

History of Architecture

# Ancient Greek Architecture





In the ancient times, Greece extended from the **Balkans** to include **scattered islands** to the south and east of Europe as well as the area along the **coast of Anatolia**



# Geography

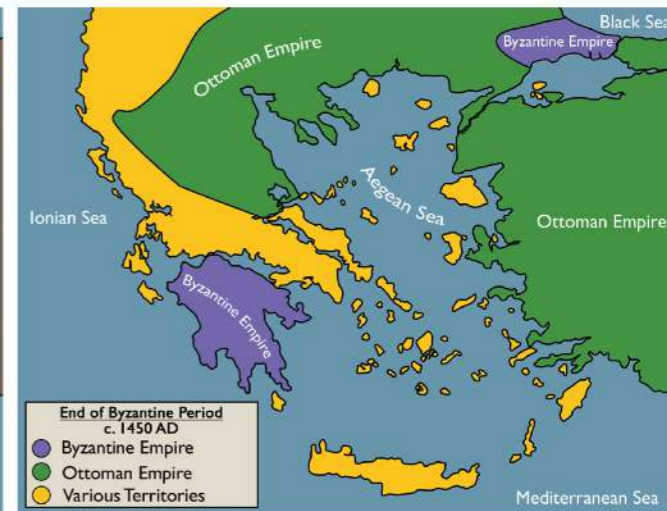
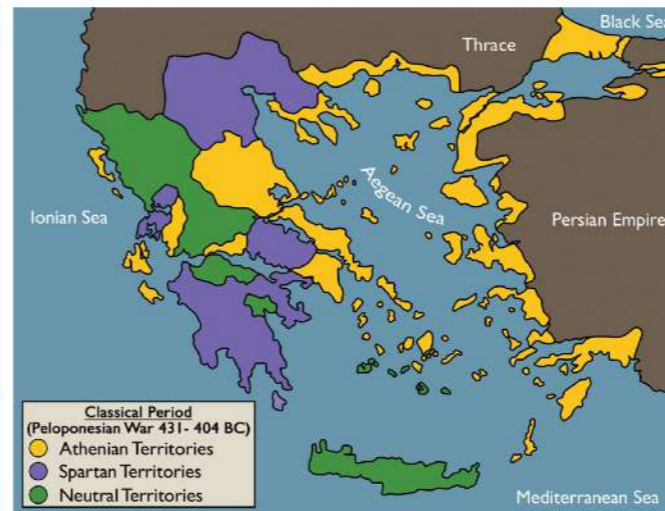
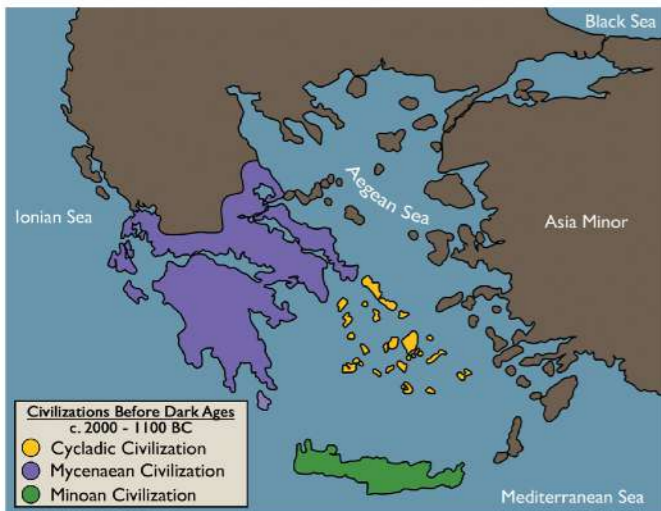
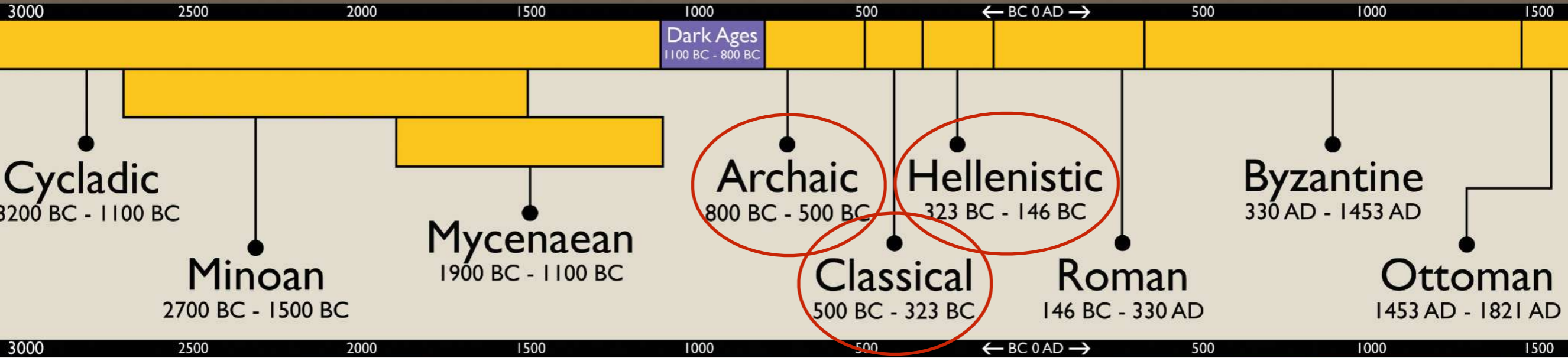
- The land was divided into 3 parts: **Attica (Athens)**, the **Peloponnese** (Sparta), and the **Island of Euboea**
- The landscape of the area was mostly **mountainous and rugged**, and the agricultural economy of the Greeks was based on **small farms individually owned**. Therefore, consolidation of the many separated Greek city-states into a single nation was impossible



# History

## Periods of Ancient Greece

3000 BC - 1500 AD



In about **750 BC**, the stone architecture reemerged in the mainland



# History



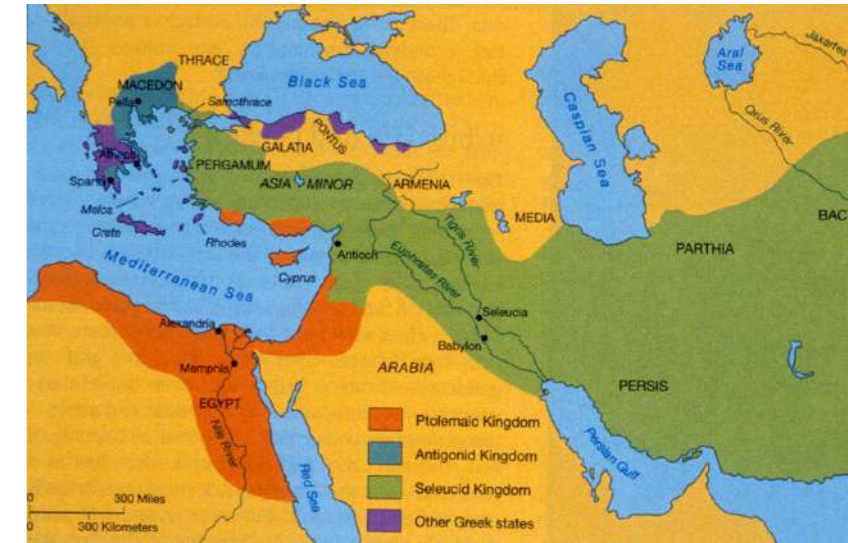
## The Archaic Period (750 - 500 BC)

primitive era in reference to the art decorations which was used and which is considered as the seeds for the other Greek art and architectural products



## The Classical Period (500 - 323 BC)

Typified by what is known as the classical style. The center was Athens during the 5th century BC then has shifted to Sparta during the 4th century BC - Ended by the death of Alexander the Great



## The Hellenistic Period (323 - 30 BC)

Started when the Greek Culture, language and power extended to the middle and far east - Ended with the Roman conquest



# History

- At **Sparta**, there was a close, **militaristic** society ruled by **aristocrats**
- At **Athens**, different cultures were merged to create a **cosmopolitan city** based on new ideas with a **democratic rule of free men**





# Religion



- The worship of **natural phenomena** in which the gods were personifications. They were always local to each town or district

- There was a hierarchy of deities, with **Zeus**, the king of the gods, having a level of control over all the others

- Greek people recognized the major gods and goddesses:

- **Zeus** (God of gods and sky)
- **Apollo** (God of music, literature)
- **Aphrodite** (God of love)
- **Athena** (God of wisdom)



Athena



Zeus



# Philosophy

---

- The Greeks' character was based on the **desire to achieve perfection in human intellectual and physical endeavours**
- The Greeks wanted to know **why the gods did what they did** and **what the nature of man was**, and **how the world was formed** and how it operated, this quest for truth is best shown by the field of **natural philosophy** developed during the 6<sup>th</sup> century BC

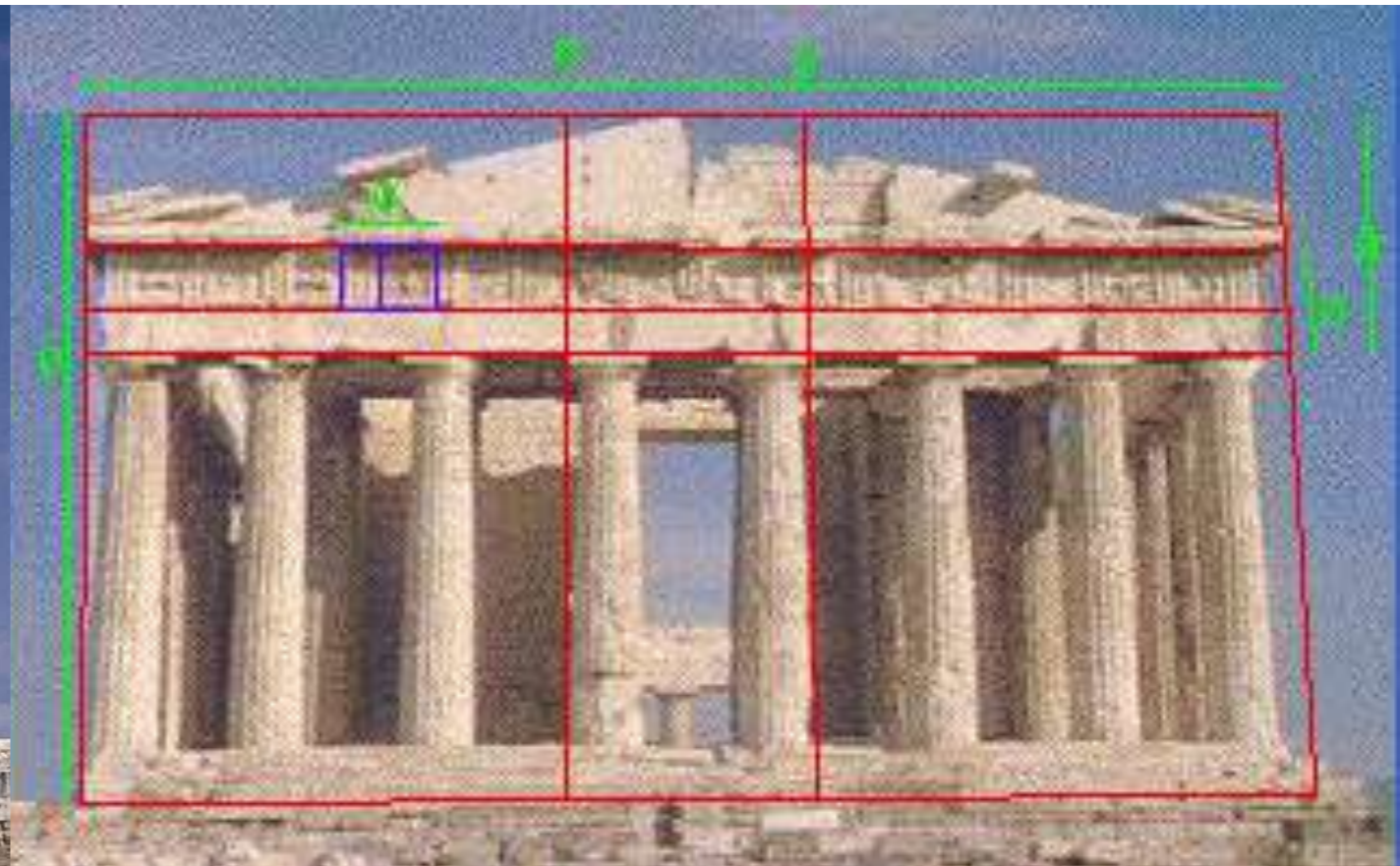
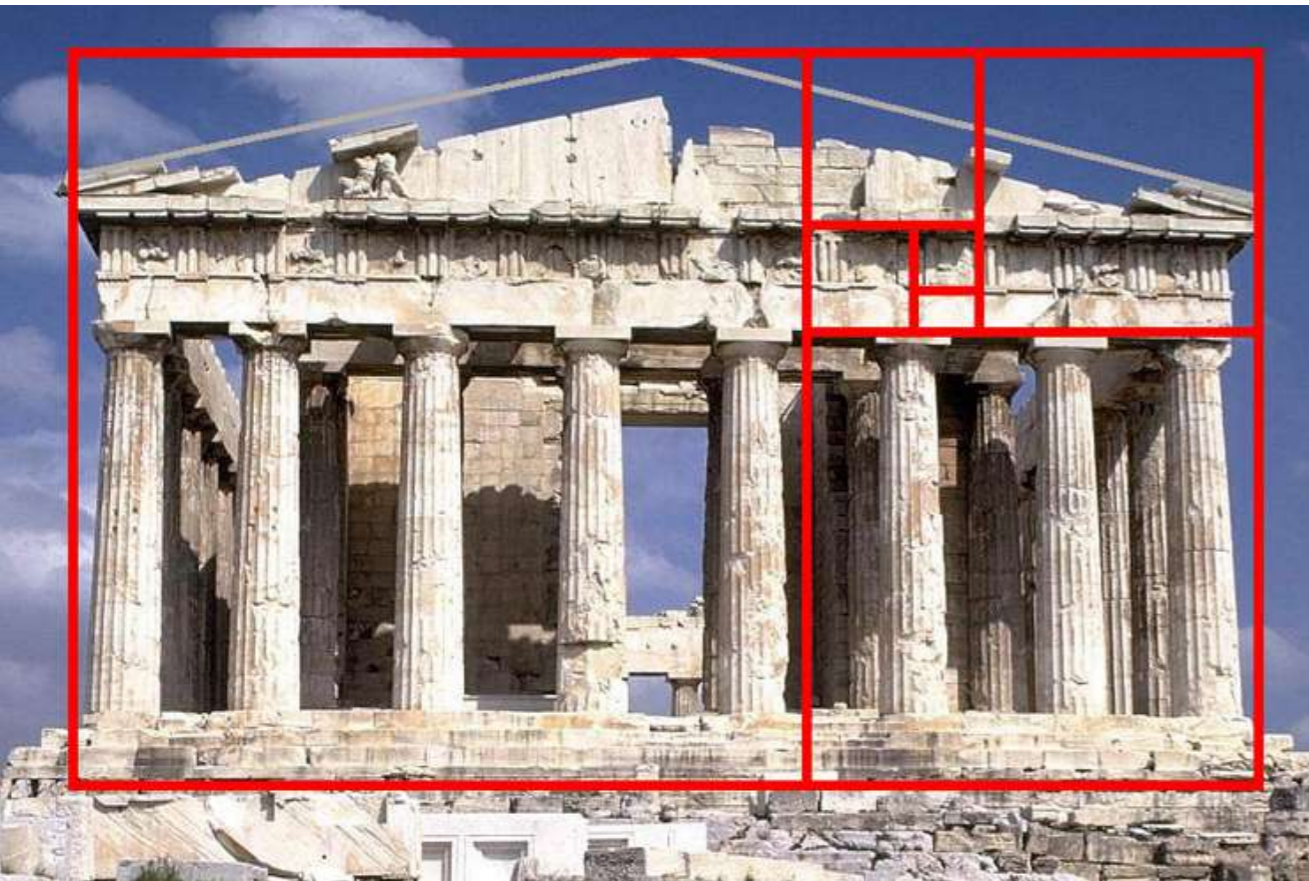




# Philosophy

---

- The Greeks had an innate love for **logic (logos)** a word that can be translated into 'reason' or 'idea' or 'conception'. It was the natural order whose opposite was chaos
- They sought **balance** and **symmetry**, which meant having a like **measure as the ideal**





# Greek Architectural Character

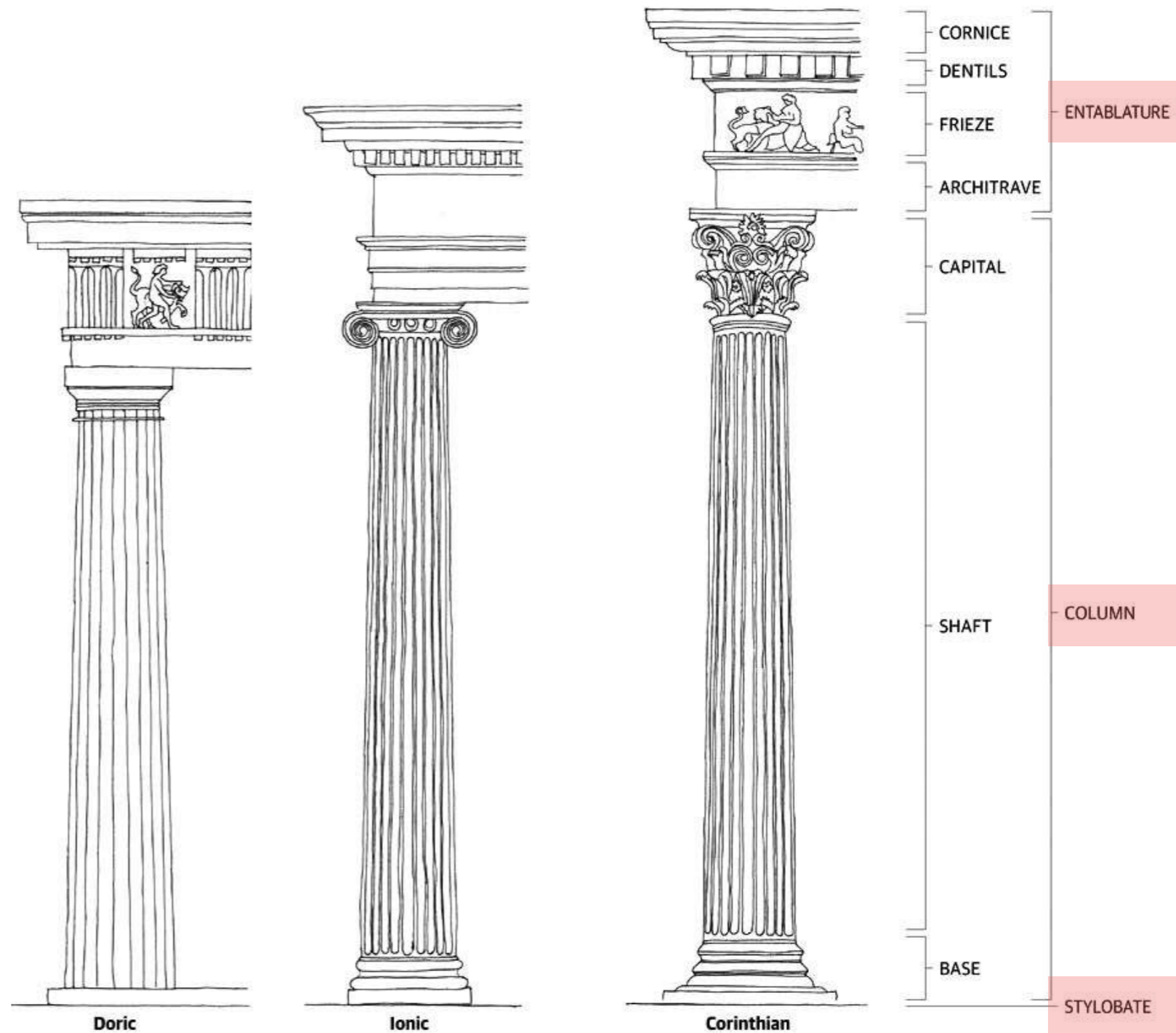


- The classical Greek Architecture is well known for its innovation for the **principal orders**

- **The Doric Order**
- **The Ionic Order**
- **The Corinthian Order**

- Each order contains three main parts:

1. **Stylobate**
2. **Column**
3. **Entablature**





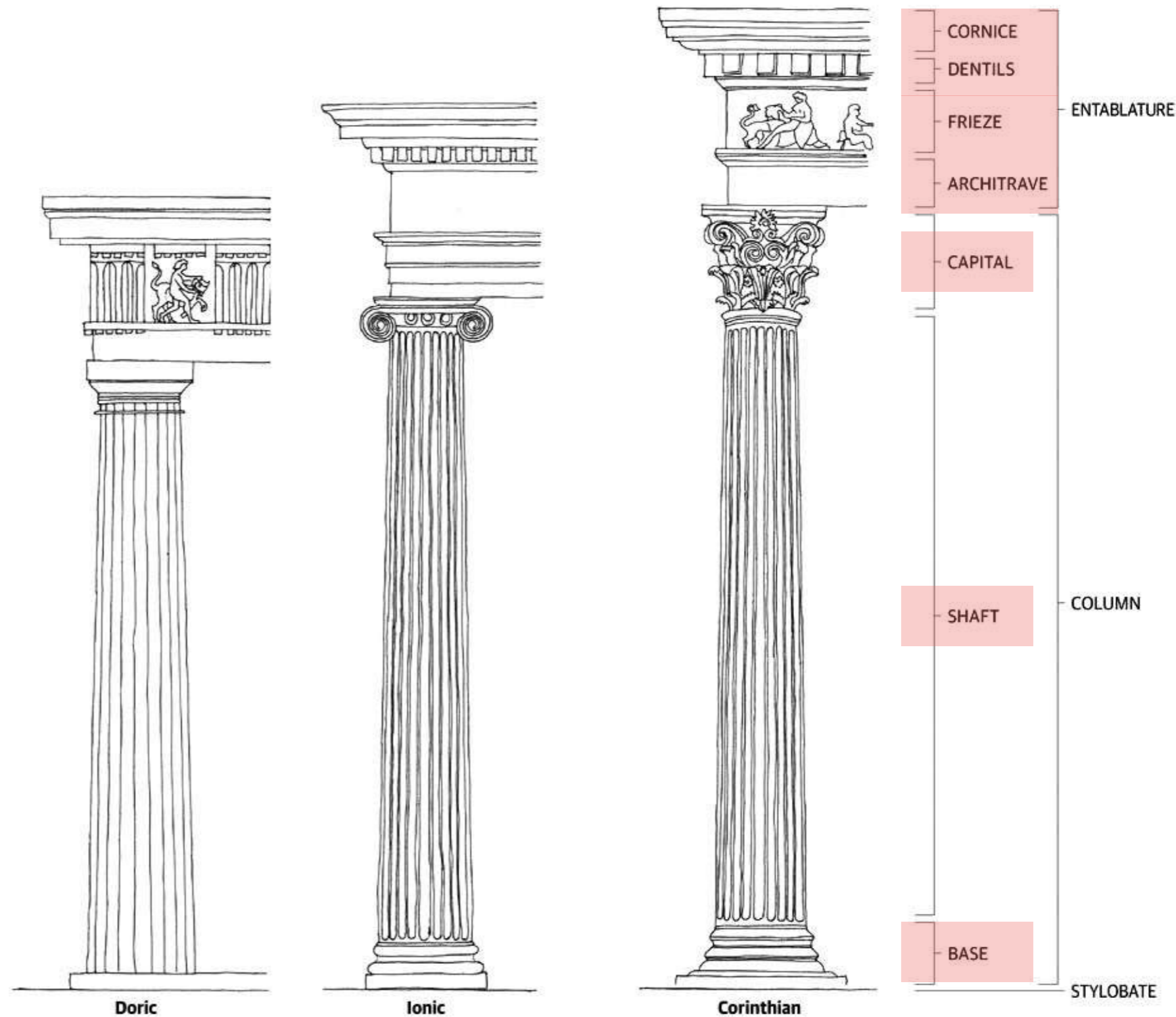
The column contains three main parts:

1. Base
2. Shaft
3. Capital

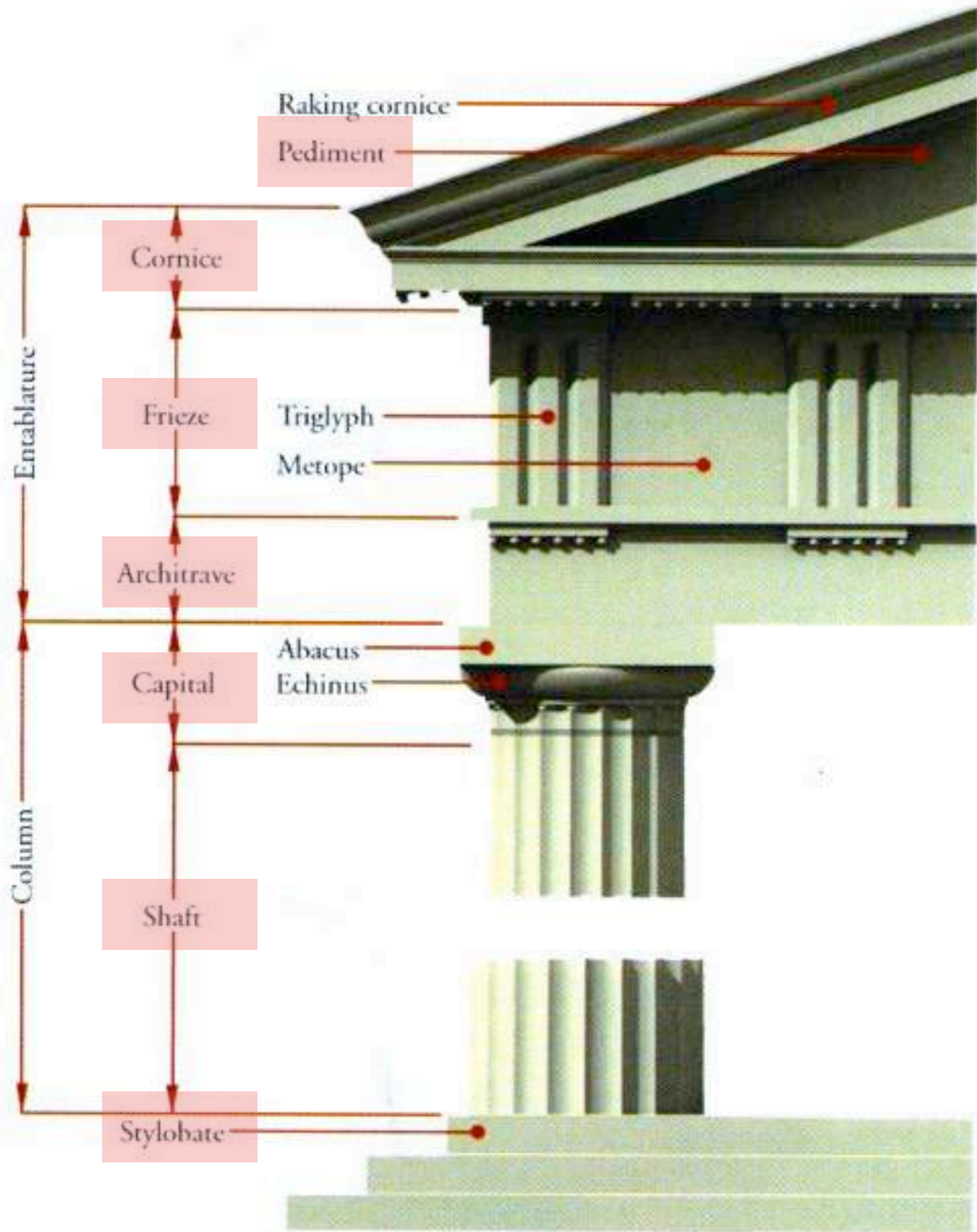
The entablature contains three main parts:

1. Architrave
2. Frieze
3. Cornice

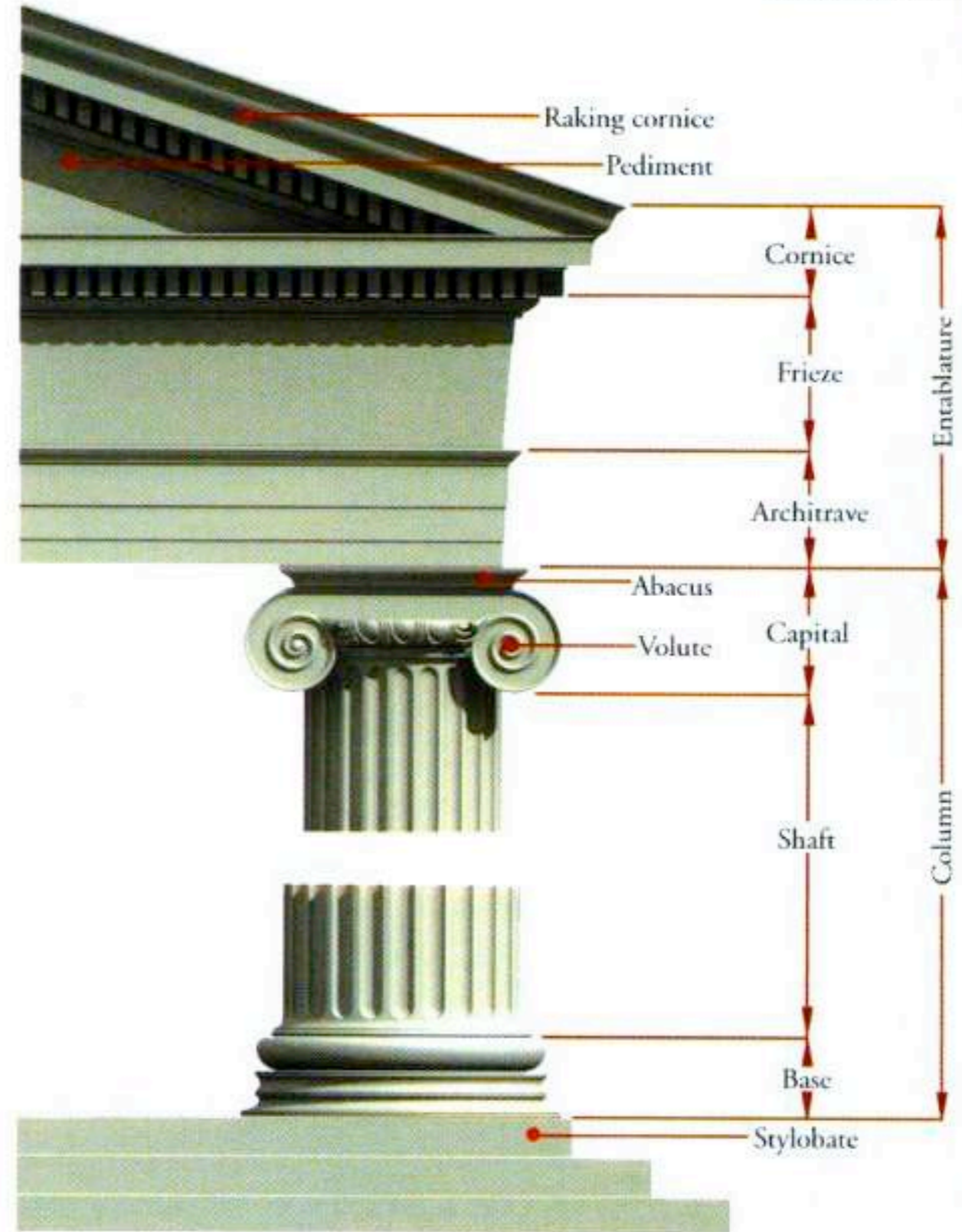
Above the entablature there is a **pediment**



# DORIC ORDER



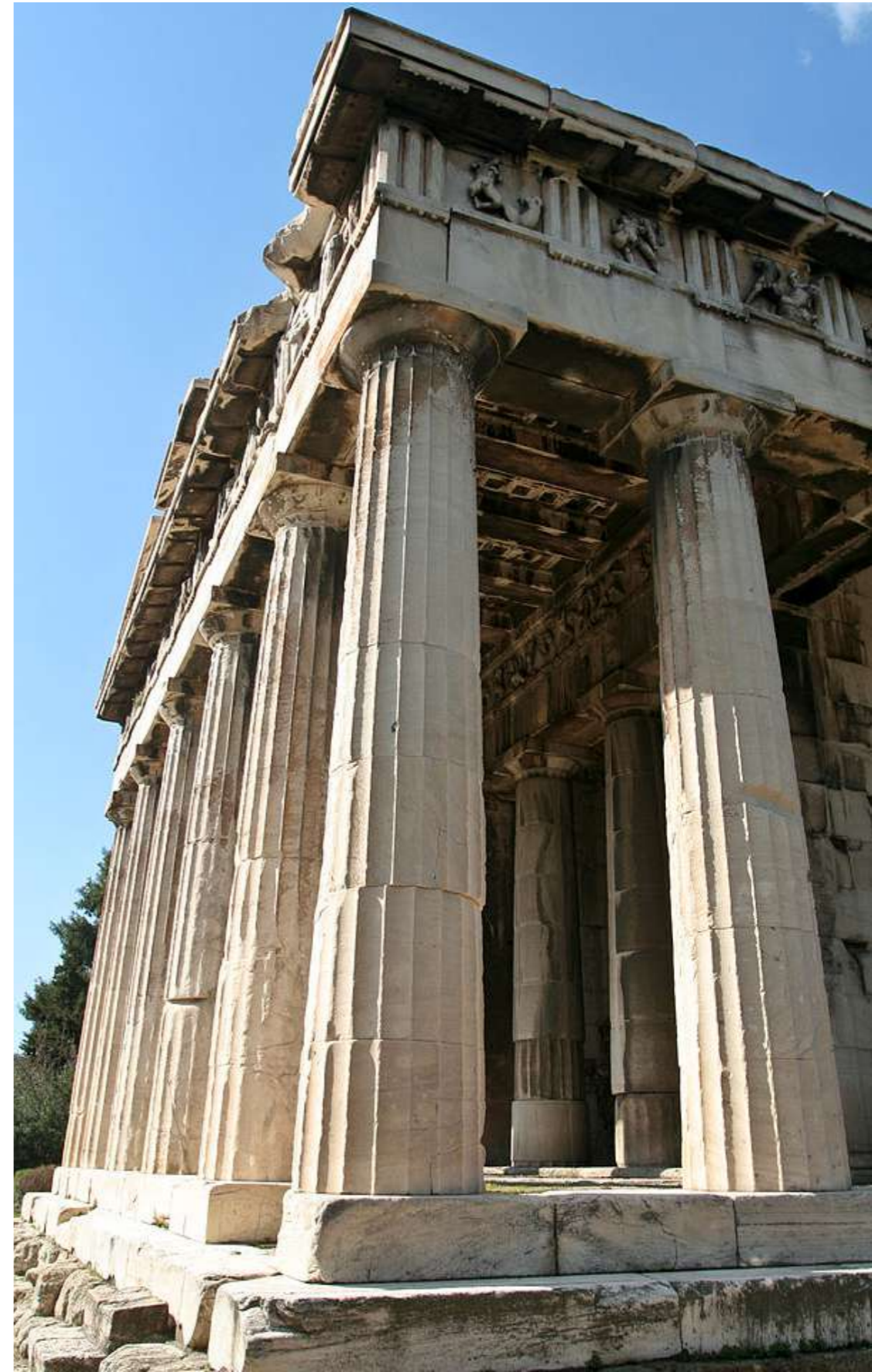
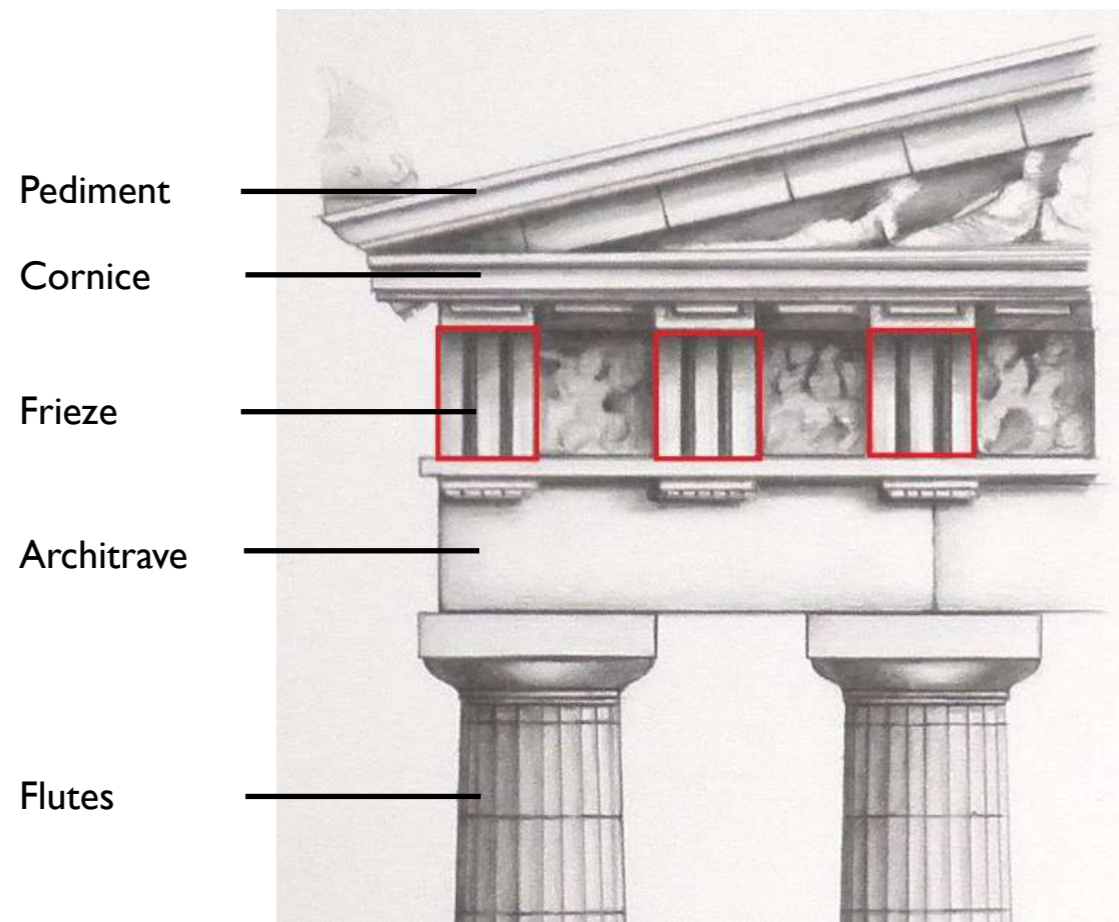
# IONIC ORDER





# Doric Order

- Known for its **thick proportions**. Usually its height is 4-7 times the diameter of the base
- The column is usually divided into **shallow flutes**





# Ionic Order

- They are usually between 9-10 times their lower diameter in the height
- The capital has two pairs of **volute**s or spirals
- The entablature was very **light** in relation to the columns, almost 1/6 of their height
- The frieze is often decorated with a **continuous band of sculpture**



Pediment

Cornice

Frieze

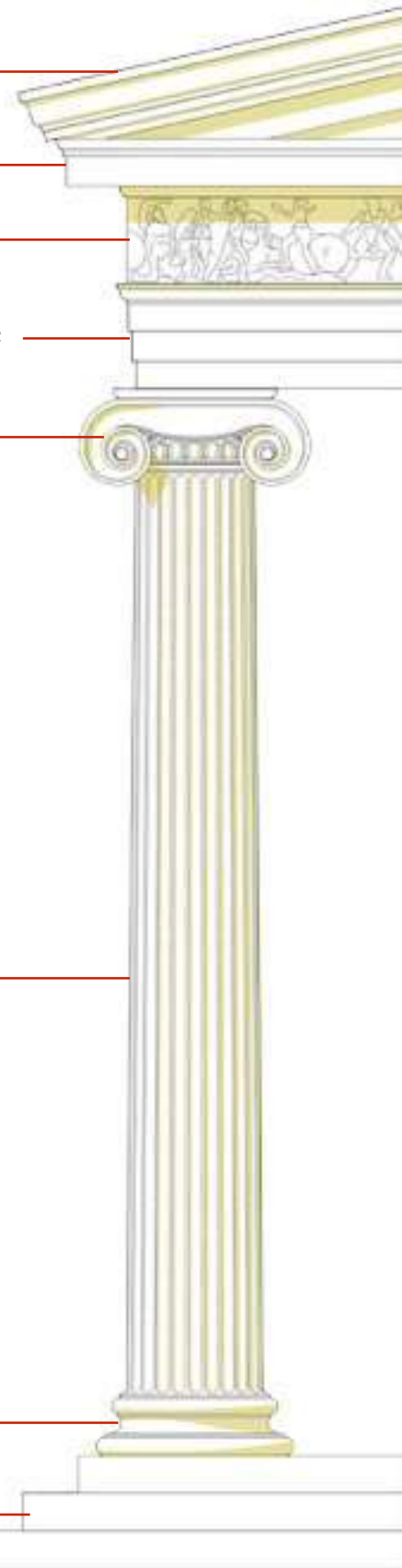
Architrave

Capital

Shaft

Base

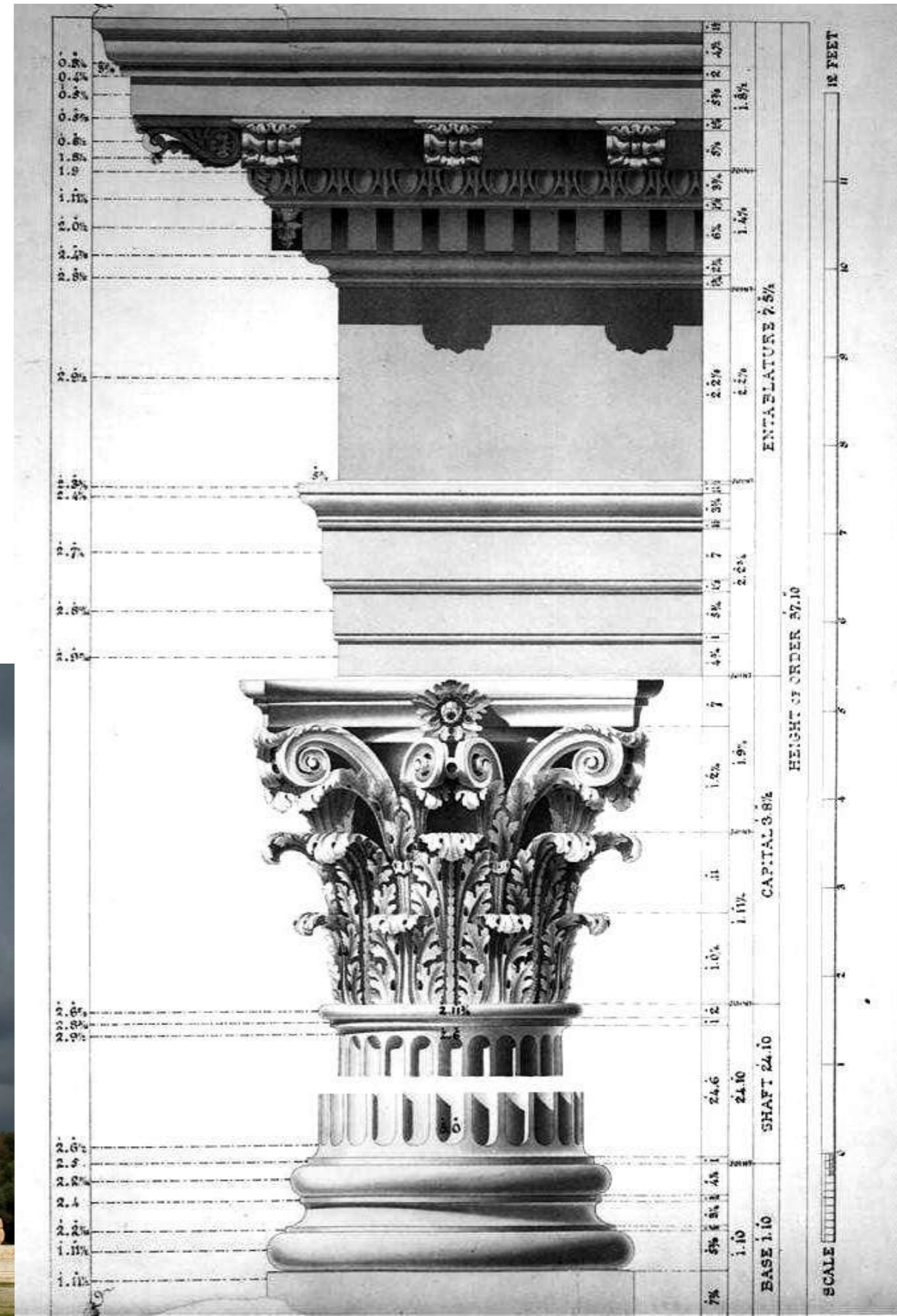
Stylobate



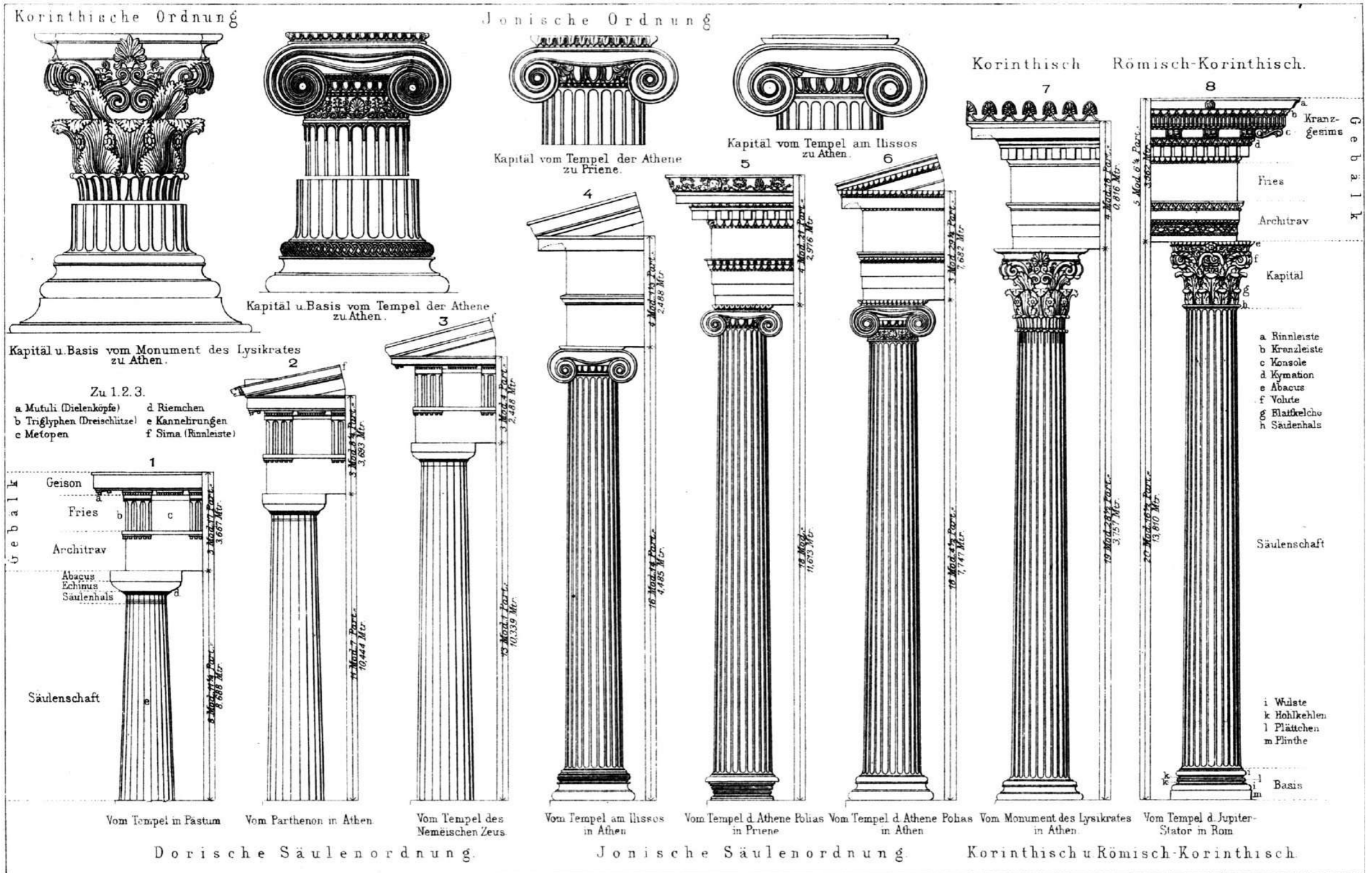


# Corinthian Order

- Made its first appearance in the 5<sup>th</sup> century BC as a **decorative variant of the Ionic**
- It was first used only for **internal colonnades**, then used in external colonnades during the Hellenistic period
- The capital was taken from **acanthus plant leaves**







The orders reflect the geographic divisions of the Greek world at that time



---

# Greek City Planning

---



# The Greek Polis

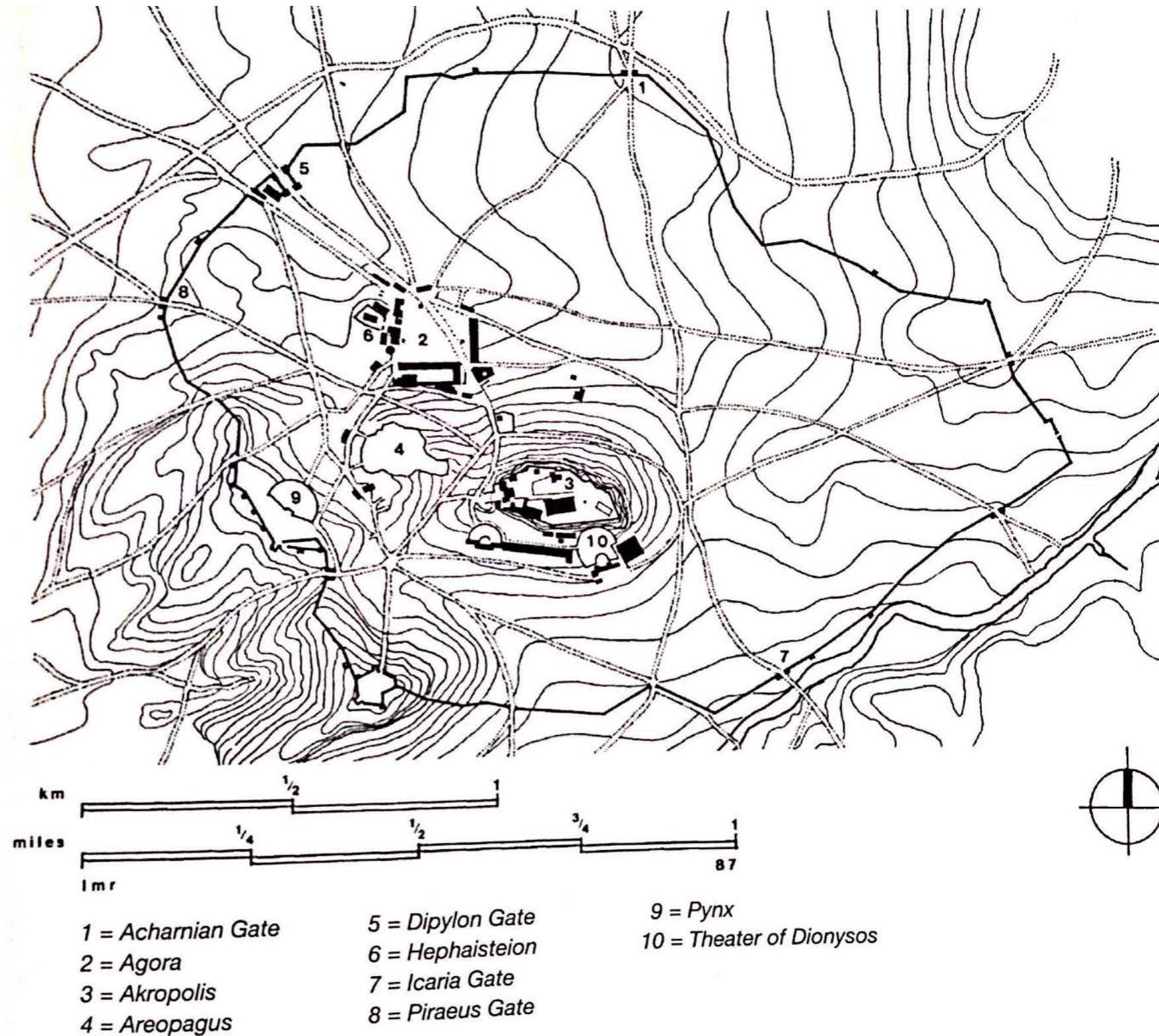
- The most important political contribution of the Greeks was the **invention of democracy** in the polis of Athens
- A Polis '**City state**' must not be large, you must cross the whole breadth of the city by foot in 2 days
- Citizens less than 5,000, according to Aristotle - one must recognise all its citizens
- The city of Athens was ruled by its '**free male citizens**'. The entire community of its residents, not just the representatives, met monthly in an open air assembly for elections and political decisions





# City Planning - Method 1

- Most Poleis grew gradually, growing around the remains of a **Bronze age citadel** built on an **acropolis - 'the high city'**
- It had streets which followed **lines of communication curving and bending** when necessary to avoid obstacles or to ease gradients

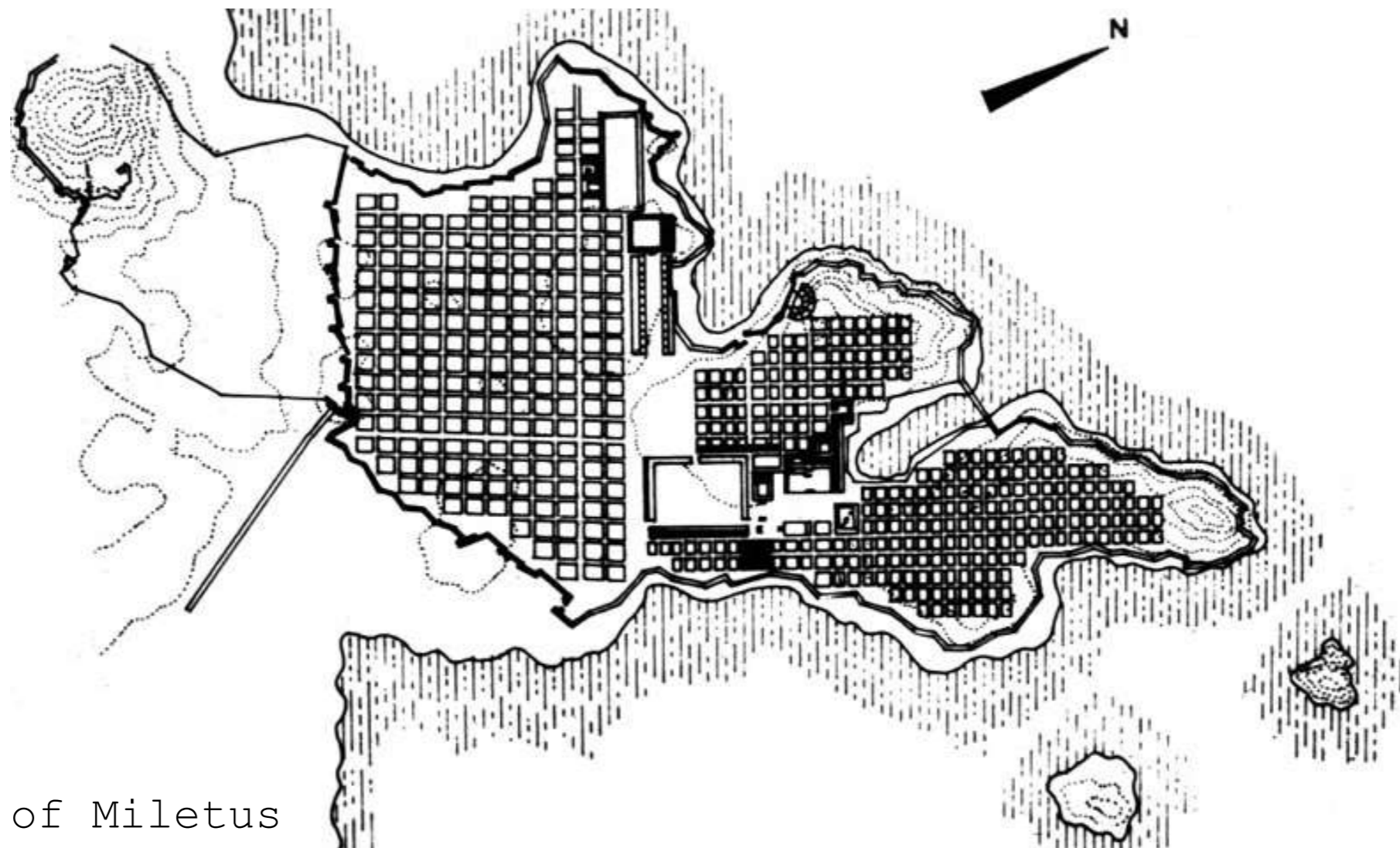




## City Planning - Method 2

---

- Some cities grew as **colonial cities**, laid out from scratch on an open ground and with more orderly orthogonal grid
- It had **grid plans**, with straight streets crossing at right angles, ignoring obstacles and becoming stairways where the gradients were too steep

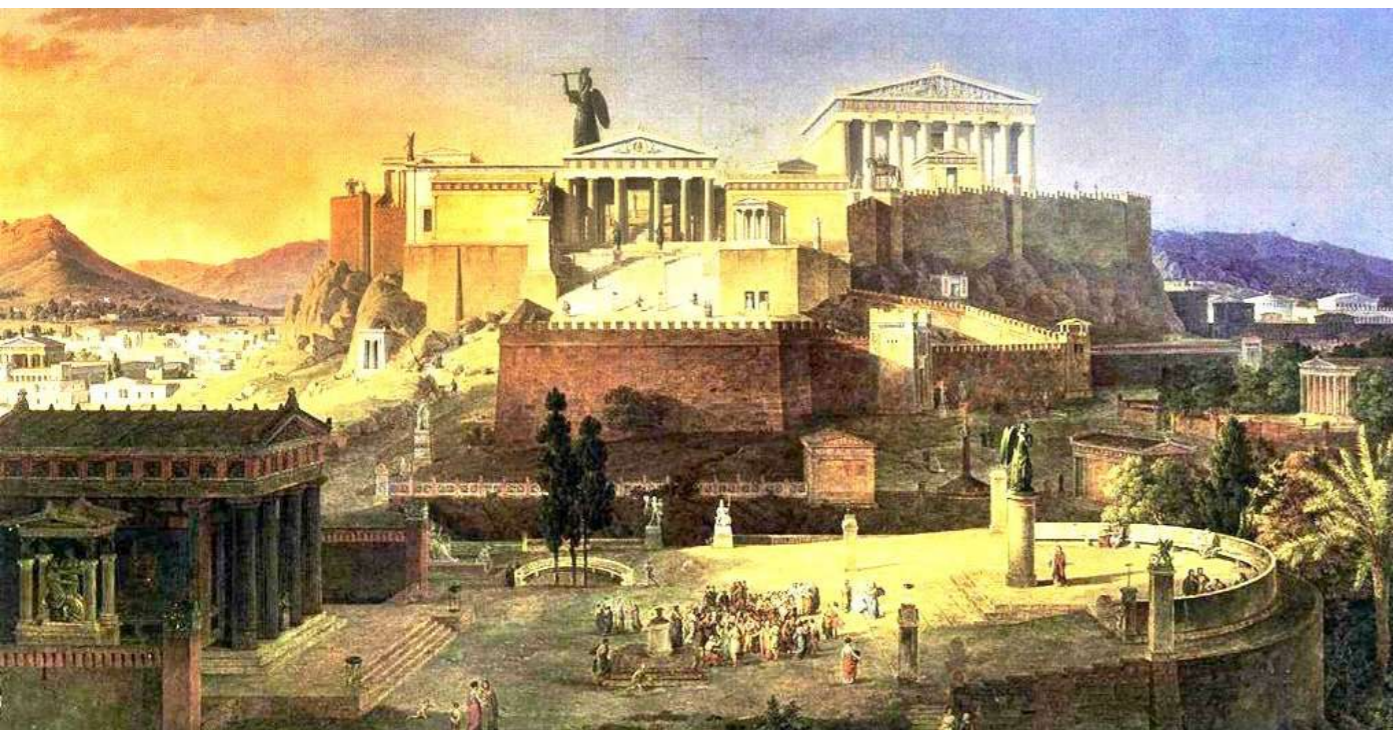
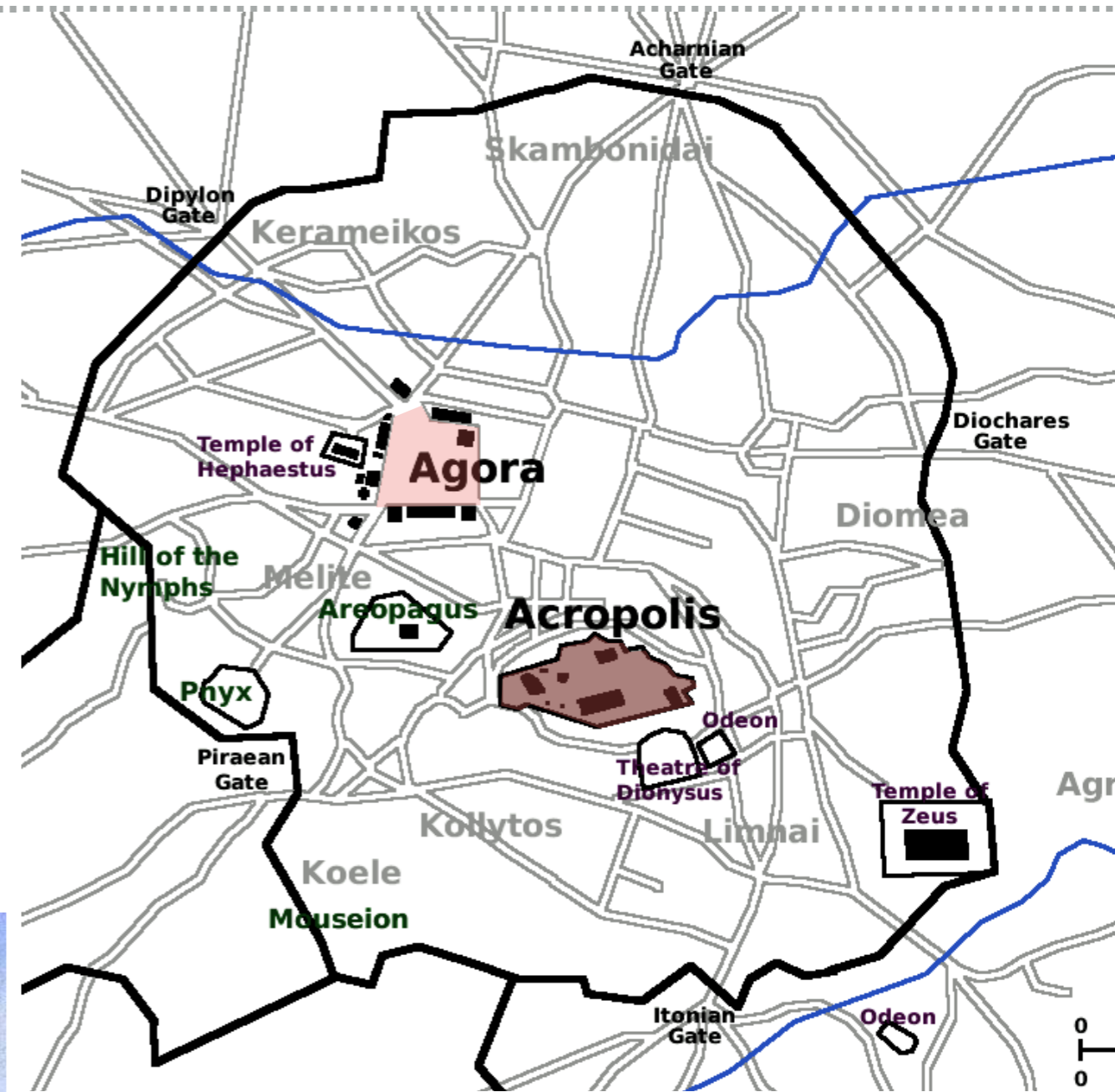


City of Miletus



# Examples 1: Athens

- Athens, was built around the **Acropolis**
- Paths leading out to the surrounding farms eventually became streets
- Along one of these, a roughly rectangular open space was set aside as the **Agora**



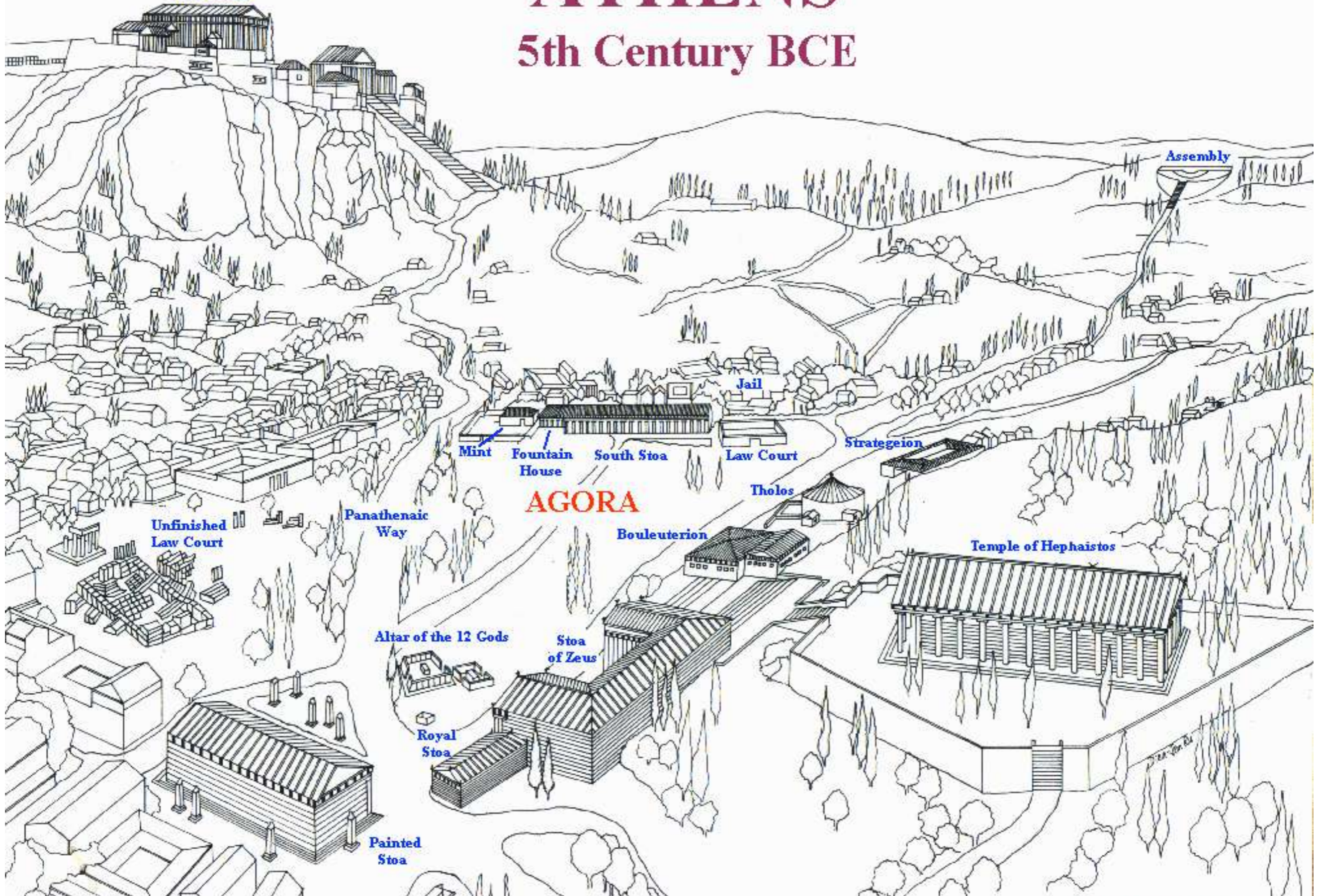


# ACROPOLIS

Parthenon

# ATHENS

## 5th Century BCE



Assembly

Jail

Mint

Fountain House

South Stoa

Law Court

Strategieion

## AGORA

Tholos

Bouleuterion

Temple of Hephaistos

Unfinished Law Court

Panathenaic Way

Altar of the 12 Gods

Stoa of Zeus

Royal Stoa

Painted Stoa

Ru Dien-Jen

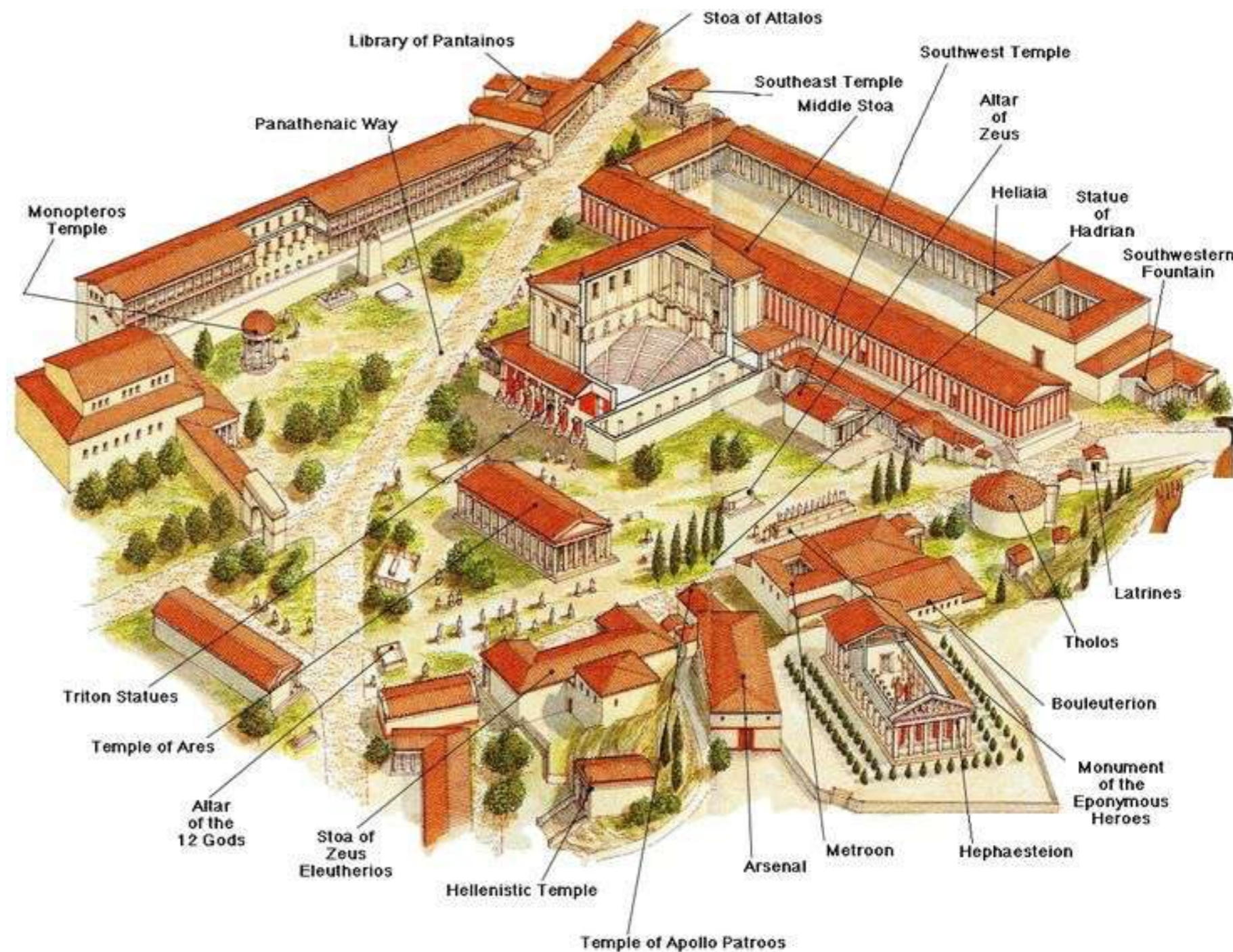


# Athens Agora

- The agora was the communal heart of the Greek city
- It is the open room where trade was carried on, students were taught, business of the polis (politics) occurred

- The Agora was usually surrounded by houses and public buildings

- By the 3<sup>rd</sup> century BC, the agora was surrounded by **Stoas**

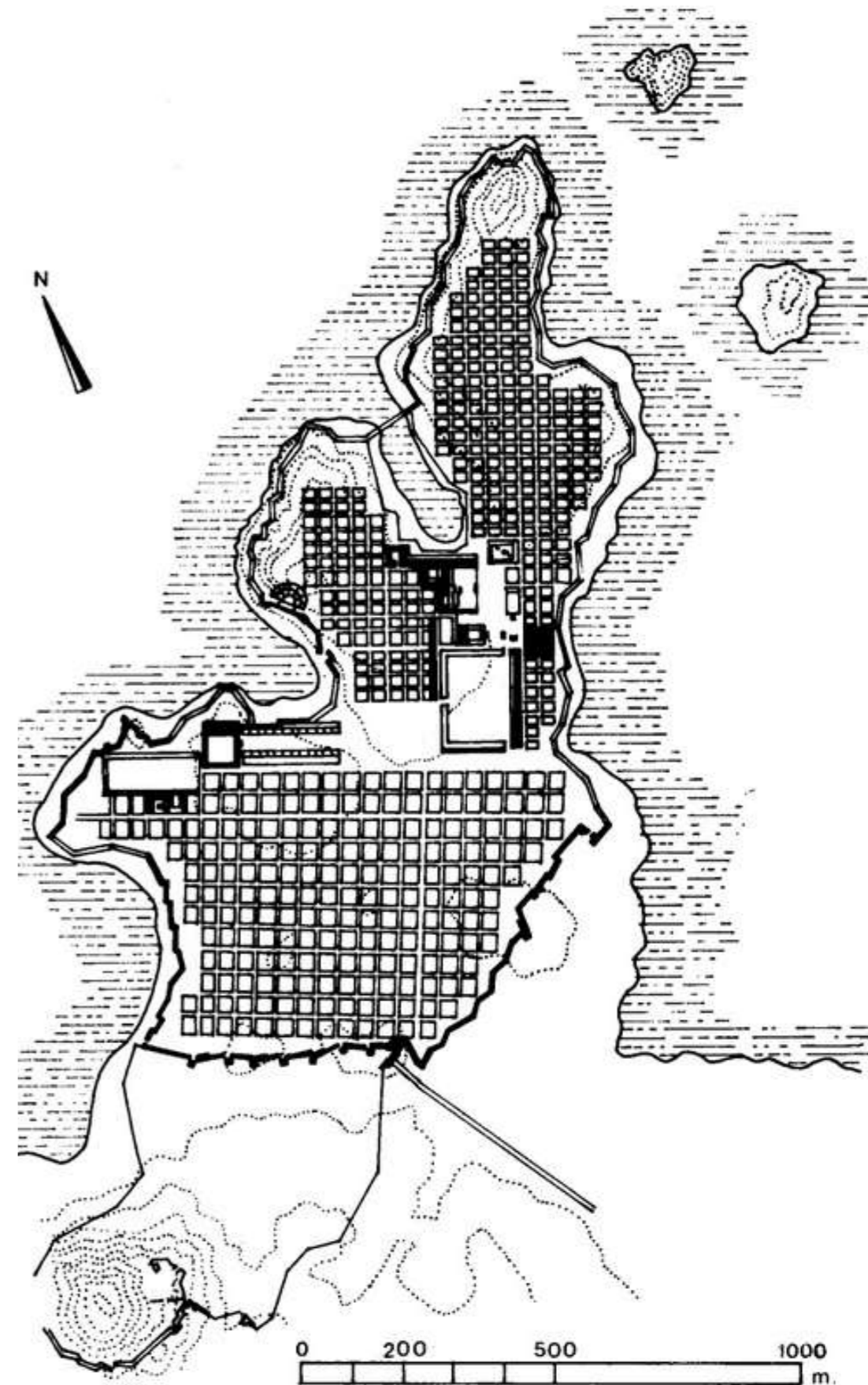
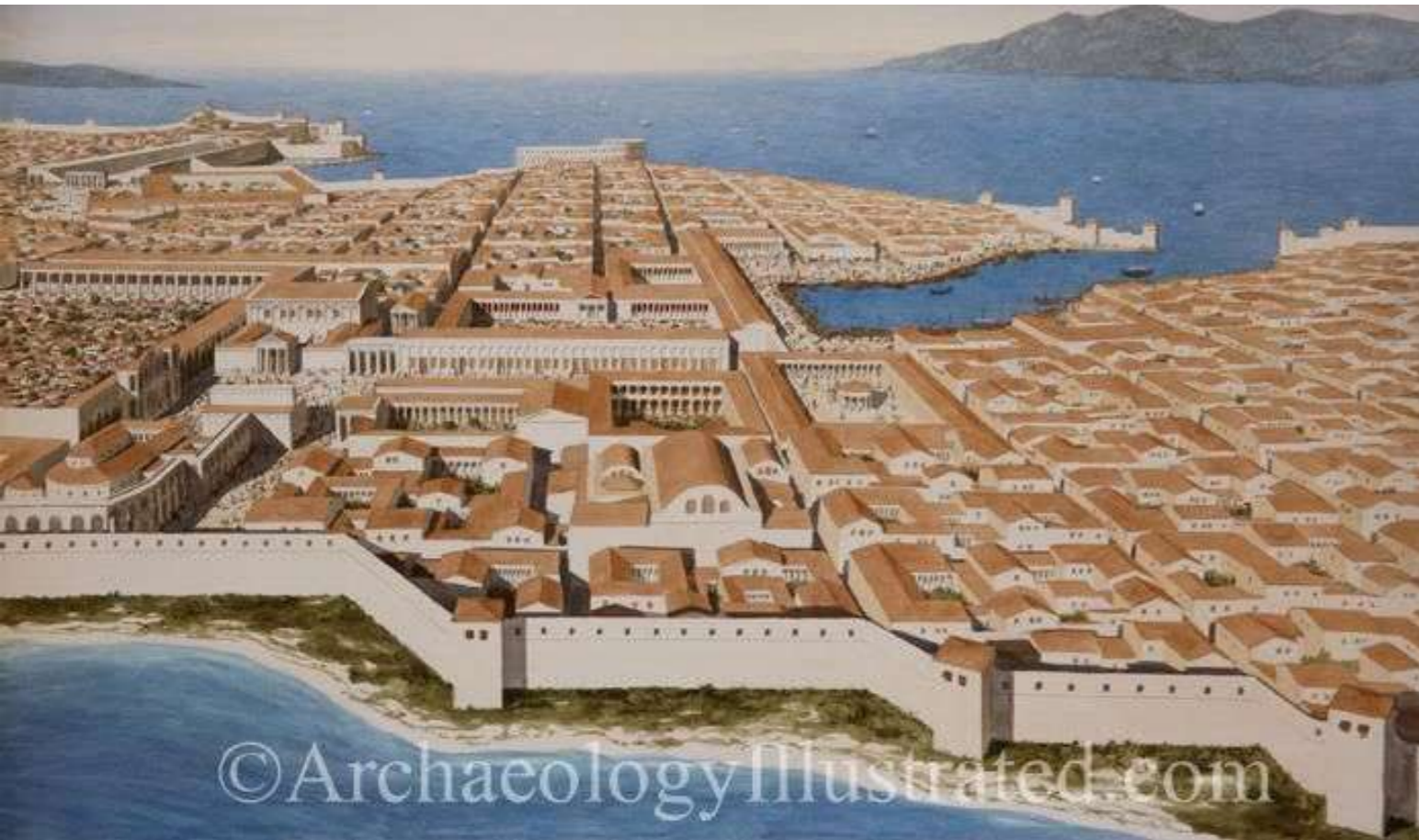




## Example 2: Miletus

The city was divided to 3 main parts:

- To the north was the residential quarter
- At the center was the Agora
- To the south was another residential area of larger blocks



---

# Greek Buildings

---



Domestic

Commercial

Political

Sport

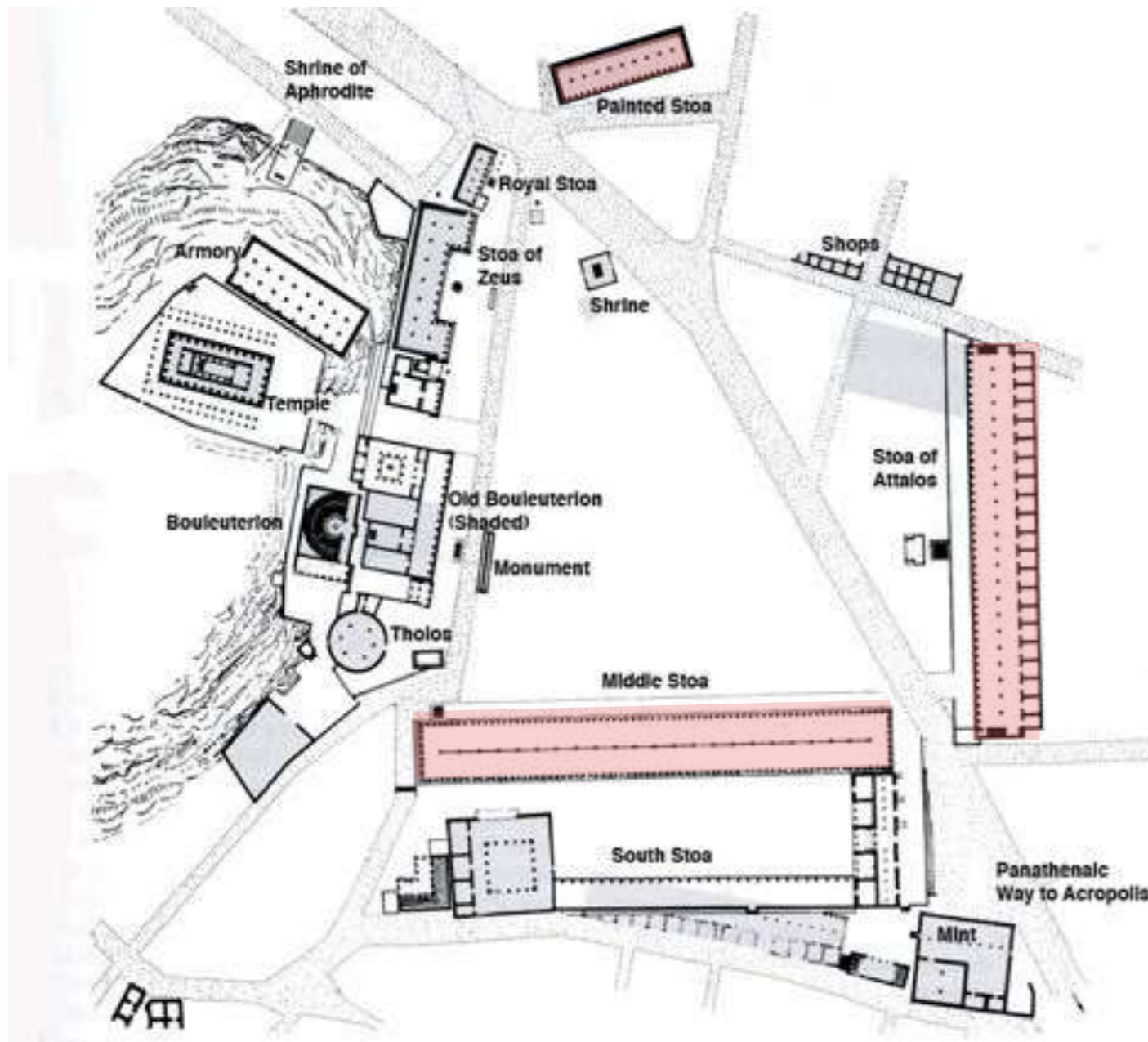
Cultural

Religious



# 1. Stoa

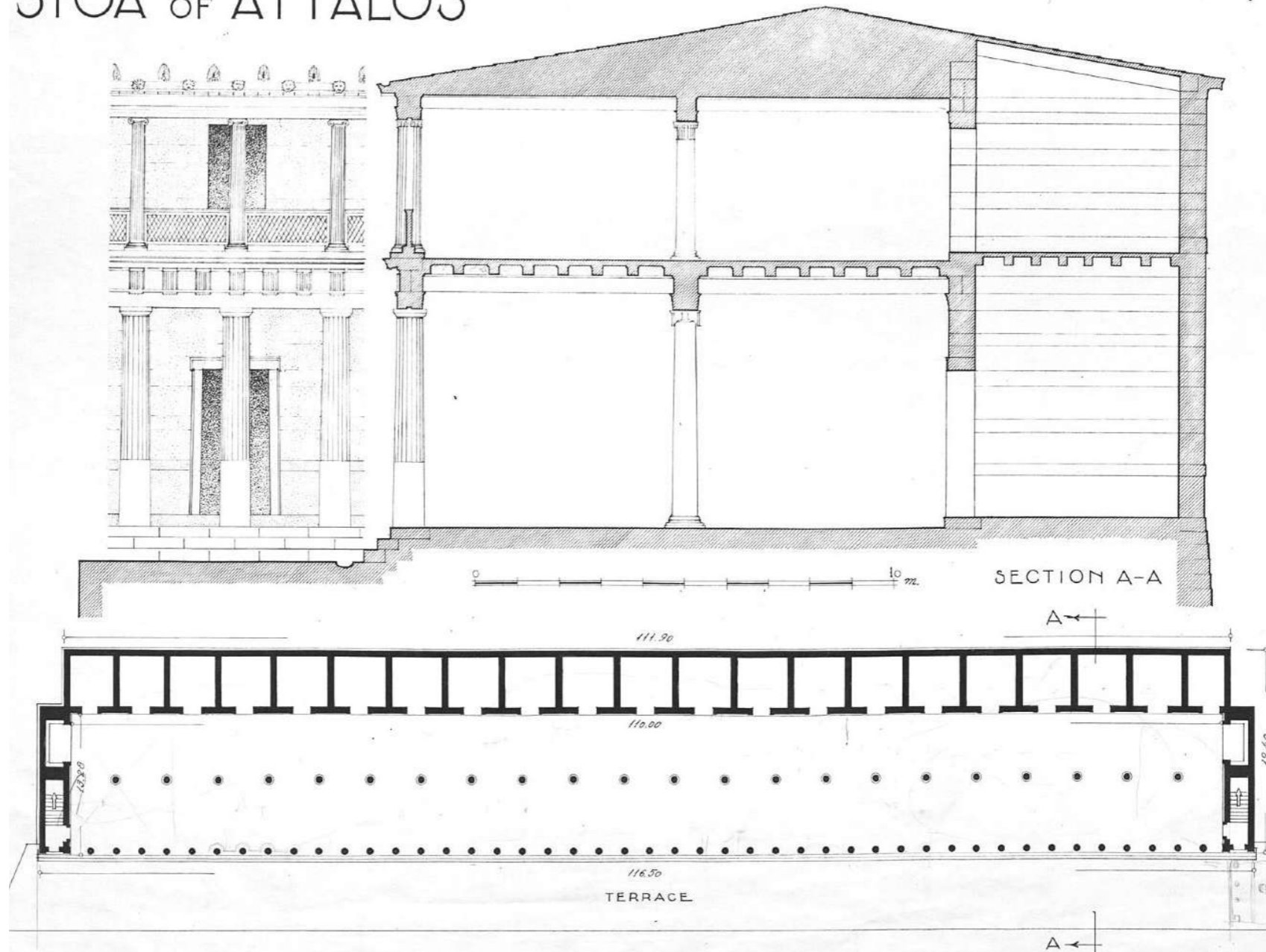
lined and came to define the agora.  
A Long, rectangular buildings, open on one side to face the public space





# 1. Stoa

## STOA OF ATTALOS

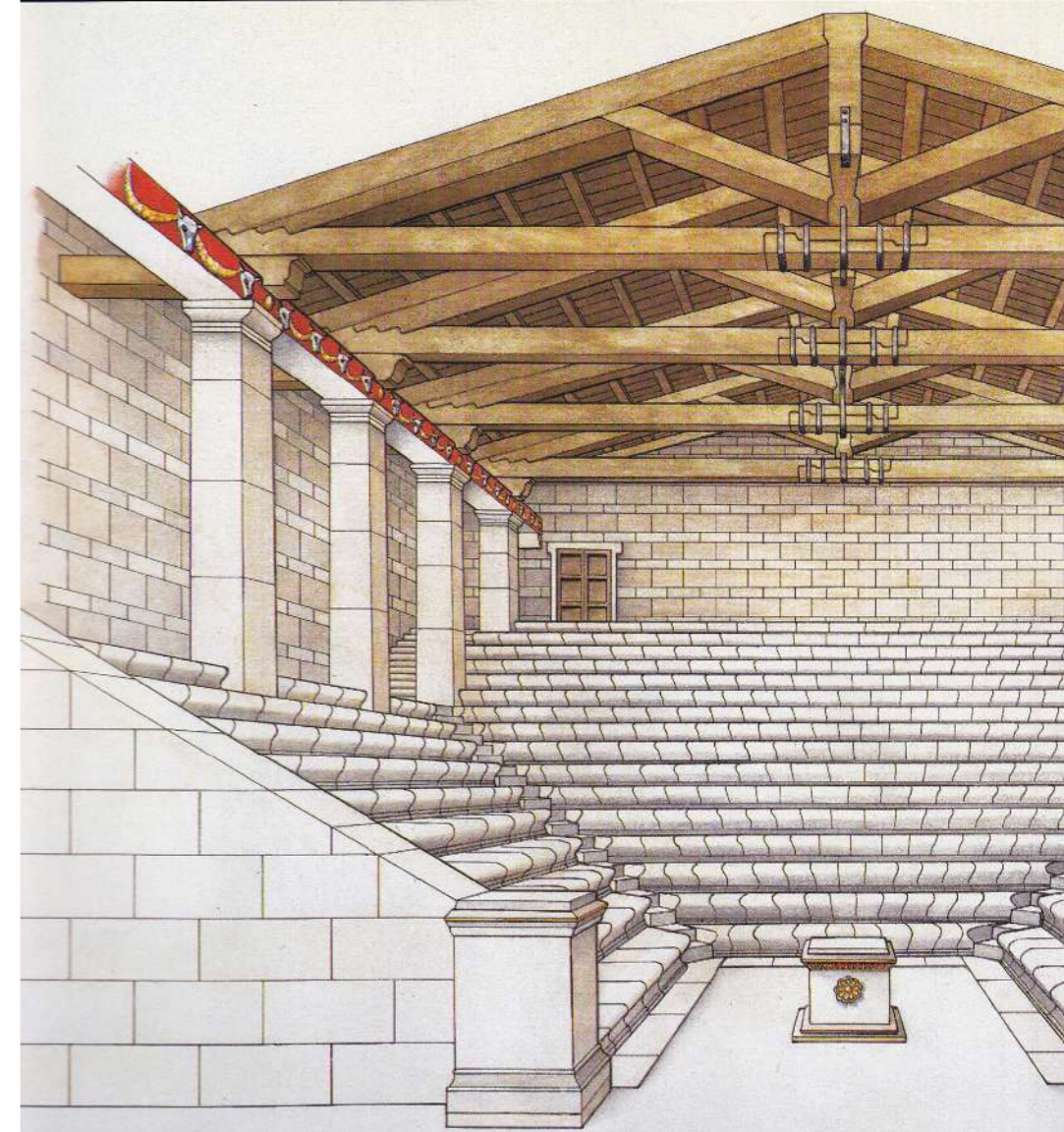


Often had an **internal row of columns** down the middle to support the roof or the upper floor, with small chambers in a row along the back for storekeepers and offices



## 2. Bouleuterion

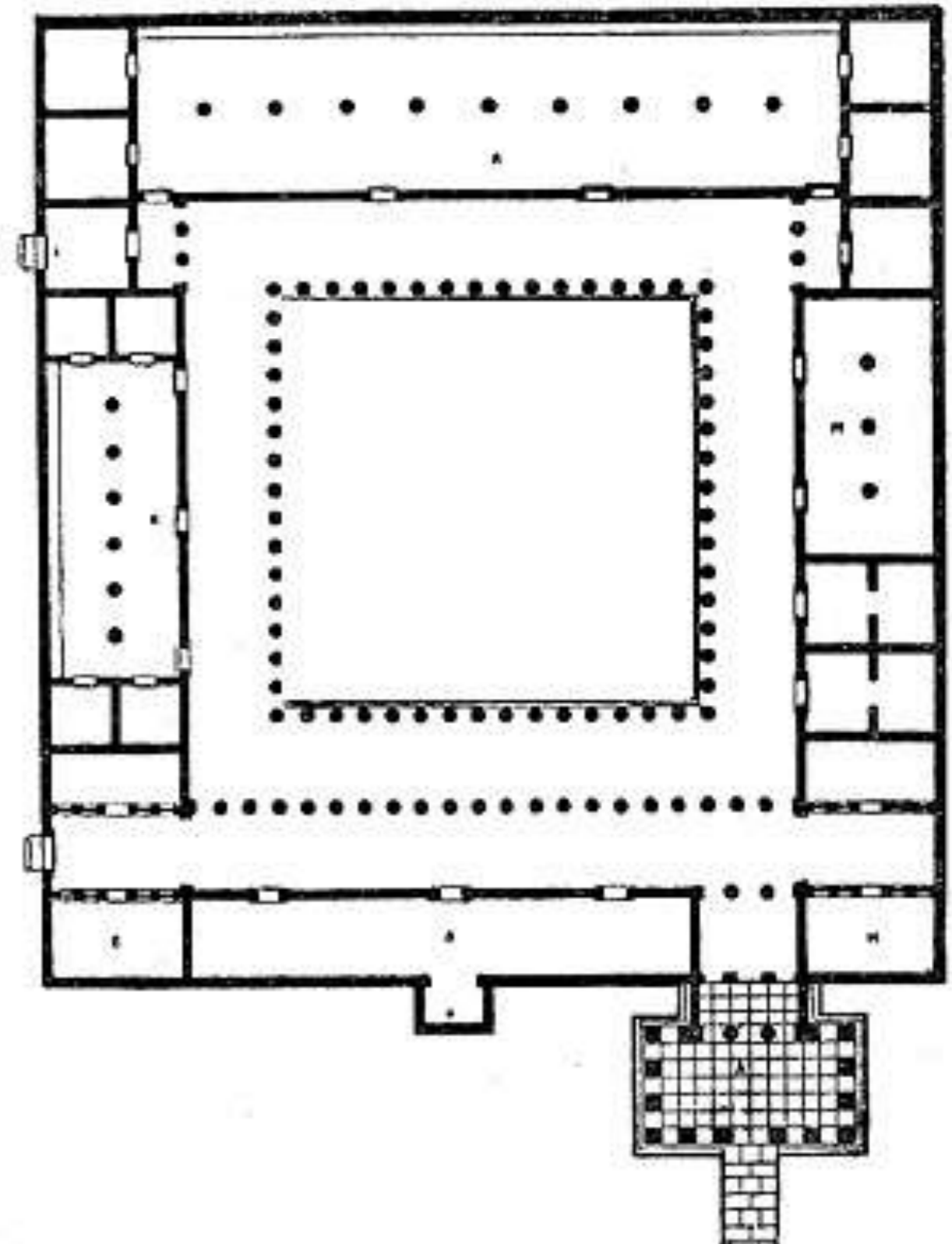
- Houses the council of the polis
- It had tiers of benches on three sides providing seating for about 700 people





### 3. Palaestra

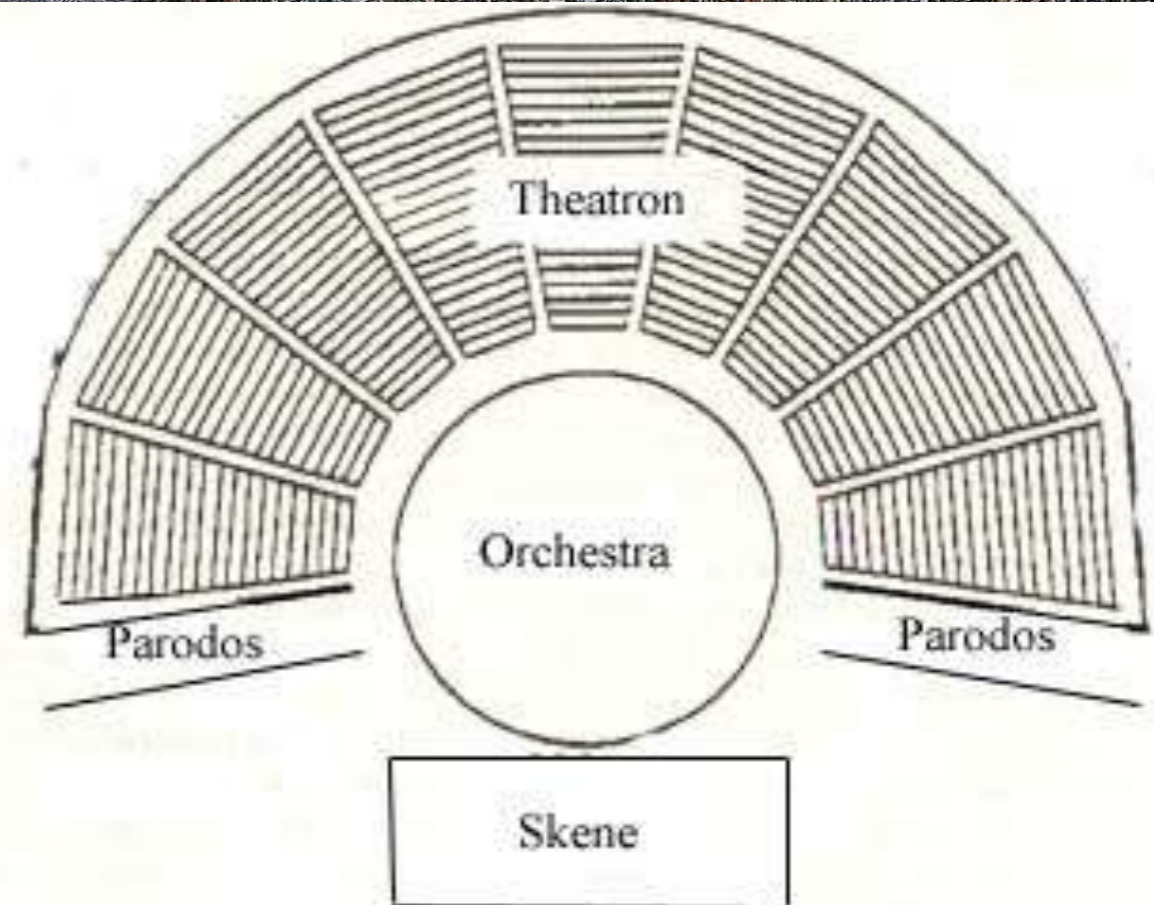
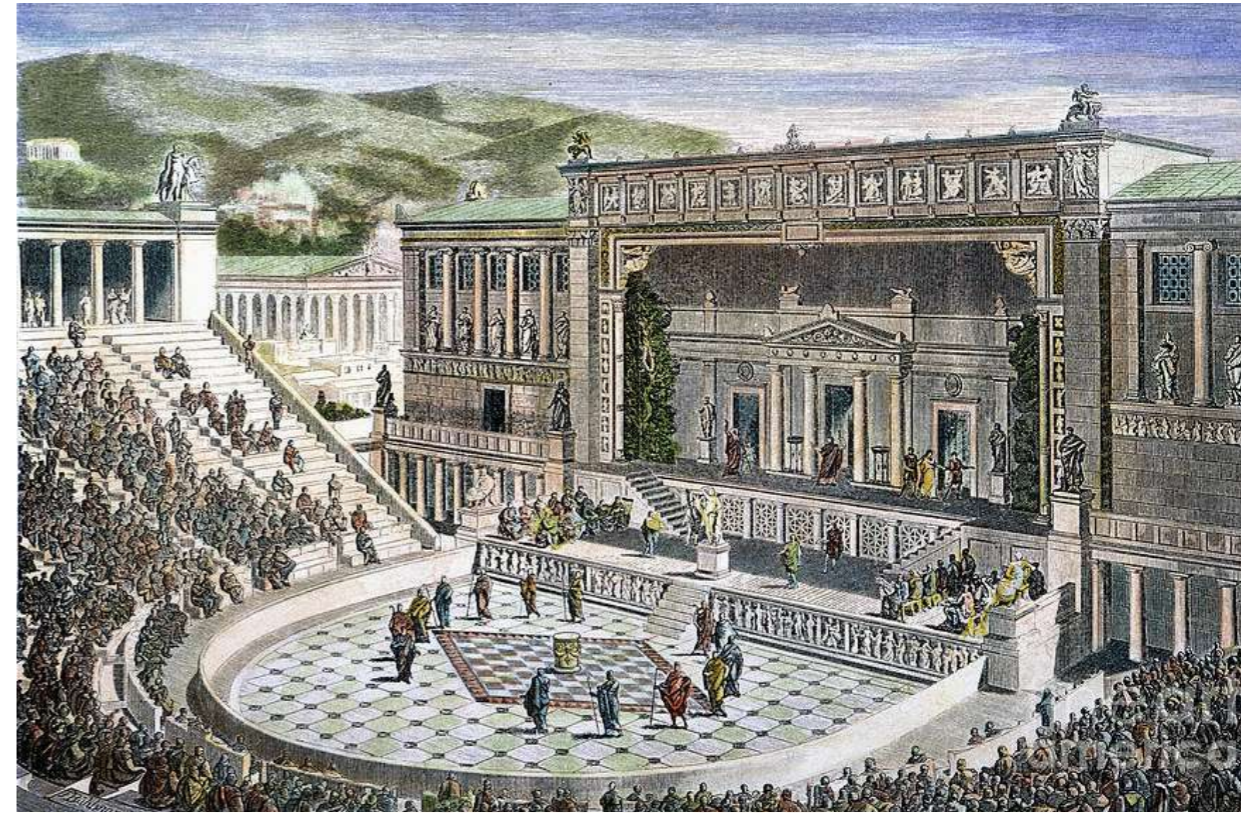
- 'baths' and Gymnasia in ancient Greek, and a wrestling school
- Functioned as a training facility for competitors in public games
- It was also a place for socializing and engaging in intellectual pursuits which are often near to Stadium





## 4. Theatres

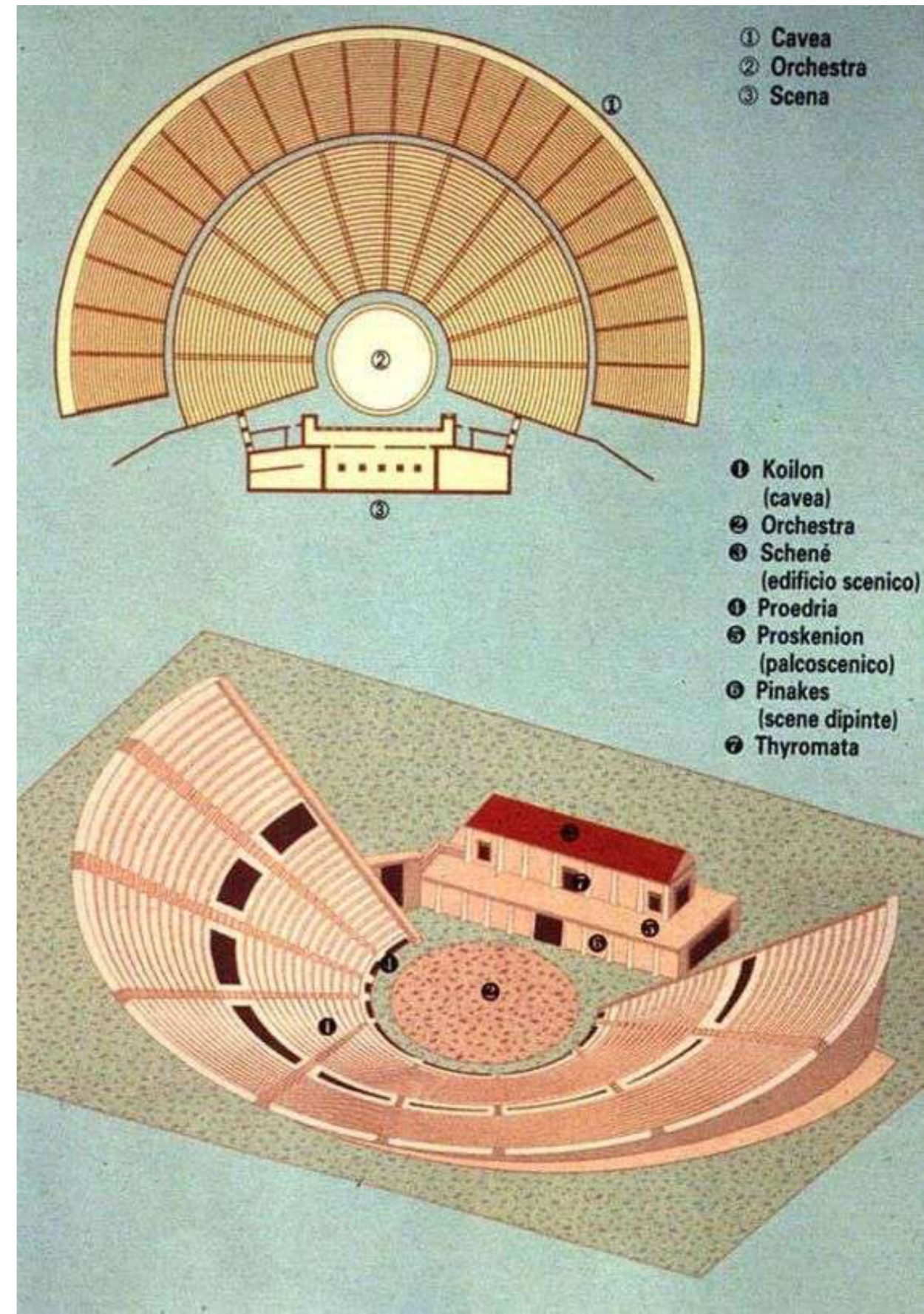
- Drama productions began as **religious rituals**, later, it started to **define the ideal civic morals**
- Initially it accommodates around **6000 people**, later it developed to accommodate around **14000 people**
- The Greek theater had three main basic parts:
  - **The Theatron:** *The seeing place*
  - **The orchestra:** the dancing place
  - **The skene:** a low structure forming the background behind the orchestra





## 4. Theatres

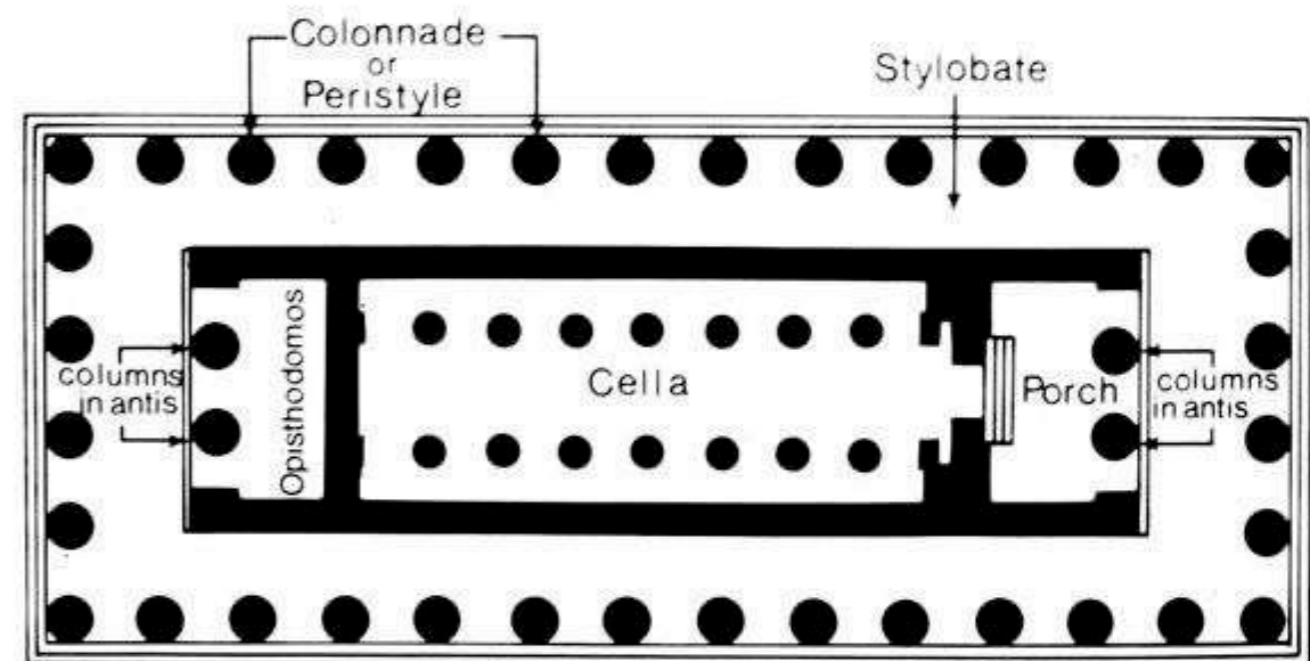
- The skene (greek word for scene) was low in order to introduce the landscape surrounding it as part of the scene
- The seating formed more than a semi circular and the skene was a little more than one story high
- The Greek theaters were of earthen works or a hillside





## 5. Temples

- Rectangular in plan stand on a podium of 3 steps, with inner room called **Cella**.
- The side walls usually extended forward to form the **porch**
- Symmetrical design, with usually even numbers of columns, built from marble, stone
- Named based on the number of columns in Greek numeral:
  - **distyle: two columns**
  - **tetrastyle: four**
  - **hexastyle: six**
  - **octastyle: eight**
  - **decastyle: ten**





---

# The Acropolis



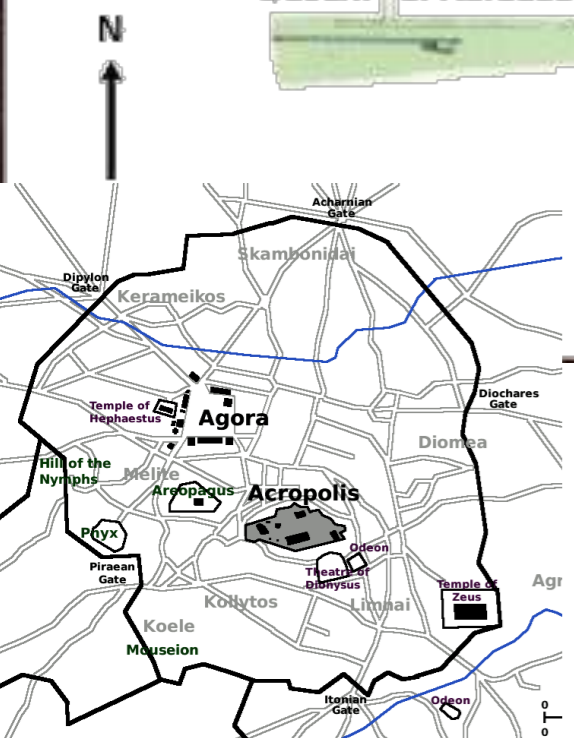
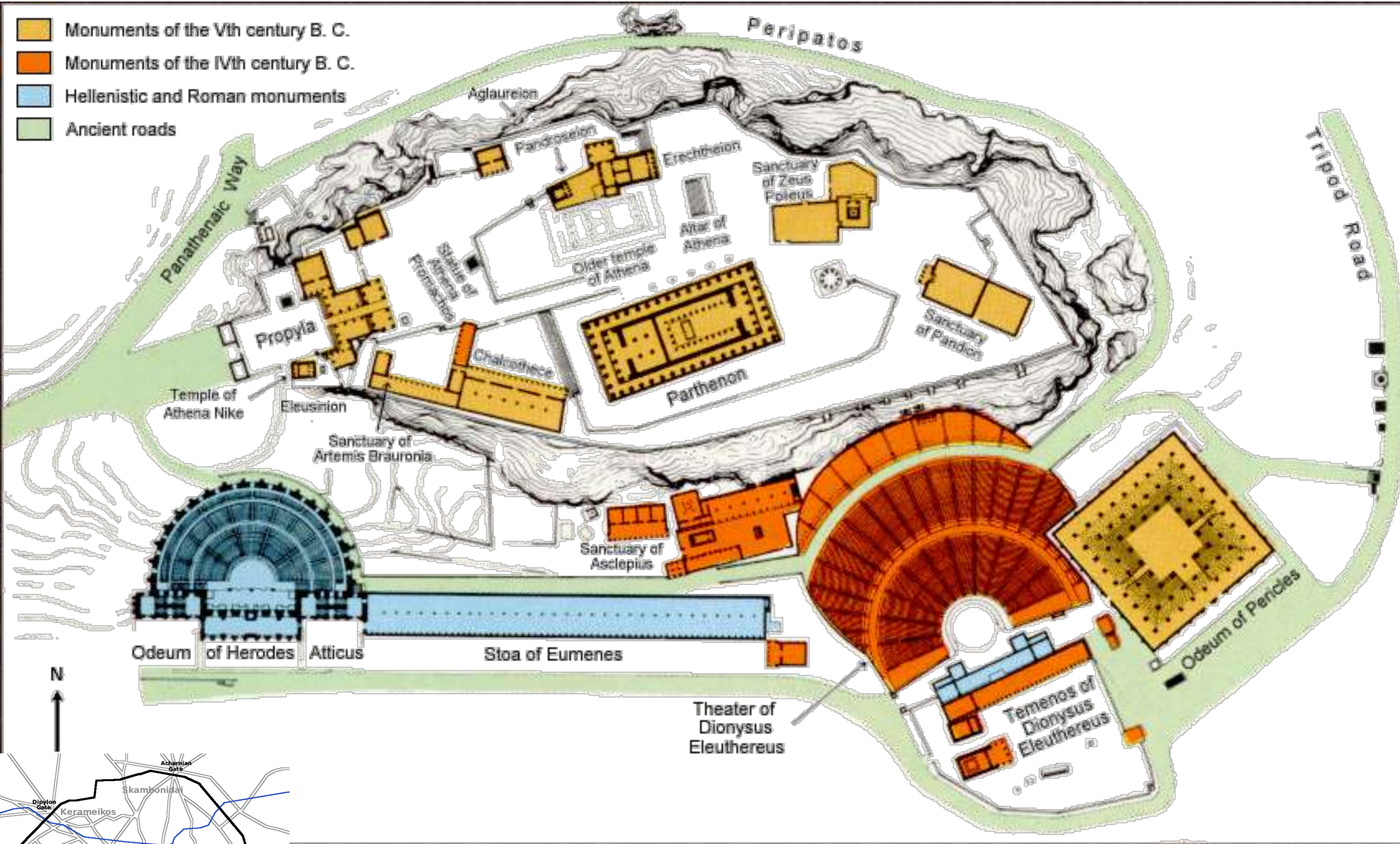


- The Acropolis raises above the city, putting the **white marble temples** in view of the residents of the entire polis, it is the result of a remarkable building program initiated several decades after the Acropolis was burnt down by the Persians in **480 BC**
- It was a focal point of the **Panathenaia festival**, observed every year on **Athena's birthday**





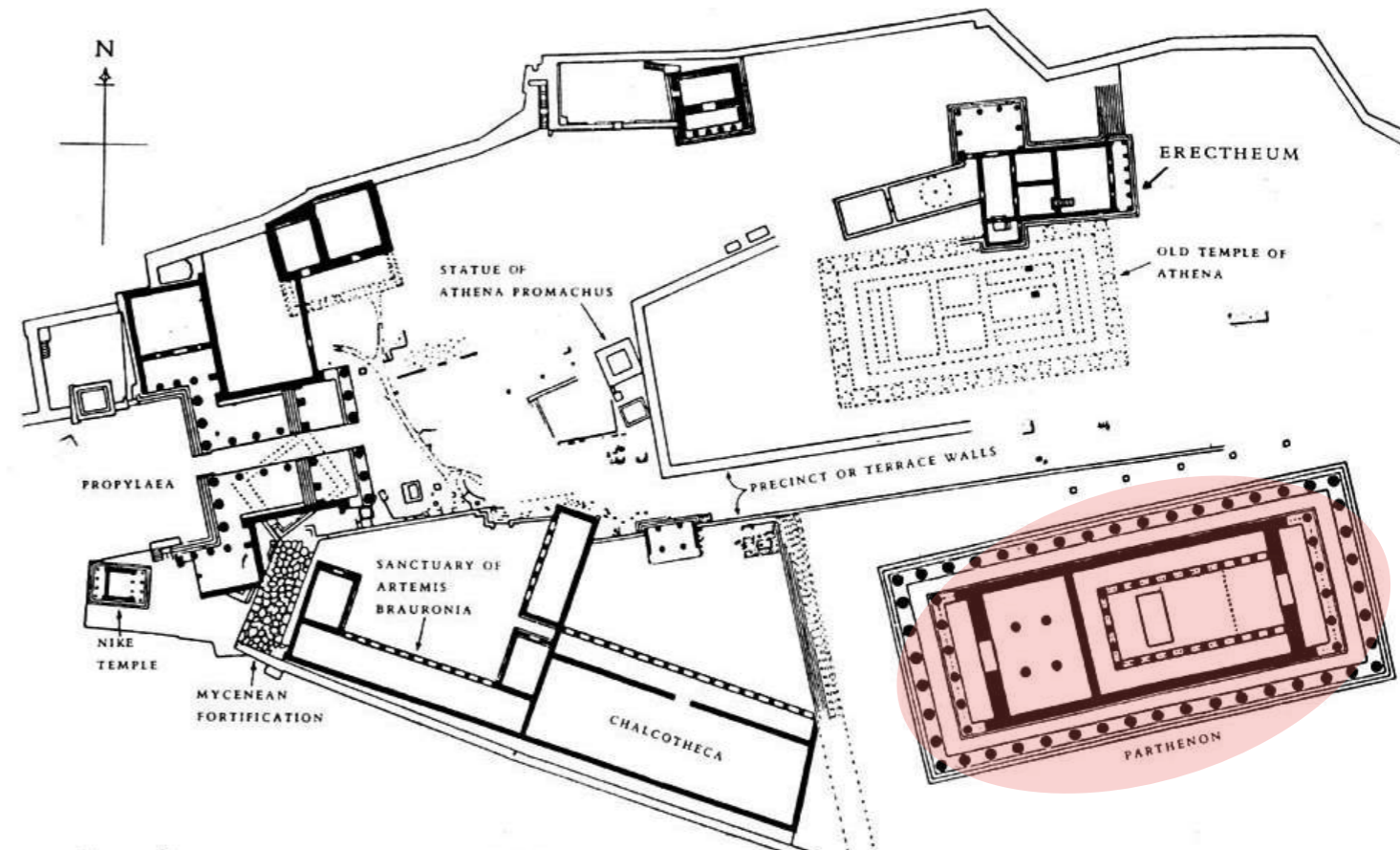
- Monuments of the Vth century B. C.
- Monuments of the IVth century B. C.
- Hellenistic and Roman monuments
- Ancient roads





# Parthenon

- It is the only **octastyle temple** that was built in ancient Greece
- Started in **447 BC** and completed in **436 BC**
- The temple stands on **three steps platform**
- At the top step, the dimensions are **30.9 x 69.5 m**





# Parthenon

- The cella consists of 2 main rooms
- The eastern room has Doric colonnade. Inside the colonnade towards the end was a gold and ivory statue of Athena
- On the western side, a square room considered a depository for valuable offerings, its roof was probably supported by Ionic columns

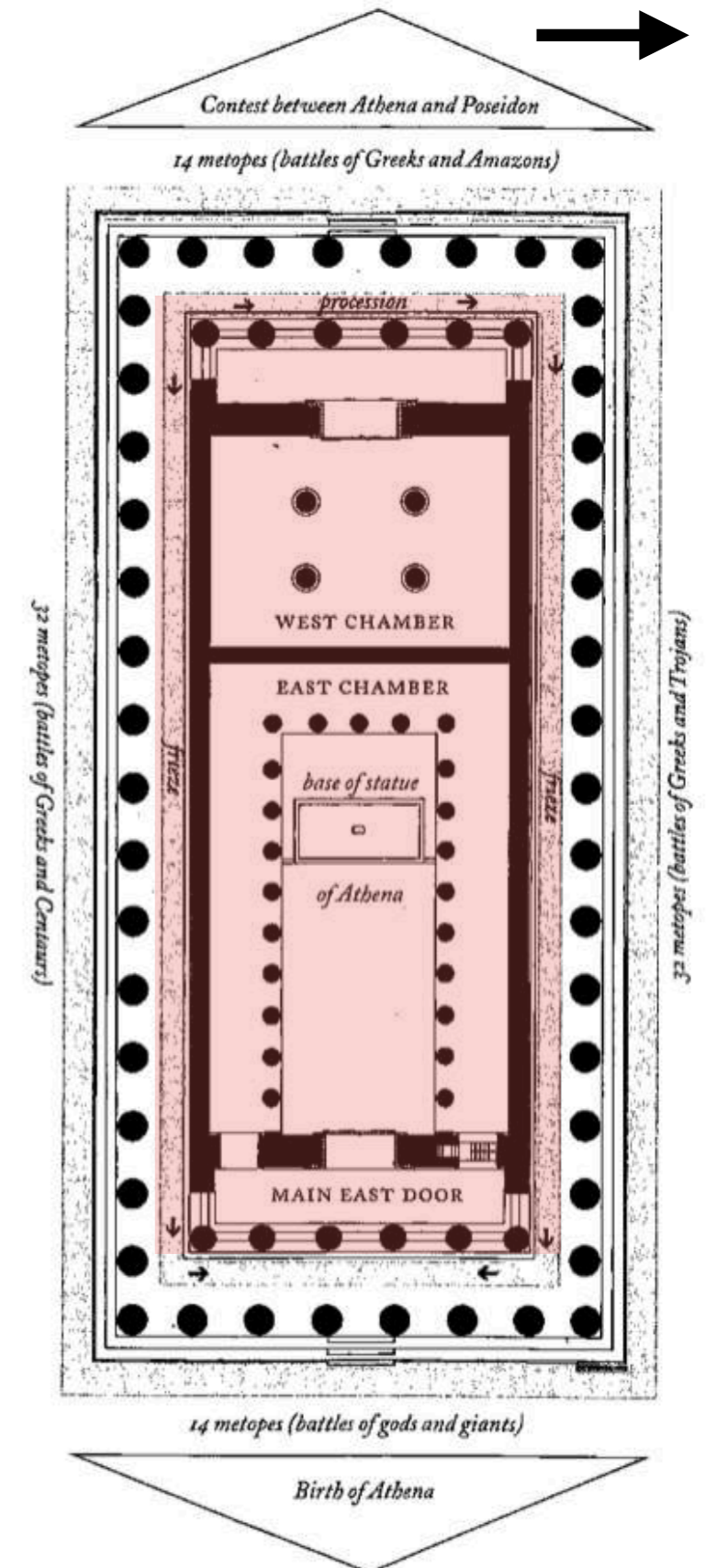
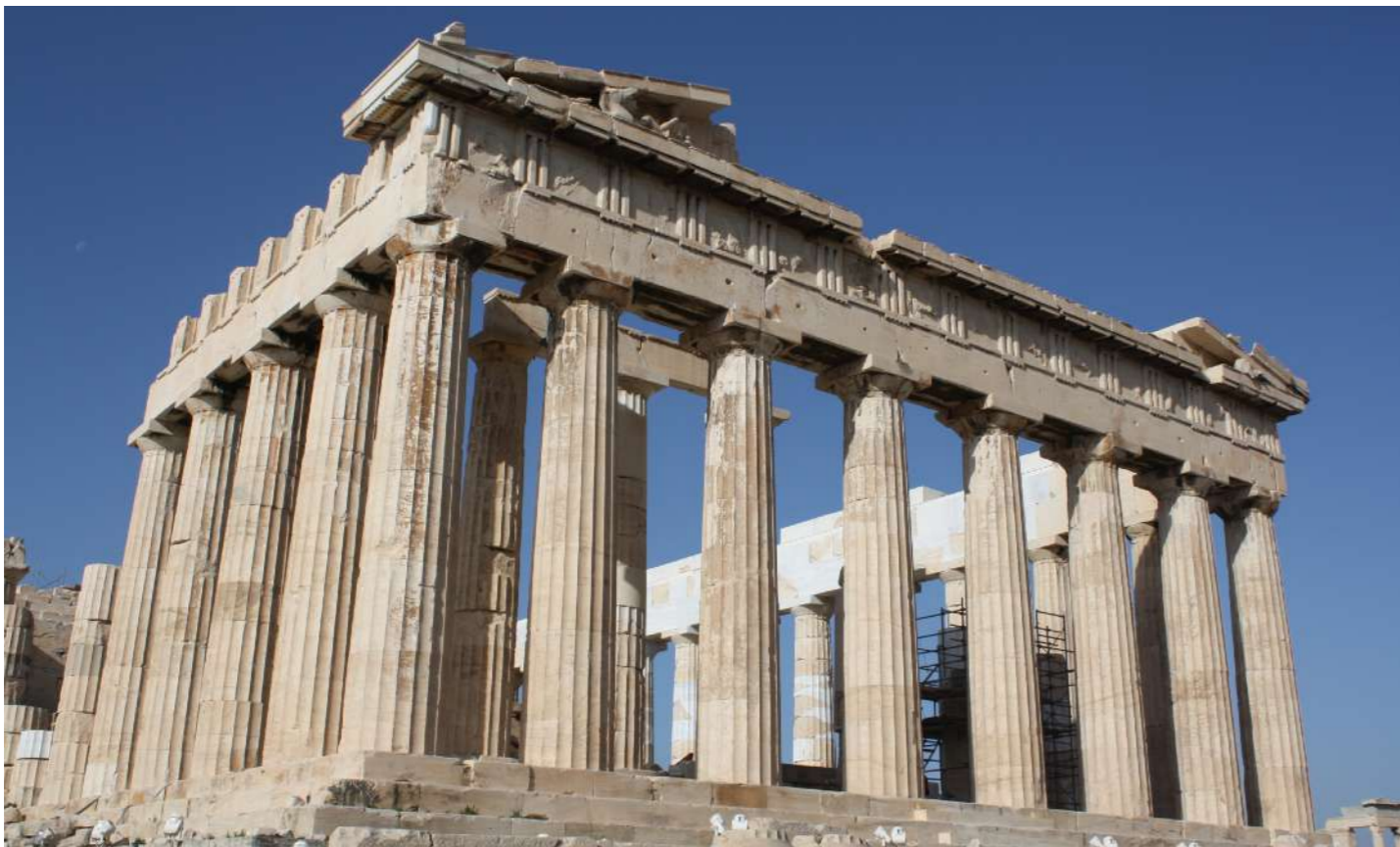
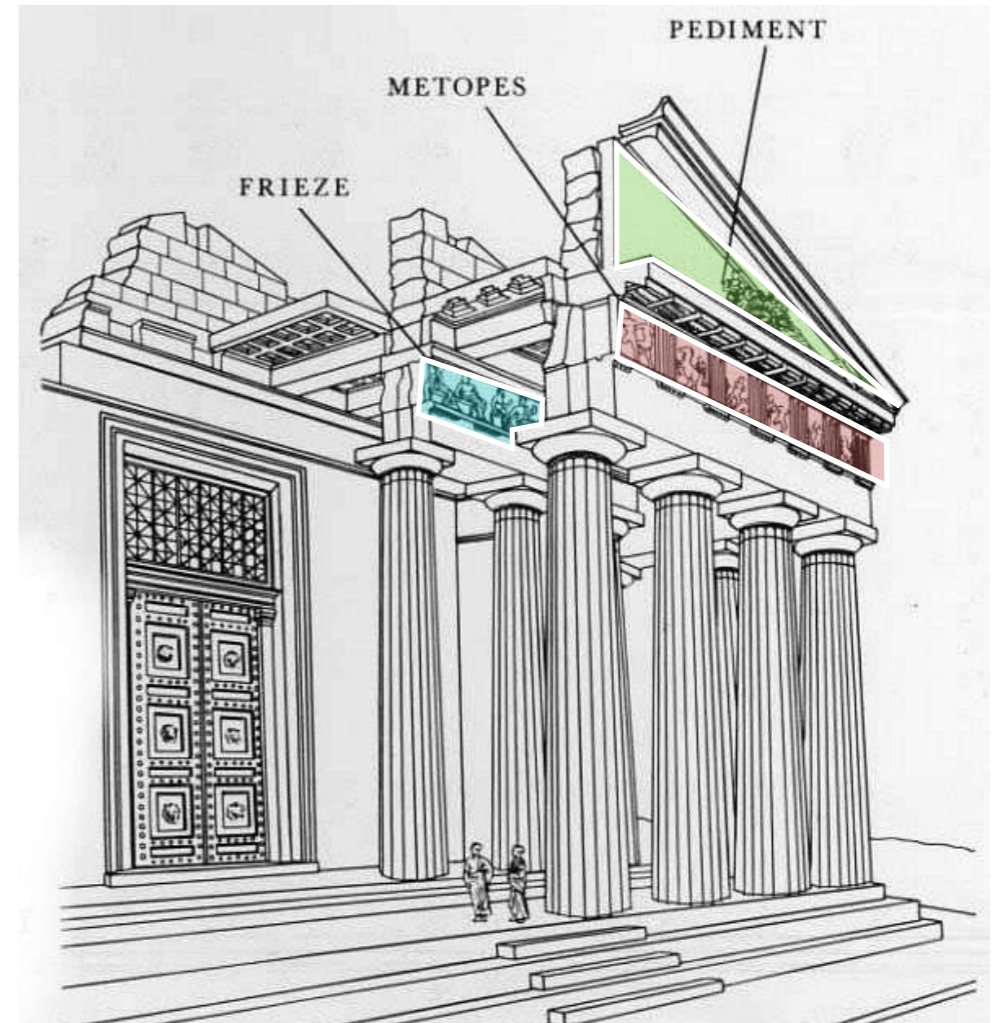
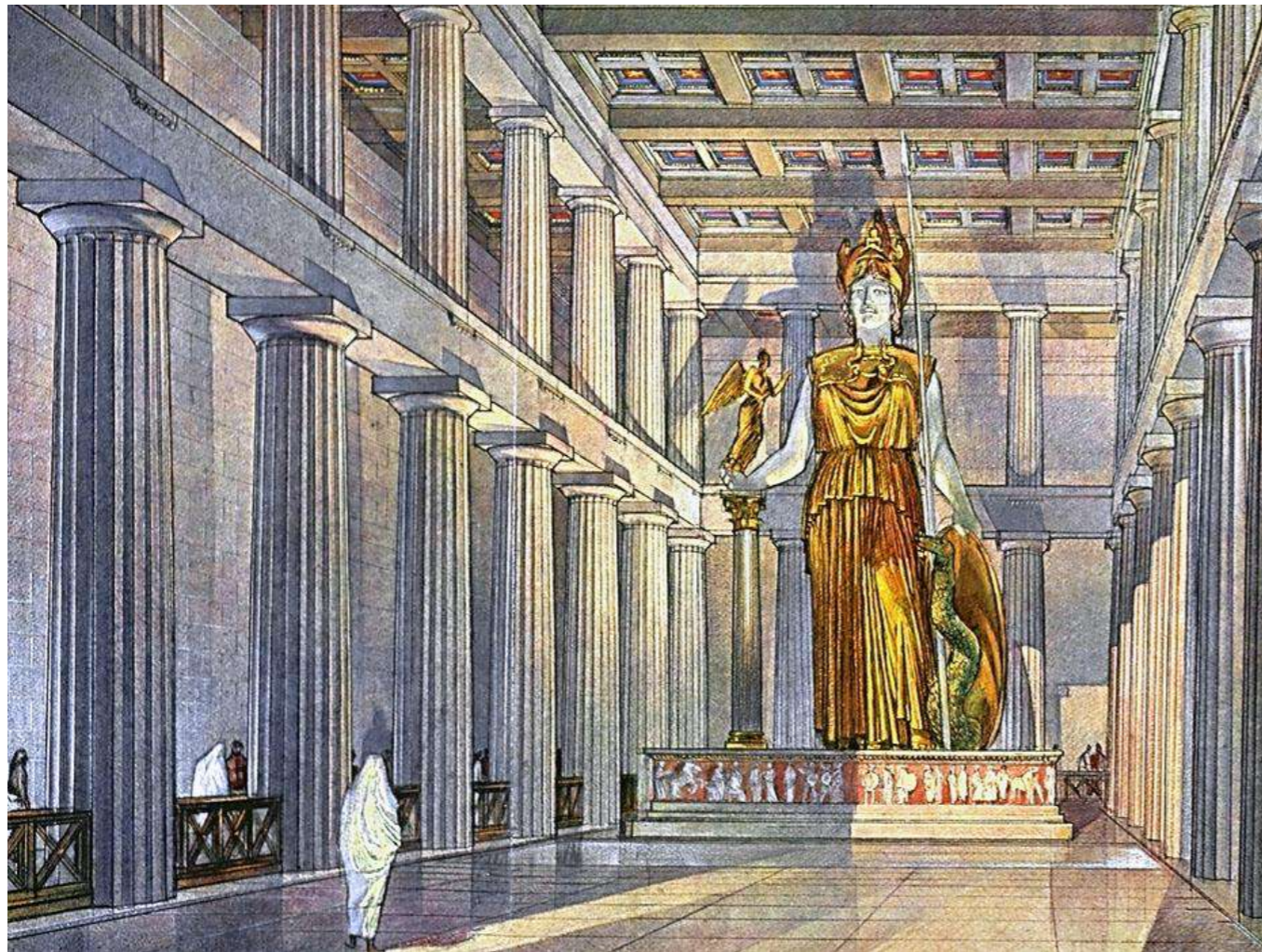


Figure 2. The Parthenon and its sculpture (scale 1:400).



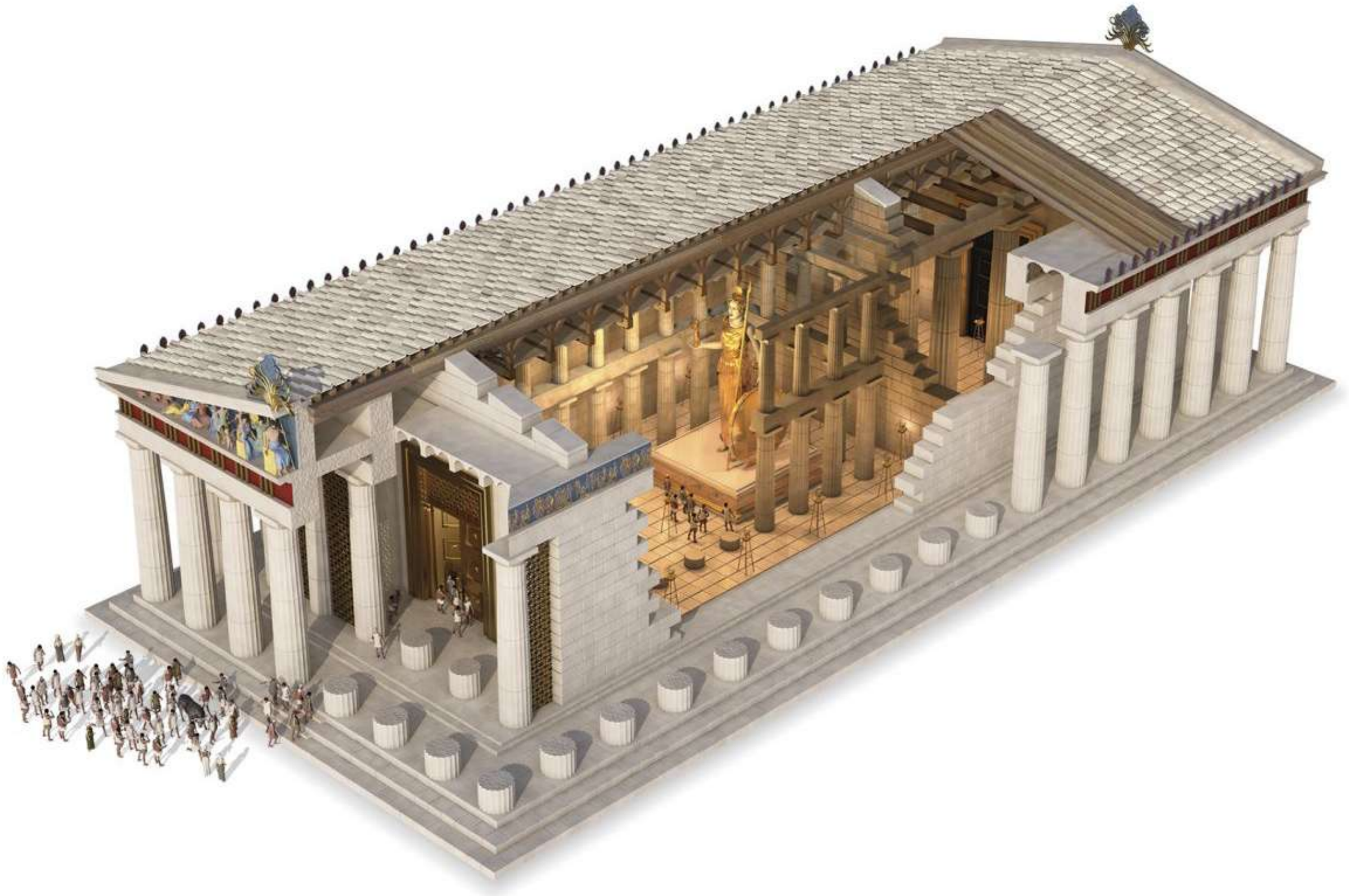
# Parthenon





# Parthenon

---





---

# Parthenon Proportions

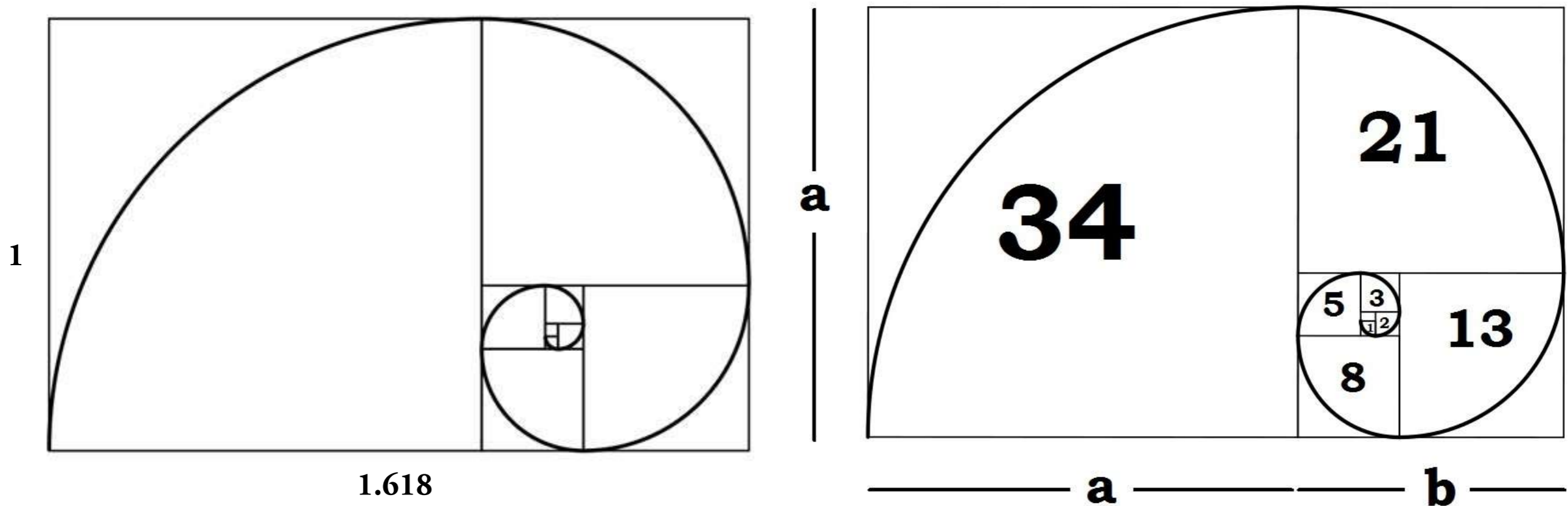
---



# The Golden Section

- The Golden ratio is a special number found by dividing a line into two parts so that the longer part divided by the smaller part is also equal to the whole length divided by the longer part
- It is often symbolized using **phi**
- In an equation form, it looks like this:  
$$a/b = (a+b)/a = 1.6180339887498948420$$

$$\frac{a+b}{a} = \frac{a}{b}$$





# The Golden Section

---

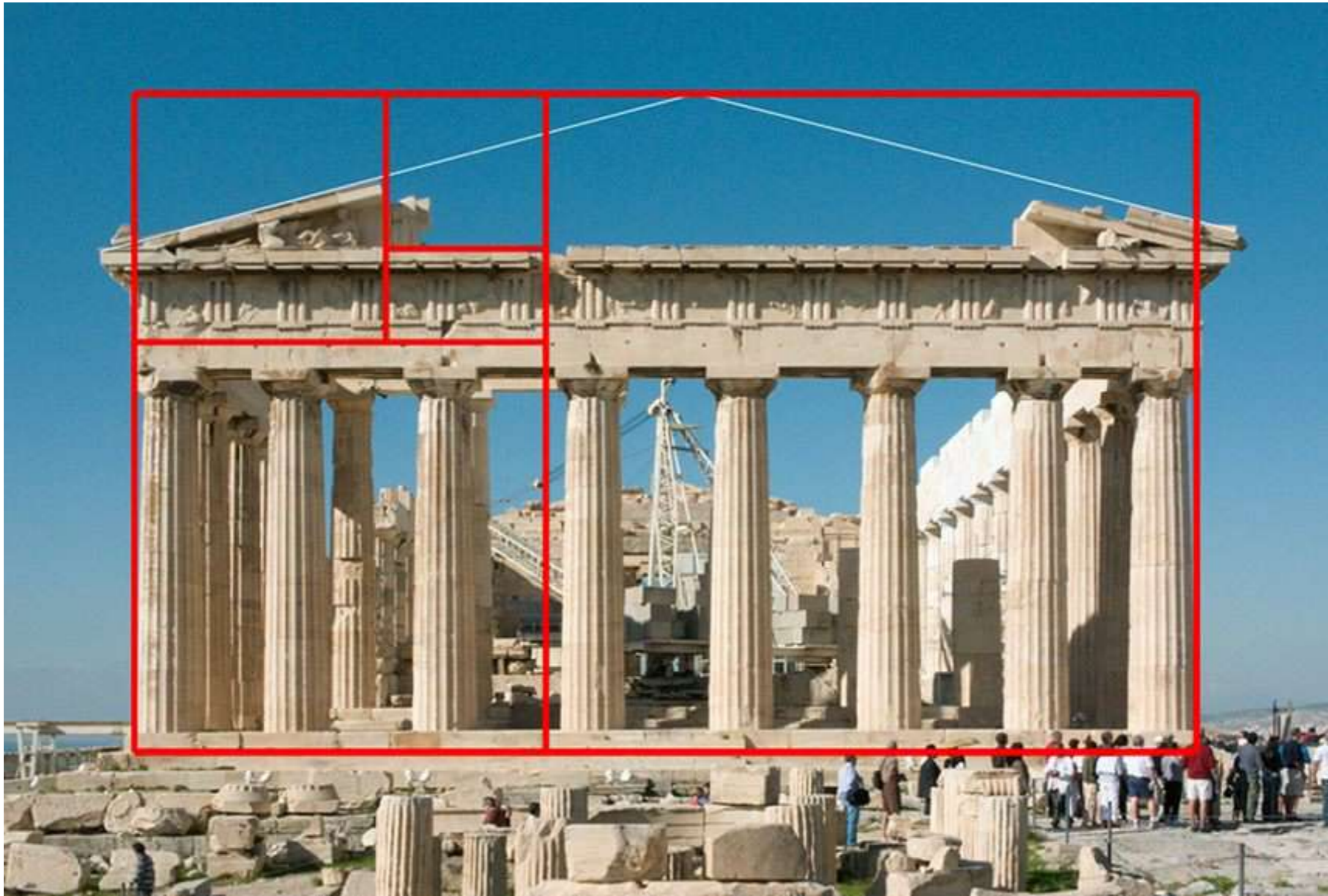
<https://www.youtube.com/watch?v=aKc1xTHSjIQ&t=4s>



# The Golden Section

---

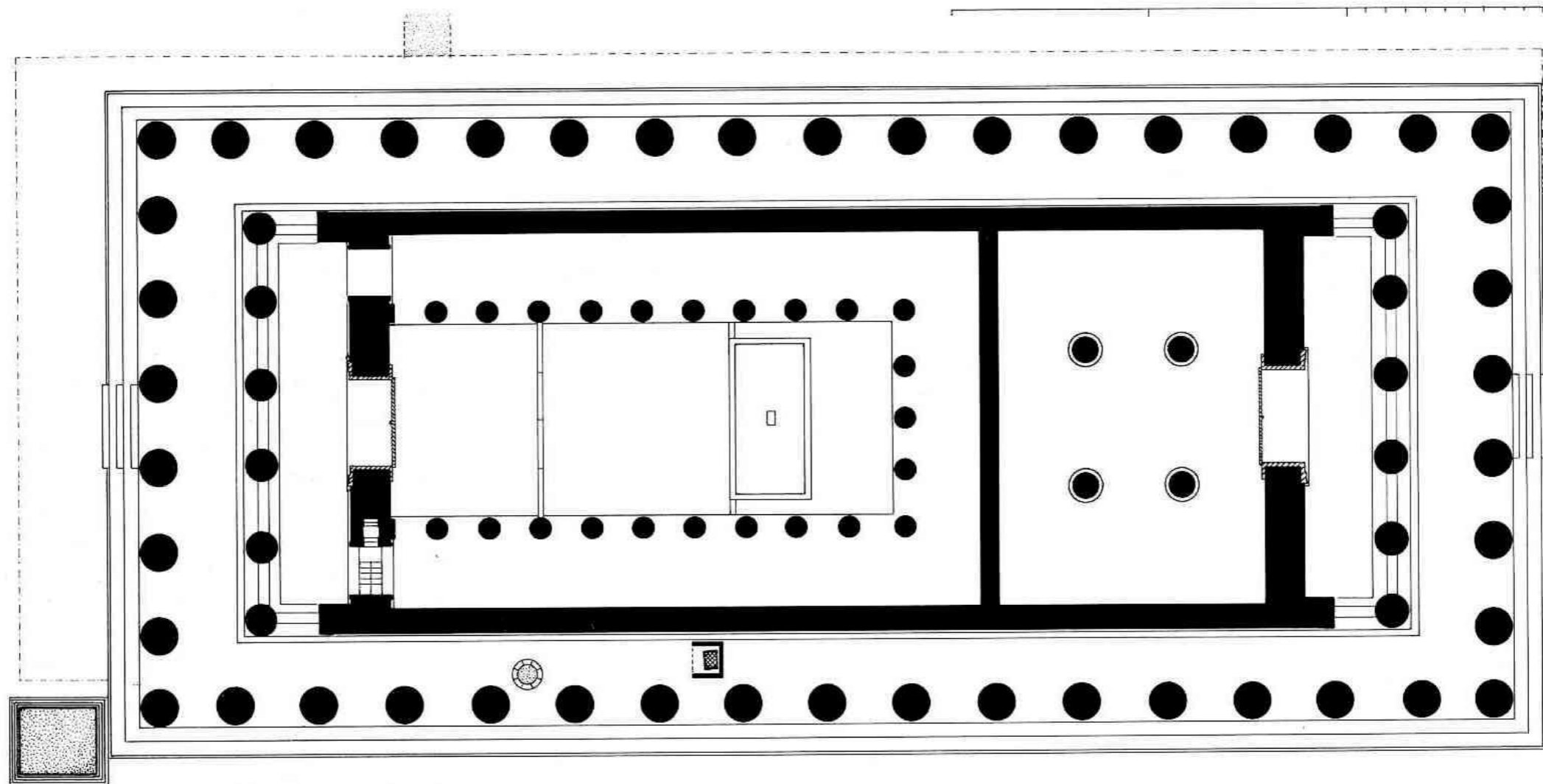
**Phidias** (500 - 432 BC) was a Greek sculptor and mathematician who is thought to have applied  $\phi$  to the design of sculptures for the Parthenon





# 1 : 2.25 ratio

- As an embodiment of logos, the entire design is governed by proportional system of **X to (2X+1)**
- Accordingly if there had to be eight columns across the ends, the length would be seventeen column



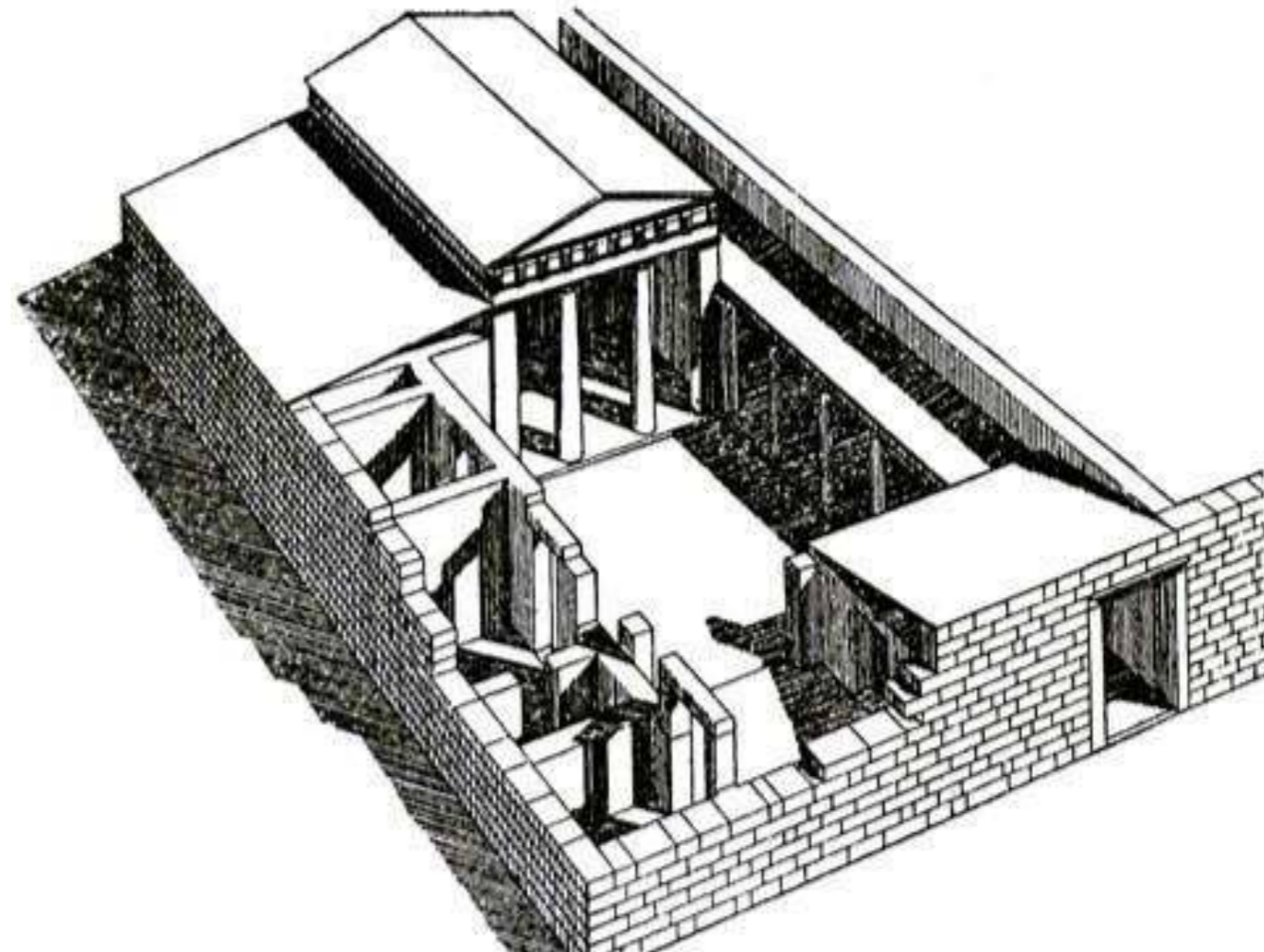
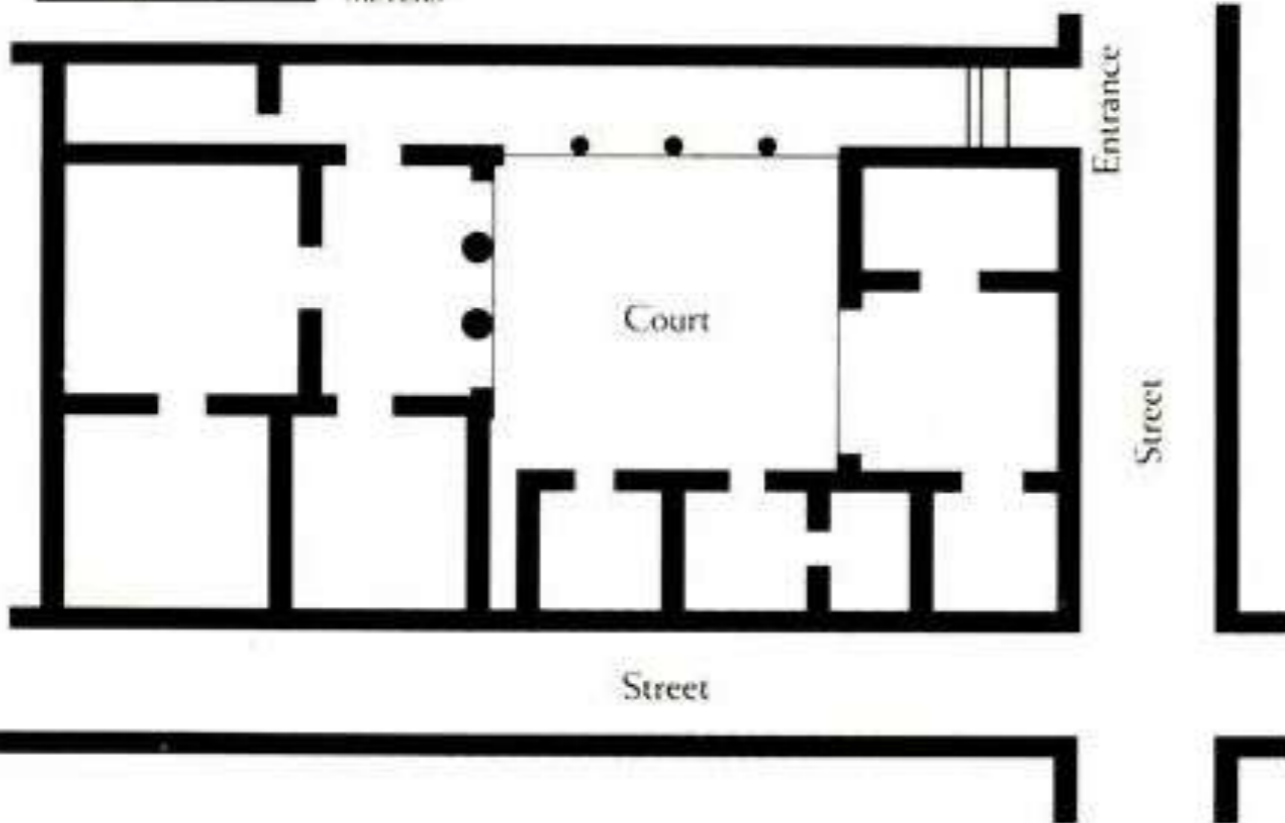
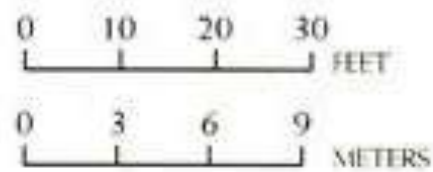


# Greek Domestic Architecture



# Domestic Architecture

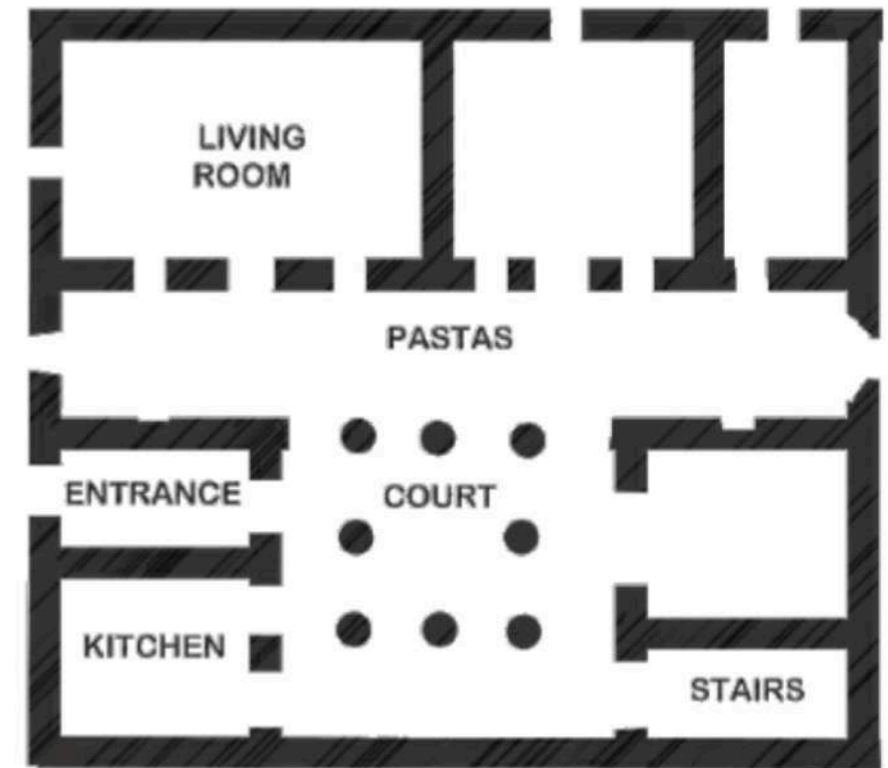
- Since most civic and commercial business was transacted in the agora, the private houses of the Greeks generally were **small and unelaborated**
- In planned cities, private houses were **rectangular**, with rooms arranged around an **open courtyard** so that cool air could build up and circulate through the rooms during the heat of the day





# Domestic Architecture

- The houses were usually **one story** and had a **pitched roof inwards** towards the central open court
- Usually made out of **Sun dried mud bricks**
- Had separate areas for men and women





Next lecture

Roman Architecture