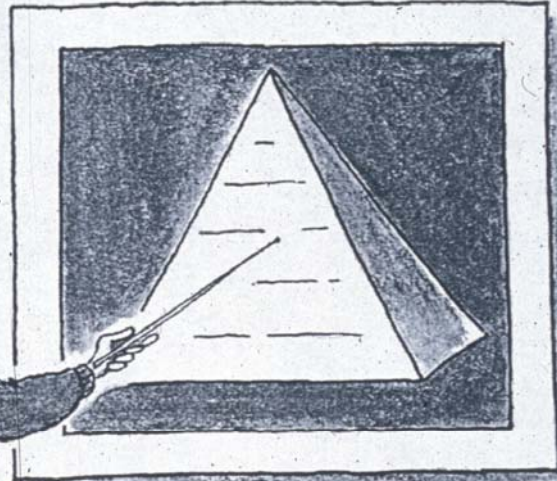


"In today's class we'll be studying these pointy buildings that were built by those sweaty people in that really hot area."



*6/1/10
x*

ARCHITECTURE: CULTURE AND SPACE

BUILDING RELIGION

- **architecture** is important to the study of history for several reasons:
 - even when a building has fallen into ruins or was destroyed intentionally, the upper levels often protect the foundation
 - also building styles often change in accordance with changes in government or housing needs

ARCHITECTURE: CULTURE AND SPACE

BUILDING RELIGION

- **architecture** is important to the study of history for several reasons:
 - furthermore, the history of civilization is disproportionately the history of **cities** and urban life
 - life in the country is much harder to track!
 - all in all, the structuring of space is a very important factor in assessing the past and the evolution of human civilization

ARCHITECTURE: CULTURE AND SPACE

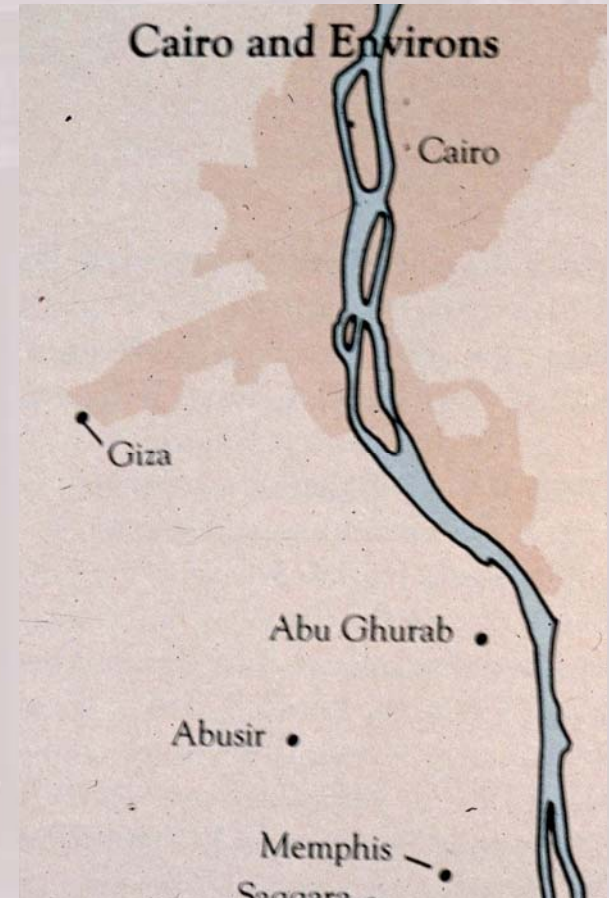
BUILDING RELIGION

- one way to approach this subject is to look at religious buildings and the creation of sacred space
- not as limited a prospect as it might seem at first
 - many of the ancient buildings preserved were holy edifices of some sort
- also, temples show the evolution of taste, thought and social organization

ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

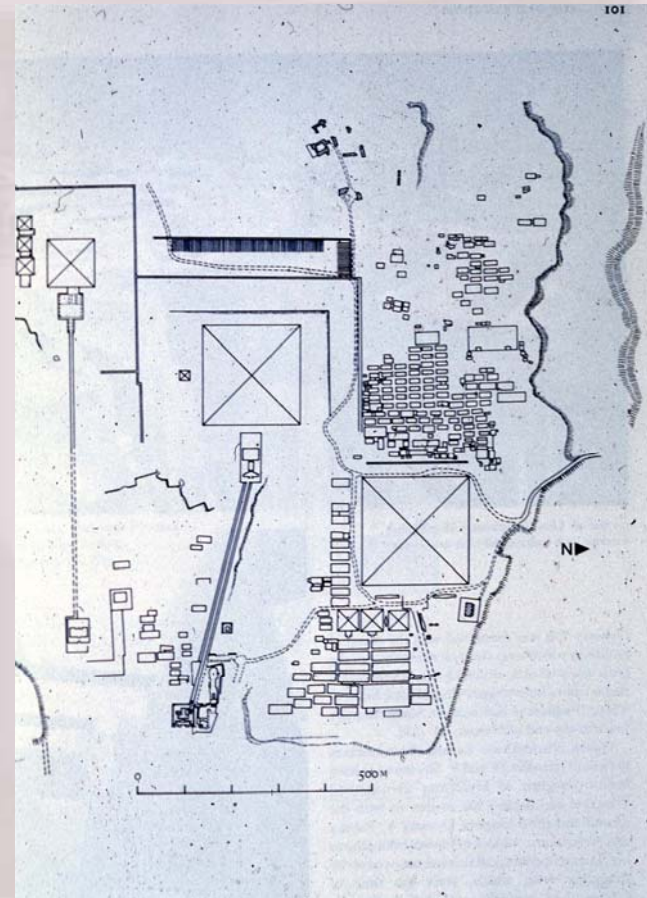
- the **Pyramids** of Egypt are among the oldest surviving holy structures
 - built ca. 2500 BCE
 - on the **Giza plateau** outside modern Cairo
 - above the west bank of the **Nile River**
 - where the sun sets — and the dead go



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- the Pyramids at Giza are actually part of a temple complex for ancestor worship



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- in the ancient Egyptian language, each pyramid had its own name
 - **Great Pyramid:** *Akhet-Khufu* (“The Horizon of Khufu”)
 - the word pyramid comes from a Greek word for “small baked biscuit”



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- **Khufu (Cheops)** was the king for whom the Great Pyramid was built
 - Herodotus portrays him as cruel, claiming that Cheops forced his daughter into prostitution to pay for the cost of building the Great Pyramid
 - but this is probably later Egyptian propaganda



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

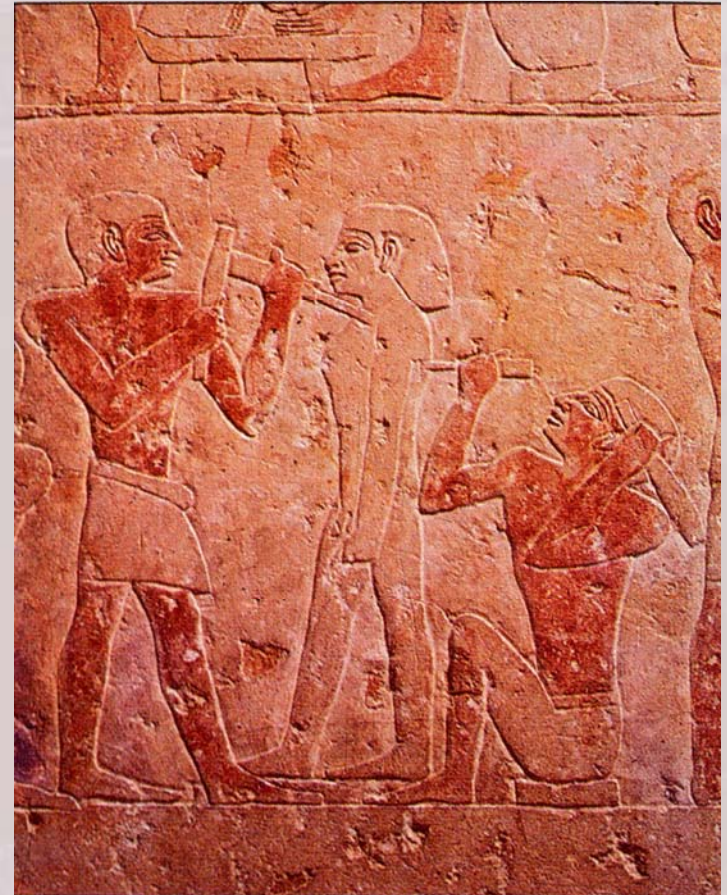
- **Khufu (Cheops)** was the king for whom the Great Pyramid was built
 - Khufu ruled only ca. 20 years
 - this probably underlies the rumors about his cruelty, i.e. he must have been a cruel tyrant to force the construction of the Great Pyramid in such a short time!
 - such defamation is an excellent example of invented history!



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

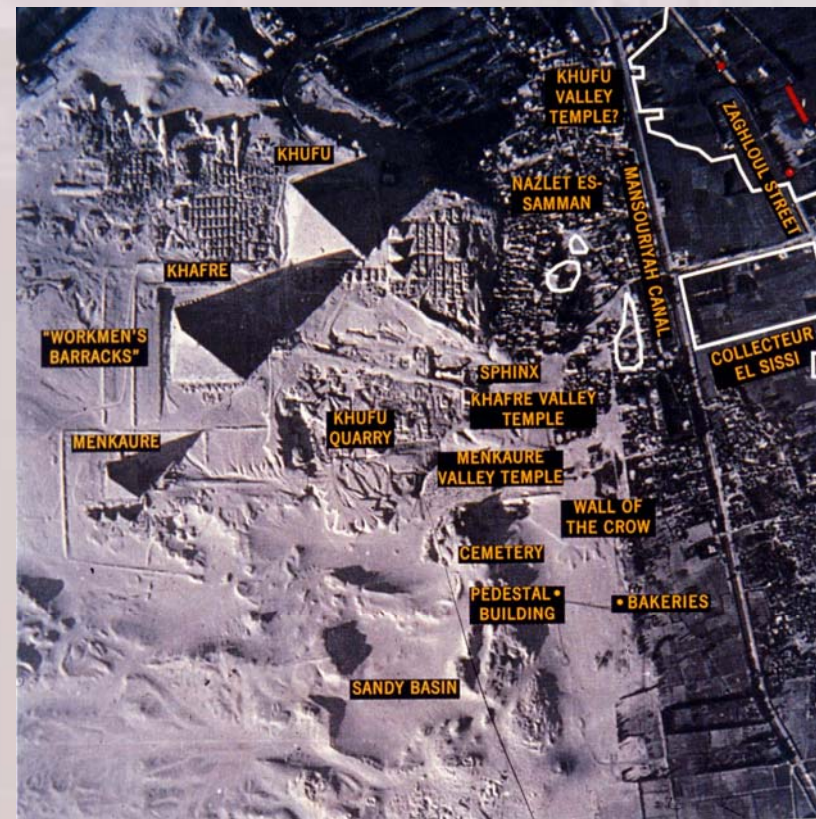
- the builders of the Great Pyramid were native Egyptian workers conscripted into the service of their king
 - not Hebrews, aliens or residents of the lost continent of Atlantis
 - or Elvis!



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- recent archaeological discovery: the tombs of some of these workers
- also, the houses where they lived and the kitchens which fed them



Aerial view of the Giza Plateau, taken in the 1930s or 1940s, shows pyramids and mastaba tombs to the north (upper part of photograph) and Old Kingdom industrial buildings and workers' cemetery to the south. Low-lying ground east of the valley temples that may reflect location of harbors and waterways is outlined in white. Recently discovered traces of wall are in red.

ARCHITECTURE: CULTURE AND SPACE

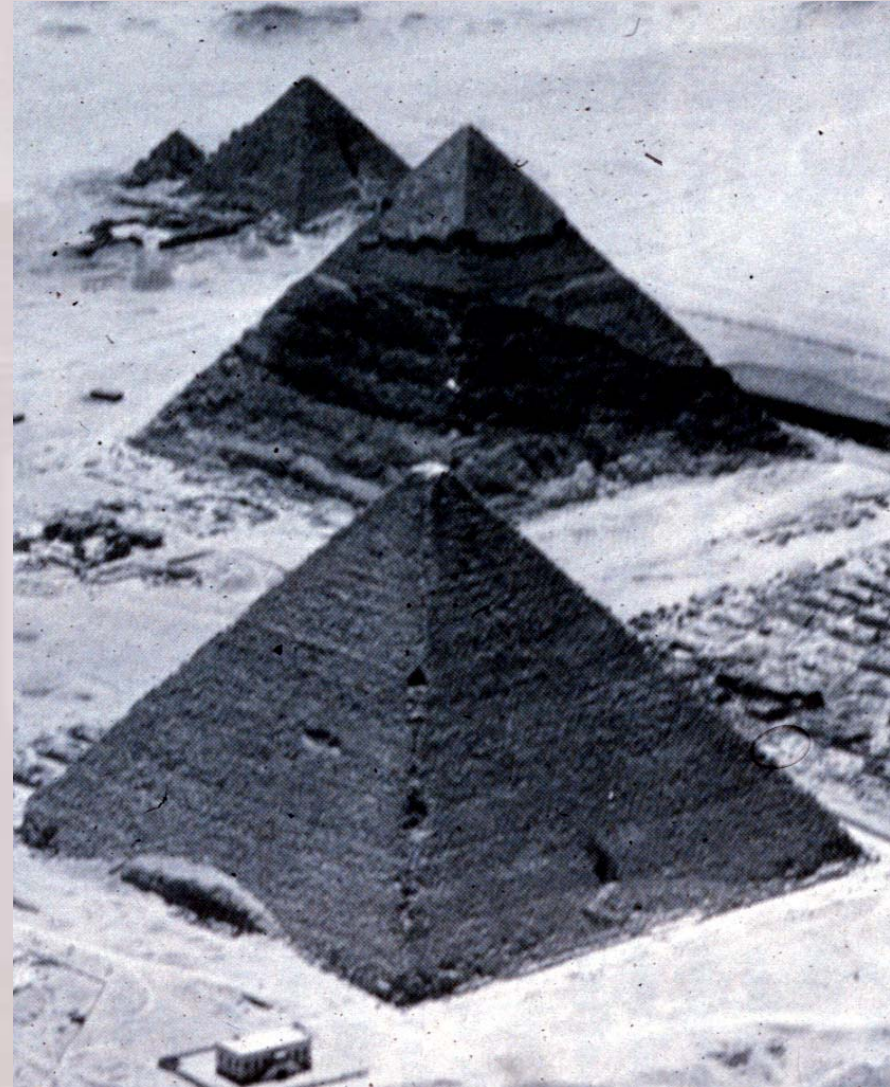
THE GREAT PYRAMID OF EGYPT

- to judge from the inscriptions and records found here, the Egyptian workers gladly built the Great Pyramid
 - they were inspired by devotion to the king
- all in all, the Great Pyramid—and all other Egyptian pyramids!—resulted from some type of architectural religious hysteria that swept Egypt in the middle of the third millennium (ca. 2500 BCE)

ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- 144 meters high
 - 230 meters along each side (base)
 - covers 13 hectares
- rises at a near perfect 52° angle



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

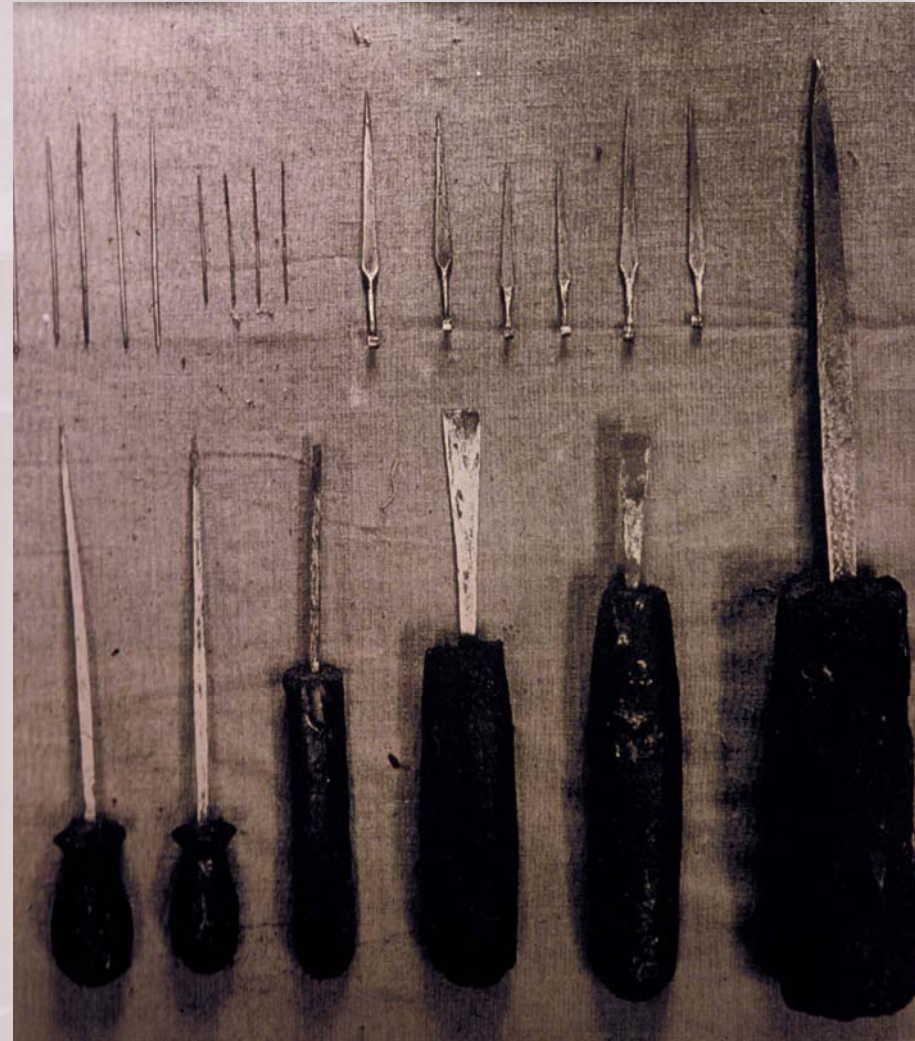
- 2.5 million stones total
 - each weighing up to 16 tons
 - 100,000+ moved into place each year of Khufu's reign
 - that amounts to 285 stones per day for every year of Khufu's twenty-year reign



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- and all this without the wheel or iron
 - only copper tools!
- and the stones fit together so tightly it's hard to put a knife between many of them



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

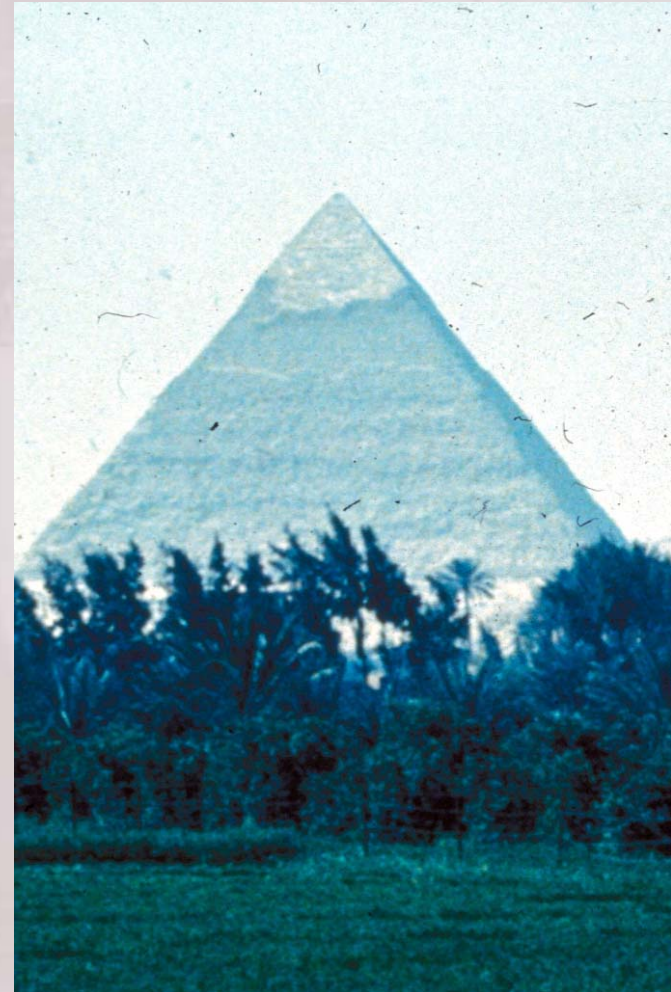
- stones came from a quarry nearby
- then they were dragged on sledges
- up a ramp
- it was an enormous effort which must have meant something to them



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- the symbolism of the Great Pyramid
 - rise of the **Ra** cult (sun-god)
 - golden capstone?
 - pyramid = a ray of light
 - The Luxor in Las Vegas got that much right!



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- also, **sun-boats** buried near the base of the Great Pyramid
- king's soul rides the sun-boat to heaven and travels with Ra
- *Akhet-Khufu*: “The Horizon of Khufu”
- the Pyramid is his “Stairway to Heaven”



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- this sailing-to-heaven scenario is something new and radical
 - Old View: the King's soul descends into the Underworld
 - thus, he is buried and the Pyramid covers and marks this tomb
 - New View: the King flies up to join Ra
- but these views are not compatible at all
 - the King is now going up *and* down!

ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- it's unclear whether or not Khufu was actually buried in the Great Pyramid
 - there is no depiction of Khufu's funeral in the Great Pyramid
 - and there are records that he built other burial sites for himself
- did this sky-versus-underworld confusion terrify Khufu so much that he decided in the end to use a different tomb?

ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- what do historians learn about the past from studying the Great Pyramid?
 - it's not a crisp snapshot of some ancient fanatics dragging stones to build a tomb for their god-king



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- what do historians learn about the past from studying the Great Pyramid?
 - it's more a blurry video of a society wrestling with the concept of death and the afterlife



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- what do historians learn about the past from studying the Great Pyramid?
 - it's a moving picture of a society undergoing a drastic change in their religious views and their fundamental concept of divinity



ARCHITECTURE: CULTURE AND SPACE

THE GREAT PYRAMID OF EGYPT

- what do historians learn about the past from studying the Great Pyramid?
 - so no wonder they worked so hard and lugged that many stones: it was their way of debating the nature of life and death!



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

- two millennia later, the **Parthenon** in **Athens** is no less revolutionary
- part of the **Ionian Revolution**
- built on the **Acropolis**
- embodies the maxim
“**Man is the measure of all things**”



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

- the Parthenon is as much a temple to humanity as to the virgin goddess **Athena**
- it's meant to be seen from the human perspective
- **optical symmetry:** systematic distortion to compensate for the human eye



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

- both traditional and innovative in design
 - uses standard **post-and-lintel system**
- but cf. the monumentality of Egyptian architecture
 - gives the building a sense of impassivity



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

- early Greek temples have the same feel:
heavy Doric style
- but later Greek temples look “lighter”
 - called “airiness” by some historians
 - cf. the Temple of Poseidon at Sounion (near Athens)



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

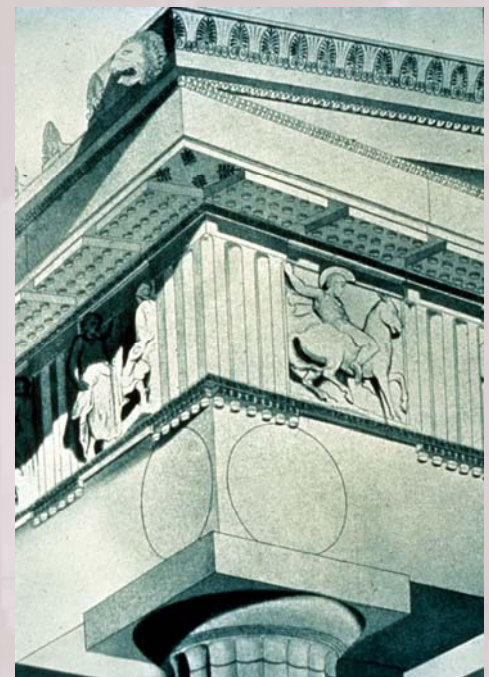
- the political history of the Parthenon
 - built under the direction of **Pericles**
 - replaced an old wooden temple burnt down by Xerxes
 - Pericles “borrowed” funds from the **Delian League**: 447-432 BCE
 - thus, a monument to both art and artifice



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

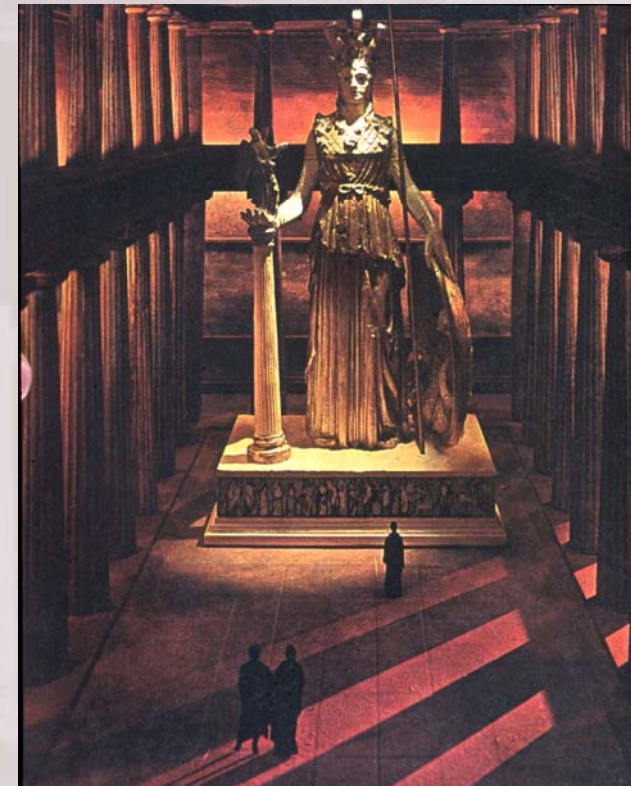
- the symbolism of the Parthenon has recently been “decoded,” e.g. **metopes**
 - pervasive sense of the superiority of the Greeks (humans) over barbarians (animals)



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

- but note that most of the glories of the Parthenon are external, i.e. meant to be seen from outside the building
 - the interior is really little more than a “shed” for Athena’s statue and a place to store her holy implements



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

- but what an exterior!
 - columns are set at irregular intervals to look perfect to the human eye
 - and bowed outward for the same reason



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

- it is a temple to “human” perfection
 - a stone reminder to “**know yourself**”



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

- it demonstrates utter confidence in the power of human rationalism



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

- it screams “We won the Persian Wars, which proves how right we are!”



ARCHITECTURE: CULTURE AND SPACE

THE PARTHENON (ATHENS)

- too bad the rest of history proved how *wrong* they were!



ARCHITECTURE: CULTURE AND SPACE

THE PANTHEON (ROME)

- let's jump ahead another half millennium and look at the **Pantheon**
- it's one of the great architectural mysteries of all time: who built it?
- but that mystery has been solved recently



ARCHITECTURE: CULTURE AND SPACE

THE PANTHEON (ROME)

- the inscription on the front reads:

M·AGRIPPA·L·F·COS·TERTIUM·FECIT

– **Marcus Agrippa:**

Augustus' general (ca.
64-12 BCE)

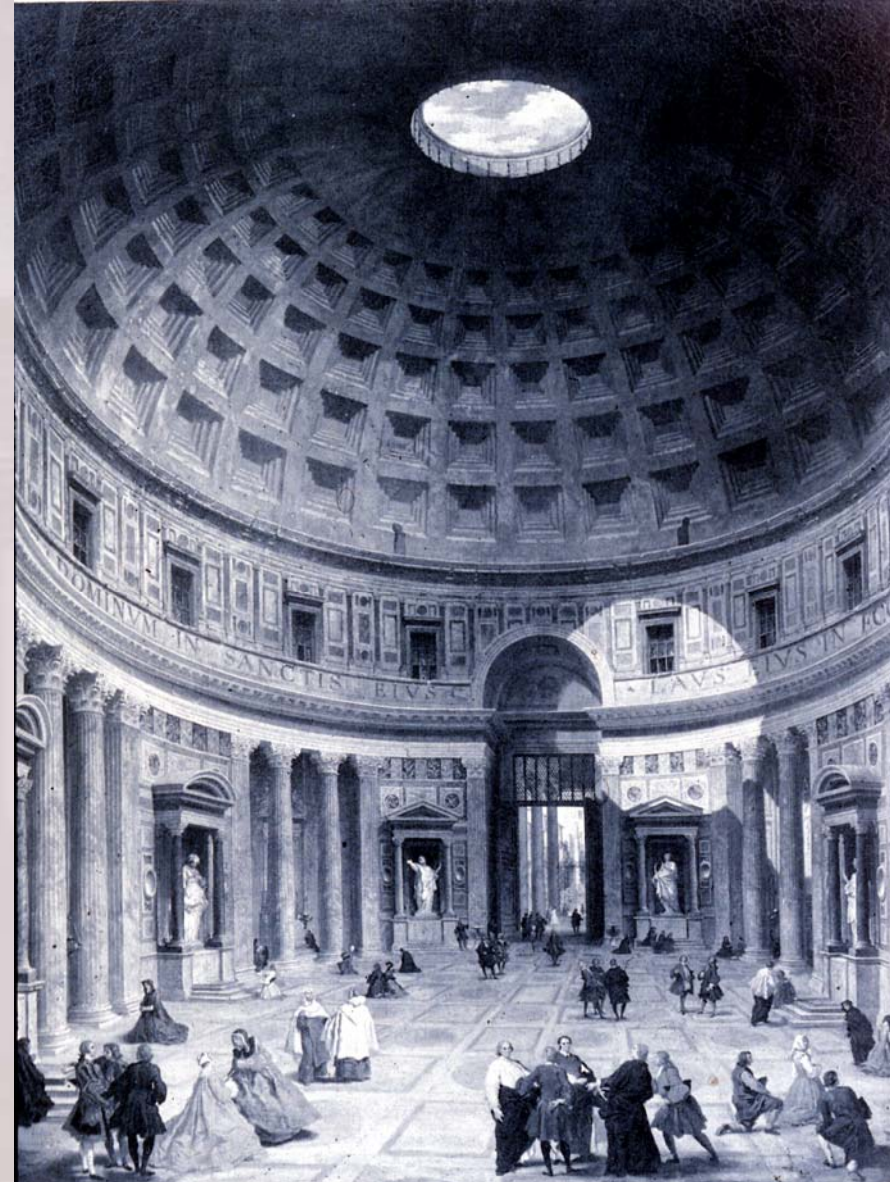
- but the style, theme
and engineering skill
accord better with a
later age



ARCHITECTURE: CULTURE AND SPACE

THE PANTHEON (ROME)

- the **dome** is a masterpiece of engineering
 - the largest interior space ever created in ancient Rome
 - and the only one that has survived intact from classical antiquity



ARCHITECTURE: CULTURE AND SPACE

THE PANTHEON (ROME)

- the dome is a perfect hemisphere
 - **arch** rotated about its central point
- it sits atop a cylinder of the same height
- if there were a globe inside, it would just touch the floor



ARCHITECTURE: CULTURE AND SPACE

THE PANTHEON (ROME)

- at the base of the dome are niches for “all the gods” of the Pantheon
- an architectural ode to religious universalism
 - the mark of a settled Roman Empire



ARCHITECTURE: CULTURE AND SPACE

THE PANTHEON (ROME)

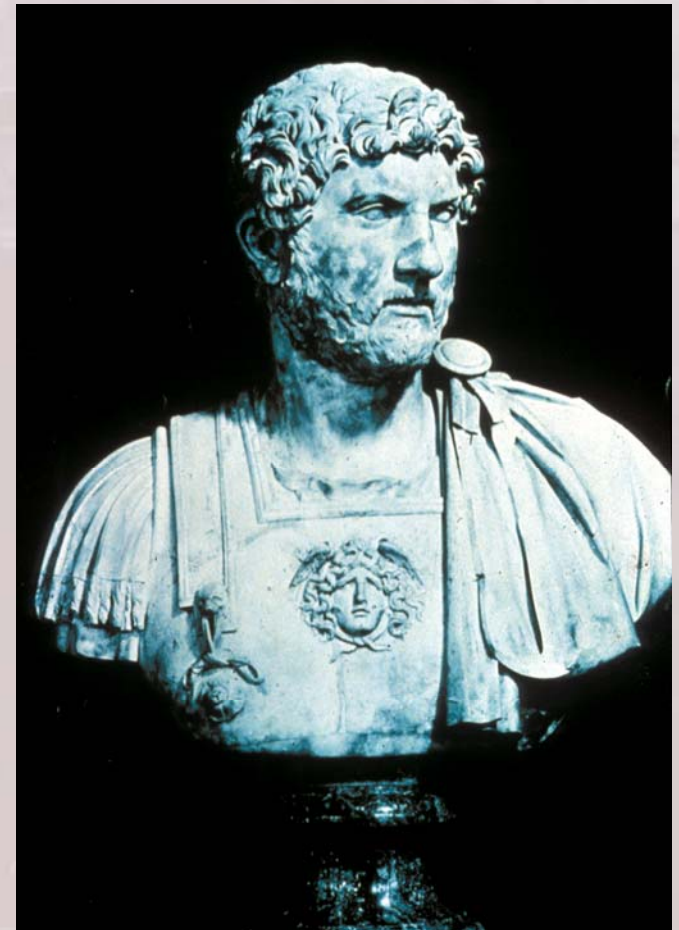
- but the façade says “Marcus Agrippa built this”
- new evidence shows the actual builder was **Hadrian**
 - the bricks of the dome can be dated to Hadrian’s reign



ARCHITECTURE: CULTURE AND SPACE

THE PANTHEON (ROME)

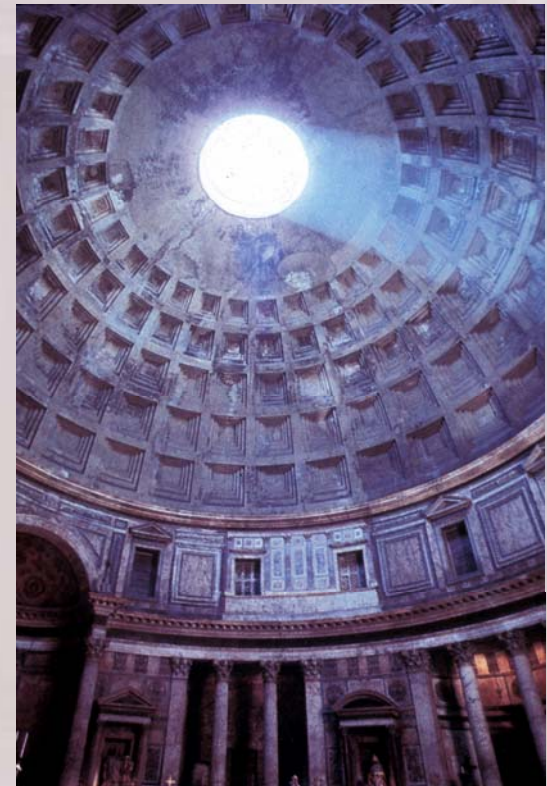
- Hadrian ruled at the height of the *Pax Romana*: 117-138 CE
 - famous as a pacifist and traveler
 - also for **Hadrian's Wall**



ARCHITECTURE: CULTURE AND SPACE

THE PANTHEON (ROME)

- at the top of the dome: *oculus* (“eye”)
 - creates a round shaft of light illuminating different niches at various times of year
 - a sort of “spotlight”
 - and a calendar!
 - operates under the only completely fair system in heaven: the celestial orb



ARCHITECTURE: CULTURE AND SPACE

THE PANTHEON (ROME)

- so why is Agrippa's name on the front of the Pantheon?
 - Hadrian refurbished an old temple, but because he respected his ancestors, he left the façade intact
 - he added only what was behind it: the awe-inspiring dome, the niches for various deities, and the calendrical glory of the *oculus*—that's all!

ARCHITECTURE: CULTURE AND SPACE

THE PANTHEON (ROME)

- four centuries later, it stopped invading barbarians dead in their tracks
 - but only when they entered, not from the outside
- all in all, the Pantheon is an “unsigned” masterpiece
 - like most Medieval cathedrals
 - but with its glory ascribed not to God, but “all gods”

ARCHITECTURE: CULTURE AND SPACE

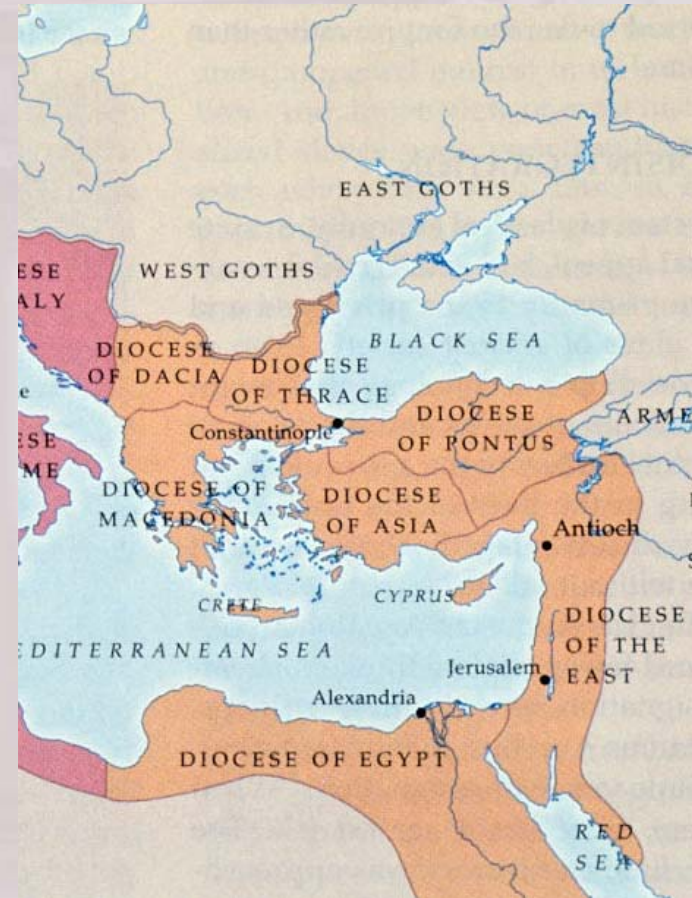
THE PANTHEON (ROME)

- what do historians learn from studying the Pantheon?
 - buildings don't just stand but stand *for* something
 - the Pantheon is a plea for unity amidst an empire seething with multicultural dissent
 - n.b. one god's statue is missing because that deity forbade “graven images”

ARCHITECTURE: CULTURE AND SPACE

HAGIA SOPHIA (CONSTANTINOPLE)

- five hundred years later, that divinity got his own special place: **Hagia Sophia** (“Holy Wisdom”)
 - in **Constantinople** (modern **Istanbul**)
 - it is both the last major “classical” temple and the first Medieval church



ARCHITECTURE: CULTURE AND SPACE

HAGIA SOPHIA (CONSTANTINOPLE)

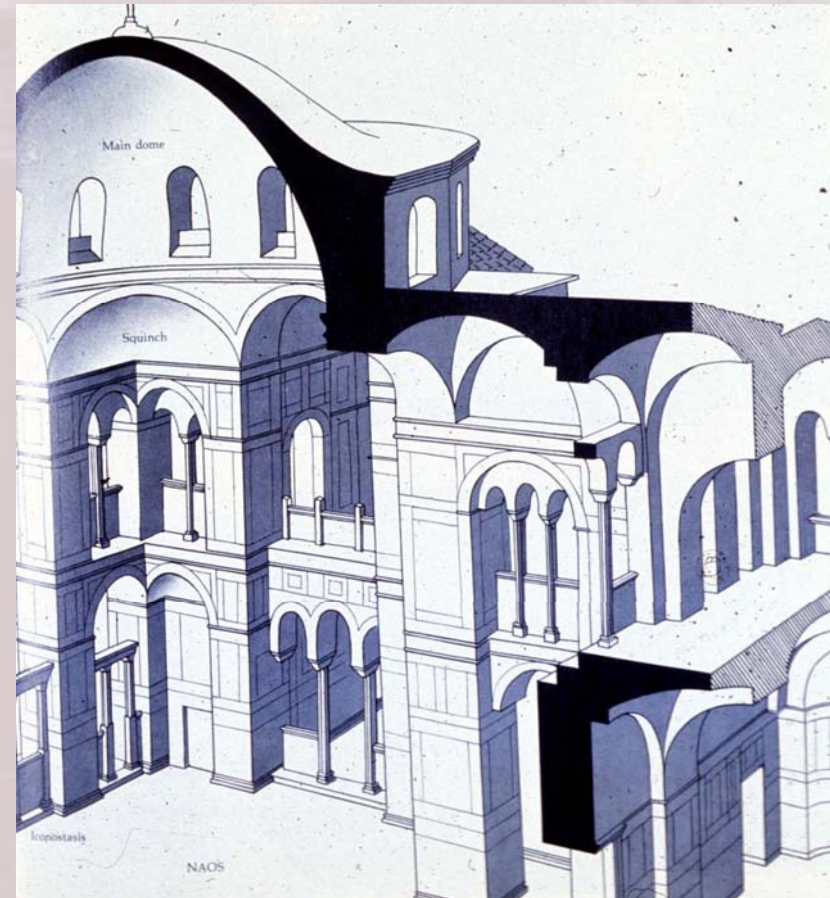
- five hundred years later, that divinity got his own special place: **Hagia Sophia** (“Holy Wisdom”)
 - like Byzantine culture in general, Hagia Sophia looks both backwards and forward in time
 - ironically, *very* far forward: now it’s a mosque!



ARCHITECTURE: CULTURE AND SPACE

HAGIA SOPHIA (CONSTANTINOPLE)

- it was built during the reign of the Byzantine Emperor **Justinian** (r. 527-565 CE)
- largest interior space ever constructed in antiquity
- with a large dome, clearly designed to rival the Pantheon



ARCHITECTURE: CULTURE AND SPACE

HAGIA SOPHIA (CONSTANTINOPLE)

- but a very different sort of dome from that of the Pantheon
 - not perfect geometrically
 - designed for a specific “special effect”
 - recessed windows let in shafts of light so that the dome appears to float on light!



ARCHITECTURE: CULTURE AND SPACE

HAGIA SOPHIA (CONSTANTINOPLE)

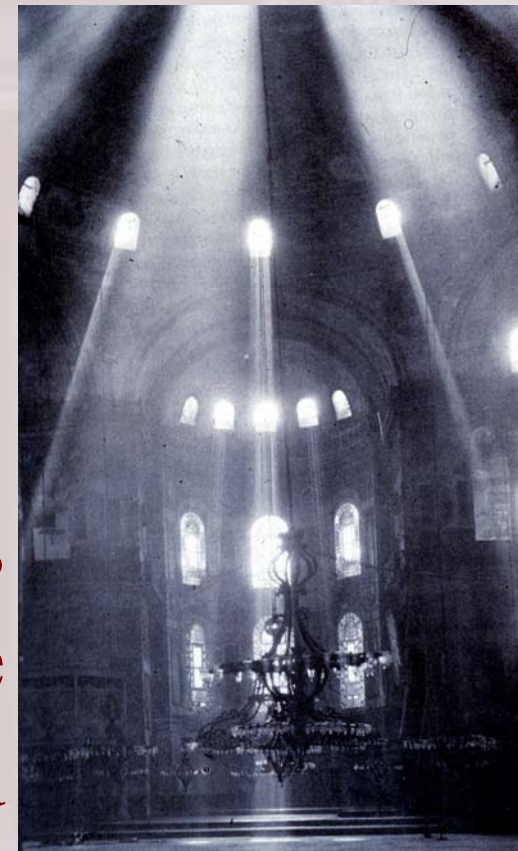
- exterior vs. interior: a Christian prayer expressed through architecture



distrust of outward
appearance

VS.

God' luminous
presence in the
believer's mind



ARCHITECTURE: CULTURE AND SPACE

CONCLUSION: MEDIEVAL CATHEDRALS

- consider the interior of any Medieval **cathedral**
 - clearly designed to draw the eye upward
 - n.b. the contest among Medieval cities to build higher ceilings and spires
 - stained glass offers a vision of God's power and reality



ARCHITECTURE: CULTURE AND SPACE

CONCLUSION: MEDIEVAL CATHEDRALS

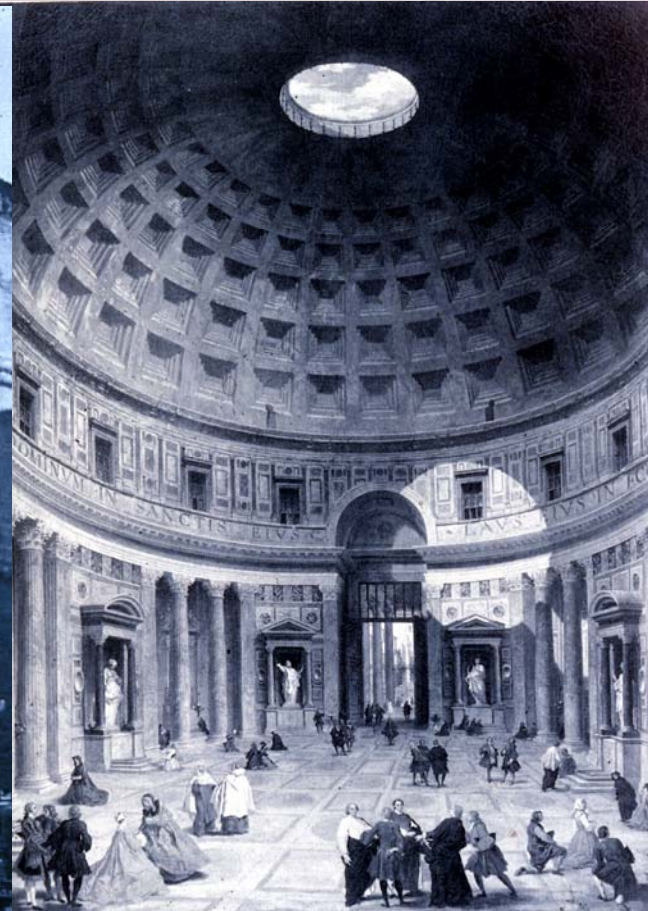
- the Pyramids and the Parthenon are meant to be seen from the outside



ARCHITECTURE: CULTURE AND SPACE

CONCLUSION: MEDIEVAL CATHEDRALS

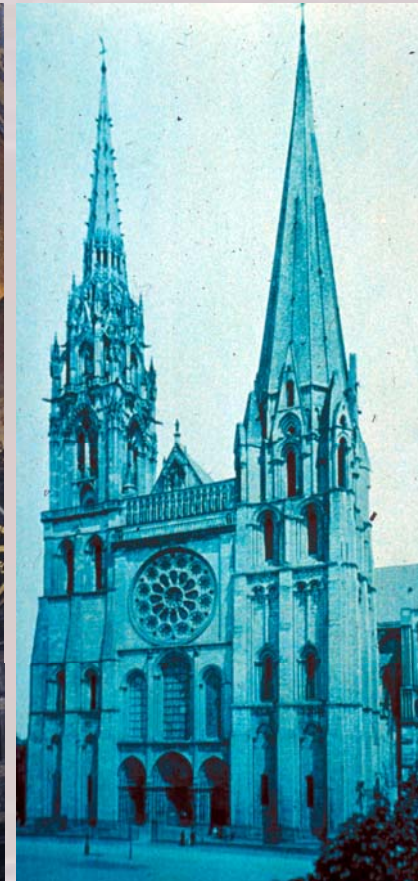
- the Pantheon blends inner and outer visions: dome and *oculus*



ARCHITECTURE: CULTURE AND SPACE

CONCLUSION: MEDIEVAL CATHEDRALS

- Hagia Sophia and Medieval cathedrals focus primarily on an interior experience



ARCHITECTURE: CULTURE AND SPACE

MEDIEVAL CATHEDRALS

- and they all play with light and sight!



ARCHITECTURE: CULTURE AND SPACE

MEDIEVAL CATHEDRALS

- thus, sacred spaces are more than buildings
- they are maps of and for the soul transcendent
 - be it ascending or descending
- while each holy structure speaks its own language to its own culture, they all map our journey into the west—and beyond!