

ARCH 1121 - HISTORY OF WORLD ARCHITECTURE TO 1900 Early Aegean & Greece

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Course Overview:

- What is architecture? What is history?
- Prehistoric, Mesopotamia, Egypt
- Early Aegean, Greece
- India & Southeast Asia, China & Japan
- Rome, Early Christian & Byzantine, Islamic
- Early Medieval, Romanesque, Gothic
- The Pre-Columbian Americas, Africa
- The Renaissance, Baroque, Rococo in Europe
- 18th Century & Neo-Classicism in Europe & America



Chronology

Minoan civilization	ca. 3000-1380 BCE
Bronze Age in the Aegean	ca. 2000-750 BCE
Mycenaean civilization	1600-1100 BCE
Trojan War	ca. 1250 BCE
Iliad and Odyssey assume final form	8th century BCE
Archaic Greek period	700-500 BCE
Classical Greek period	479-323 BCE
Pericles comes to power in Athens	458 BCE
Construction of the Parthenon	448-432 BCE
Life of Plato	ca. 427-347 BCE
Conquests of Alexander the Great	333-323 BCE

Fazio, Moffett & Woodhouse (2019)

Aegean Civilizations in the Bronze Age

- Minoan (Island of Crete) c. 3000 1380 BCE
- Mycenean (Peloponnese, mainland Greece) c. 1600 1100 BCE



Minoan Civilization c. 3000 - 1380 BCE

Centered on the Island of Crete

Rapid growth in population and the development of trade

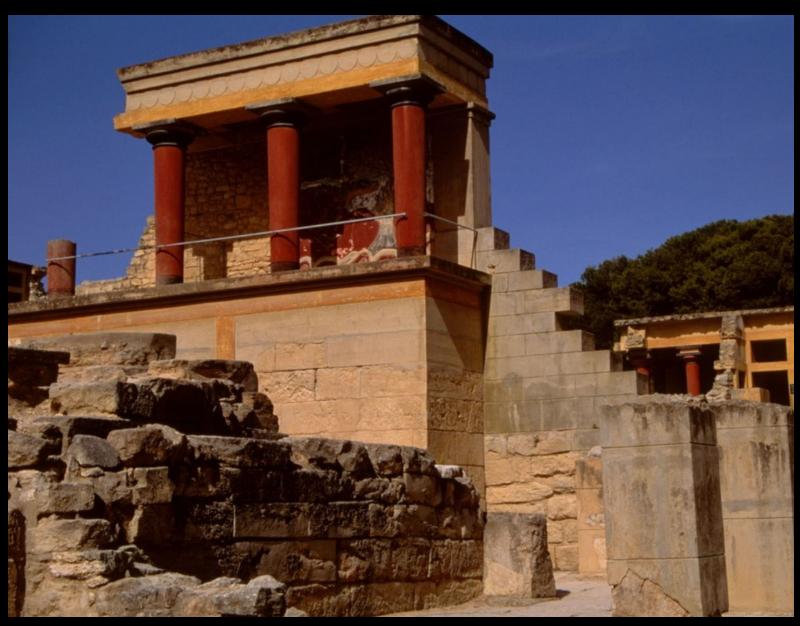
Used bronze for tools and weapons

Named after King Minos (2600 BCE)

Cities were not fortified, no walled cities

Disappeared suddenly – huge earthquake and tsunami, 1500 BCE

Palace of Knossos, Crete, Greece; c. 1700 - 1380 BCE



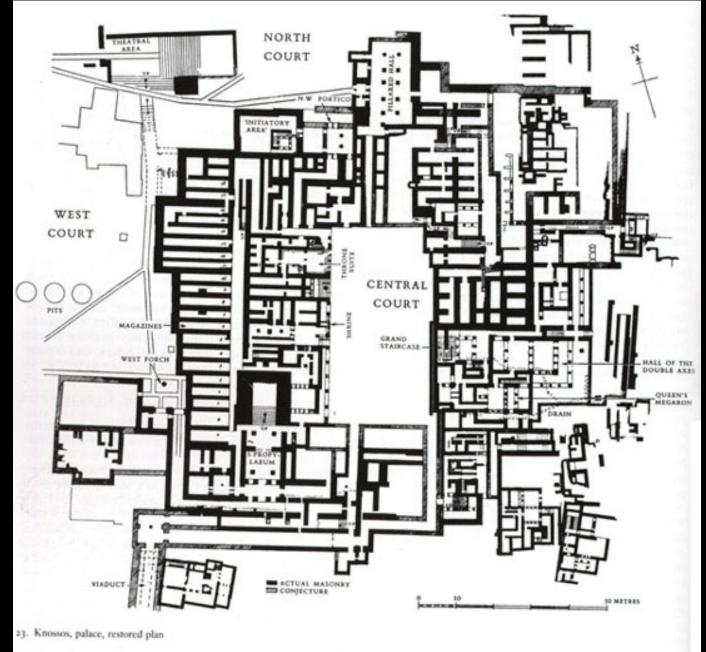
Palace at Knossos, View: North Propylaea (Customs House); view from the northeast. c. 1700 - 1380 BCE. Artstor, library-artstor-org.citytech.ezproxy.cuny.edu/asset/CANYONLIGHTS_DB_10312429843

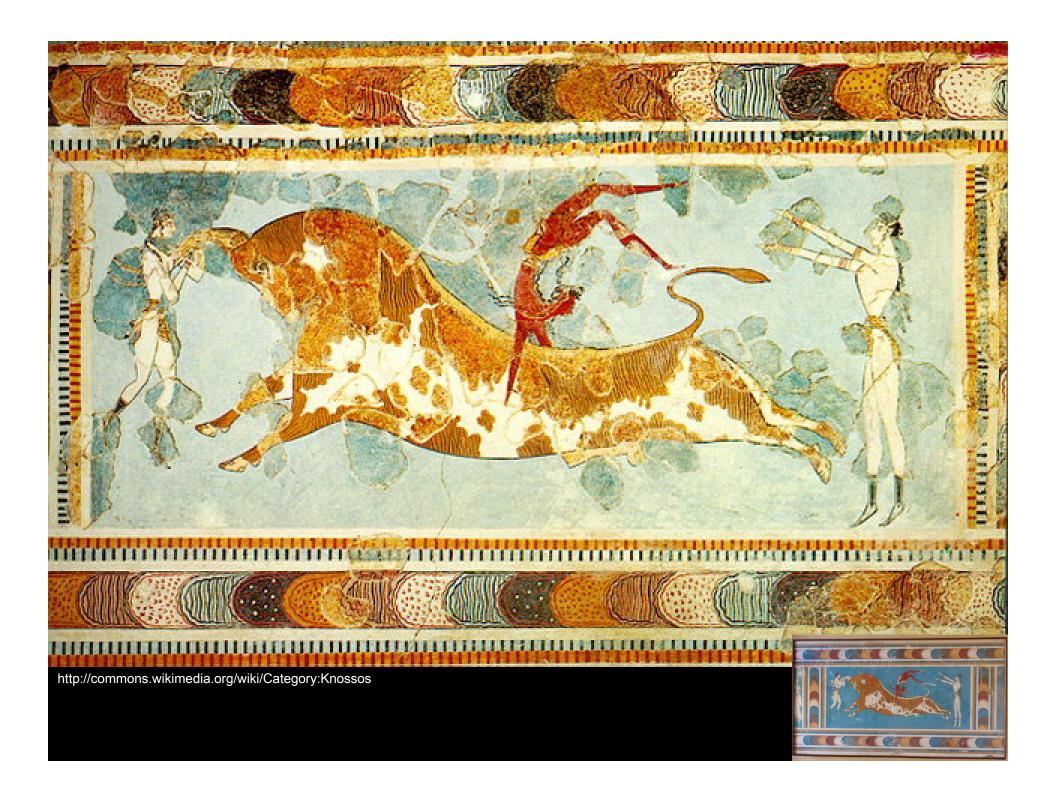
Palace of Knossos, Crete, Greece; c. 1700 - 1380 BCE



wenzday01 "1815837745_a382afb7a9_o" Image from "Palace of Knossos" 2007/1/11 www.flickr.com (2/11/2010)

Palace of Knossos: Evolved organically around a central courtyard







Palace of Knossos: 1700 – 1380 BCE

Home to King Minos

Built as a labyrinth – 1500 rooms

Evolved organically around a central courtyard

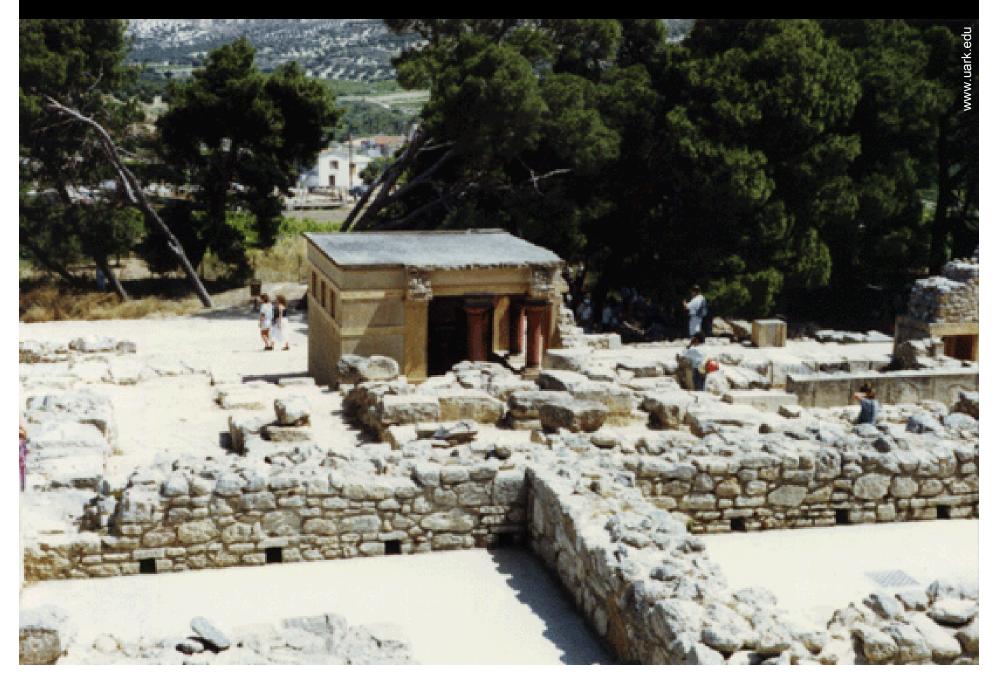
Entrance with guard house

Living on upper level

Queen's suite had a bathroom with sophisticated drainage system



Palace of Knossos, Crete, Greece; c. 1700 - 1380 BCE



Palace of Knossos, Crete, Greece; c. 1700 - 1380 BCE

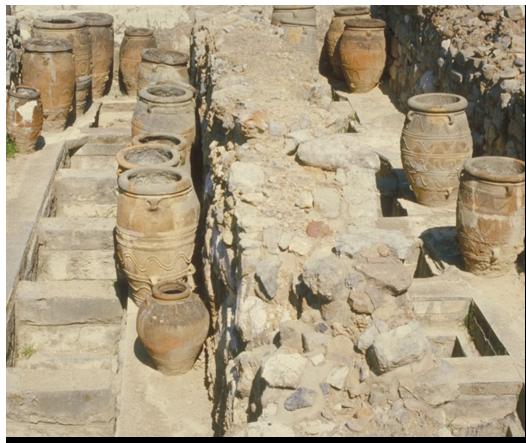


Pottery for storage of food

Pottery for wine



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http://commons.wikimedia.org/wiki/Category:Knossos





Mycenaen Civilization: c. 1600 - 1100 BCE

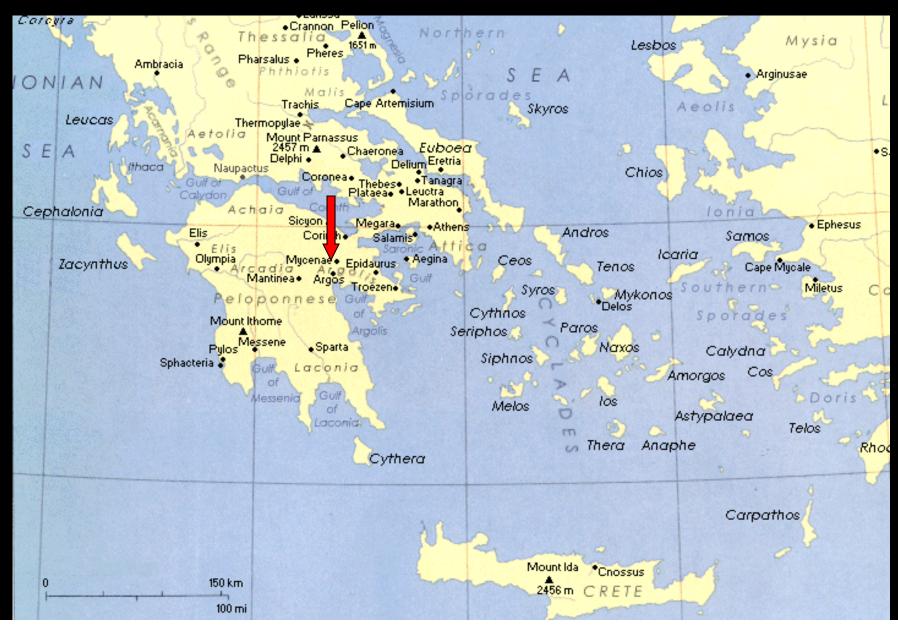
Centered on he Peloponnese, mainland Greece



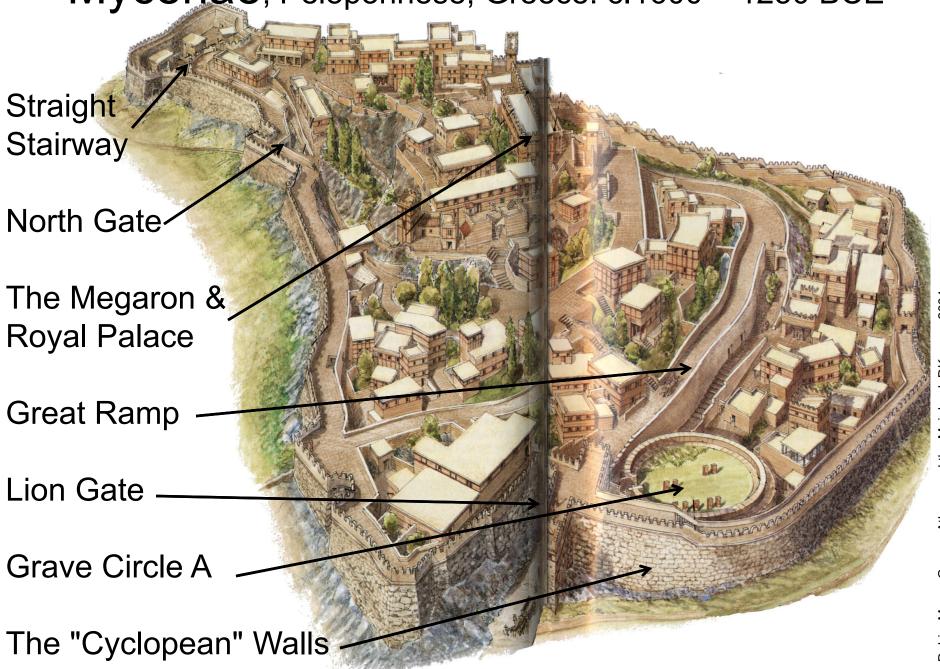
Mycenaean Civilization c. 1600 - 1100 BCE

- Centered on the Peloponnese, mainland Greece
- Dozens of small independent city-states
- Heavily fortified cities sited on defensible hilltops
- Walls of enormous stones = "cyclopean" masonry
- Evidence of leadership by warrior kings:
 - Mycenae, seat of King Agamemnon
 - Pylos, called the home King Nestor
 - Tiryns, recorded by Homer as "Tiryns of the great walls"
- Depictions of hunt & battle scenes, burials with of many types

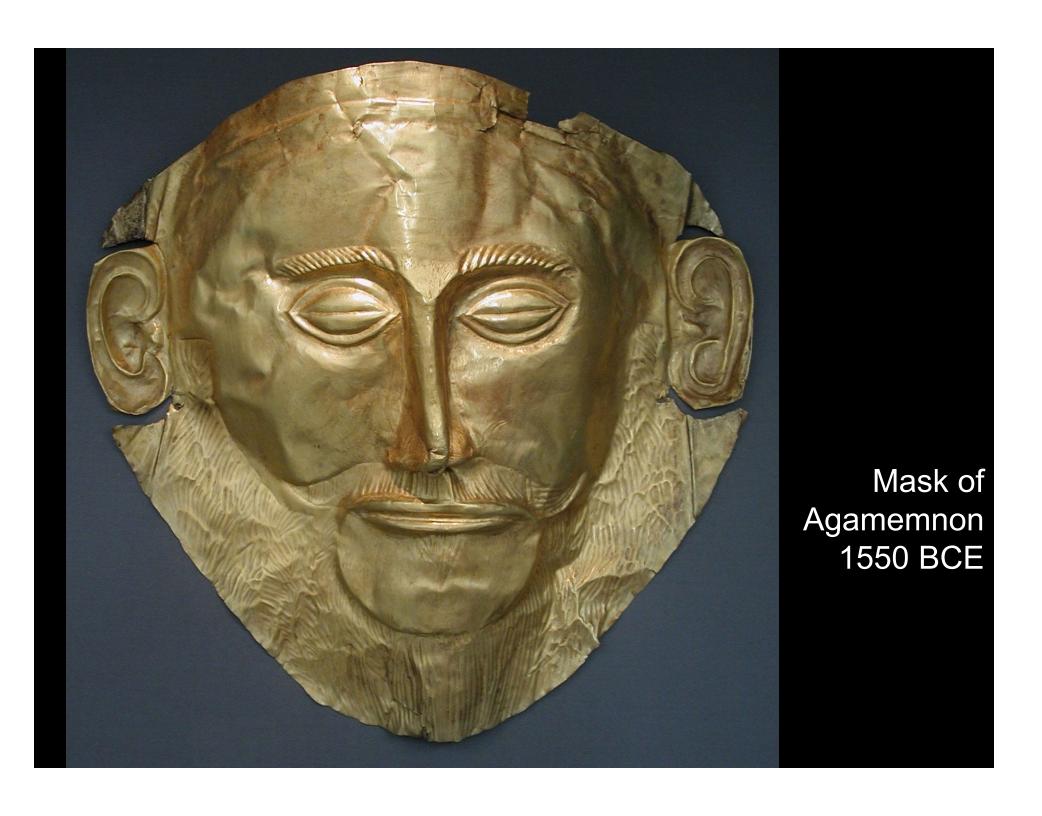
Mycenae: On the eastern shore of the Peloponnese, Greece, on a hilltop with a view of the sea and land.

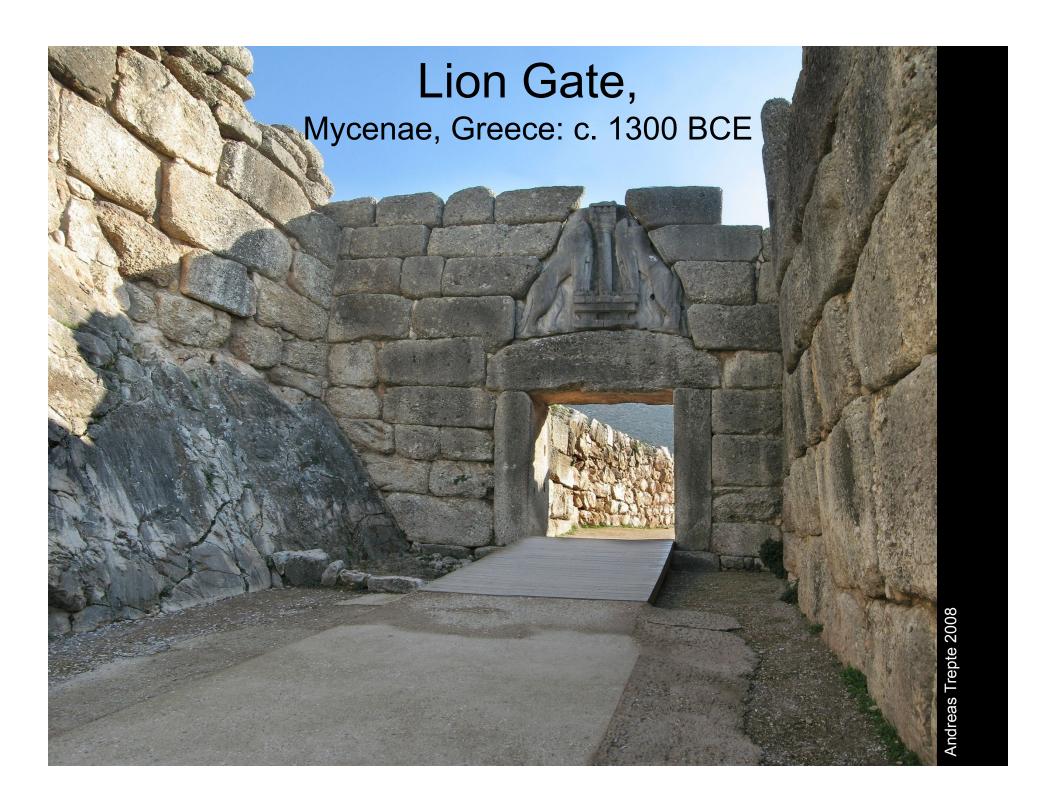


Mycenae, Peloponnese, Greece: c.1600 – 1250 BCE



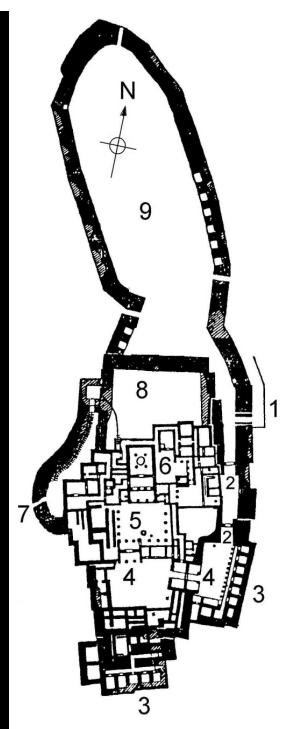
Dubin, Marc - Greece Athens and the Mainland, DK press 2004

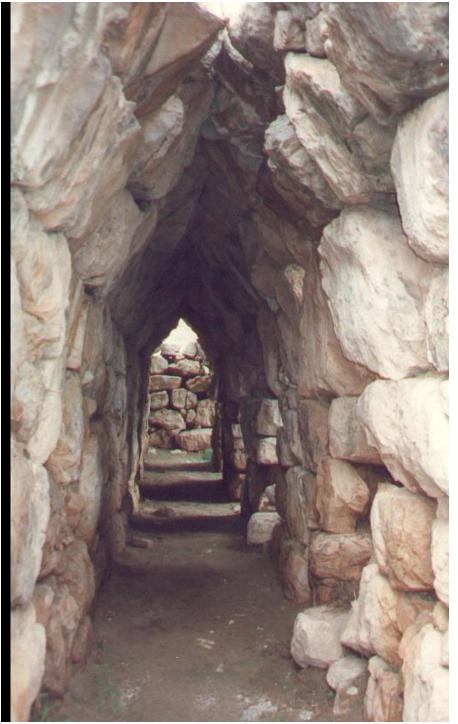


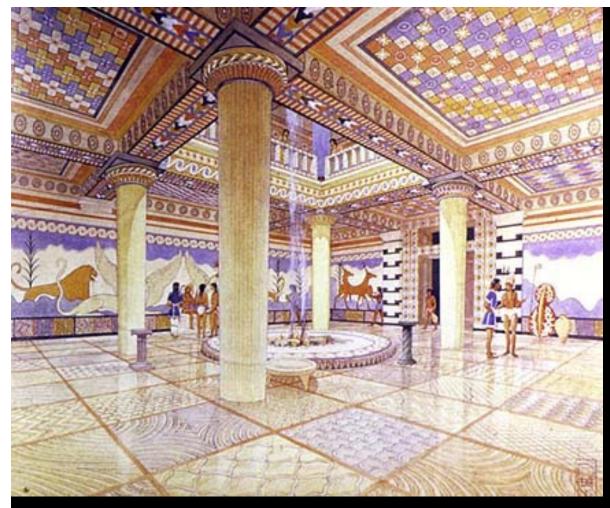


Tiryns; c. 1300 BCE Citadel/palace

- 1. Outer Gate
- 2. Inner Gates
- 3. Porticoed Chambers
- 4. Palace Courts
- ColonnadedCourt
- 6. West Megaron
- 7. West Gate
- 8. End of upper town
- 9. Lower Town







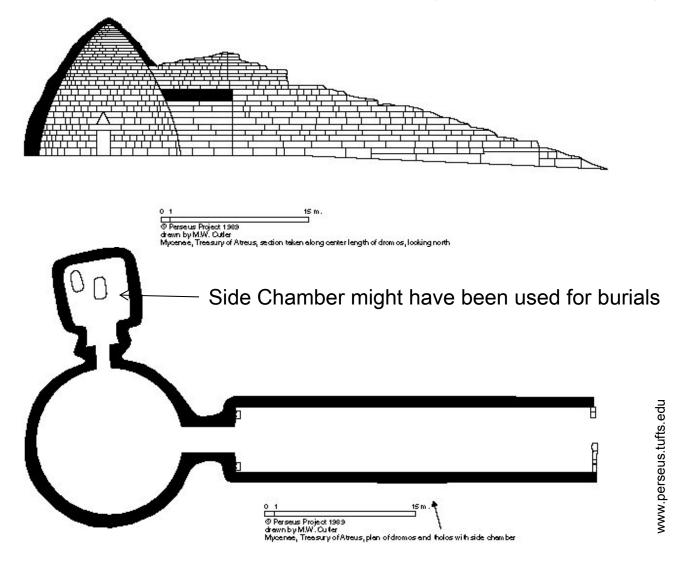
Reconstruction of the large megaron at Pylos



Palaima & Wright 1985

Ching & Jarzombek & Vikramaditya - A Global History of Architecture

- 44' high x 48' diameter corbeled vault, 33 courses of ashlar stone, stabilized by earthen mound above
- Example of a tholos or circular tomb ("beehive" tomb)



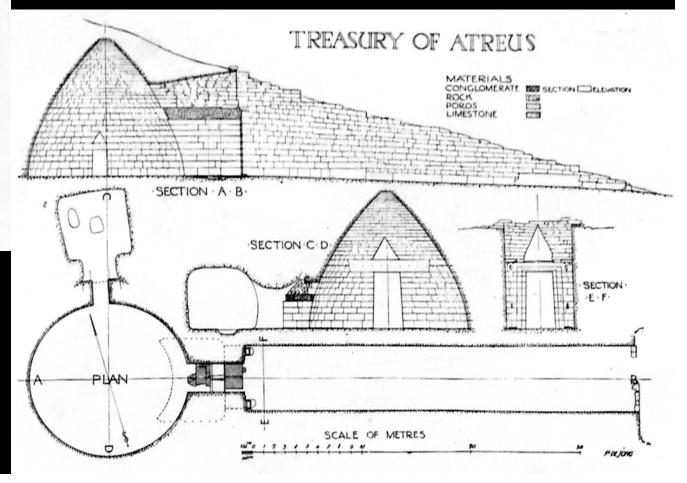
120' long and 20'wide dromos = the walkway approach to a tomb Huge stone lintel and triangular transom above the entrance





Αναπαράσταση πρόσοψης Reconstruction of façade

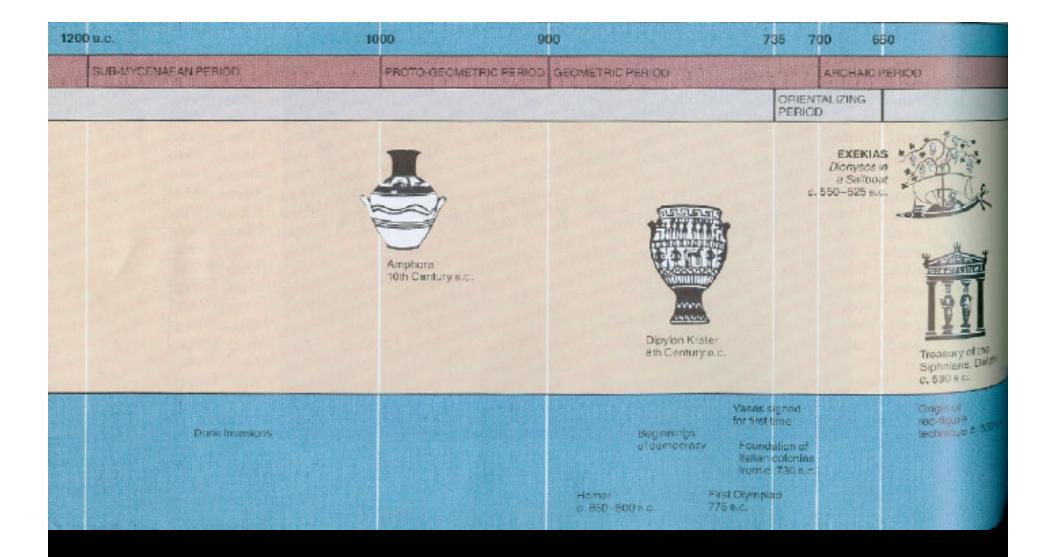
- Dromos axial approach leading to a tomb
- Corbelled stone chamber
- Two enormous stone lintels above the entrance

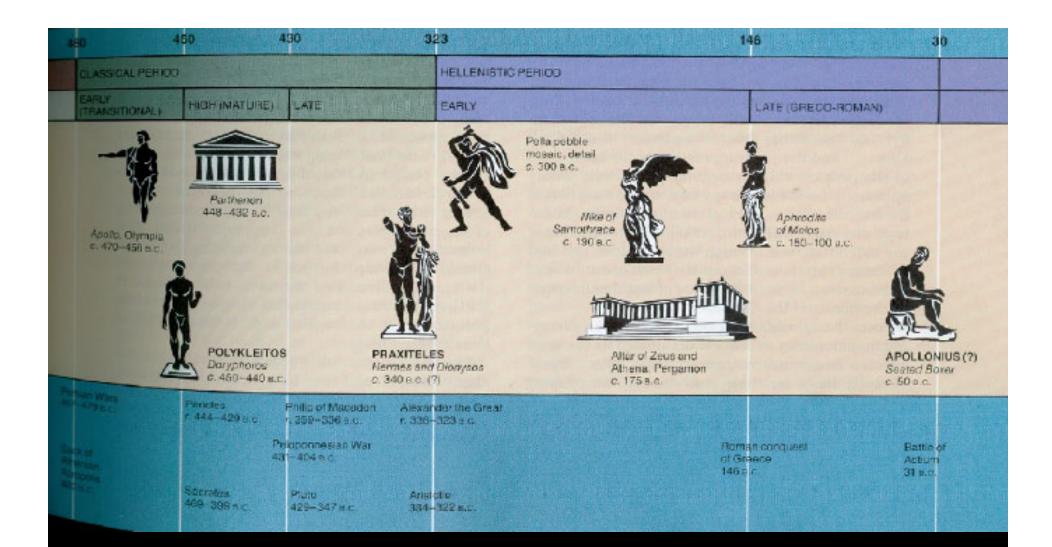






33 super imposed rings of ashlar blocks perfectly fitted





Gardner - Art Through the Ages

Ancient Greek Civilization

- Archaic Period > 700 500 BCE
- Classical Period > 479 323 BCE
- Rugged mountainous peninsula & thousands of islands, limited areas of arable land
- Isolated city-states that preferred their independence
- Credited with the invention of philosophy & democracy
- Architecture focused on religious & civic structures (more so than palaces or tombs)
- Primary architectural achievement = the temple
- Belief in human powers of rational investigation
- The essence of beauty lay in mathematical ratios & proportions, in understanding visual perception, in the creation of ideal types

The Greek Temple

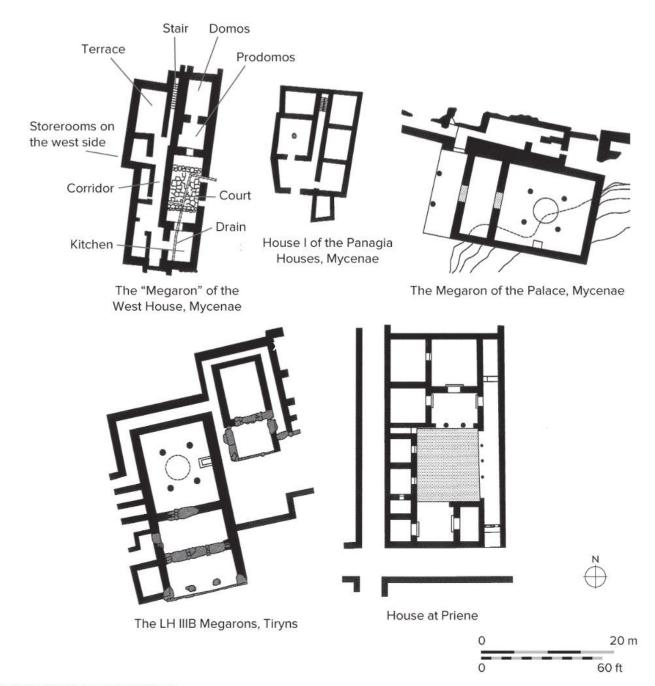
- First built with wood, then stone w/ terra cotta tiles
- Conceived as a dwelling for the gods
- Became the principal ornaments in the cities, generally on hills
- or other prominent locations, faced outwards (differs from Egyptian, which faced inward)



Temple of Hephaestus

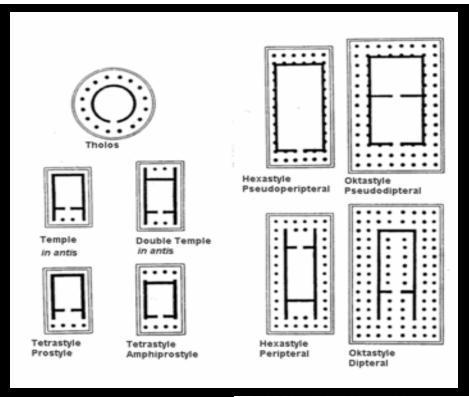


Athenian Treasury

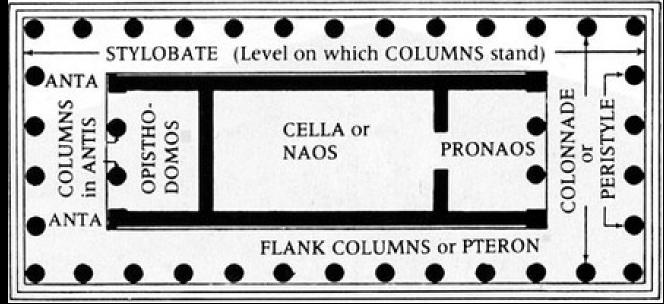


2.12 Plans of the megarons at Mycenae and elsewhere.

The West House, located just outside the walls at Mycenae, combines a courtyard porch, antechamber, and megaron. The palace megarons at Mycenae and Tiryns are considerably larger, both with remains of the four column bases that supported the roof around a central hearth.



Parts of a Greek Temple



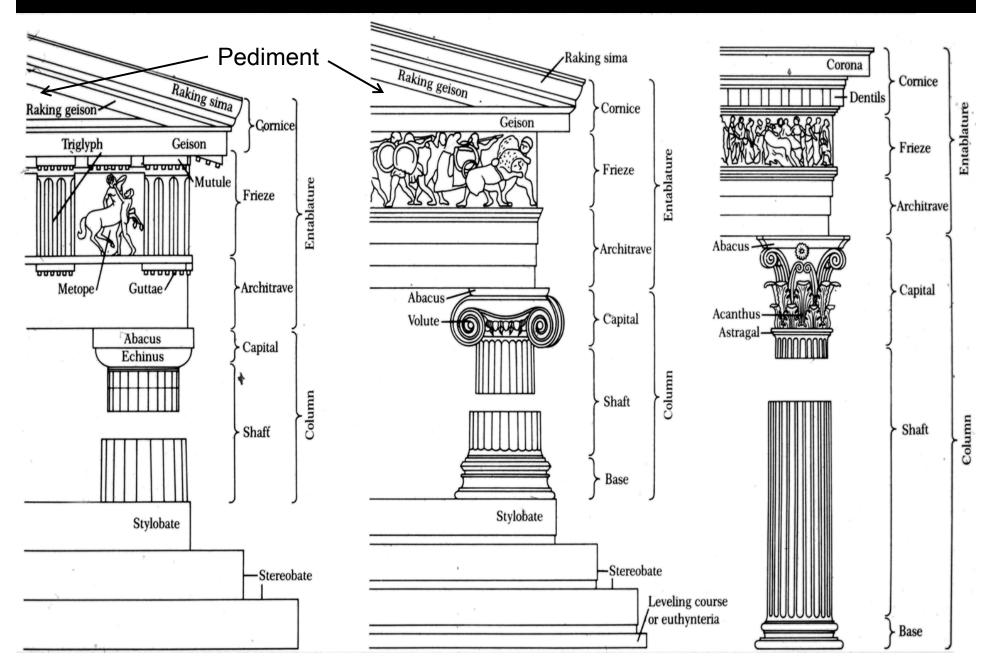
Orders:

Secret of beauty lay in the ratios and proportions, the result was the orders

In architecture, a system of the "orders" defined the ideal proportions for all the components of the temples according to mathematical ratios – base on the diameter of the columns.

TERMINOLOGY OF CLASSICAL ORDERS

DORIC IONIC CORINTHIAN

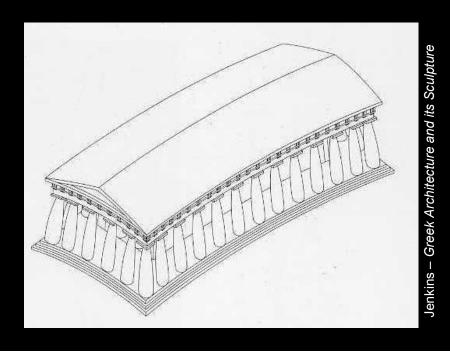


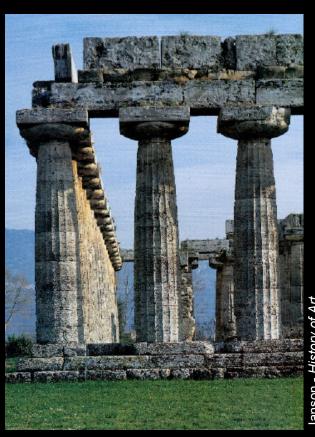
Entasis

Slight swelling near the mid-point of the column height

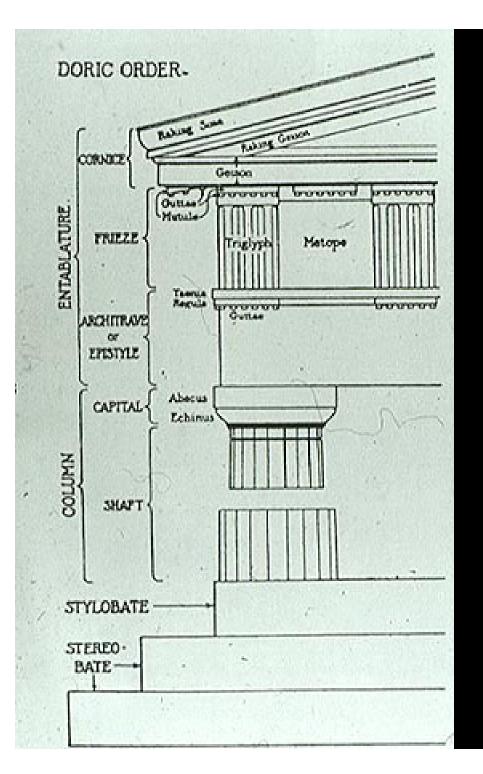
A visual correction for the optical illusion that causes a vertical element to appear to narrow as it rises

Less than 1" in a 31' high column





son - *History of A*



Doric Order:

Late 7th Century BCE

Stocky basic columns

Columns were 4-6 times taller than the diameter

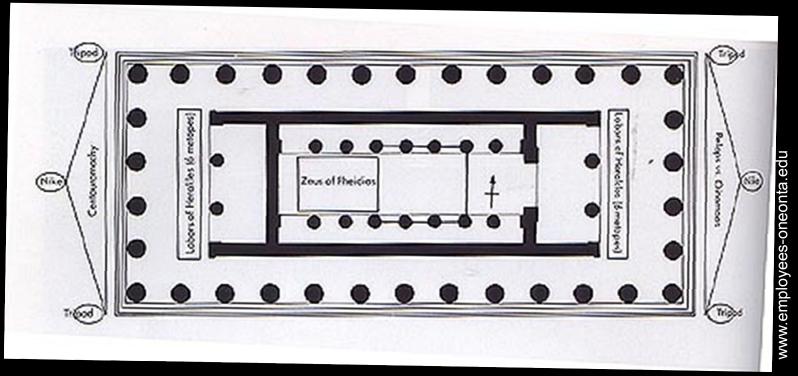
Columns were 11-12 times taller than the capital

There were 20 flutes

Doric Order in temples:

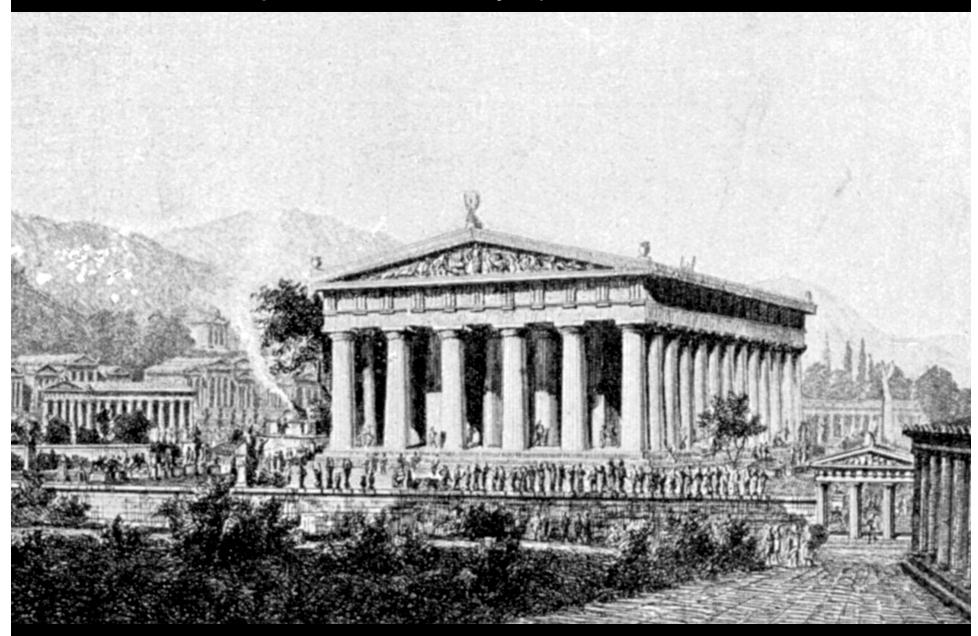
Common temple form – 6 columns at front & rear, 13 columns at the side (2 x front +1)

Construction sometimes called "petrified carpentry" – based on early wood construction

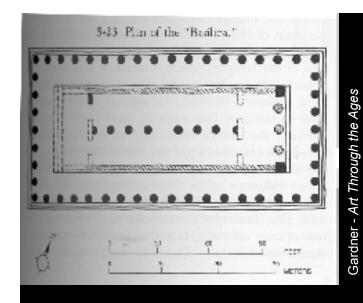


Temple of Zeus at Olympia 479-470 BCE

Temple of Zeus at Olympia 479-470 BCE



Restored view of the Temple of Zeus at Olympia, Greece. Source: Wilhelm Lübke, Max Semrau: Grundriß der Kunstgeschichte. Paul Neff Verlag, Esslingen, 14th edition 1908.



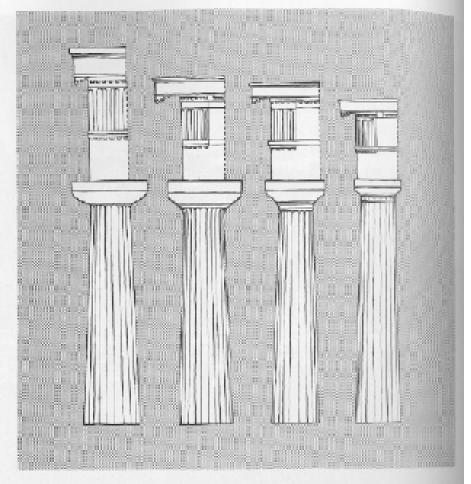
Temple of Hera ("The Basilica") Paestum, c. 550 BCE



Wikimedia Commons @ http://commons.wikimedia.org

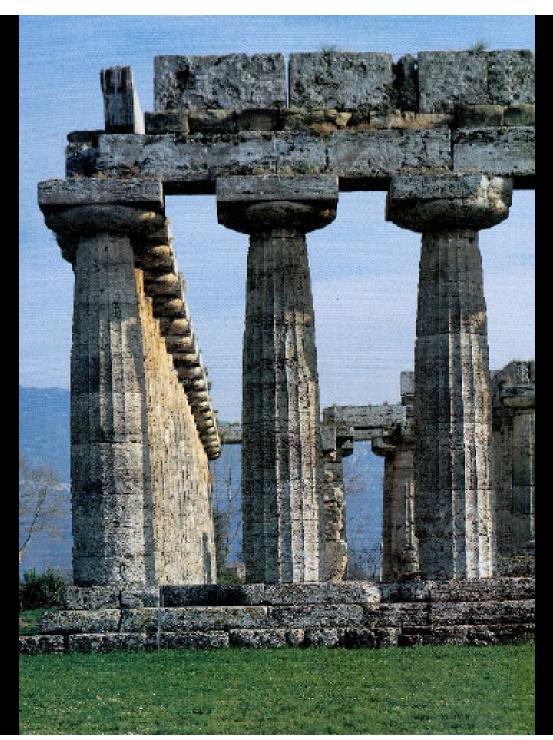


5-24 "Basilica" colonnade, with view of the Temple of Hera II beyond.



5-25 Evolution of Doric order proportions, Archaic to Classical. (Examples are not drawn to same scale.)

Temple of Hera ("The Basilica") Paestum, c. 550 BCE

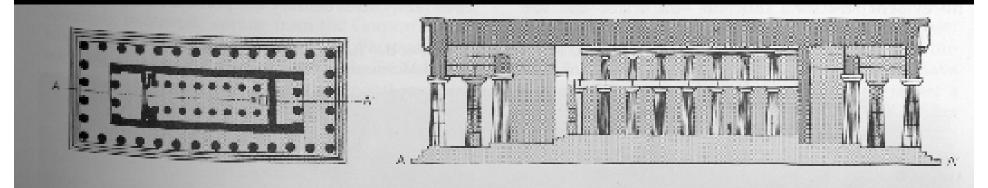


Janson - History of Art

Temple of Poseidon at Paestum, 450 BCE

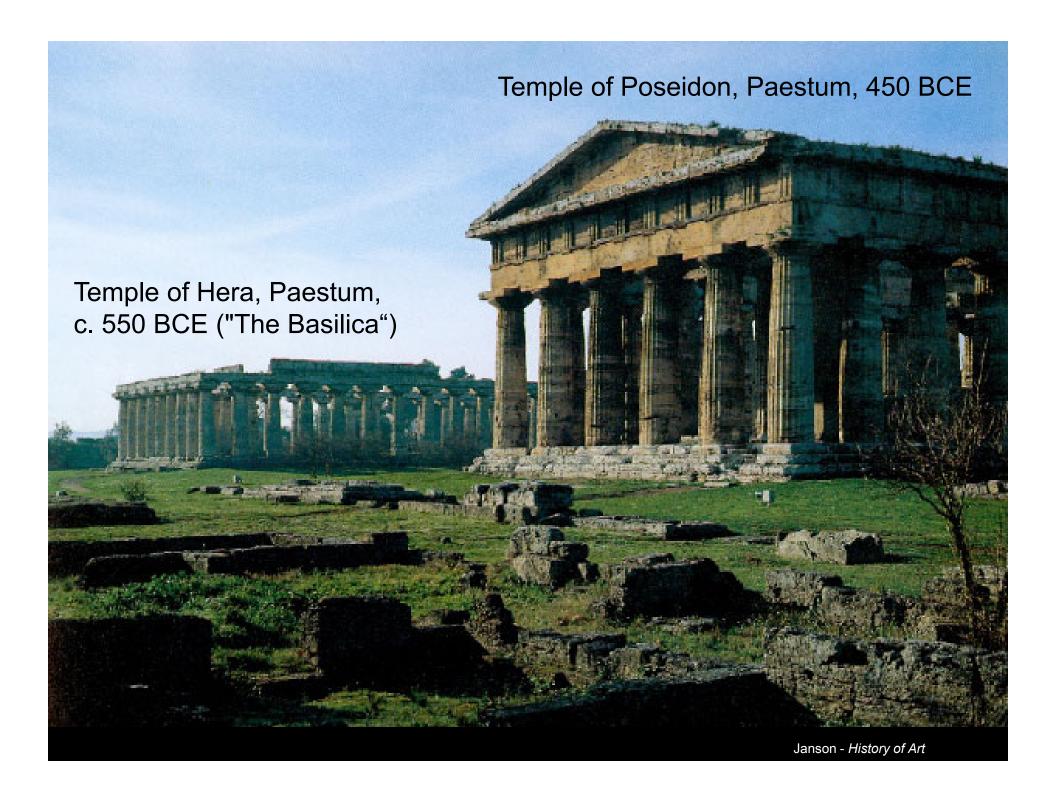


www.greatbuildings.com



Temple of Poseidon at Paestum, 450 BCE

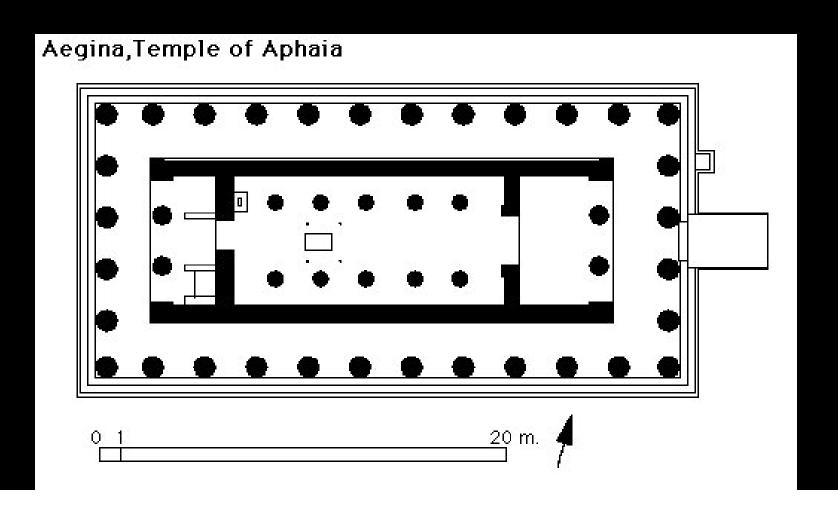




Temple of (goddess) Aphaia at Aegina 490 BCE ARTstor - University of California, San Diego

Temple of Aphaia at Aegina 490 BCE

- Encircled by a single colonnade 6 columns x 12 columns
- Limestone coated with thin layer of stucco richly painted
- Columns 3'-3" in diameter by 17'-3 ½" tall



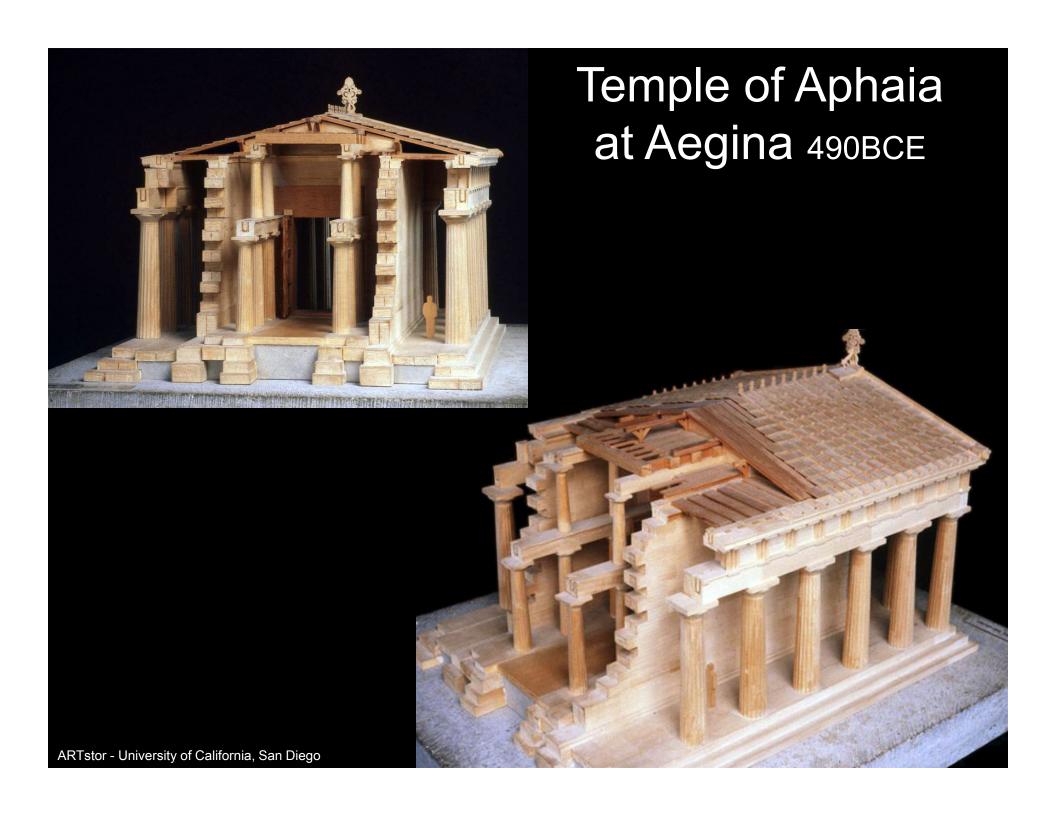
Janson, H. W. History of art. (Englewood Cliffs, 1991); Page 187

Temple of Aphaia at Aegina 490 BCE





ARTstor - University of California, San Diego



Classical Greece: 479 – 323 BCE

480 BCE Persians sacked Athens, destroyed many buildings

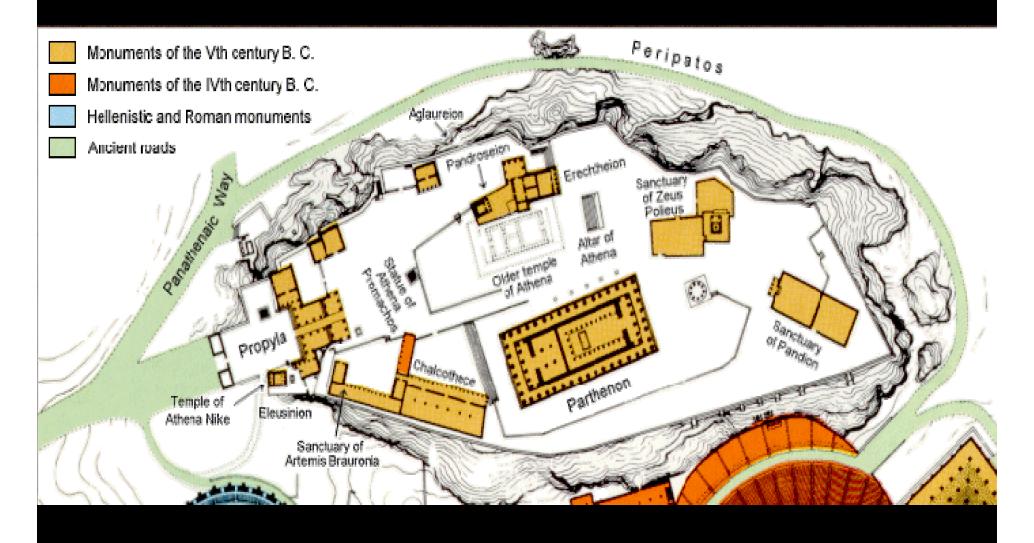
479 BCE ends the Persian invasion of Greece

458-429 BCE Pericles, the general, orator & statesman, led Athens

450 BCE Pericles allocates defensive funds for rebuilding the Acropolis



Acropolis (High Point in the City)



Acropolis (High Point in the City)

Complex Site also called 'Sacred Rock'

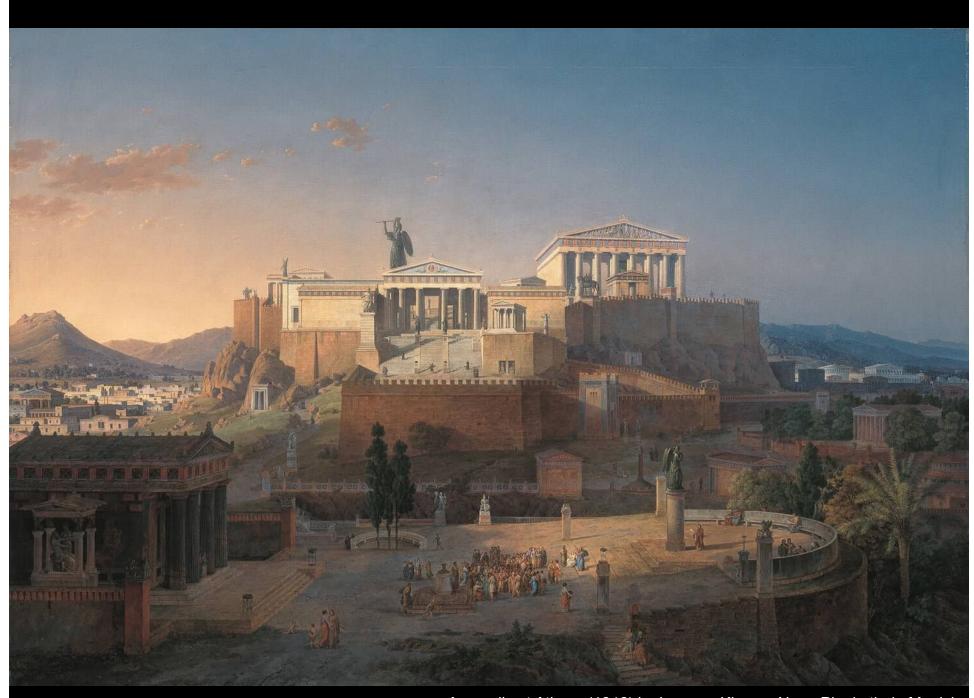
Highly defensible – surrounded by sheer cliffs except the west

Religious and cultural center

Built of marble - allowed fine detail (more so than limestone)



ww.stoa.org



Acropolis at Athens (1846) by Leo von Klenze, Neue Pinakothek, Munich

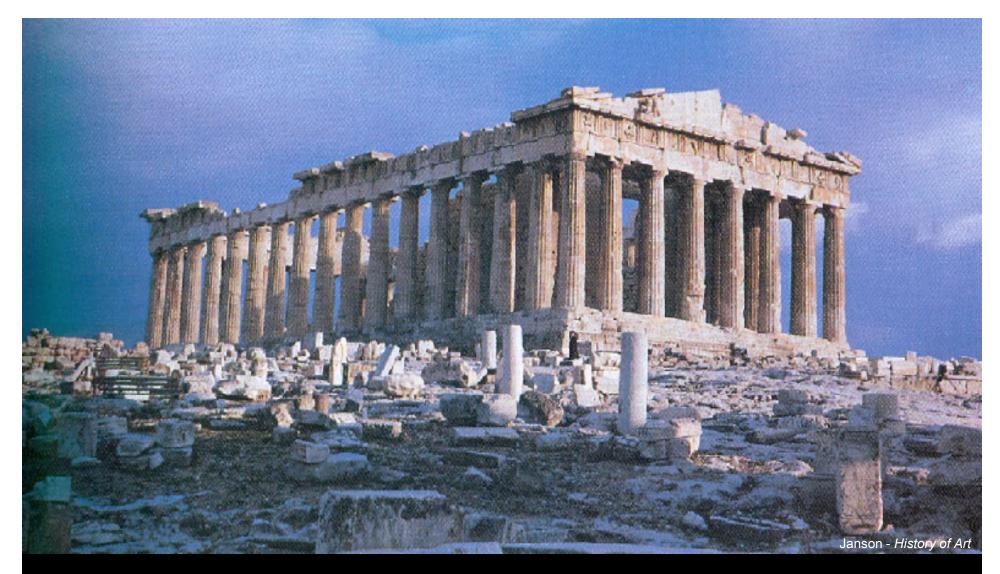
Parthenon 448 - 438 BCE

Doric Temple dedicated to Athena – Patron Goddess of Athens Highest Point of the Acropolis

20,000 Tons of Marble - Designed by Iktinus & Kalikrates Many subtle adjustments to dimensions, slight variations of horizontal & vertical lines, imperceptible optical refinements

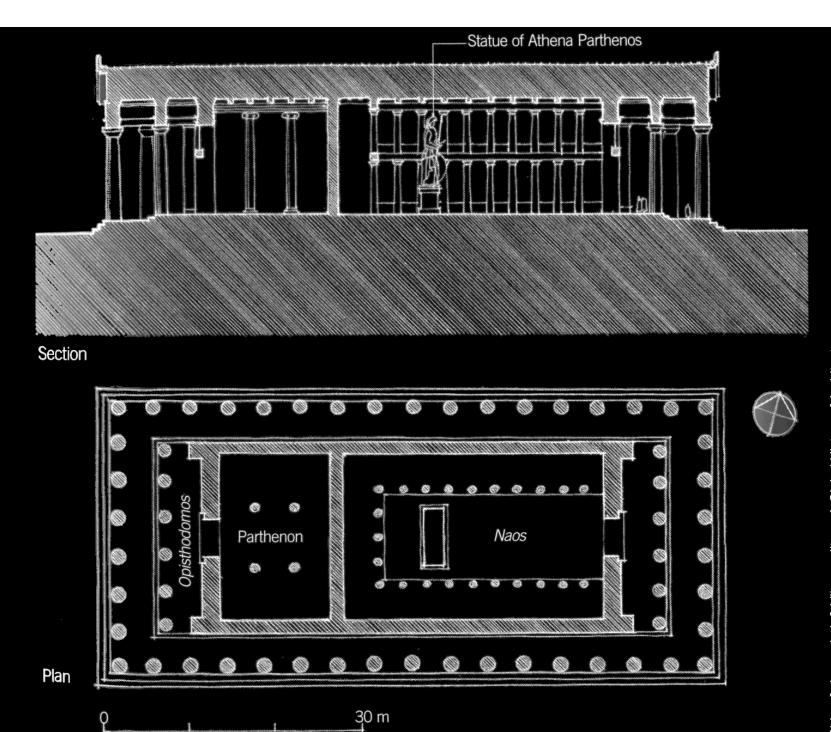


ww.encarta.msn.c



Parthenon

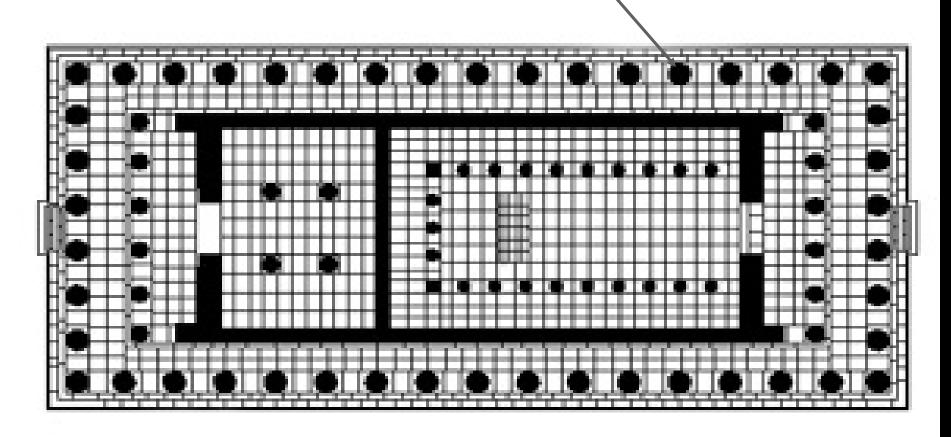
stones perfectly cut & set without mortar slender Doric columns



Ching & Jarzombek & Vikramaditya - A Global History of Architecture

Parthenon 448 - 432 BCE

Peripteral colonnade of 8 x 17 columns 101 feet wide X 228 feet long



Parthenon:448-432 BCE

Columns:

8 x 17 Doric columns

6'-2" wide and 34-'3" tall

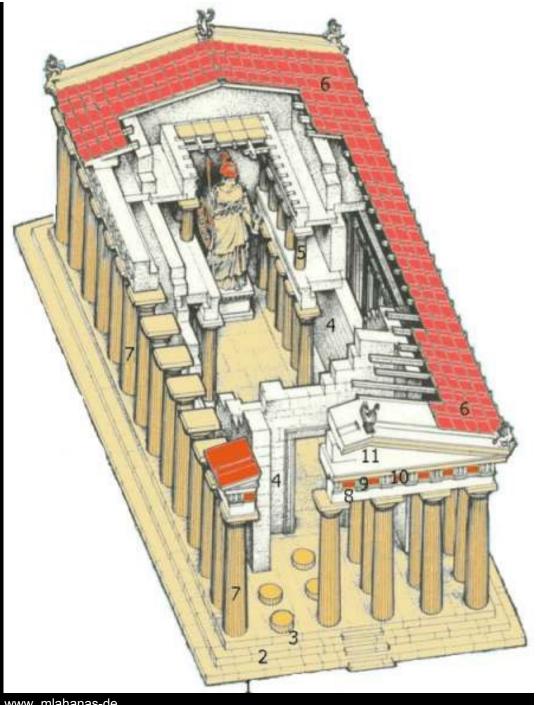
Ratio: 1:5-1/2

Statue of Athena – Fully Armed

Marble transported 16 kilometers from the Pentelicus Mountain

Remained intact until 1687 when a Venetian shell exploded destroying interior and roof

Terracotta tiled roof & many sculptures



www. mlahanas-de

Parthenon: 448-432 BCE

Metopes – Sculptures depicting war scenes



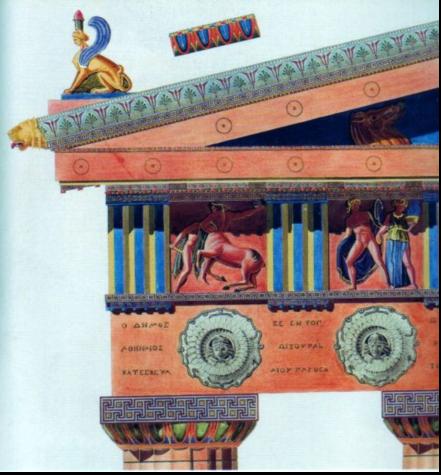
www. Odesseyadventures.com





www. Greatbuildings.com

Wikimedia Commons @ http://commons.wikimedia.org



Painted by Gottfried Semper 1836

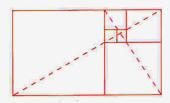
Colors were used throughout the temples



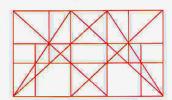
Parthenon: 448-432 BCE

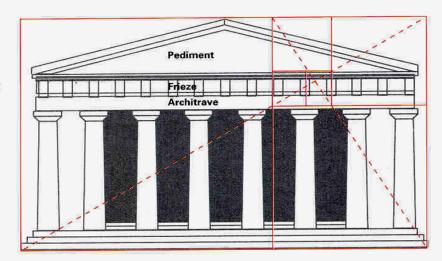
out the matory of architecture

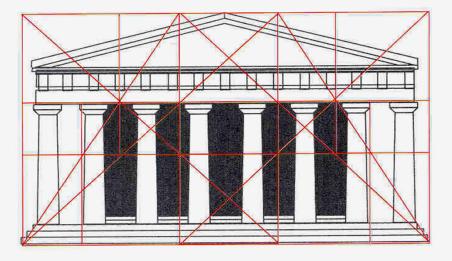
Drawing of the *Parthenon*, Athens, ca. 447–432 B.C., and the Architectural Relationship to the Golden Section Analysis of golden section proportions according to the golden section construction diagram.



Golden Section Harmonic Analysis Analysis of golden section proportions according to a diagram of a harmonic analysis of the golden section.











) 0:39 / 7:33







Site Planning:

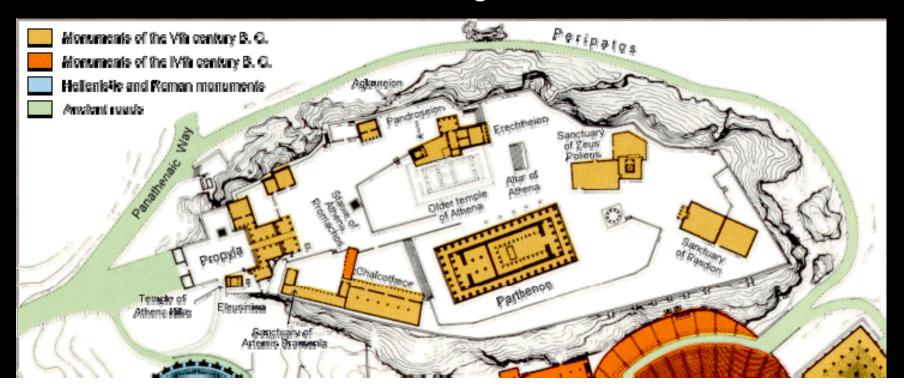
Each Building was sited and designed with others in mind

Observer went up a zigzag ramp – many glimpses

Avoid strictly frontal views of monuments- An Unwritten Rule

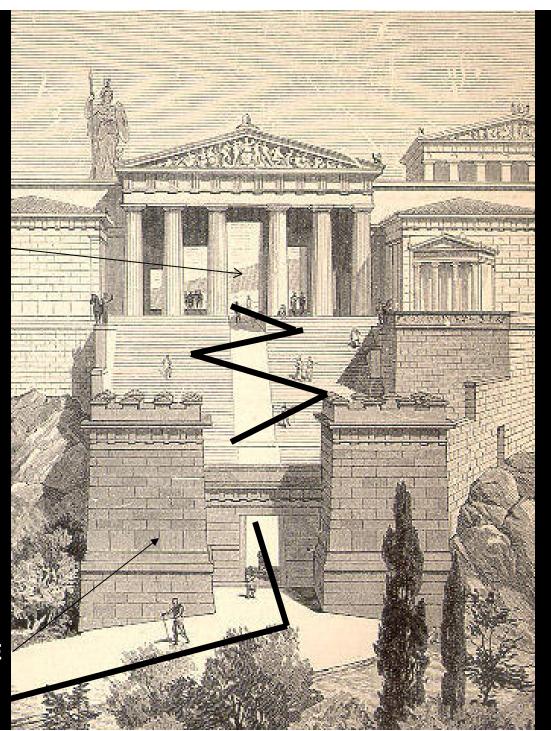
Symmetry in Buildings, not in Site Planning

Wanted observer to view buildings in 3-D not flat elevations



ENTRANCE TO THE ACROPOLIS

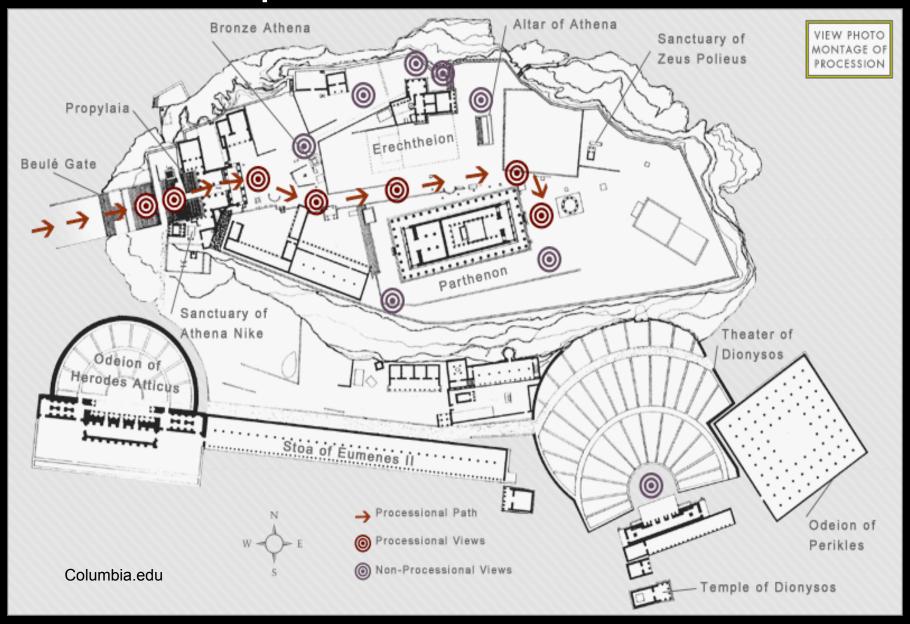
PROPYLAIA



GATE

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Plan of the Acropolis



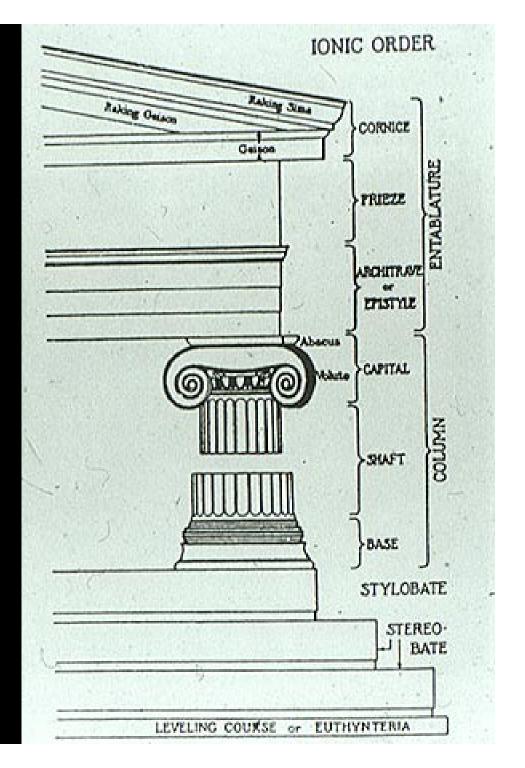
Ionic Order:

Most suitable for smaller temples – more delicate

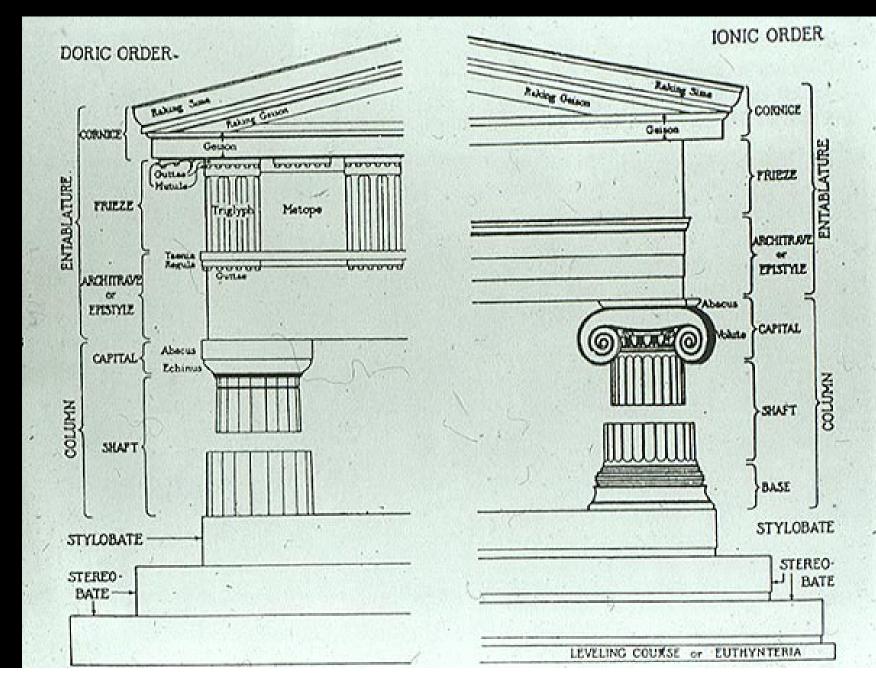
Capitals look like rolled ends of a scroll

Columns are 8-9 times as high as the diamter

24 flutes



Doric vs.lonic Order:



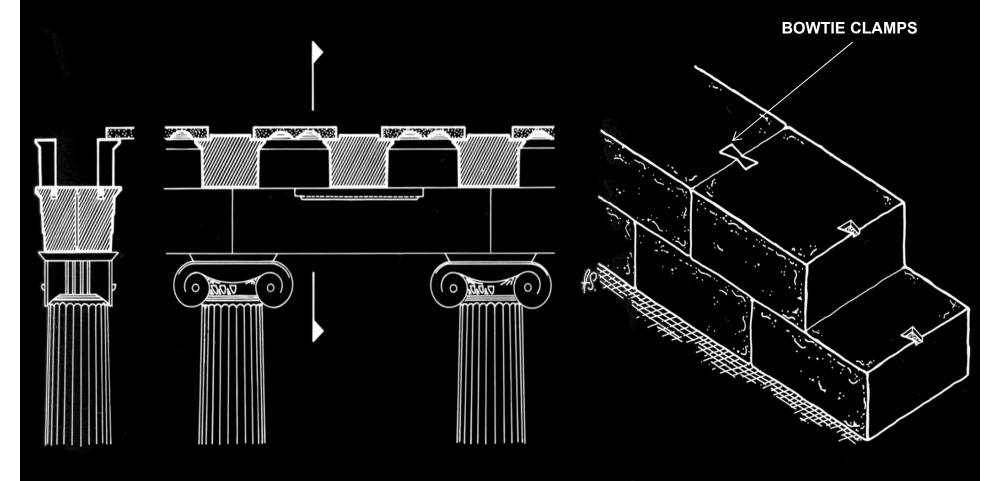
Propylaia: 437-432 BCE

- Gateway to the Acropolis
- Designed by Mnesikles
- Gateway from Land of Humans to The Land of Gods
- 2 levels due to uneven ground
- Built of white marble



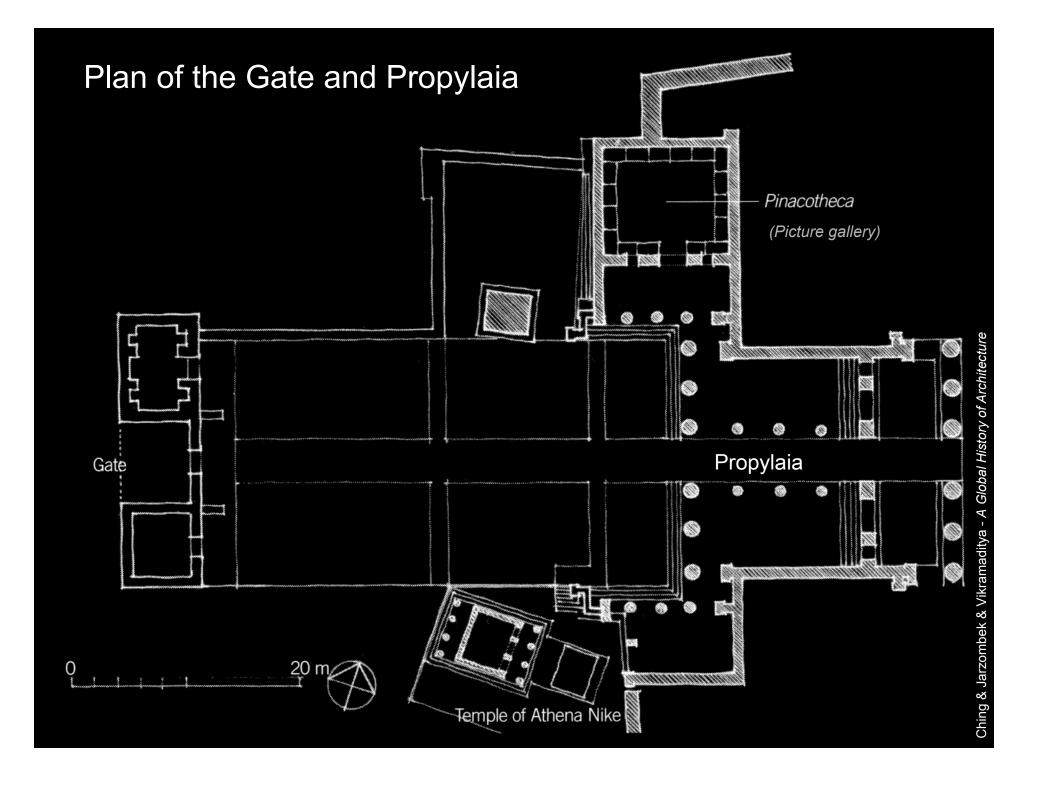
www. encarta-.mns.co

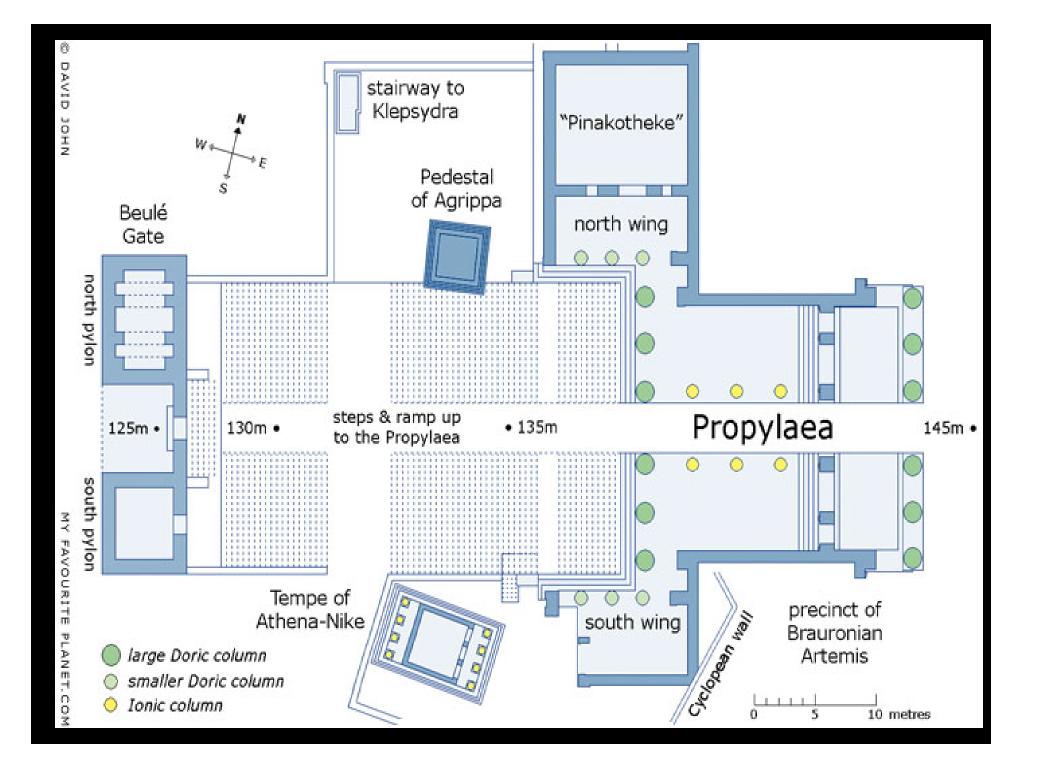
PROPYLEA AT ATHENS 437-432 BCE



3.27 Propylea, Athens, ca. 432–437 B.C. Iron-bar insert in ceiling beam (after Coulton).

3.29 "Bow-tie" cramps employed in Greeks temple construction (after Coulton).







www.flickr.com/photos/denovich/ Creative Commons license

Temple of Nike:

Goddess of Victory

427-410 BCE

Earliest Ionic Building at the Acropolis – Simple Sanctuary

Columns: 11' high Ratio: 1:7

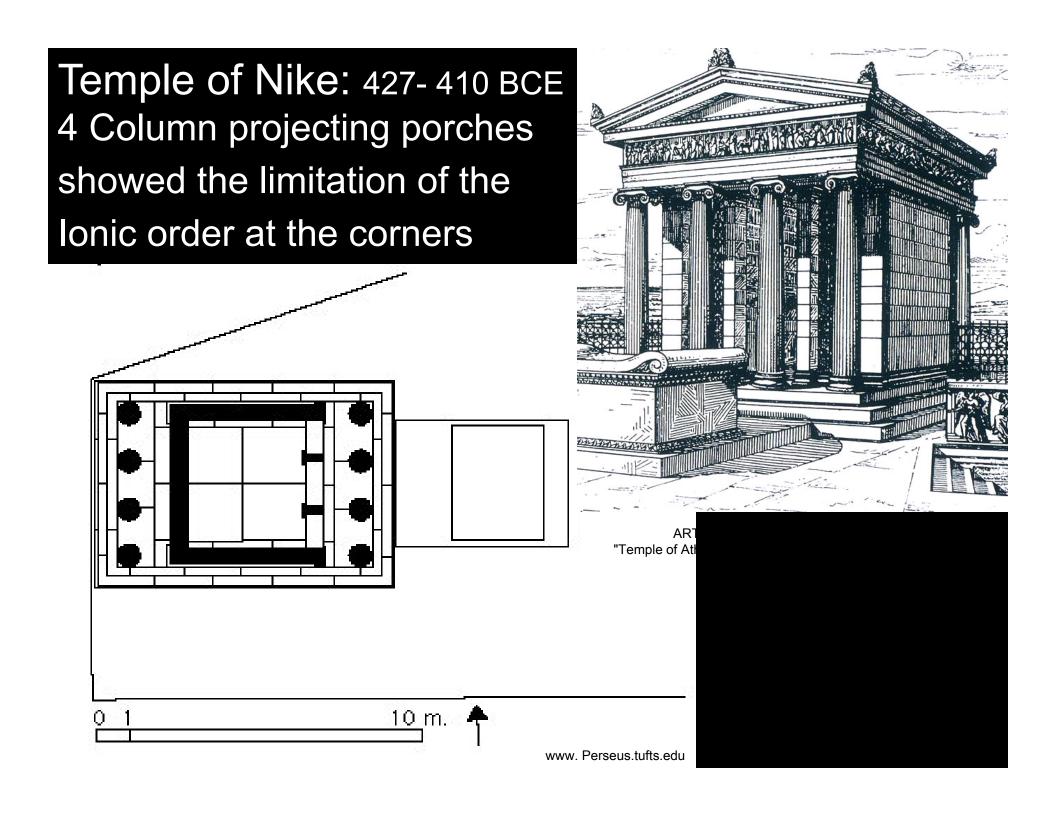
Frieze: battle scenes depicting

Greeks versus Persians

Set on 4 steps(stereobates)

Pediment decorated with winged victories or Nike(s) created by Callimachus





Temple of Nike: 427-410 BCE



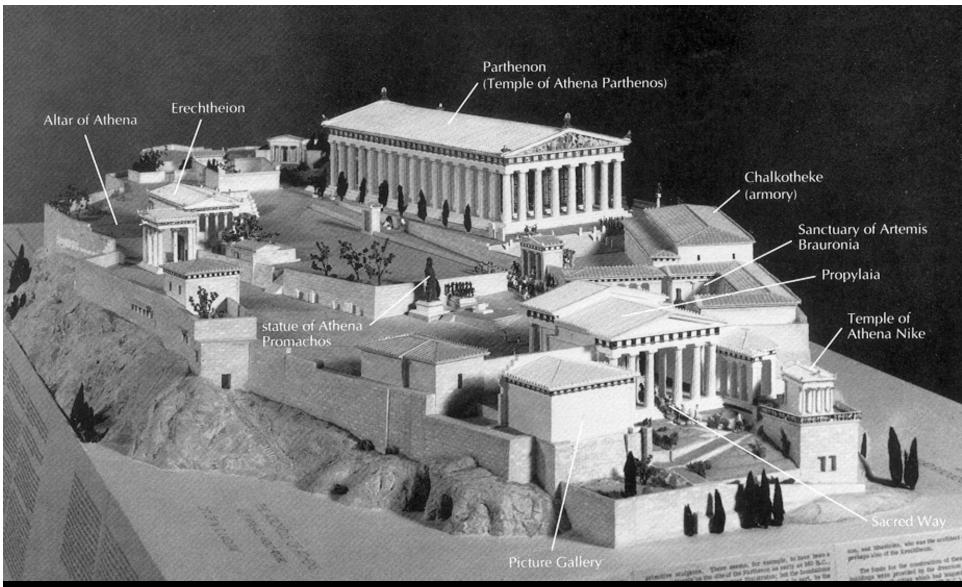
ARTstor Collection - University of California, San Diego " Athens: Acropolis: Temple of Athena Nike: Ext.: W side"



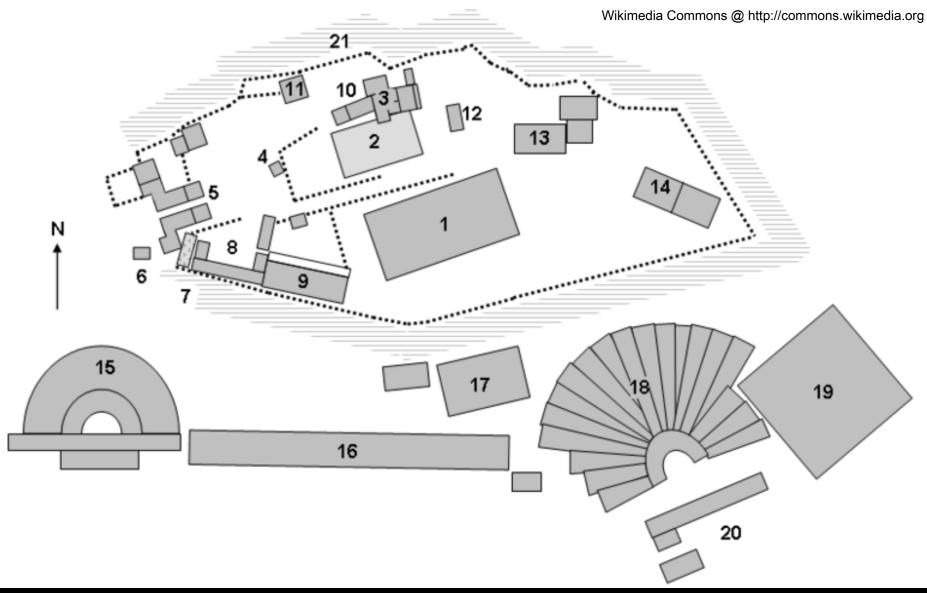
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Battle Scenes in Frieze





Reconstruction Model of The Acropolis, Athens



Key

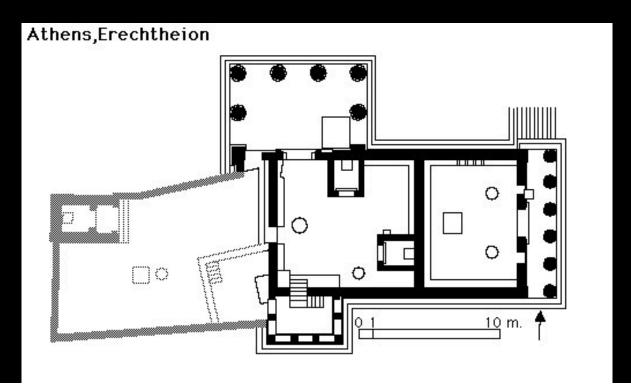
- 1 Parthenon
- 2 Old Temple of Athena
- 3 Erechtheum
- 4 Statue of Athena Promachus
- 5 Propylaea

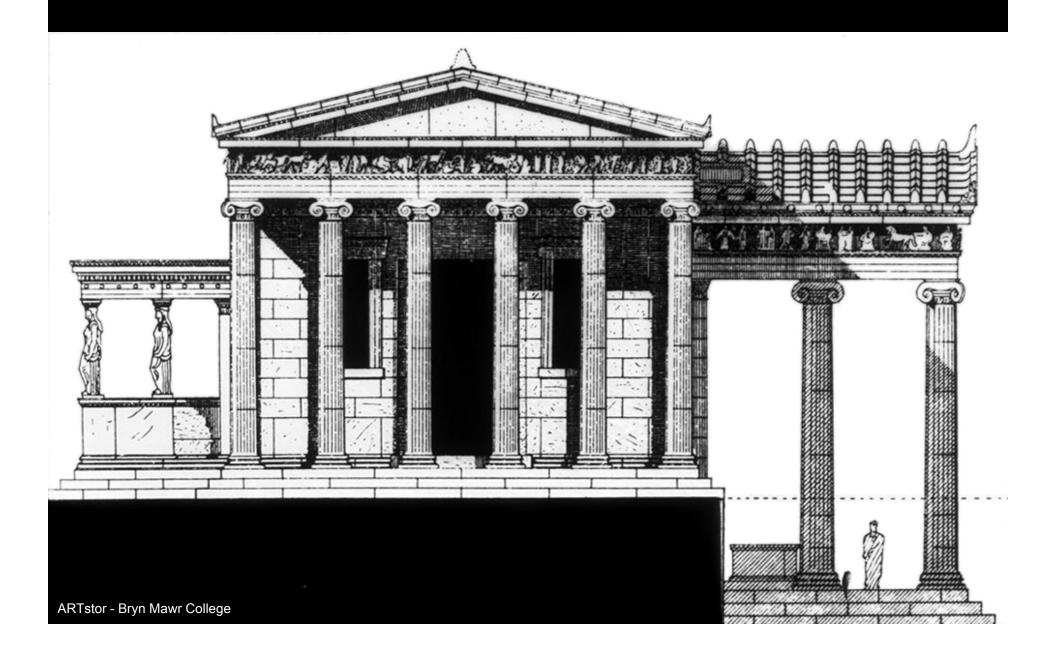
- 6 Temple of Athena Nike
- 7 Eleusinion
- 8 Sanctuary of Artemis Brauronia
- 9 Chalkotheke.
- 10 Pandroseion
- 11 Arrephorion

- 12 Altar of Athena
- 13 Sanctuary of Zeus Polieus
- 14 Sanctuary of Pandion
- 15 Odeon of Herodes Atticus
- 16 Stoa of Eumenes
- 17 Sanctuary of Asclepius

- 18 Theatre of Dionysus Eleuthereus
- 19 Odeum of Pericles
- 20 Temenos of Dionysus Eleuthereus
- 21 Aglaureion

Sloping site inspired split level design
Built at the Acropolis
No continuous colonnade – 4 separate porticos
Accommodates diverse hallowed areas
Departs from traditional symmetry
Continuous frieze running above architrave
Abundance of sculpted ornament

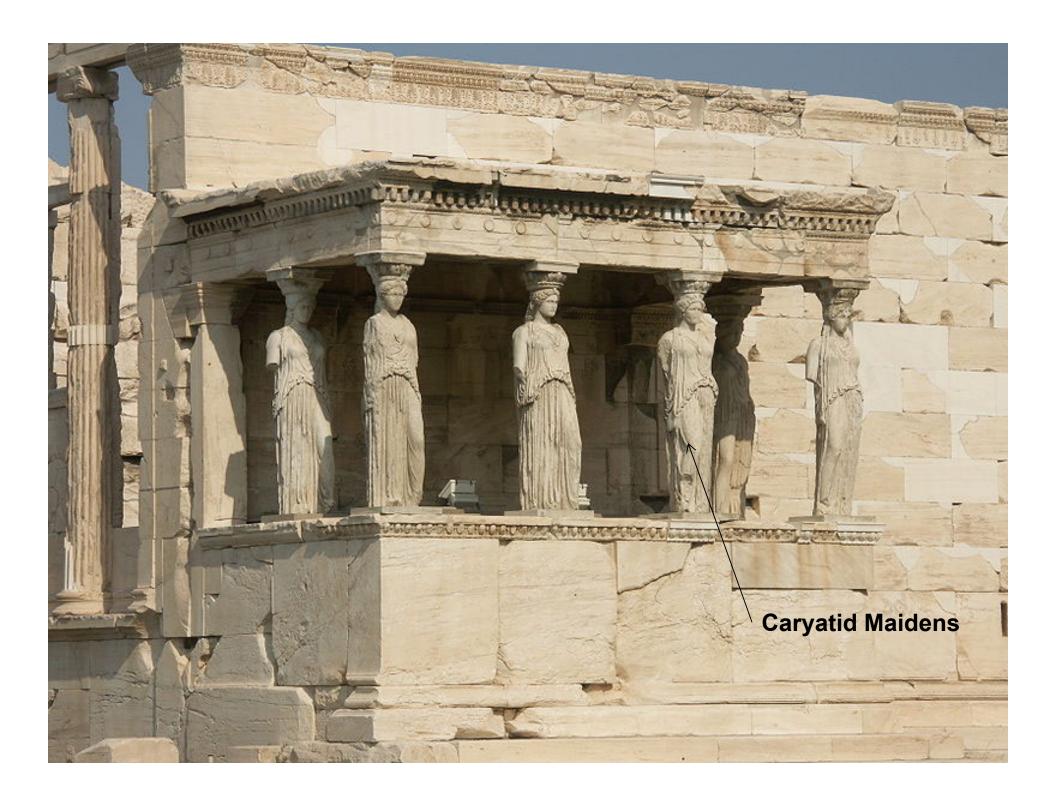








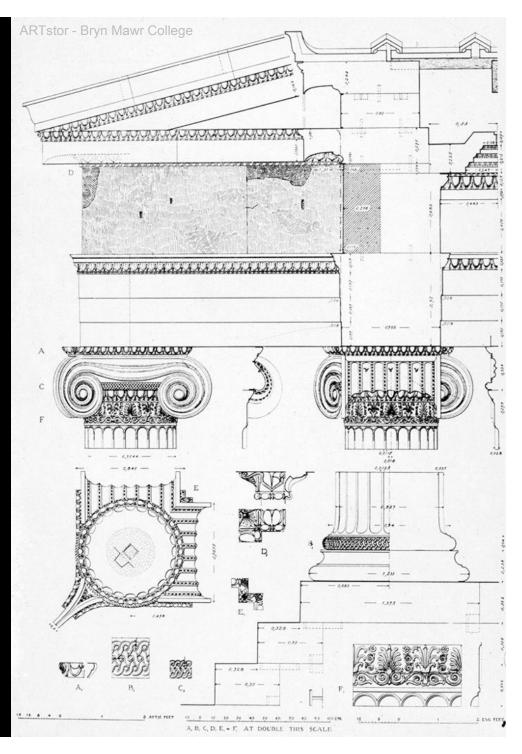




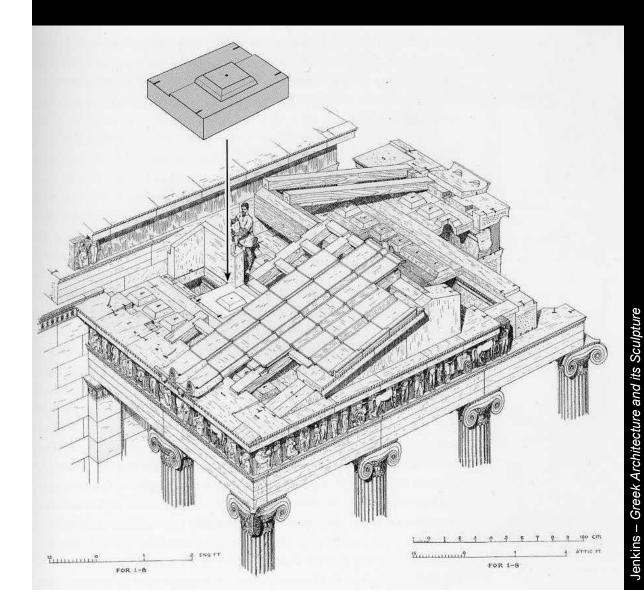




ARTstor - Image © Bryn Mawr College



Construction







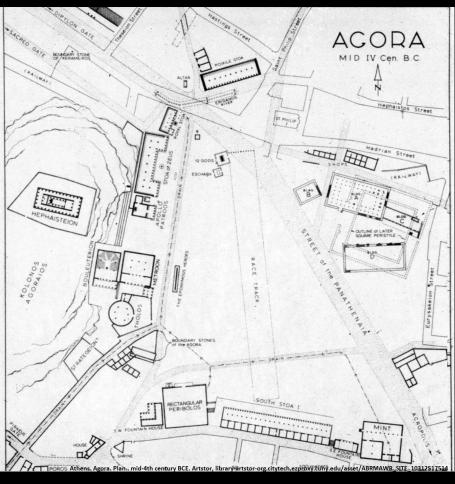
Place of public assembly in a Greek city; the focus of political, commercial, administrative and social activity, the religious and cultural center, and the seat of justice- Senate

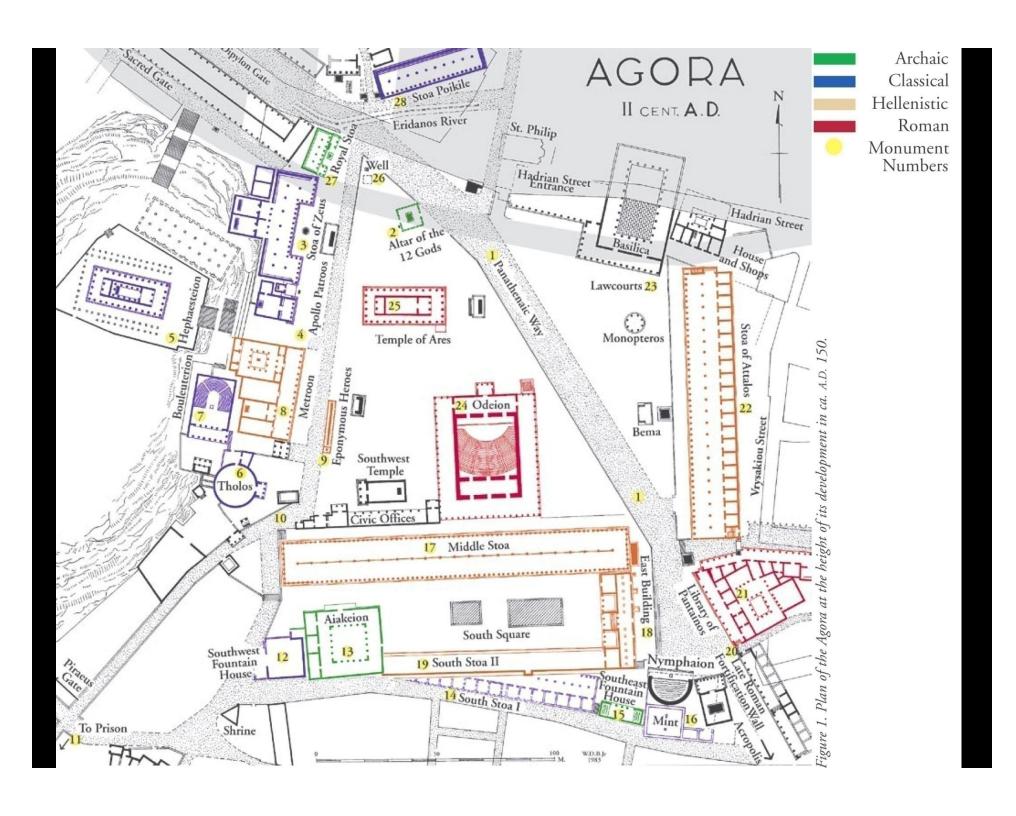


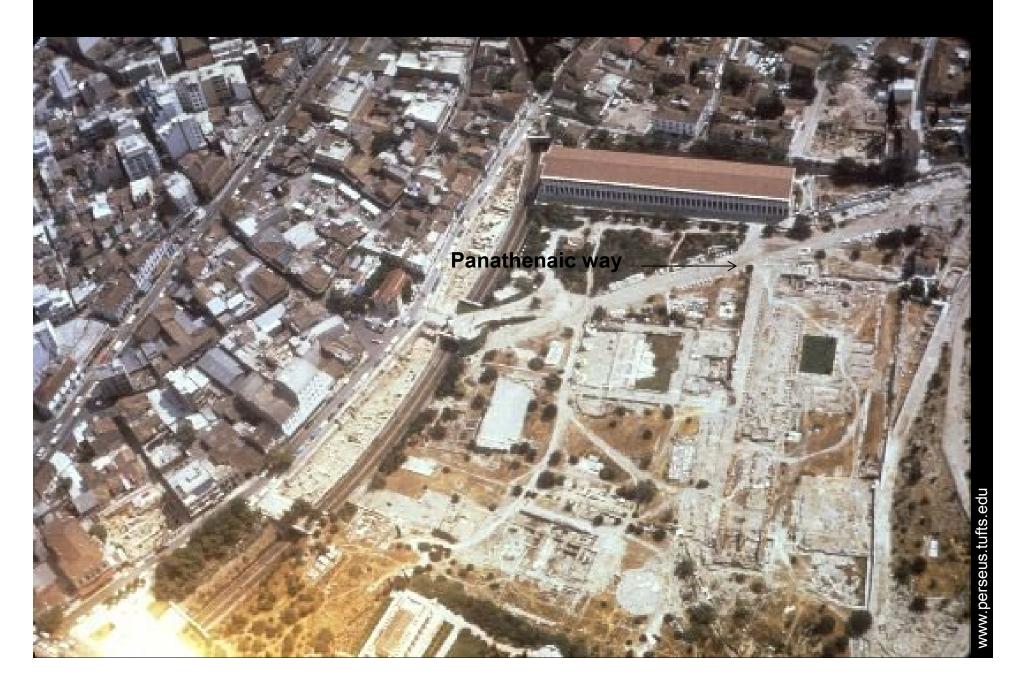
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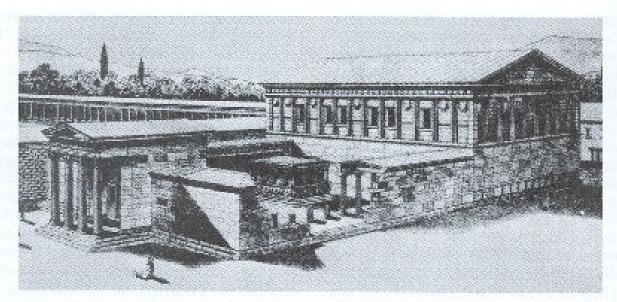
Athens: Agora

Bouleuterion 5th Century BCE

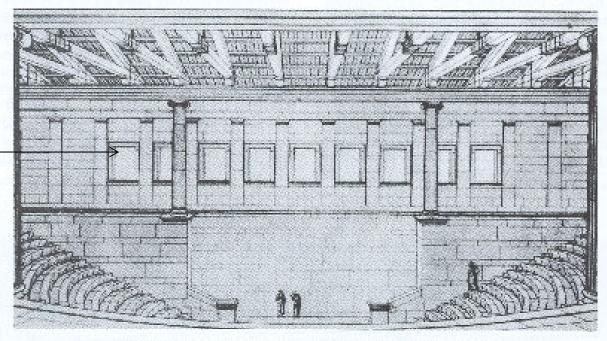
The Council of 500 Senators (Boule) held its regular meetings here. Had tiered seating.



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5-89 Bouleuterion at Miletus, late third century a.c.



5-90 Reconstruction of council chamber, boulducerion at Miletus.

Bouleuterion Senate House

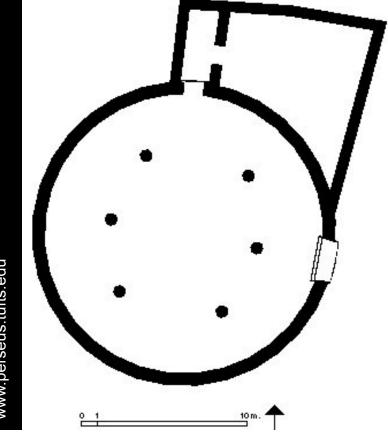
Tholos (Circular building) 460 BCE

The chairmen (prytaneis) of the Council of 500 (Boule) dined and spent the night in the 'Tholos' so they could be available if necessary.

A set of standard weights and measures was also kept

in the building.





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Metroon 2nd Century BCE

The building has an Ionic propylon (Monumental gateway) It contained: The **sanctuary of the Mother of the Gods** and **the State archives**, including the proceedings of the meetings of the Council of 500 Boules and various official documents, protected by the goddess.



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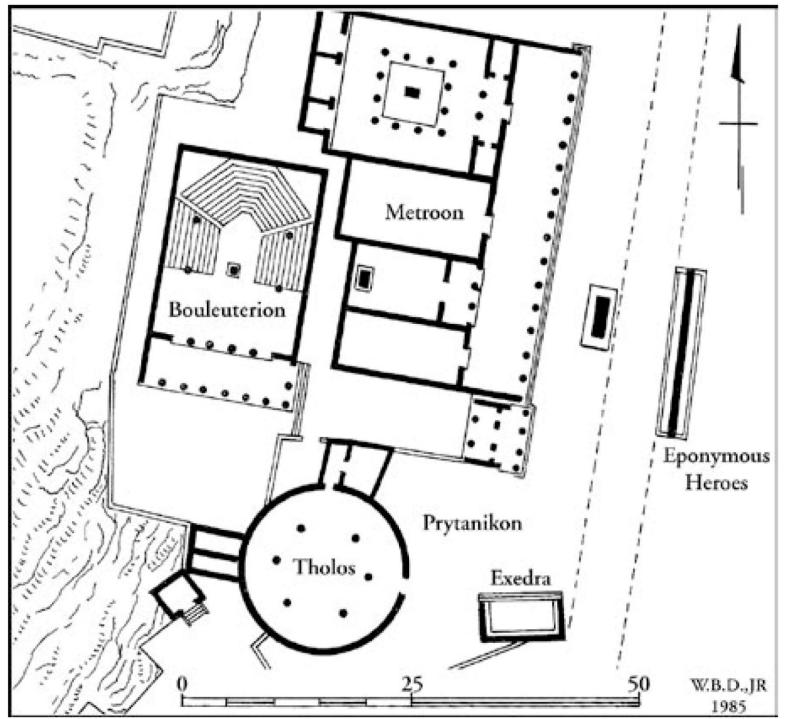
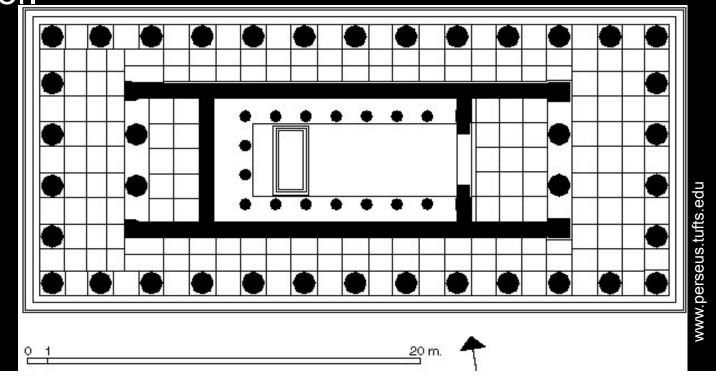


Figure 14. Plan of the administrative buildings at the south end of the west side of the Agora.

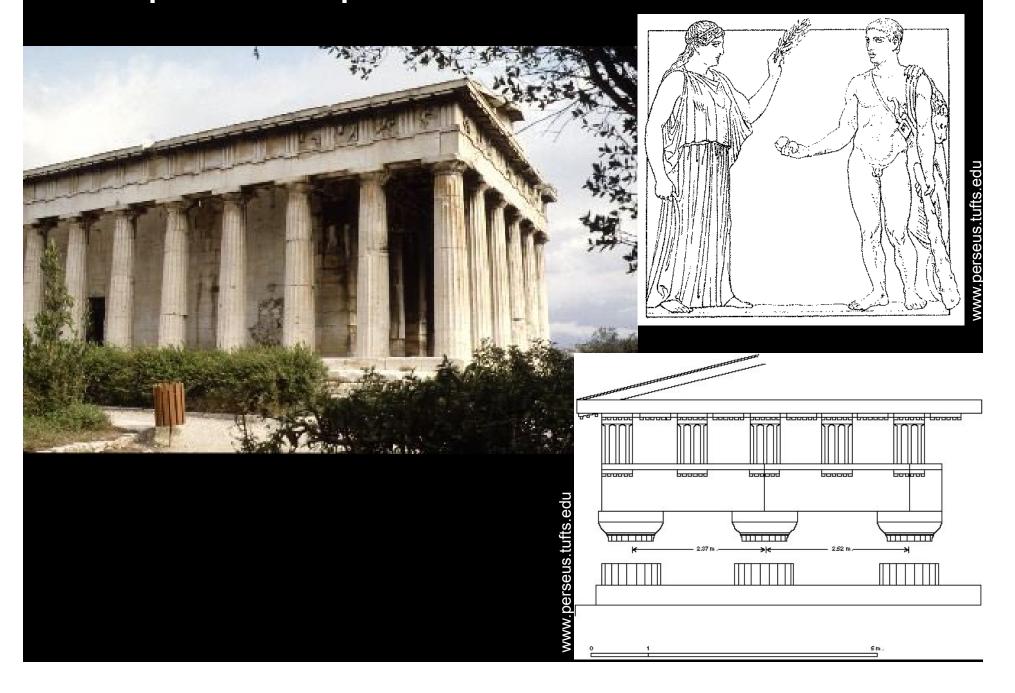
Temple of Hephaistos 449 BCE Doric temple It is sited on the hill.

It is the most prominent and better preserved monument of the Agora.

The temple was dedicated to two gods, Hephaistos and Athena, whose bronze cult statues stood in the interior.



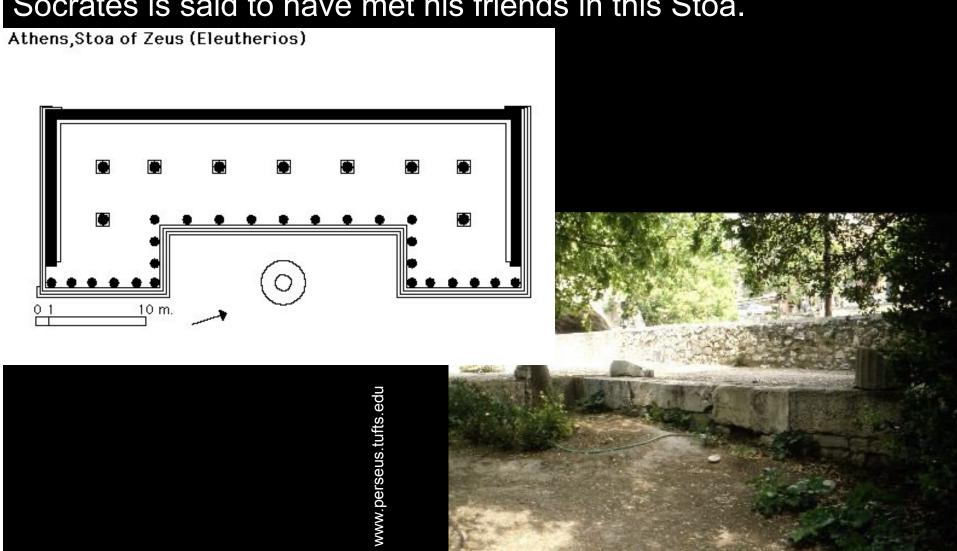
Temple of Hephaistos 449 BCE



Stoa of Zeus Eleutherios 5th Century BCE

The Stoa was erected in honor of those who fought for the freedom and security of the city.

Socrates is said to have met his friends in this Stoa.



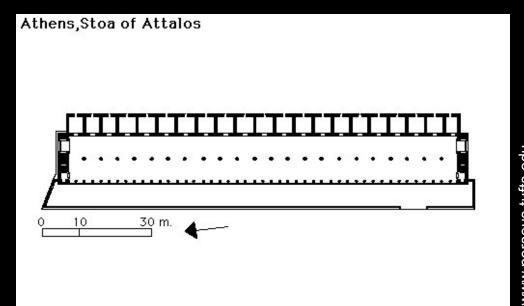
Stoa of Attalos 150 BCE

Two-story building, 381 ft x 63 ft 8 in

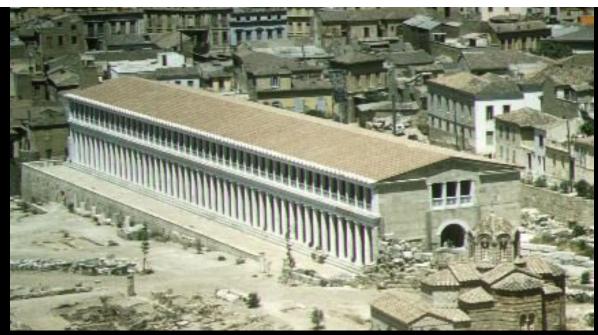
Doric colonnade on the ground floor, and an Ionic upper colonnade incorporating a balustrade.

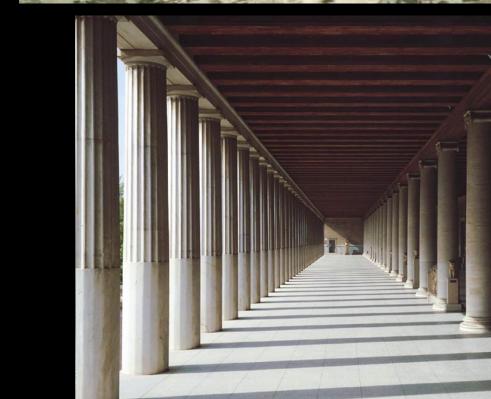
More important is the way the stoas are used to close off the agora to a regular plan.

In 1953-56 it was reconstructed in order to house the finds from the excavations at the Agora: The Agora Museum



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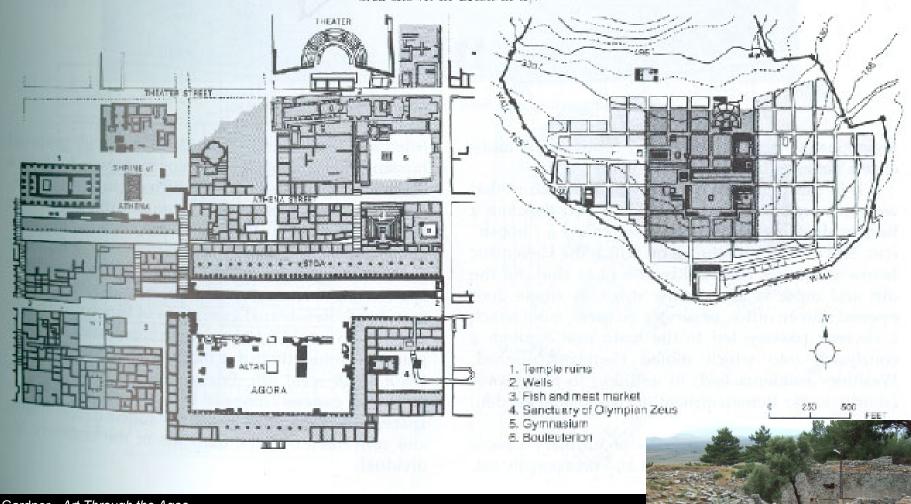
Stoa of Attalos 150 BCE





Plan of City of Priene - 350 BCE

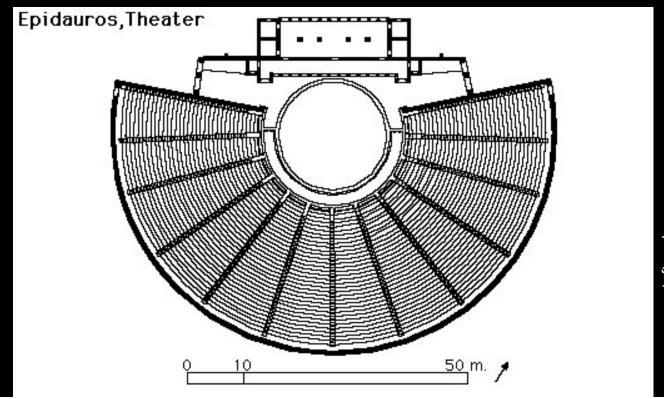
5-88 City of Priene, fourth century B.C. Right: Simplified ground plan. Shaded rectangle indicates area shown in detail at left.



Gardner - Art Through the Ages

Theater of Epidaurus 350 BCE

- Open-air outdoor theaters constructed in many Greek cities
- Originally 5000 steeply banked stone seats in 34 tiers
- Used for: Political assemblies, religious festivals and plays
- Excellent acoustics spoken voice intelligible from all seats



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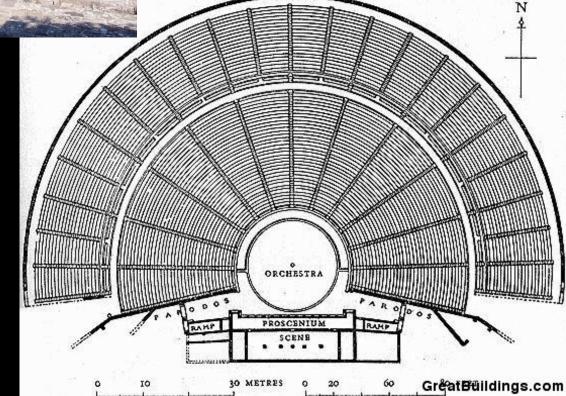


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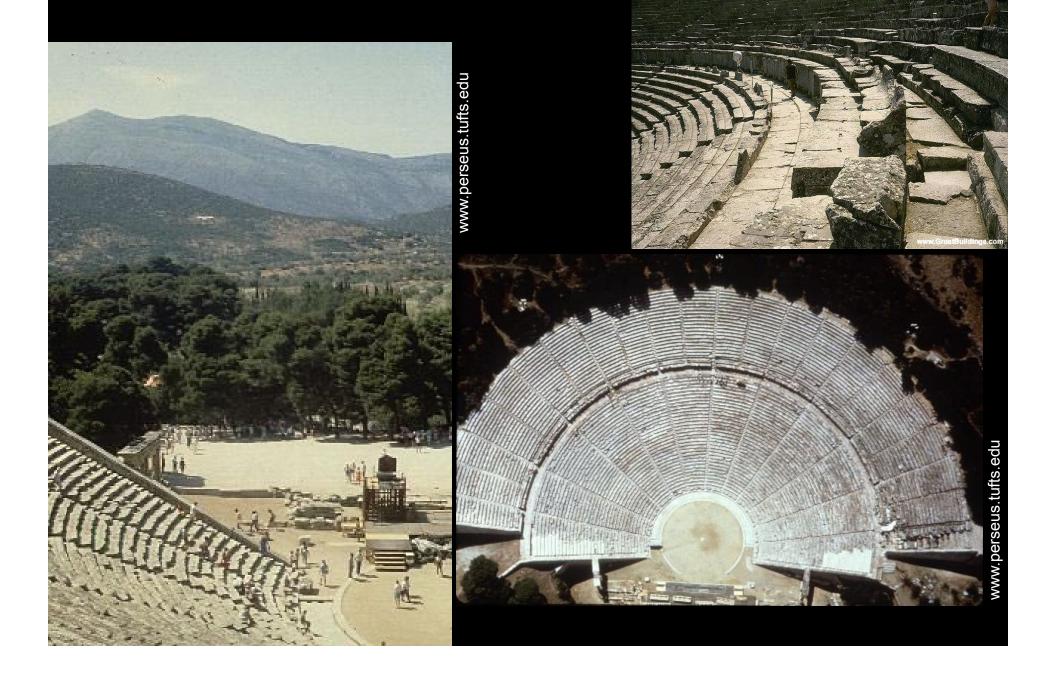
Theater of Epidaurus

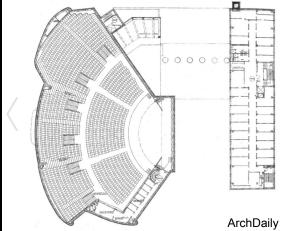
350 BCE and 2nd century BCE

- Upper 22 tiers of seats added in the 2nd century BCE
- Total of 14,000 seats



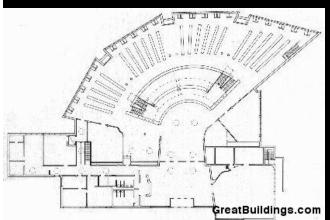
Theater of Epidaurus 350 BCE and 2nd century BCE





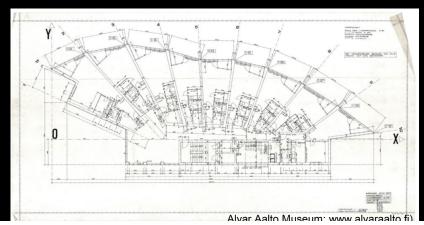


Alvar Aalto, House of Culture, Helsinki





Alvar Aalto, Mount Angel Abbey Library, Oregon, 1970.





Alvar Aalto, Neue Vahr, Bremen

431 BCE: Peloponnesian War: Greece loses to Sparta democracy remains

336 BCE: Alexander the Great conquers Greece: democracy survives, but its vitality was gone

Hellenism:

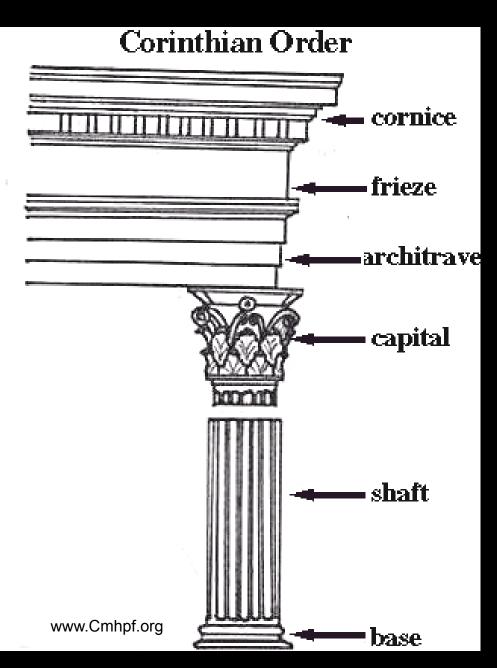
Began after the death of Alexander the Great - 323BCE

Change in the Greek citizen: specialized – not involved in all aspects of public life (politically, military and economically)

Change in Architecture: greater freedom, shift in Architectural style, introduction of the Corinthian Column

Macedonia where Alexander the Great came from





Corinthian:

Late 2nd Century BCE

Thin and decorative

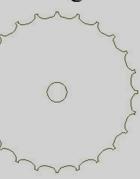
Columns were 10 times taller than their diameter

Designed by Callimachus combining a goblet and scrolls and acanthus leaves

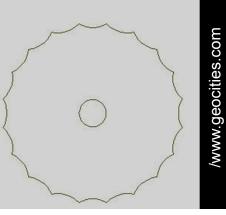
There were 24 flutes like the Ionic capital

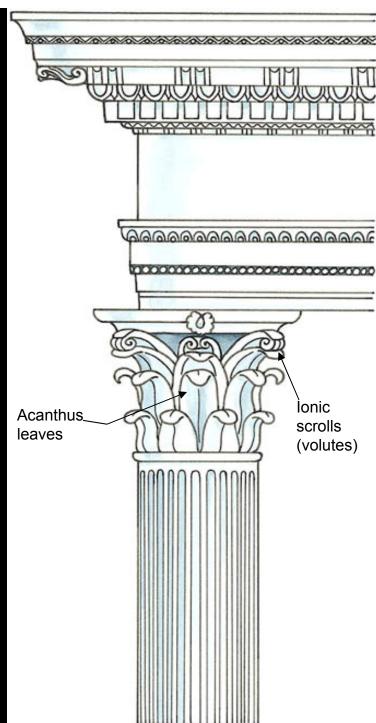


Ionic and Corinthian fluting



Doric fluting





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Choragic Monument of Lysicrates in Athens.



New Technique of Corinthian columns Imbedded into walls





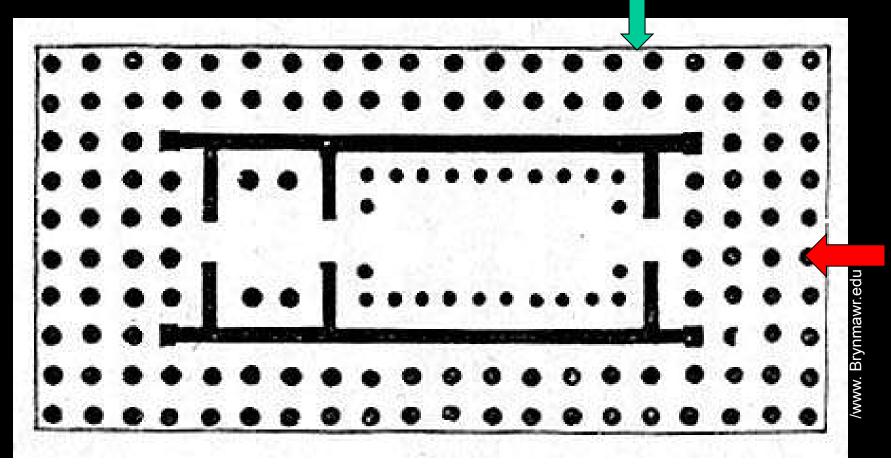


Temple of Zeus Olympius, Athens: 170 BCE

Located east of the Acropolis

Over 100 Columns: Double rows of 20 (North &South) and Triple rows of 8 (East &West)

Columns: 56' high 5'6 wide 1:10 Ratio



Temple of Zeus Olympius, Athens: 170 BCE

Started in the 6th Century BCE with Ionic Columns, but abandoned

Construction began again in the 2nd Century BCE, but changed Order to Corinthian by Roman Architect, Cossutius



Temple of Zeus Olympius, Athens: 170 BCE



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Reading: Fazio, Moffet & Wodehouse

A World History of Architecture or Buildings Across Time
Chapter 2

