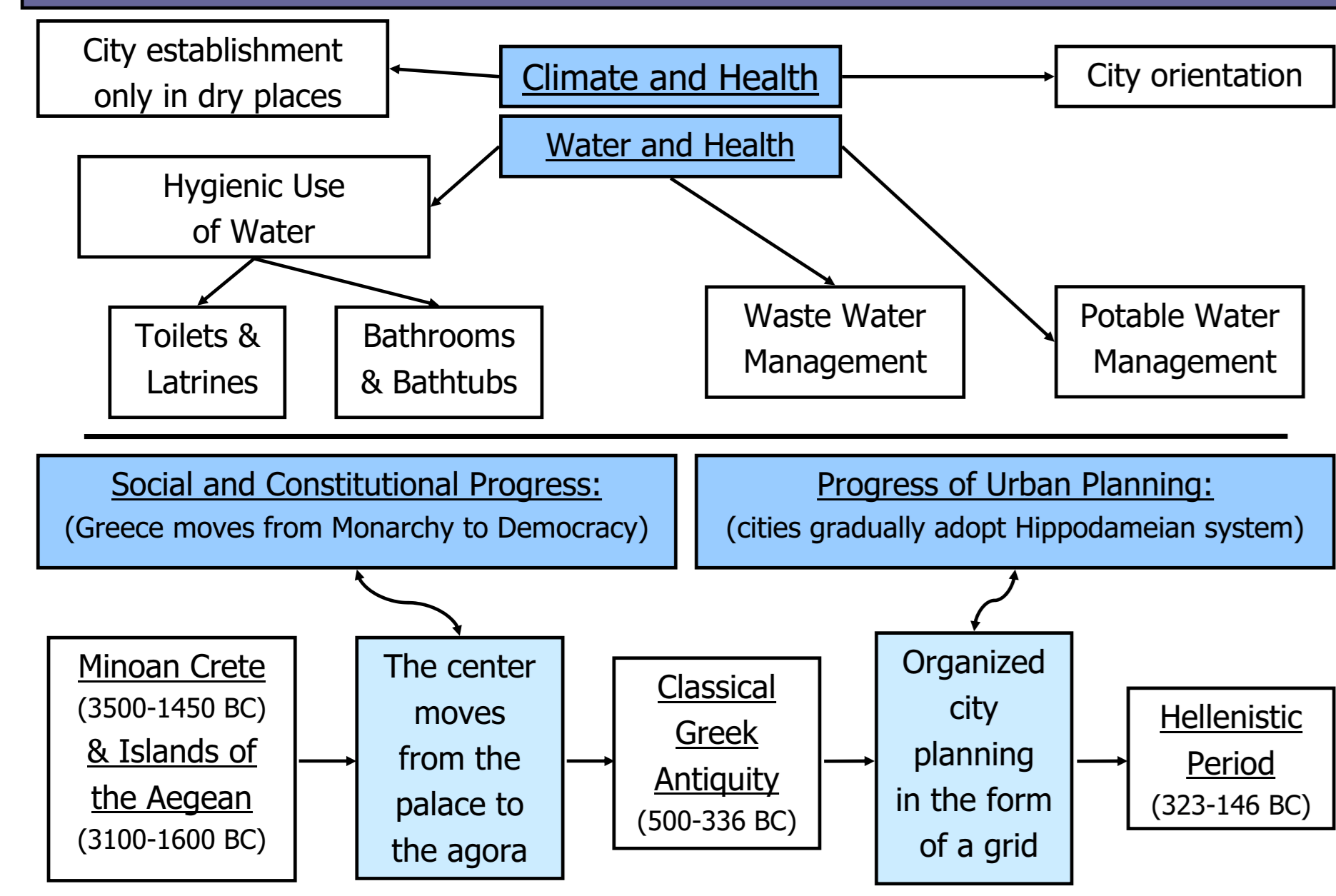


# Climate, Water and Health in Ancient Greece

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## 1. Scope and Background Information



## 2. City Establishment

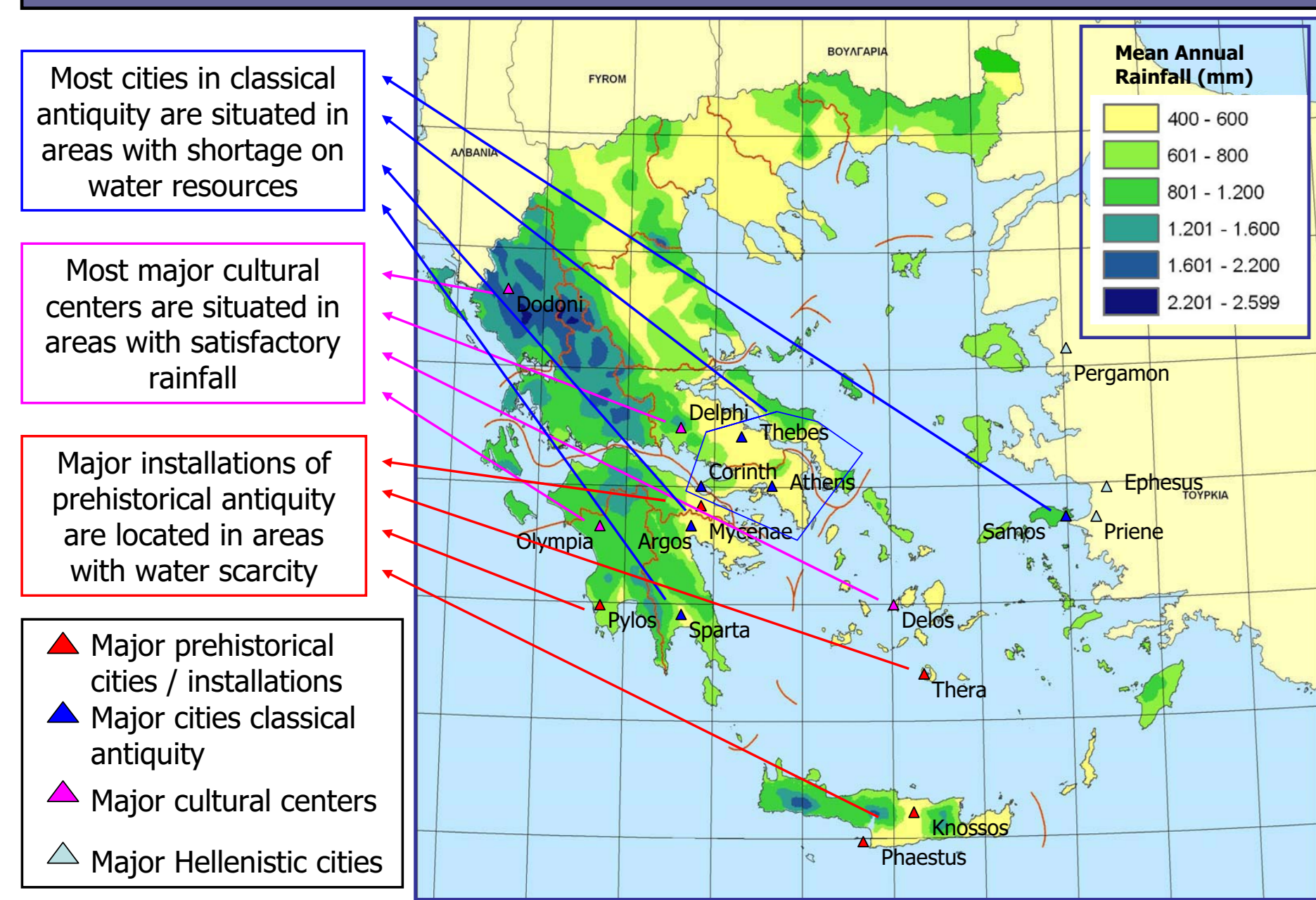
In contrast to earlier ancient civilizations (Egypt, Mesopotamia, Indus) that flourished in water-abundant environments (large river valleys), ancient Greeks preferred to establish their settlements in dry, water scarce sites.

It seems to be a paradox that all major Greek cities, during the several phases of the Greek civilization were established in those areas that had the minimal rainfall across the continental and insular Greece. Although some medium-scale rivers and lakes exist in Greece, there has been no major city close to them in Greek antiquity. However, the above criteria have not been applied for cultural centers (Delphi, Olympia or Dodoni), as their majority is situated in areas with adequate water resources.

Such a choice must have been driven primarily by the laws of the natural selection, with the populations established in dry climates having larger probabilities to survive, as they were protected from water-related diseases.

In the centuries that followed, Greeks, must have progressively assimilated the fact that dry climates are generally more convenient to live and healthier as they protect the population from water-related diseases.

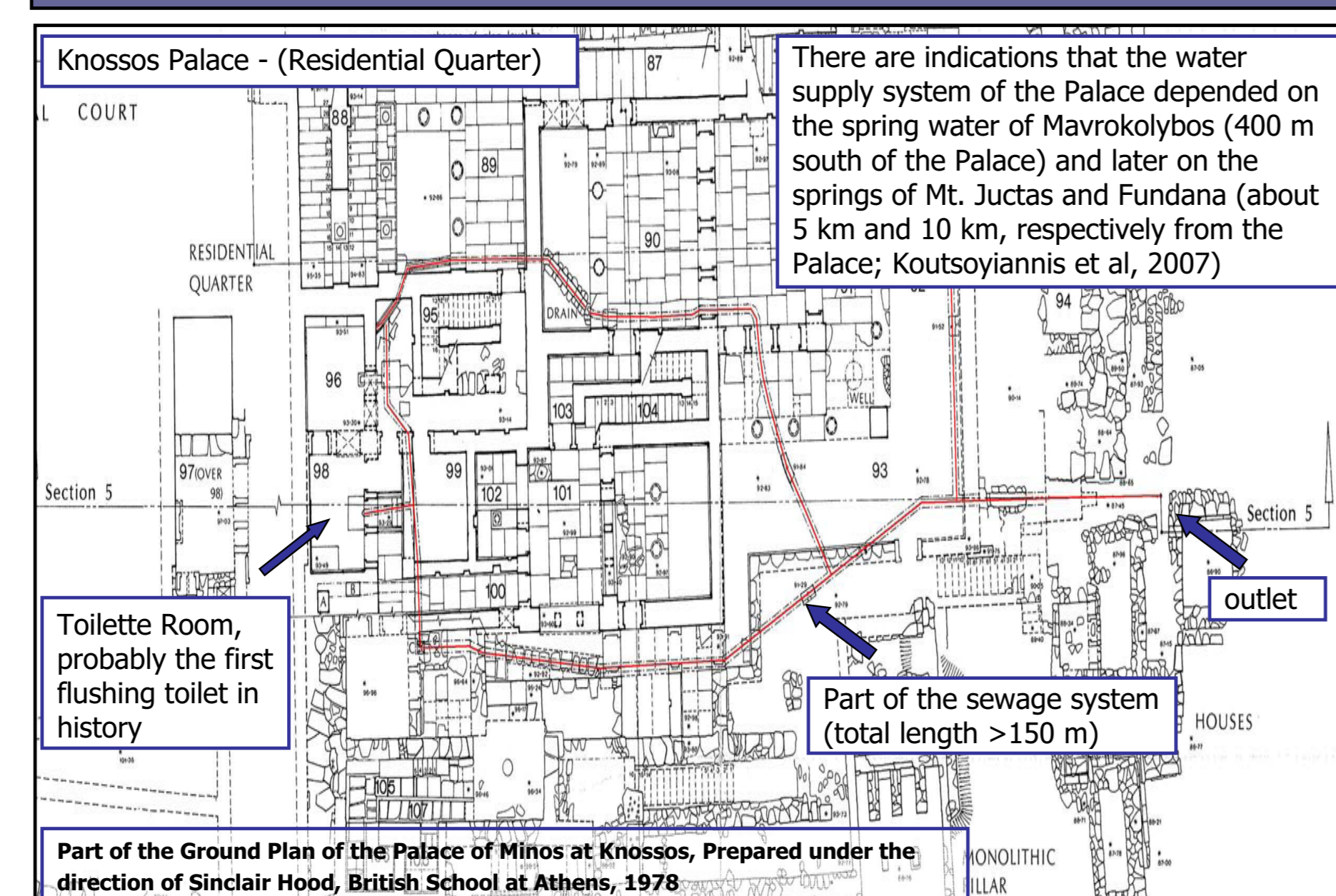
## 3. City Establishment II



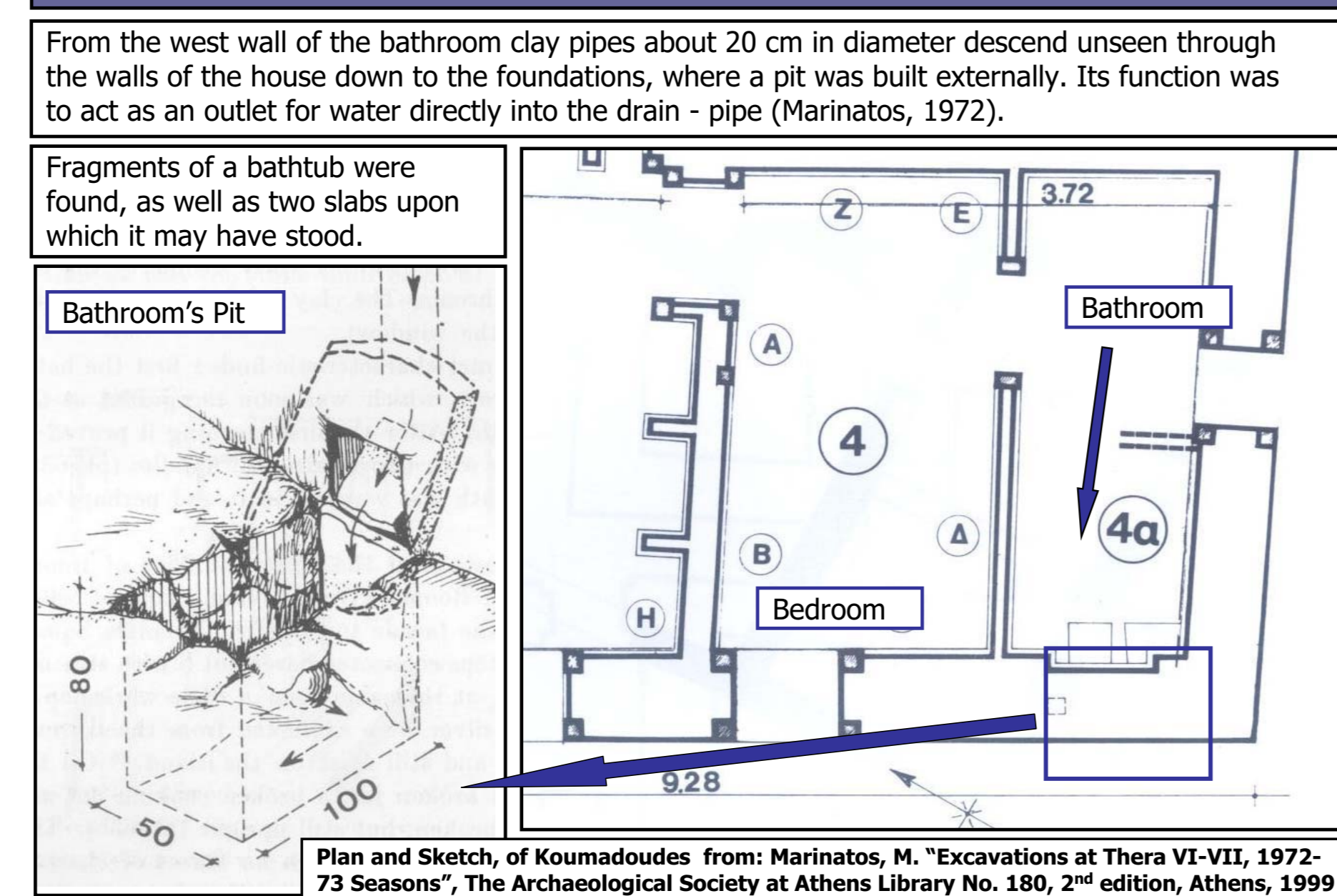
## 4. Prehistorical Greek Antiquity

<b>Minoan Crete (3500-1450 BC)</b> The centre of the life is the palace	<b>Cycladic (3100-1600 BC)</b>
<b>Hydraulic infrastructures include:</b> - Systems for water transportation - Wastewater and stormwater sewage systems - Bathrooms with flushing toilets	<b>Hydraulic infrastructures include:</b> - Sewage systems - Bathrooms and bathtubs
We focus on Knossos Palace, although similar hydraulic technologies were practiced in other palaces as well (Phaistos, Mallaia)	We focus on Acrotiri, which is regarded to be the main settlement of the island of Thera
According to "Volcanic Destruction" theory, the vast eruption of the Thera volcano destroyed both civilizations	
The expatriates moved in mainland Greece and particularly in Western Peloponnese, transferring their culture, art and technology to Mycenaean Greece (1550-1150 BC)	

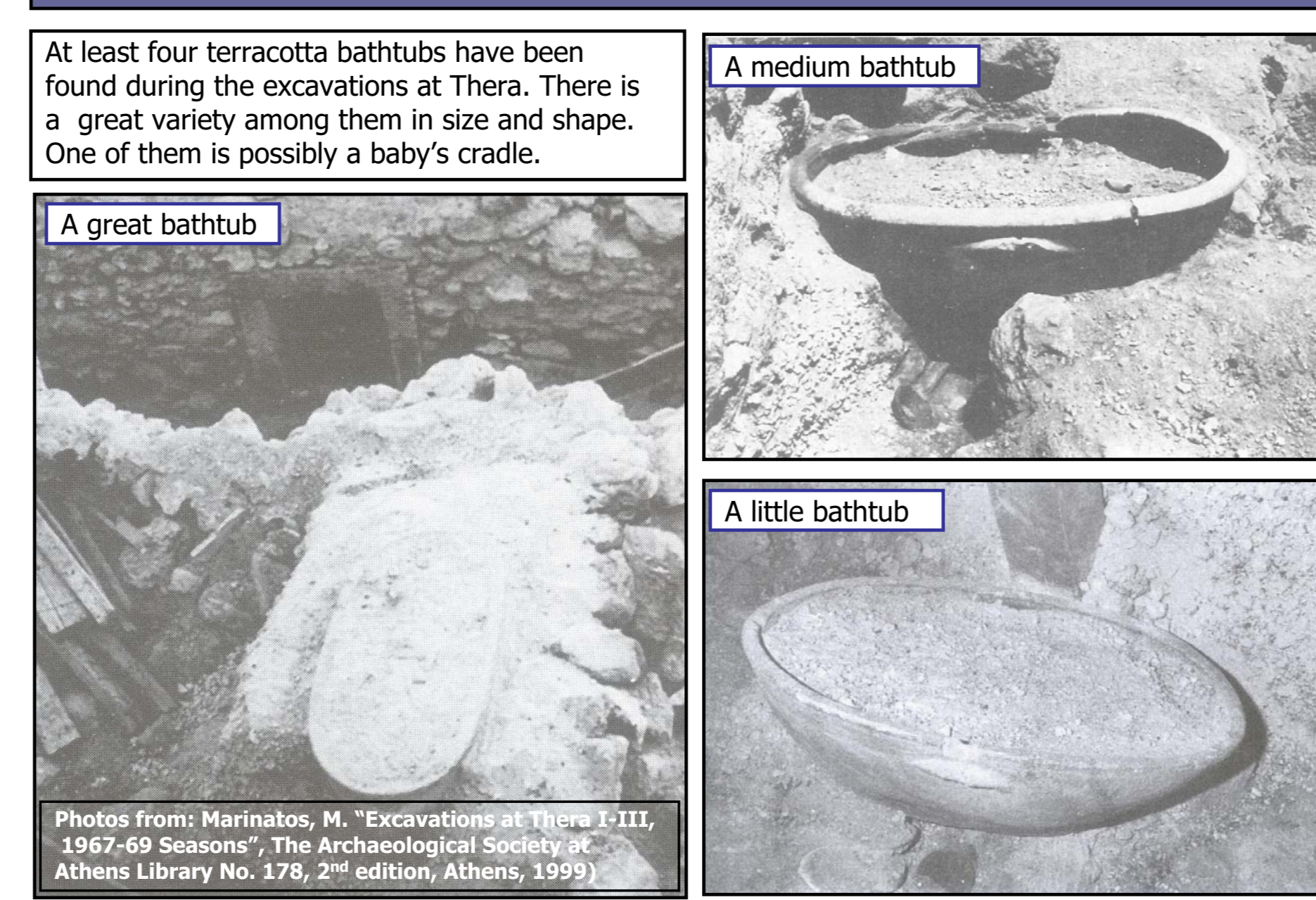
## 5. Minoan Crete: Water Supply, Sewage and Flushing Toilet



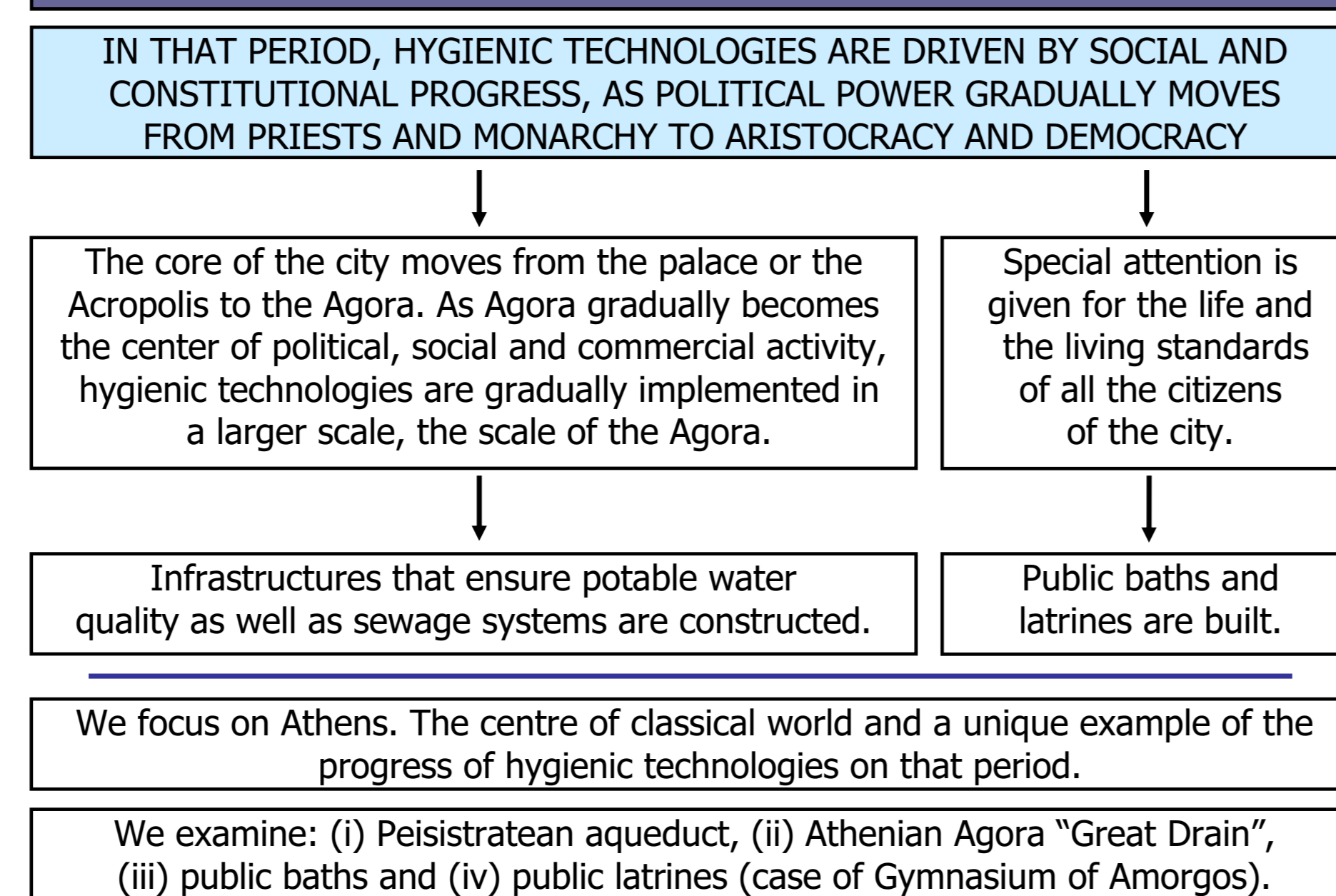
## 6. Island of Thera: West House, Bathroom with Sewage System (Room 4a)



## 7. Island of Thera: Terracotta Bathtubs



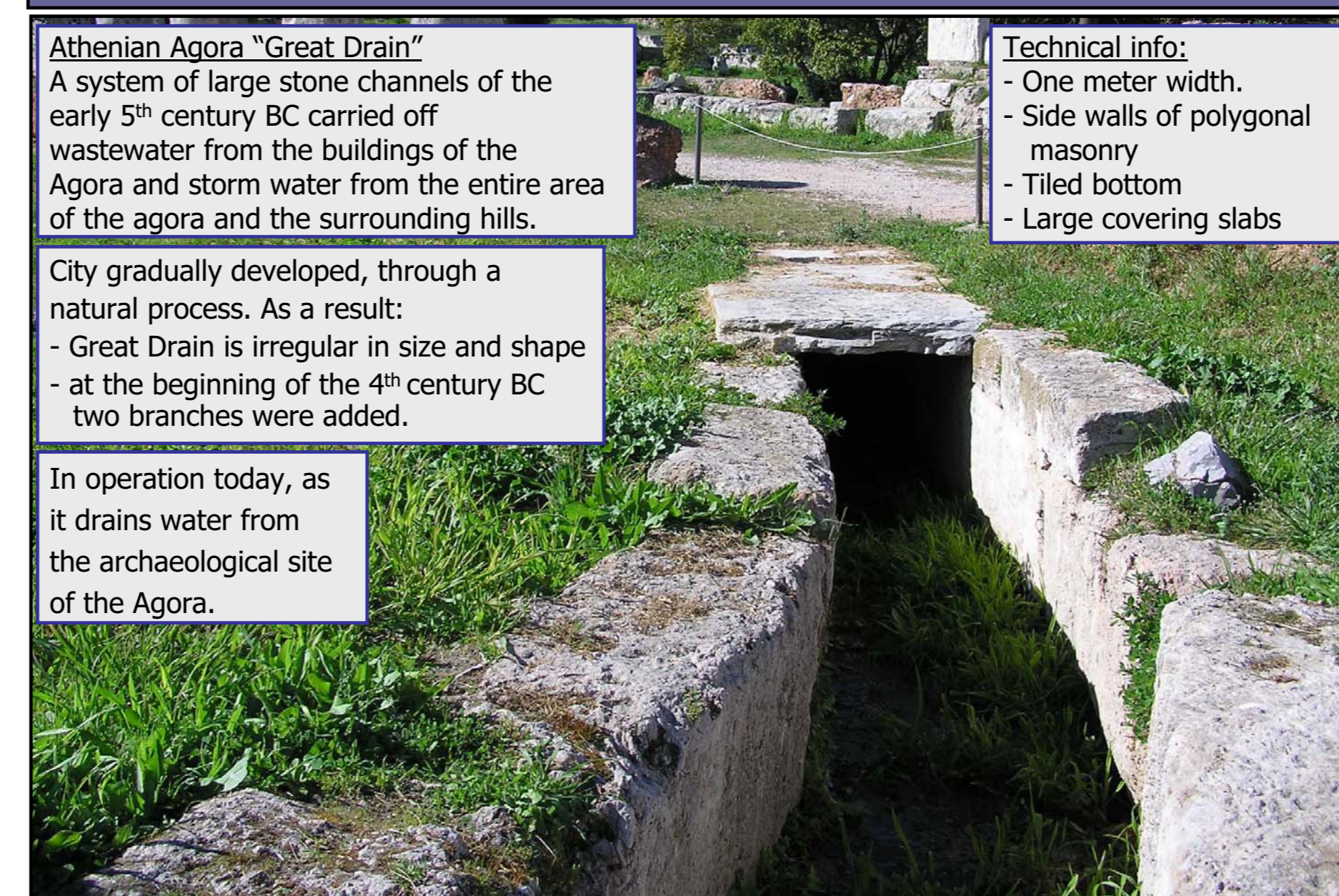
## 8. Classical Greek Antiquity - The Case of Athens



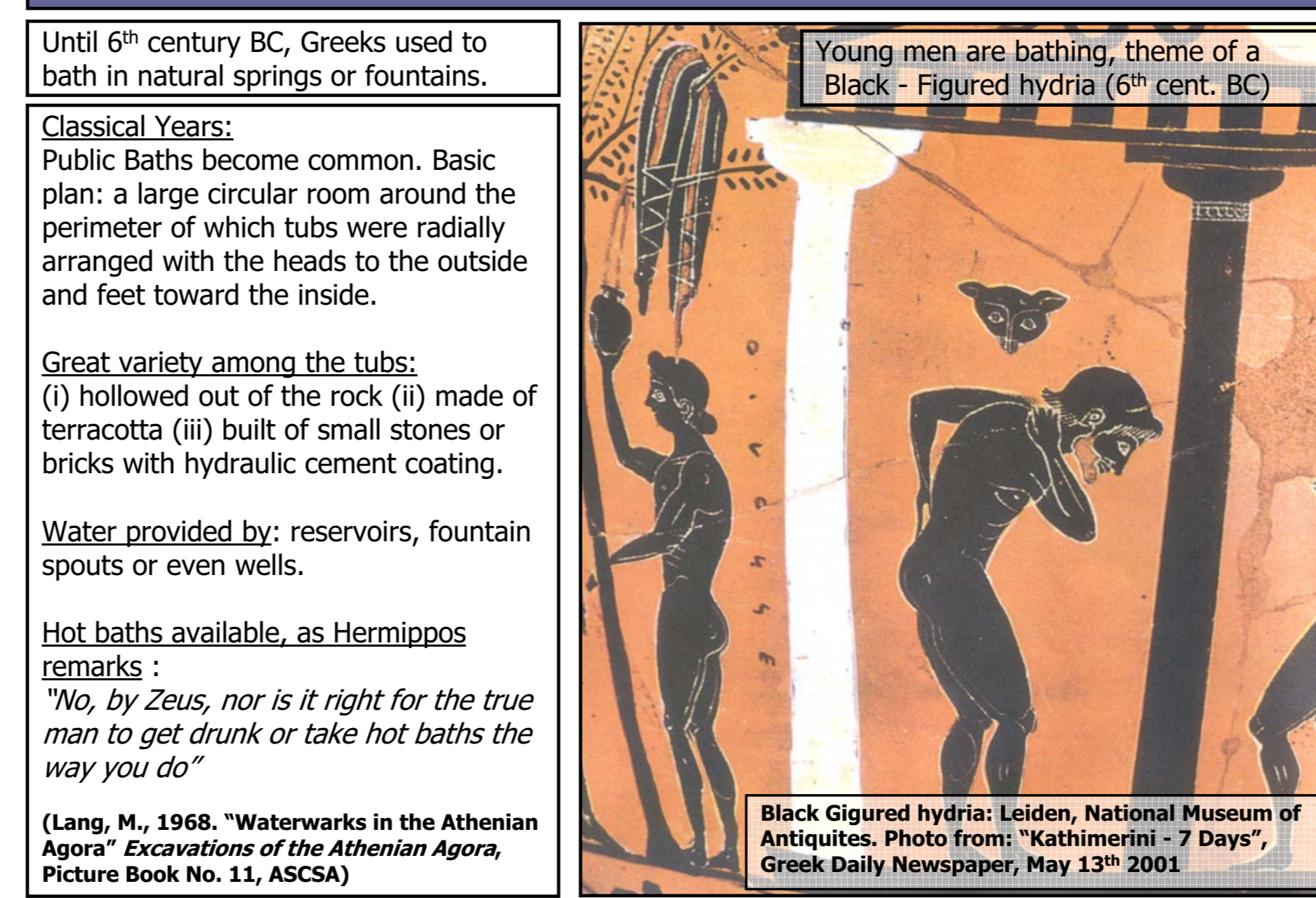
## 9. City of Athens: Potable Water Quality



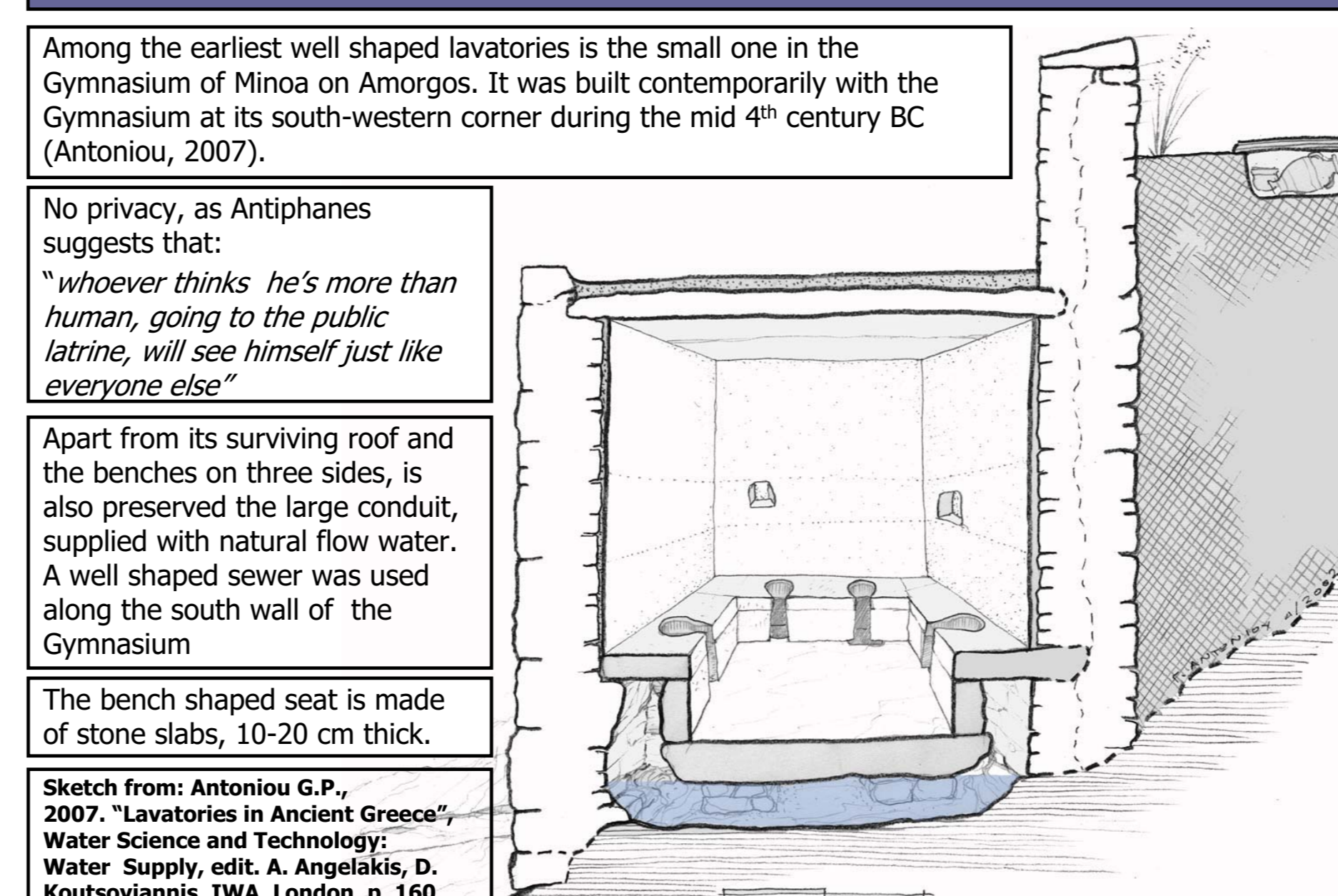
## 10. City of Athens: Sewage System



## 11. Classical Period: Public Baths



## 12. Classical Period: Lavatory at Amorgos island



## 13. Hellenistic Period

**IN THAT PERIOD, MOST CITIES (COLONIES, CITIES RECONSTRUCTED AFTER THE PERSIAN INVASIONS AND CITIES THAT MOVED IN NEW SITES IN ORDER TO STRENGTHEN THEIR LABOUR) ADOPT THE HIPPODAMEIAN SYSTEM**

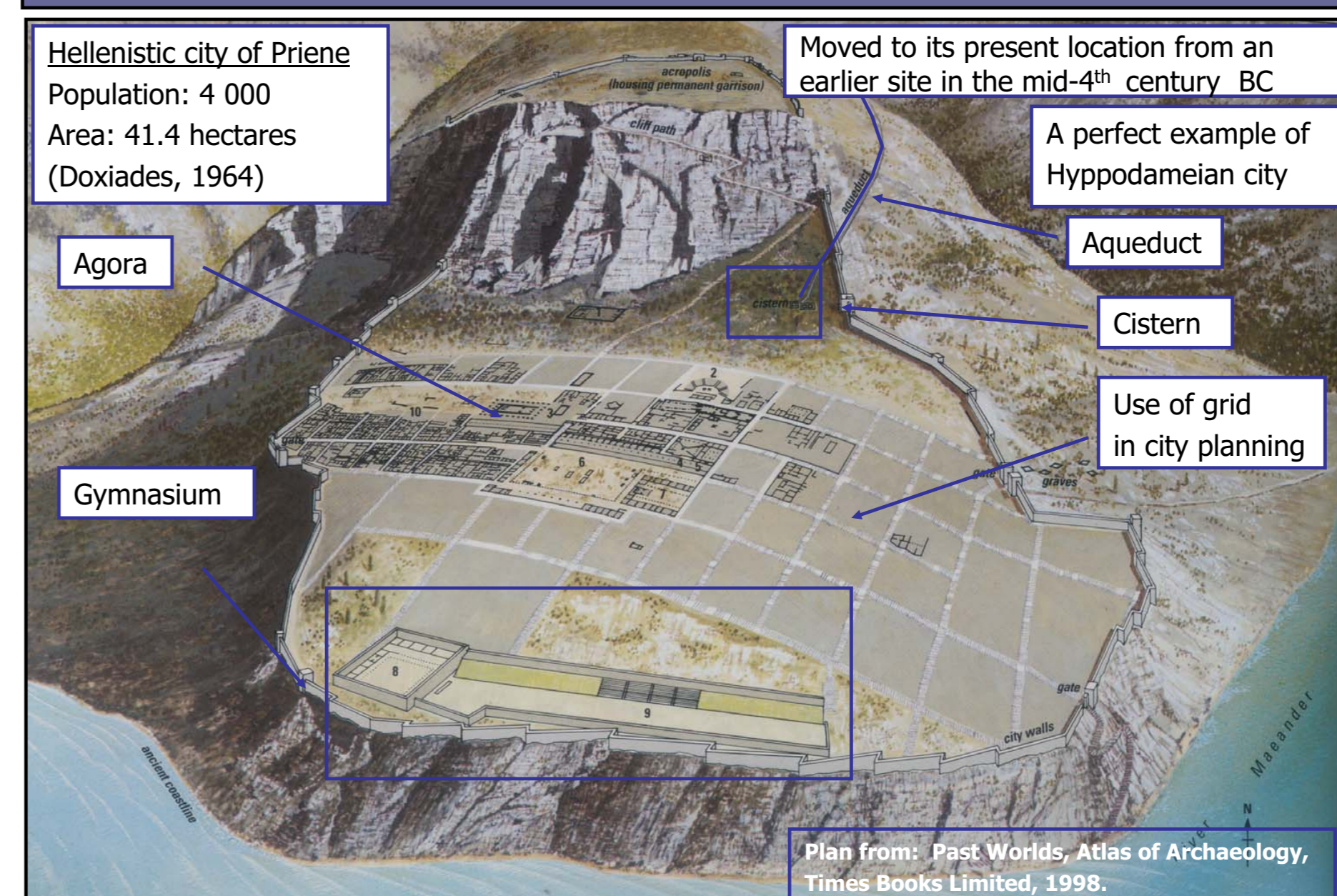
Hippodameian cities are characterized by parallel streets and the use of a grid in planning. The rectangular grid was dictated by purely functional reasons. Hippodamus the Milesian was the first to apply this system (Doxiadis, 1964)

**As Hippodameian system gradually replaces the natural growth of the city beneath the Acropolis:**

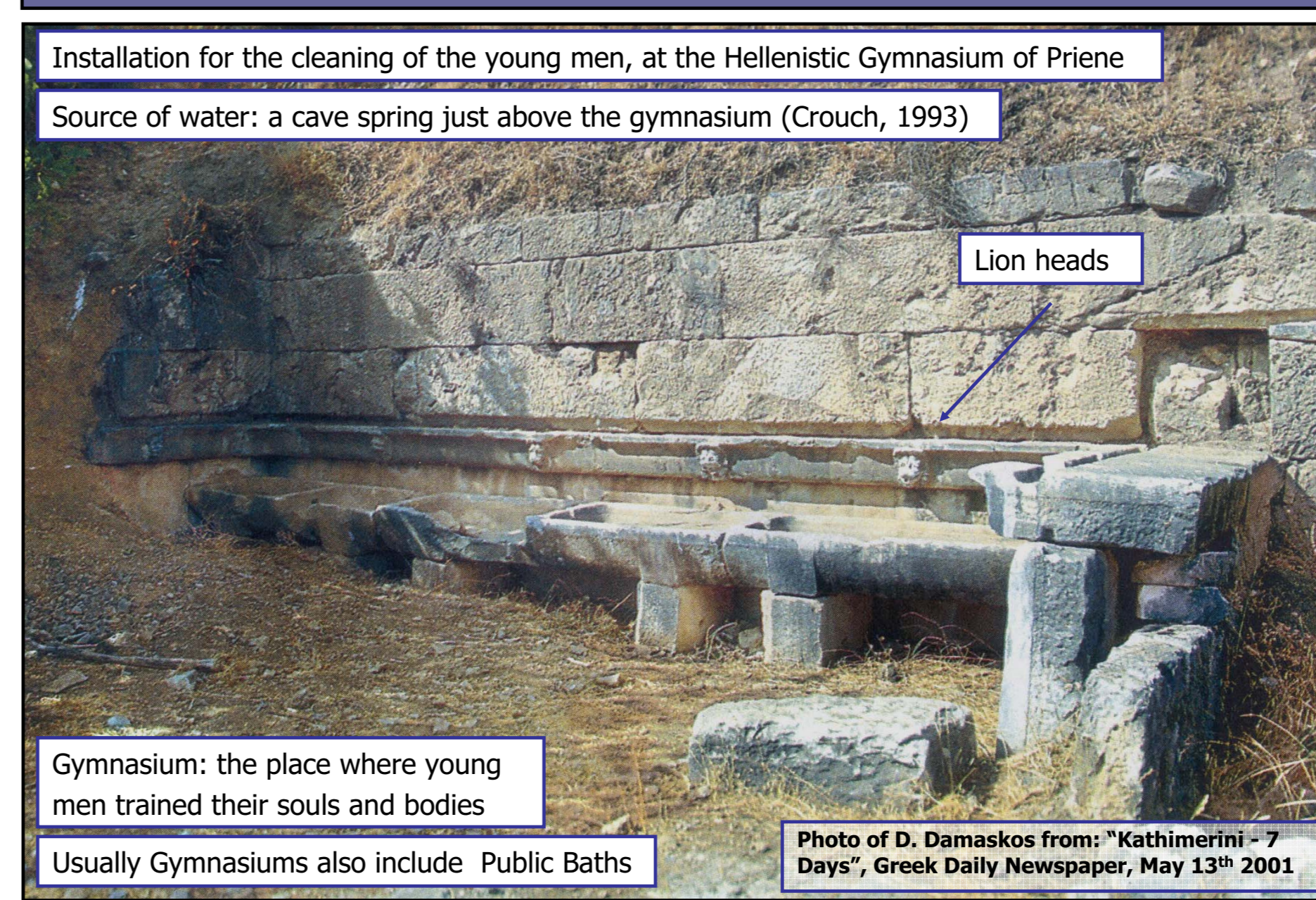
(a) the scale of the city changes, requiring bigger infrastructures  
 (b) organized city-planning and the regularity of the grid allows engineers to design and construct hydraulic infrastructures similar to modern ones  
 (c) special attention is given in the orientation of the city

**We focus on:**  
 - Priene, possibly the best example of Hippodameian city planning and  
 - Pergamon, where, for the first time in history, pressure flow was applied on a large technological scale for water conveyance.

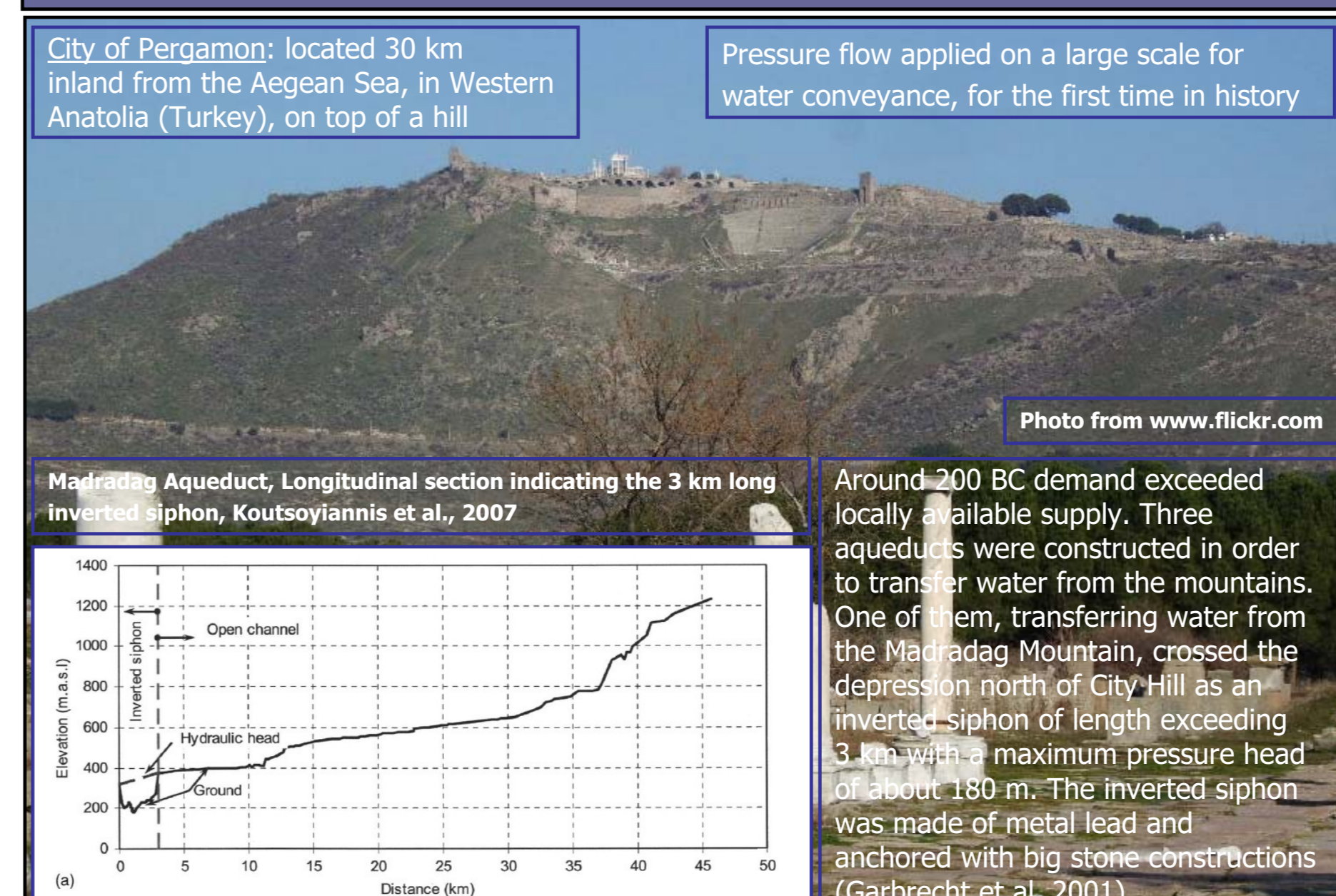
## 14. Priene: Hippodameian City Planning



## 15. Priene: Gymnasium, bathing room



## 16. Pergamon Aqueducts



## 17. City Orientation

From Aristotle's Politics (VII, X, 4), about the importance of the orientation of the city, we learn:

*"The site of the city itself we must pray that fortune itself may place on sloping ground, having regard to four considerations: first, as a thing essential, the consideration of health (for cities whose sites slopes east or towards the breezes that blow from the sunrise are more healthy, and in the second degree those that face away from the north wind, for these are milder in winter); and among the remaining considerations, a sloping site is favourable both for political and for military purposes"*

(translation from Doxiadis, C., "The Ancient Greek City and the City of the Present", Ekistics, v.18, no.108, November 1964, p. 346 - 364).

## 18. Conclusions

In Crete and the islands of the Aegean, during the Minoan period, and later in mainland Greece, during the Mycenaean period, all major hygienic technologies have been implemented.

The first big step forward occurs as Greece gradually moves from monarchy and oligarchy to democracy. Then: (i) The core of the city moves from the palace and Acropolis to the Agora. As Agora gradually becomes the center of political, social and commercial activity, hygienic technologies and practices start being implemented on a greater scale, the scale of the Agora. (ii) Special attention is given, for the first time in history, for the living standards of all citizens of the city-state.

The second (and last) big step happens when the Hippodameian system gradually replaces the natural growth of the city beneath the Acropolis. Then: (i) The scale of the city changes, requiring bigger infrastructures and (ii) Organized city-planning in the form of a grid allows engineers to design and construct infrastructures similar to modern ones.

The technological frame of the Hellenistic antiquity can only be compared to modern hygienic water systems reestablished in Europe and North America from the 2nd half of the 19th century A.D. until the present day.

## 19. Definitions and Useful Archaeological Information

**I. Main periods of Greek antiquity**  
**Minoan:** Island of Crete, from 3500 BC to 1450 BC.  
**Cycladic:** Islands of the Aegean, from 3100 BC to 1600 BC.  
**Mycenaean:** Mainland Greece, from 1550 BC to 1150 BC.  
**Classical:** Mainland Greece, Aegean, Asia Minor, Southern Italy, from 500 BC to 336 BC.  
**Hellenistic:** The centre moves from mainland Greece to the eastern Aegean, from 323 BC to 146 BC.

**II. Places and Cities mentioned**  
**Knossos:** The centre of Minoan Crete, 5 km South-East of Herakleion city. The present palace dates from 1700 BC when it was rebuilt after an earthquake that destroyed the original palace of 2000 BC.  
**Athens:** The centre of the Classical Greek world, the largest and wealthiest city-state and a leading military and maritime power.  
**Athenian Agora:** The area over the North-West slopes of the hill of Acropolis. The heart of ancient Athens, with trading, religious and political activities.  
**Pergamon:** In western Anatolia (today Turkey), 30 km inland from the Aegean Sea. Little is known of the city's history before the Hellenistic period. The dynasty of the kingdom of Pergamon began with General Philetairos (283-263 BC) and ended in 133 BC with its surrender to the Romans (Ministry of the Aegean, 2006).  
**Priene:** Hellenistic city in western Asia Minor, perfect example of an Hippodameian city.  
**Thera, Amorgos:** Islands of the Aegean Sea.

**III. Historical figures mentioned**  
**Peisistratos:** Tyrant of Athens, seized power in 546 BC and ruled until his death in 527 BC.  
**Antiphanes:** Comic poet of the 4th century BC.  
**Herimippos:** Comic poet of the 5th century BC.  
**Aristotle:** 384 BC - 322 BC Philosopher, student of Plato. Greatly influenced philosophy up to modern times.

## 20. References

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