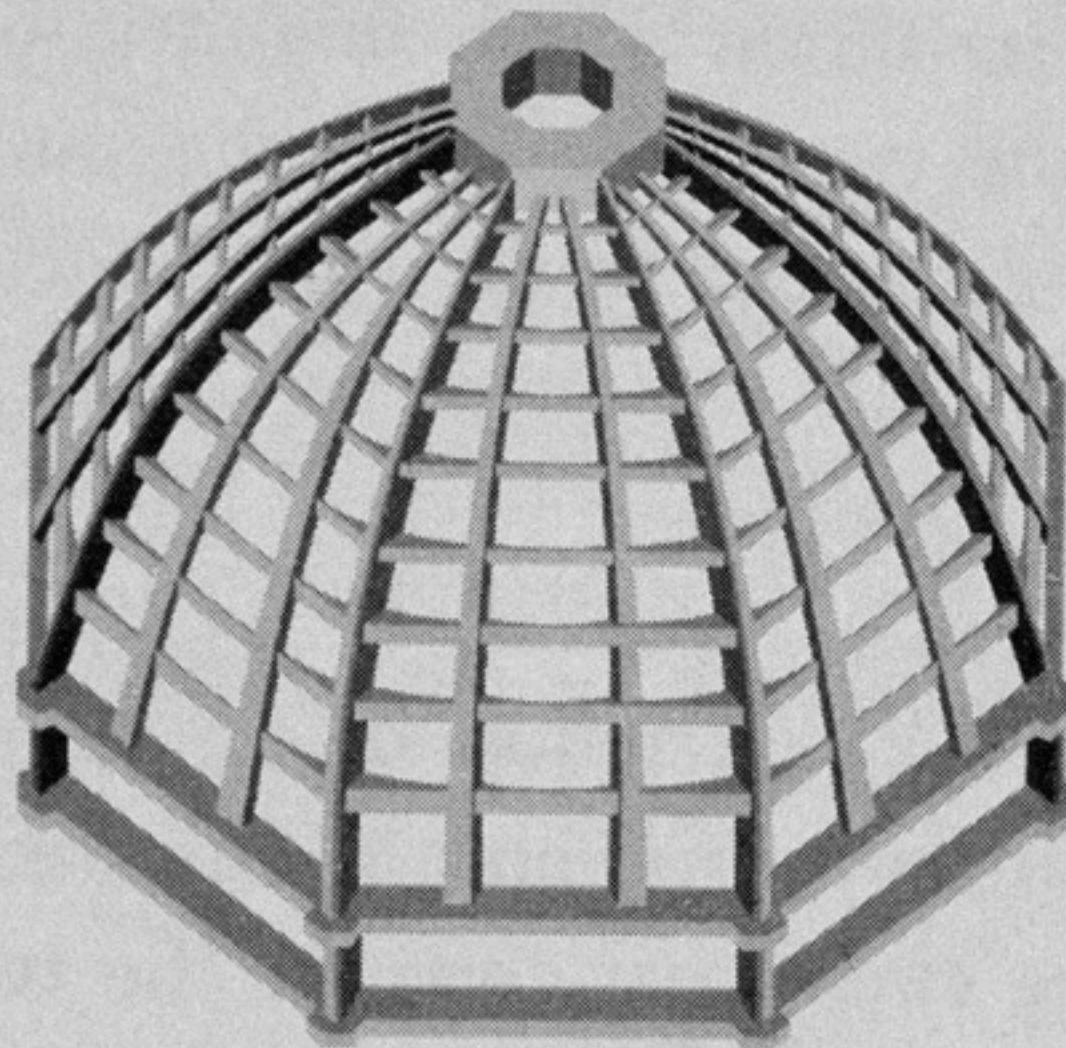




Brunelleschi's Dome



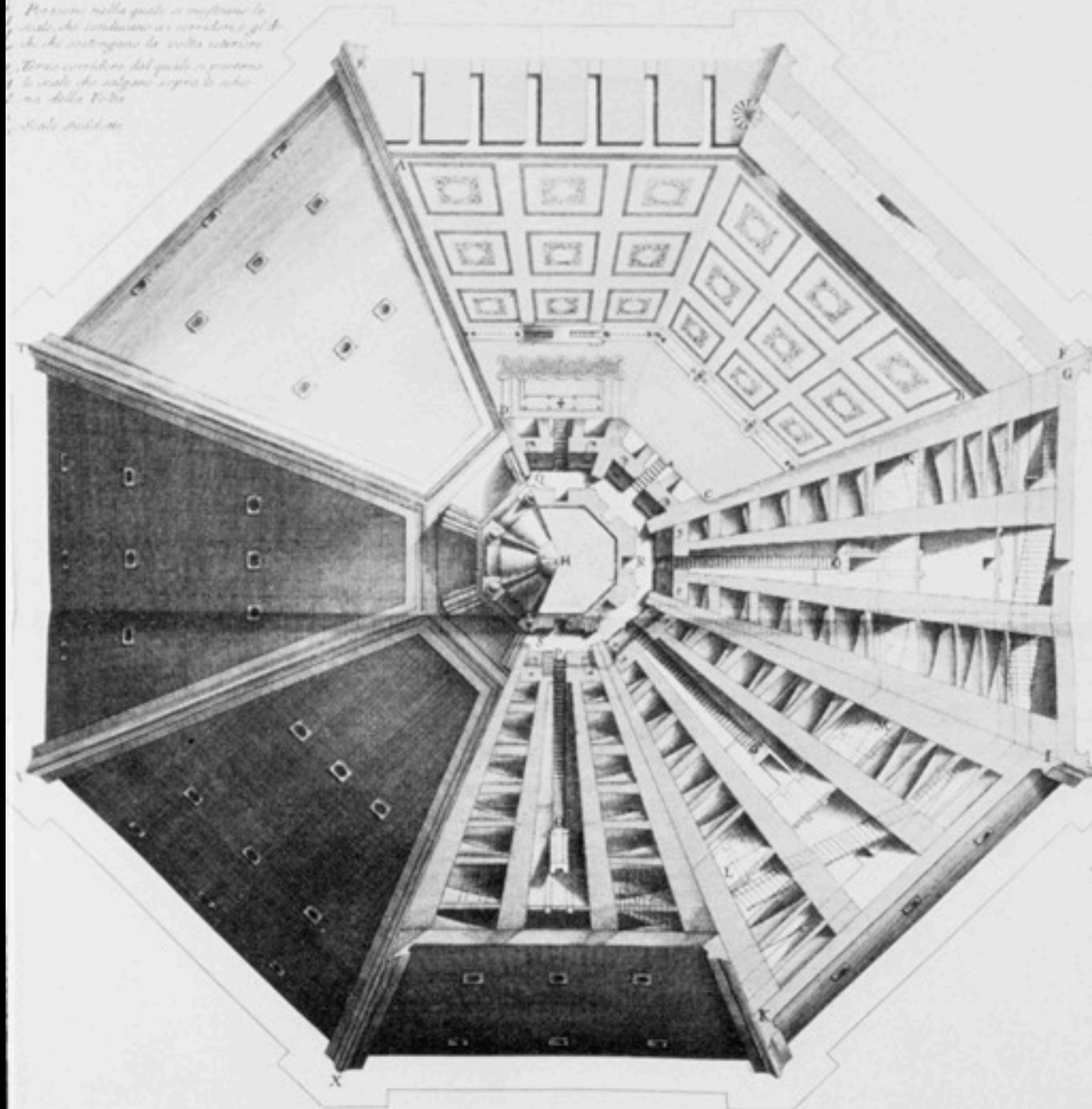
Hoop stress. The dotted line shows how the dome is deformed by weight at the top.



The nine horizontal circles
within the dome.

Pianta di parte del Perimetro chiesi et Altare
Alza della Volta con i muri che firano tutto il muro
Portone nella quale si vogliono le
scale che conducono al coro, et gli
archi che sostengono la volta interna
Tronco corridore dal quale si partono
le scale che salgono sopra la chi-
ma della Volta
Scale ordinarie

Corridore intorno al tamburo
della Lanterna
Portone che dimostra la cupola interna
della cupola con i capitelli negli angoli



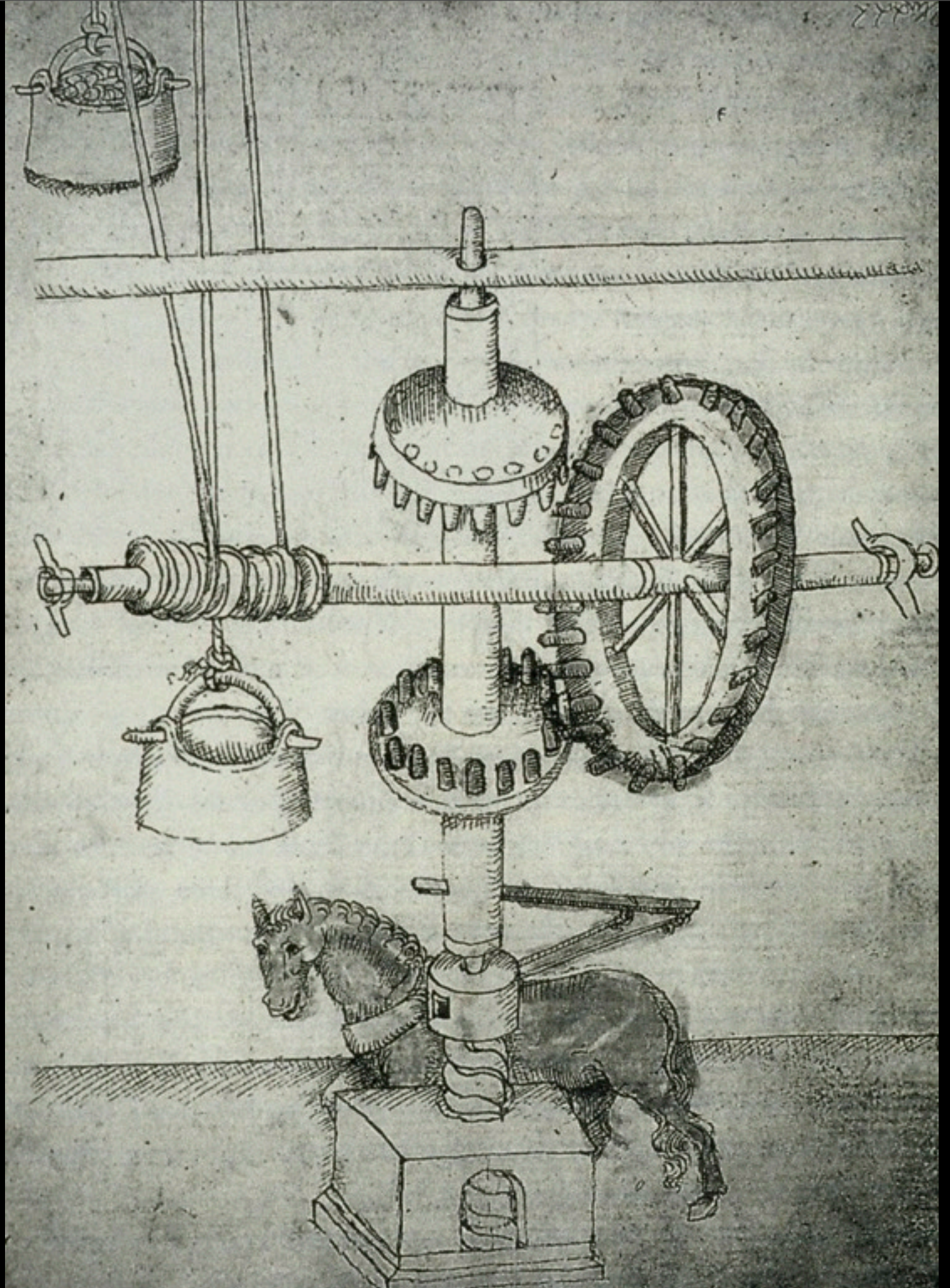
Dimostrazione Esterna, et Interna della Cupola

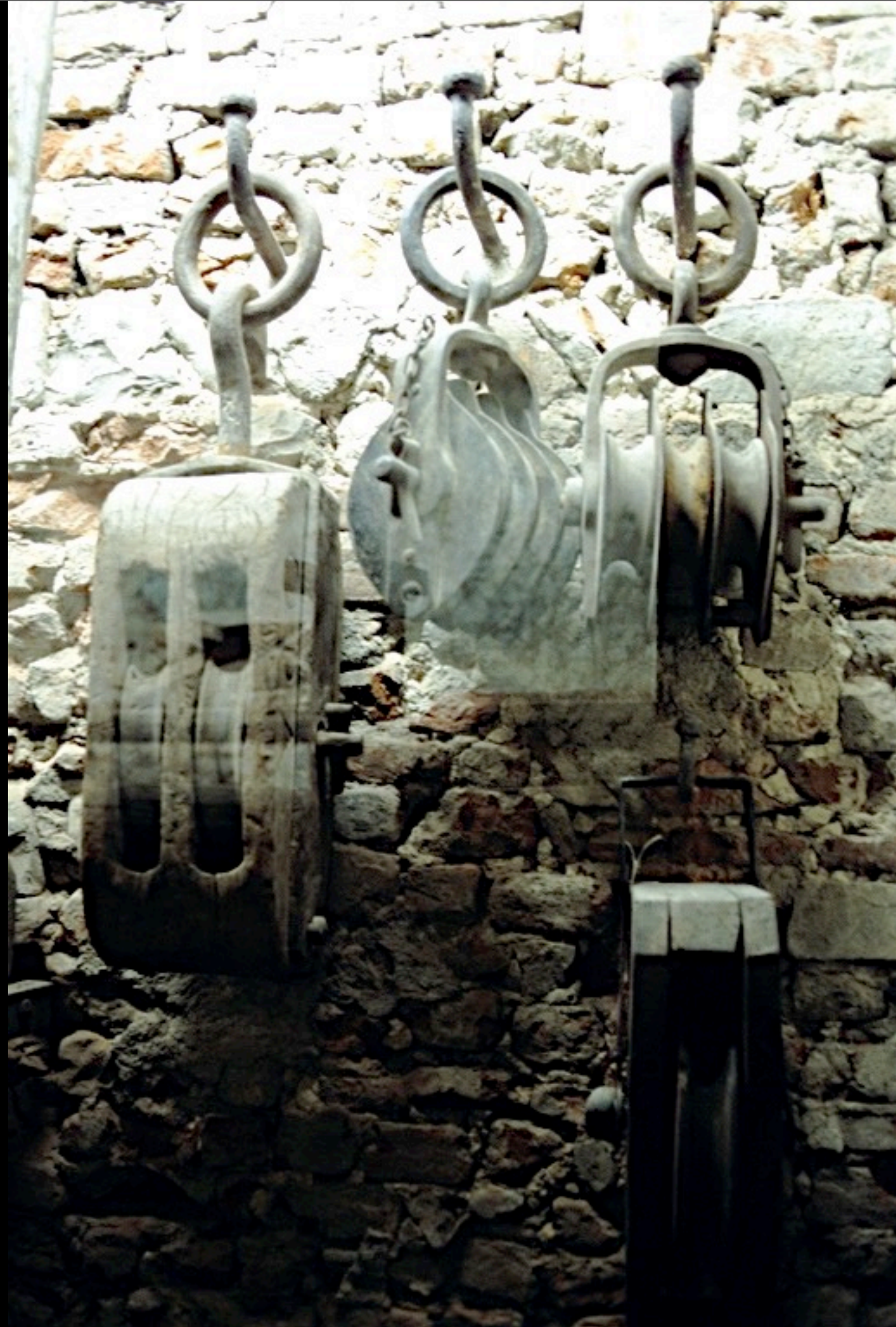
pola, Analytical Plan View, G. B. Nelli (pl.XII).

BUILDING IT HERE FROM FLOOR OF CATHEDRAL



Brunelleschi
invents
a brilliant
pulley
mechanism
that can
reverse
direction
without
unhooking
oxen
and
turning
them
around.





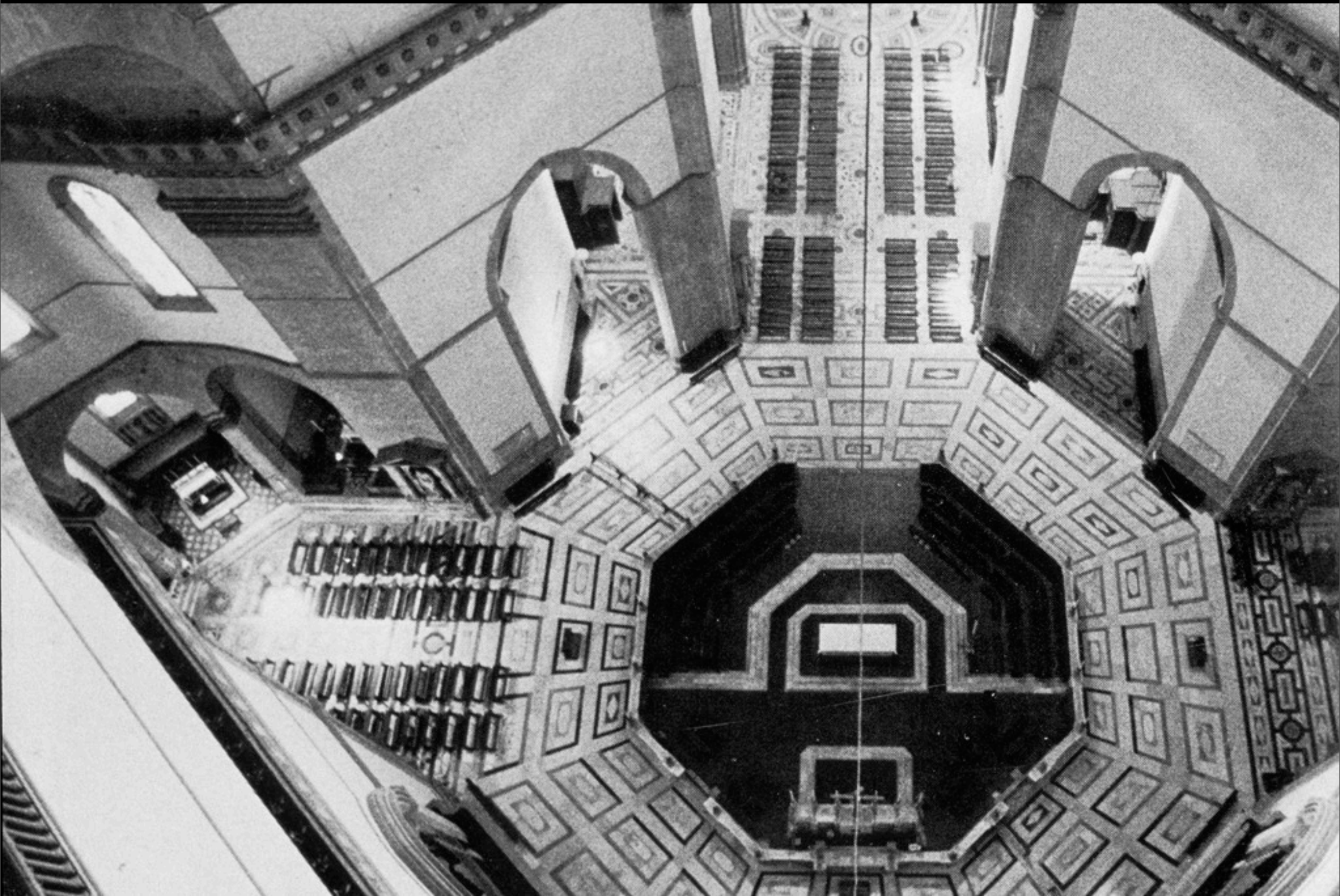
BUILDING IT HERE FROM FLOOR OF CATHEDRAL

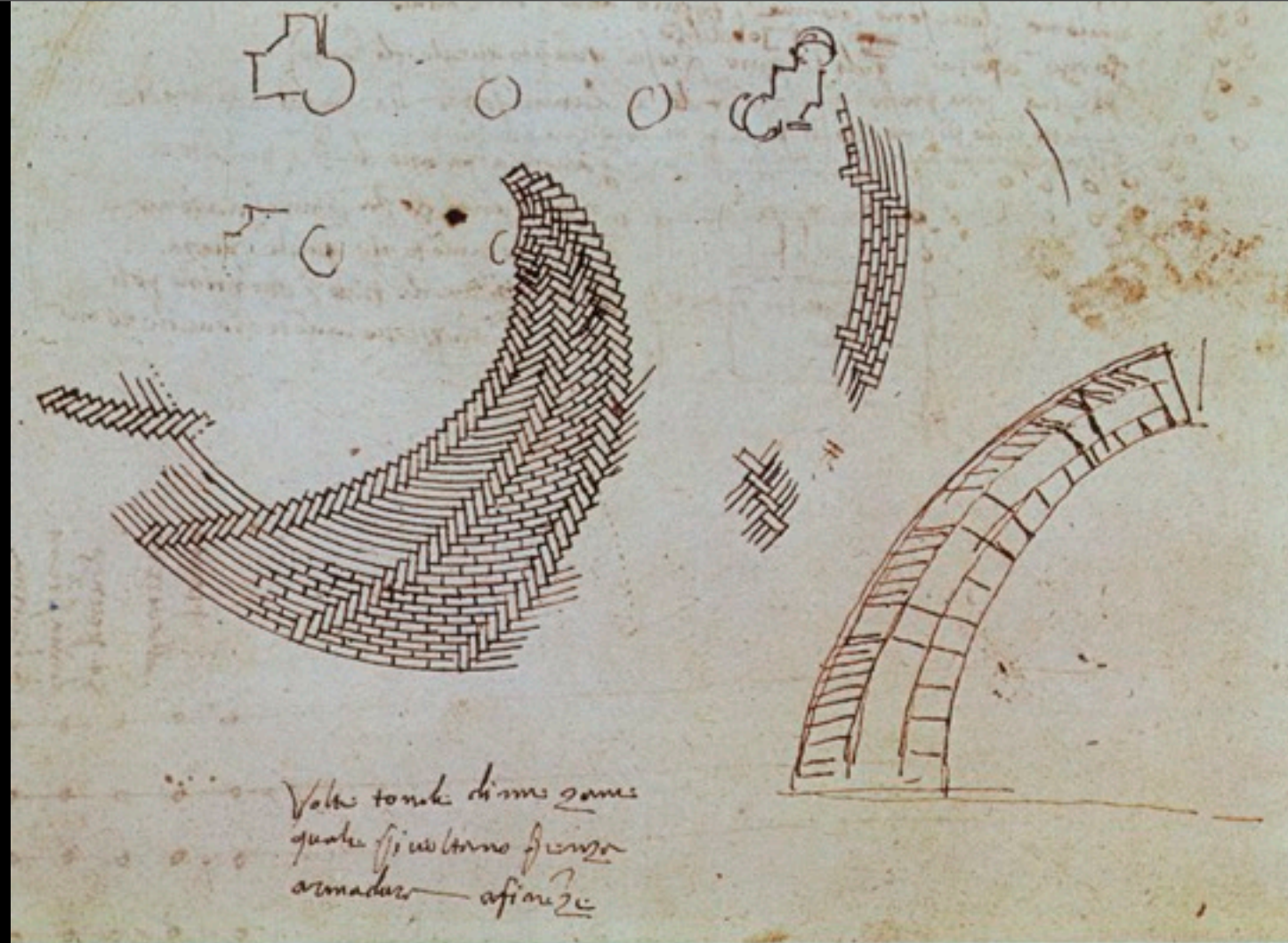


From floor
to top
of dome:
375 feet
37 stories
Empire state
building
stands 103
stories tall
(1,250 feet
to top floor







































Making of the Western Mind

Institute for the Study of Western Civilization

Week 20, Brunelleschi



