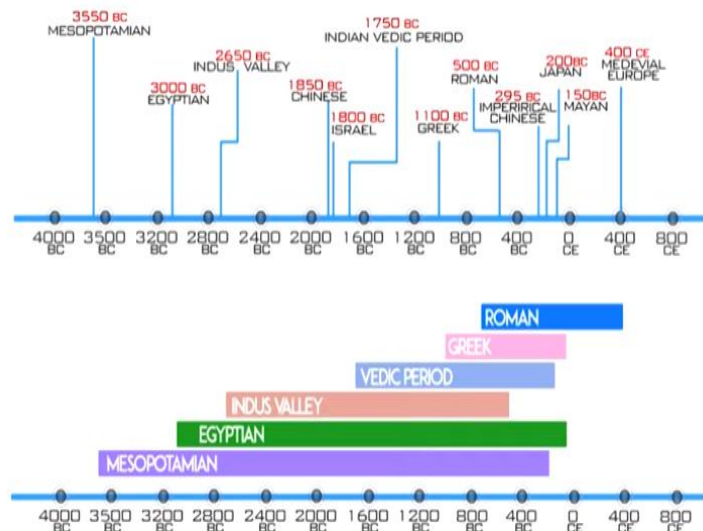


**Introduction to Urban Planning**  
**Prof. Harshit Sosan Lakra**  
**Department of Agriculture and Planning**  
**Indian Institute of Technology - Roorkee**

**Module No # 04**  
**Lecture No # 18**  
**Contextualizing Cities (Greek and Roman)**

Welcome to the course introduction to urban planning in the session today we will continue with our efforts to contextualize our cities. In the previous class we reviewed the emplotment and covered Mesopotamian Egyptian, Indus valley civilization and Vedic period.

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Today we shall review Greek and Roman civilization therefore the coverage of this lecture will include Greek and Roman civilization in this we shall review the geographical spread timeline key cities in this period we will look at key transformation in these periods.

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## Learning Outcomes

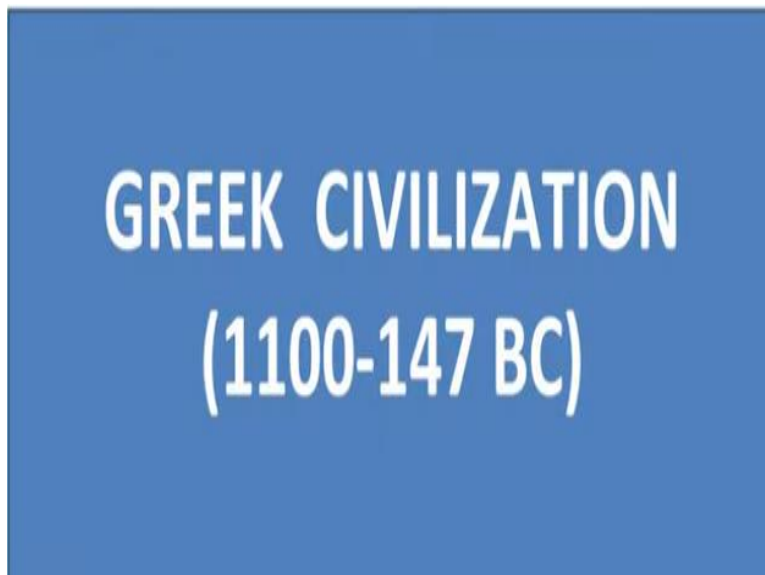
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- ① Discuss the Greek and Roman Civilization
- ② Review the Geographical Spread and Timelines
- ③ Identify key transformations in Civilization, Technology, Philosophies, Economies, Education, Art, Culture , Architecture, Governance, Politics , Sports and Discoveries, Documentation-Census and Record Keeping
- ④ Review Urbanization Trend and Environmental Impact

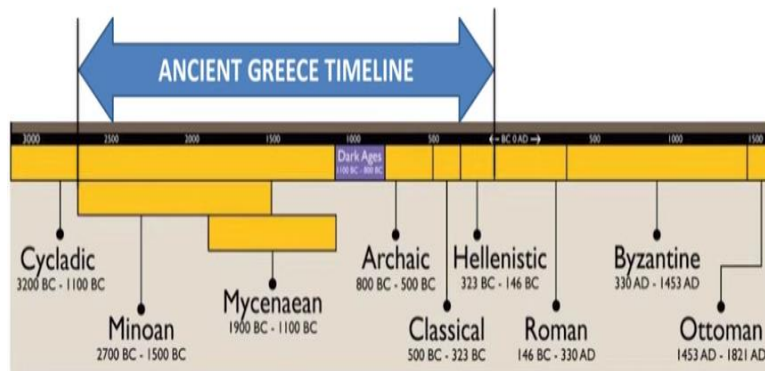
We will look at key characteristics and elements of spatial planning in these ancient cities. Accordingly the coverage would be we will accordingly to these; coverage the learning outcome would include that after completion of this session. You should be able to discuss the period timeline and geographical socio-economic and political context of these cities. You should be able to compare with the previous period and the current practice.

You should be able to identify the key transformation in this period you should be able to identify the key elements and the components of spatial planning in this cities of this periods.

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(John Paok, 2017)

Looking at the Greek civilization as per the professor of classics and ancient history Oxford universities (01:56) the period of ancient Greek history, can be count from the Minoan period 2700 BC to end of Hellenistic period 146 BC are shown in the timeline by John (02:11). The classic and archaic period which you see in between or sometimes collectively referred as the Hellenistic period.

Hellenic Greek refers to the people who lived in the classic Greece before Alexander the great's death. Greek Hellenic were isolated and their civilization was termed classic because it was not heavily influenced by outside forces. Hellenistic refers to Greeks and others who lived during the period after Alexander conquest they differ from Hellenic in territory with respect to geographical influence with respect to culture.

Particularly philosophy and religion and political system with respect to change from a democracy to many small monarchies and ultimately controlled by room. In the image the orange colour shows the ancient crease.

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We see that the most of the Greek mainland was rocky and barren and therefore bad for agriculture. Most Greeks therefore lived along the coastline or on islands where the soil was good for farming. The agion and Mediterranean seas provided means of communication and trade with the other places.

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In ancient Greece there were 6 major cities Athens, Olympia, Sparta, Thebes, Delphi, Corinth.

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## OLYMPIC GAME IN GREECE



The ancient Greeks contributed massively to human culture giving us philosophy science architecture the Olympic games and the democracy among many other developments.

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Athens was one of the major ancient Greek cities and continues to be an important city in the modern world.

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(BBC, 2019)

This is the shot of modern Athens taken in 2019 beside being the foremost example of ancient city states. Athens advanced in the area of agriculture urbanization as well as we see their development of central banks and coinage.

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ATHENIAN  
TREASURY



(Beazley Archive - University of Oxford, 2016)

In the pictures you see the Athenian treasury and public places like agora provided urban life with form and function.

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(Britannica, 2021)

(Refer Slide Time: 04:52)

### GREEK COINS



Lydia  
@600 BCE



Miletos  
@590



Lucania  
@550 BCE



Teos  
@540 BCE



Aegina  
@520 BCE



Caria  
@510 BCE



Bruttium  
@490



Thessaly  
@440 BCE



Athens  
@425 BCE

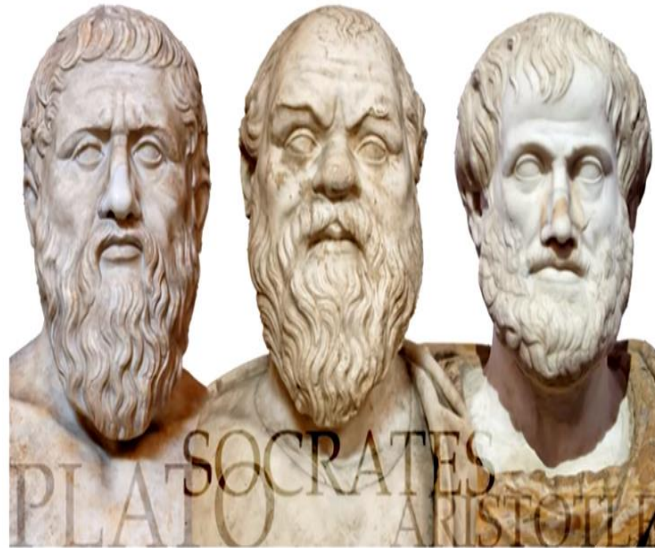


Syracuse  
@400 BCE

(Classical Numismatic Group, 2021)

We are looking at the image of ruins of the marketplace agora at Athens the introduction of coinage and currency wrapped up the economic growth of the ancient Greek world by superseding the barter system and growing cities. Moreover the city-states that were established around the eighth century BC were iconic of ancient Greek Civilization their philosopher's warriors and thinkers are remembered and mythicized even today.

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(Paula Reed 2016)

Classical Greece saw a flourishing of philosophers especially in Athens during its golden age of these philosophers the most famous are Socrates, Plato, and Aristotle. Socrates, born in Athens in the fifth century BC, marks a watershed in ancient Greek philosophy. Many of Plato's political doctrines are derived from Aristotle's work. The Republic, the laws, and the statement that the Republic contains the suggestion that there will not be justice in cities unless they are ruled by philosopher kings.

We see how the engagement of philosophers and thinkers was identified at that time; we see the key role of advisors even today in managing our cities. Looking at the political context of civilization, there was a transformation from rulers to religion; people were worshipping God and democracy./

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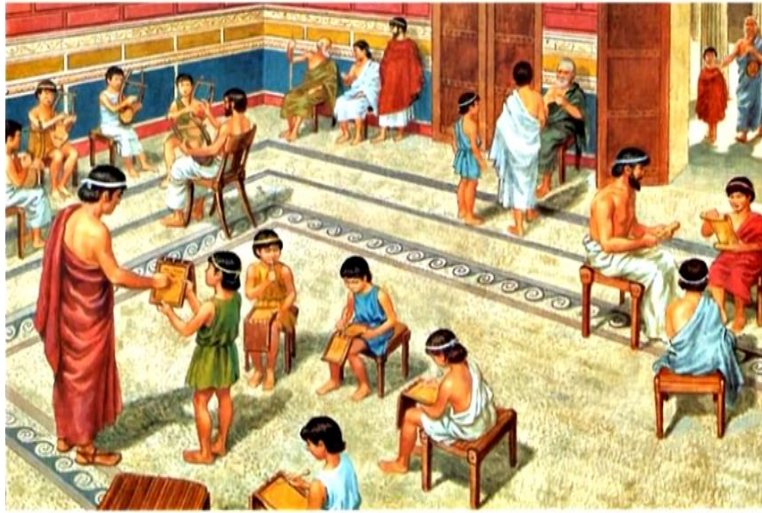
- **POLIS**- literally means "city" in Greek.
- It defined the administrative and religious city center
- *Term Polis* : captures a state or society especially when characterized by a sense of community.

We see that the name that the name given to polis which means city captures a state or society especially when categorized by a sense of community. Formation by the Greeks themselves was (( )) ((06:36) literally a gathering together this (( )) (06:45) could take one or both of the 2 forms it could be physical concentration of the population in single city or an act of purely political unification that allowed the population to continue living in a dispersed way.

Like how we define cities by population often with density today education was; key in the period in all the Greek city-states except for Sparta. The purpose of education was to produce good citizens children's were trained in music, art, literature, science, math and politics. Athens was a center of learning with surface and philosophers travelling across Greece to teach rhetoric astronomy cosmology, geometry and the like.

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## GREECE EDUCATION: LITERATURE, ART, SCIENCE AND MUSIC



(Arslan, 2021)

Like we see education town today or we see the education system in our cities today.

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(ancient-literature.com, 2021)

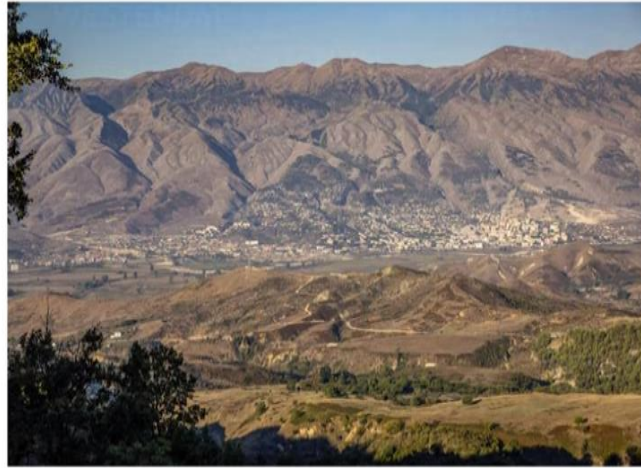
Further when we look at language ancient Greece was one of the first civilization to widely use writing as a form of literary and personal expression. As we have learnt earlier in this session that the region was rocky and barren and was bad for agriculture and therefore they lived along the coastline on islands where the soil was good for farming,

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## ROCKY, BARREN AND MOUNTAIN OF GREECE

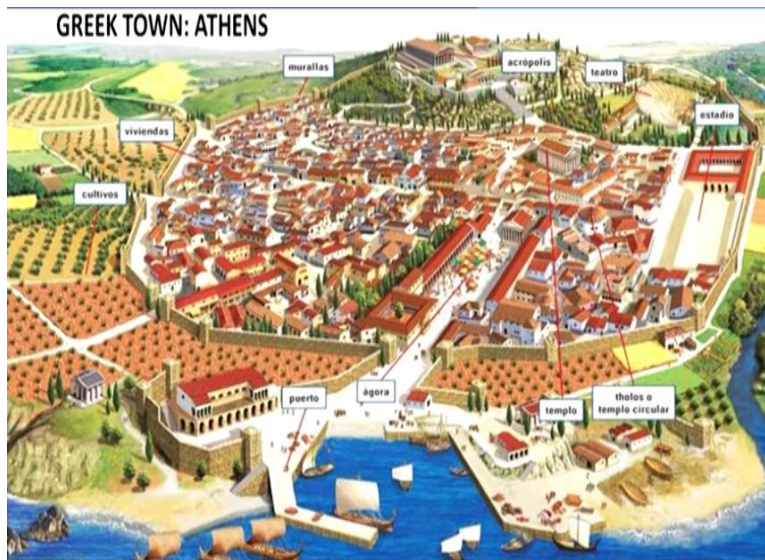
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(Westend61, 2021)

And there was transformation in economy with banks and currency coming in. We see that the town's ad fixed boundaries and some were protected by fortification and because of transformation of political environment much of the town was devoted to public use.

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(blogger.com, 2016)

Like in the image we can see boundaries and open public spaces and agoras as there was development in architecture economy, democracy and public like aligned with philosophies. It was reflected in the site and designing of the buildings and cities. Most of the public spaces were centered, around the main building to allow appreciation of the buildings from the outside.

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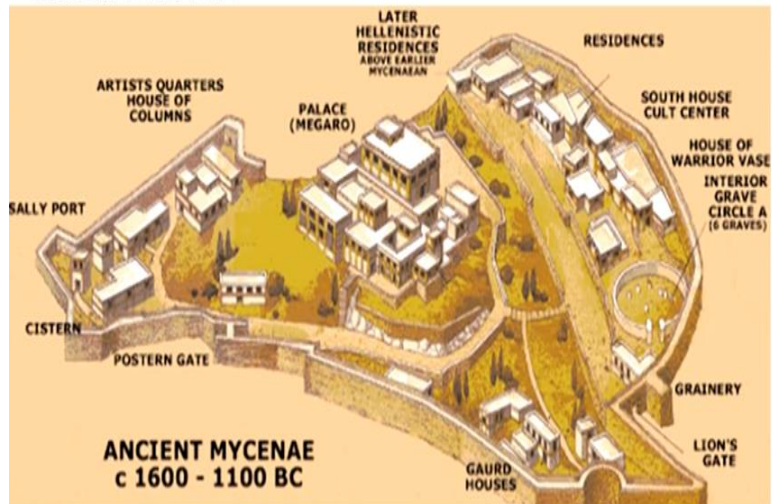


Also the location of the buildings facilitated good view of the city and the surrounding agriculture lands. Looking at the demographic of the place the Greece was populated by Minions and (()) (09:14) tribes. They built citadel a fortress typically won on high ground above a city sites on high rocky art cropping. Because of high location citadel provided natural fortification and overlooked planes which were used for farming and rising like livestock.

The Minoan occupied the Greek island mainly living on Greek the (()) (9:46) lived on mainland Greece and the (()) (09:49). The Minoan were mainly farmers and traders while the Mycenaean's were a war like society. They built citadel a fortress typically one or high ground above a city sites on high rocky outcropping.

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## MYCENAE CITADEL



(HarruGraera 2021)

Because of high location citadel provided natural fortification and overlooked planes which were used for farming and rising livestock. The Greek people built the city deal fortification and terms rather than palaces this indicates focus shifting towards the common people and safety.

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## Greek Civilizations: Mycenae and Minoan

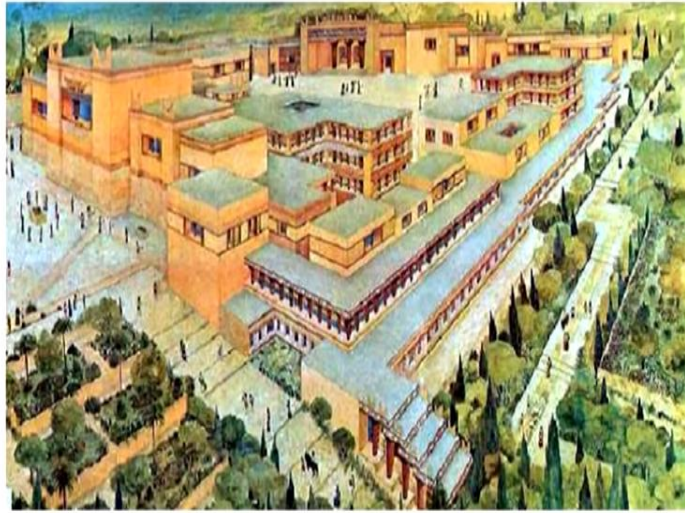
The Dark age:

- There was a change, from kings rule to demographic identity of Greek cities.
- The fall of the Mycenaean civilization and the Bronze Age to climatic or environmental catastrophe.
- The fall of the Mycenaean civilization was also affected by invasion of Dorians or by the Sea Peoples, of Greek period.

Athenian developed the art of logic and with it the idea of democracy particularly after the Dark Age which is explained by many scholars in the Greek period there was a change from King's rule to demographic identity of Greek cities. Primarily because of the cultural shift as the gods of ancient Greece to place of the Mycenaean rulers the Dark age which is explained by many scholars as the fall of the Mycenaean civilization and the bronze age to climatic or environmental catastrophe combined with an invasion by Dorian's or by the sea peoples of Greek period.



## GREEK TOWN: MINOAN CITY

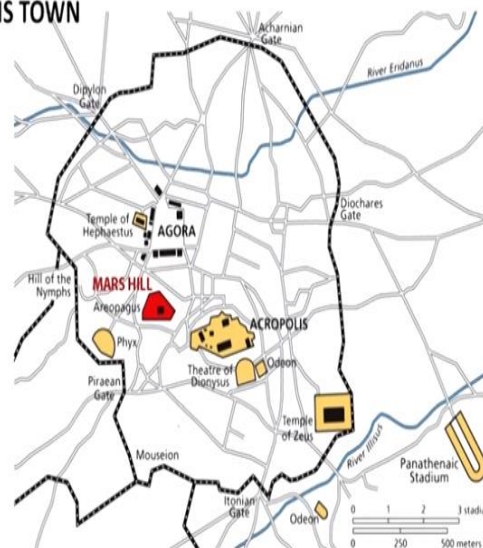


(Fandom, 2021)

Likewise in the image you can see the Minoan city the ancient Greek domestic architecture centered on open spaces and courtyards surrounded by colonnades. Looking at the spatial structure of the cities in the Greek civilization city forms were of 2 type's old and new cities.

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## OLD ATHENS TOWN



(Morison, 2015)

As you can see in the map old cities such as Athens had irregular street plans reflecting the gradual organic development.

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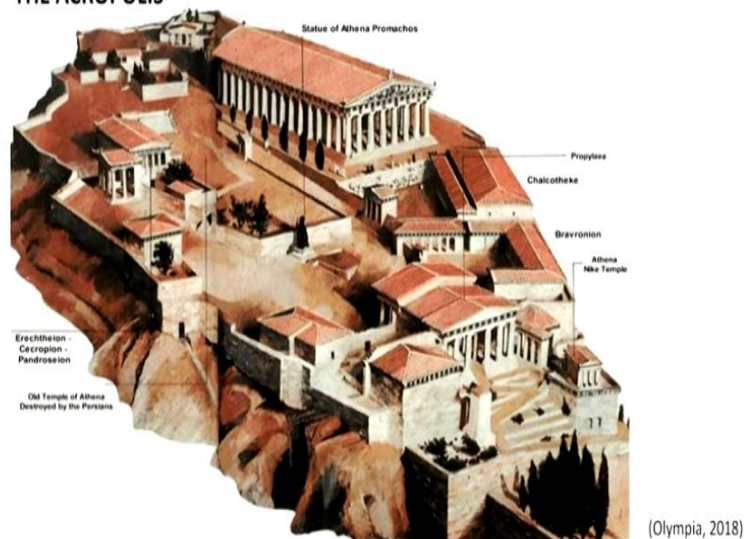
## NEW GREEK CITY: MESSENE



Whereas in the new cities such as Messene as you can see in the map these colonial cities established during the end of the Greek period had a great iron street plan. Certain things were common among cities because of the overall division of spaces in 3 parts.

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## THE ACROPOLIS



The acropolis, Agora and Greek town the acropolis as shown in the view the acropolis in Athens was religious prescient located on 1 of the hills of the city. As we see there was a shift to religion in the period in the given image you can see presses territorialian aqueduct constructed in Athens during the time of tyrant, Peisistratus and descendants in 510 BC.

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## WATER TECHNOLOGIES OF ANCIENT ATHENS, GREECE



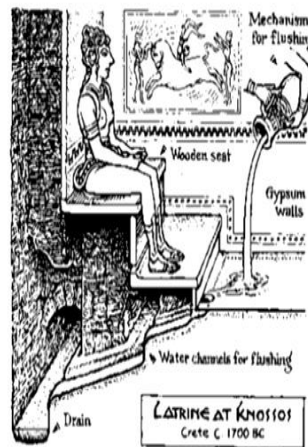
PEISISTRATEAN AQUEDUCT

(lwmay, 2012)

This aqueduct carried water from foothills of (()) (13:15) mountain probably east of the present Hala Guass suburb for a distance of 7.5 kilometer to the center of the city near the acropolis.

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## SANITATION SYSTEM IN GREECE



ANCIENT GREEK SEWAGE

(Tommaso Lotti, 2016)

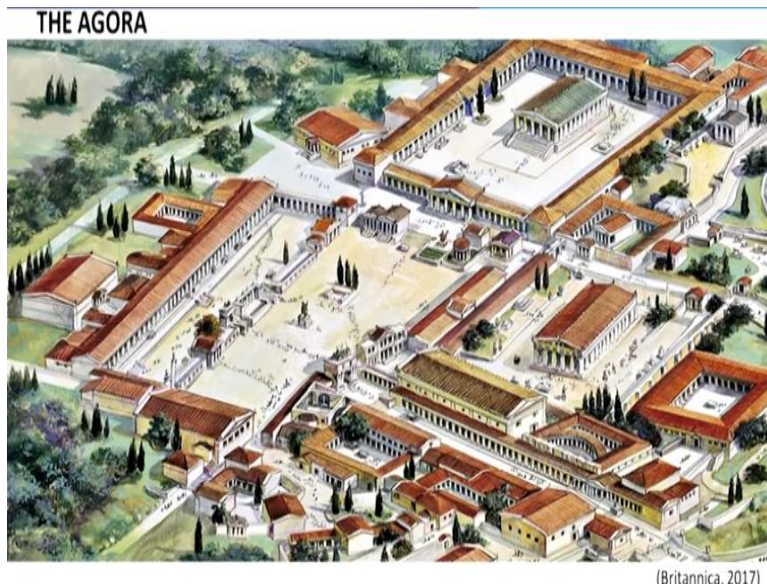
In the given figure you can see the sanitation system adopted during Greek period.

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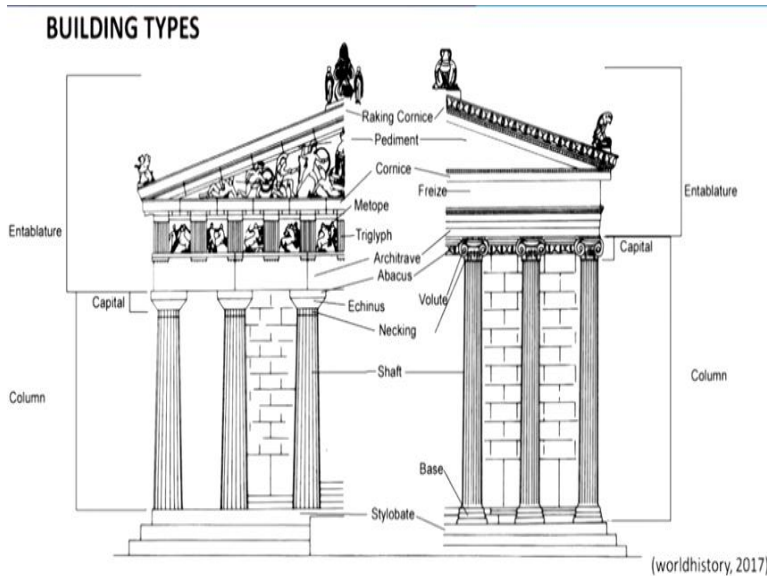
Here you can see in the image the Greek orders (Doric, Ionic, Corinthian) and iconic orders in the building the Propylea, the Parthenon, the Erechtheum and the temple of NIKE together forming acropolis. These orders and combination of forms are the examples of the logical orders derived from the natural world that to live in harmony with natural environment.

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The Agora as shown in the view was the most important gathering place in a Greek city. This also reflects the political shifts in Athens from rulers to the democracy of the people it started as an open area with the council of the city met to take decisions.

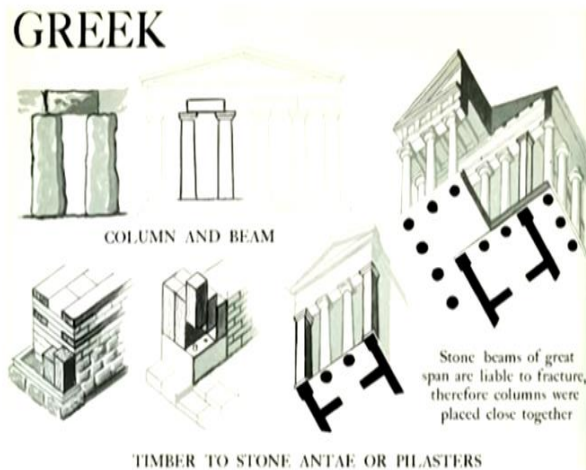
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As in the image you can see intricate and evolve technology logic proportion which shaped the form of the built environment of the city.

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**MATERIALS**



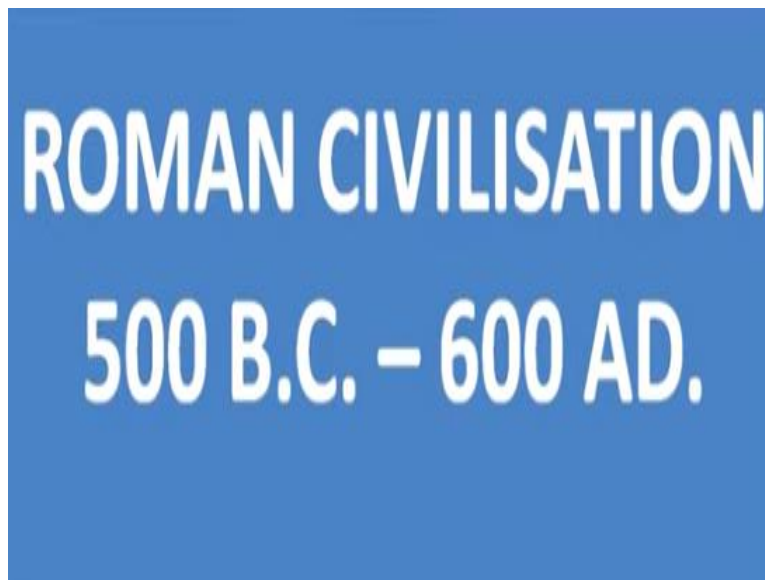
(Fletcher, 1999)

The image is taken from the famous book the history of architecture by (Fletcher) (14:37) Fletcher you can see the material and the technique used during the peak period. According to him Greek gained technology expertise in dealing with structure and materials. We see that the Greece cities were immensely influential in many sphere such as language politics educational systems, philosophy science and the arts.

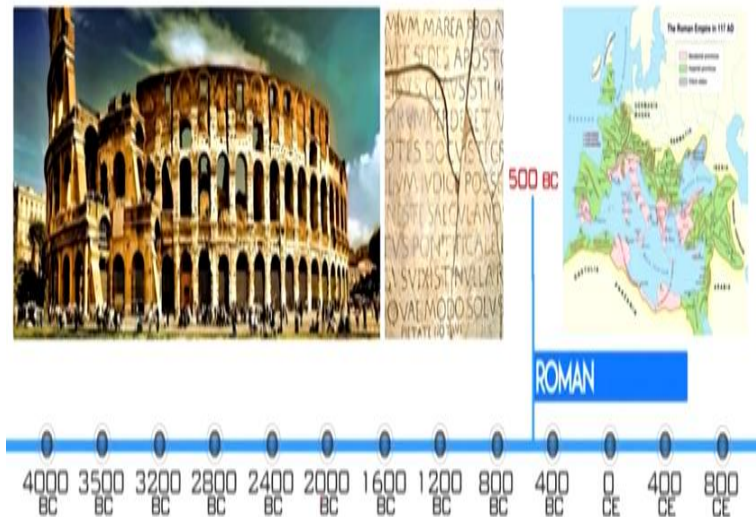
In addition the Greek concern with simplicity proportion, perspective and harmony in their building would go on in greatly influence architects in the roman world and provide the foundation for the classical architectural orders in had major effects of the Roman Empire which ultimately ruled it. Looking at the political scenario the name given to (()) (15:26) formation by Greeks themselves was (()) (15:32) literally the gathering together.

Further we see the education in all the Greek city states except the Sparta the purpose of education was to produce good citizens children were trained in music, art, literature, science, math and politics. We see that language was also fairly developed ancient Greece was one of the first civilization to widely use writings as the form of literary and personal expression.

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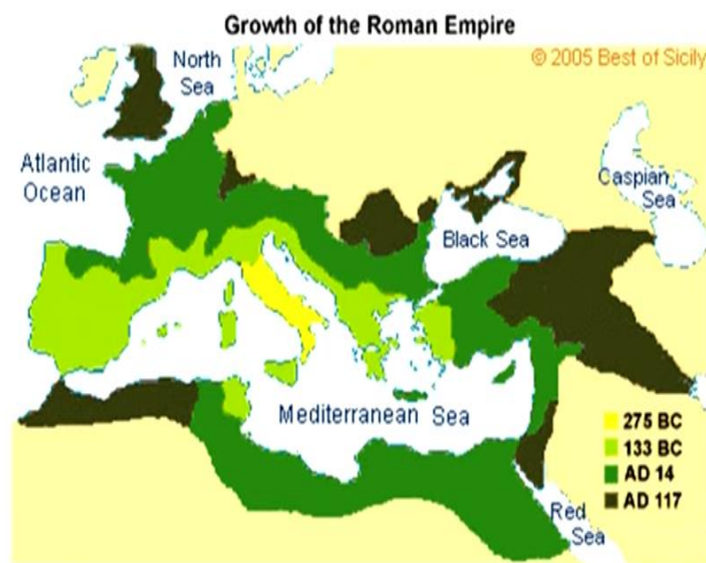


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Now let us walk through the Roman civilization which stretched from 500 BC to 680 and had large influence on planning which we see in our current times as well.

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Herein the map we can see the growth of Roman civilization along the Mediterranean sea. The ancient Roman's built one of the greatest empire in the world history however the Roman empire lasted about 500 BCE to 680. The term ancient Rome refers to the city of Rome which was located in central Italy and also to the entire empire it came to rule which covered the Mediterranean basin and much of the western Europe.

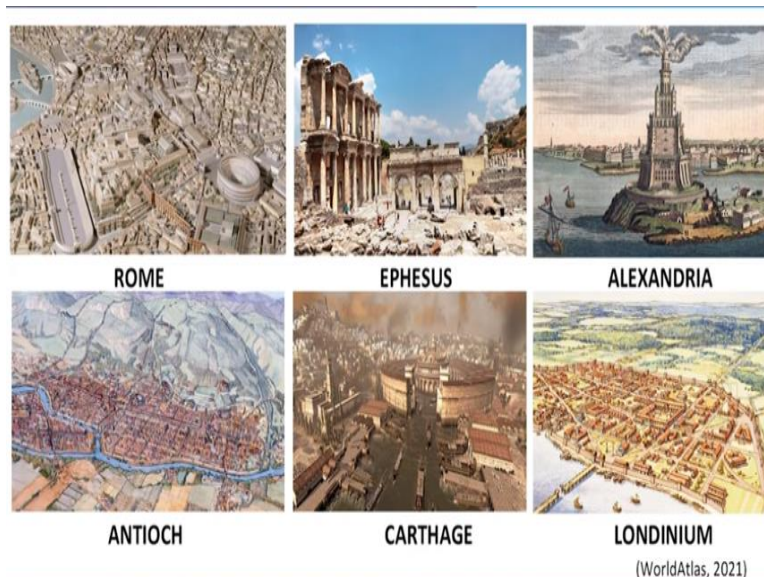
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(WorldAtlas, 2021)

As it is, greatest extent in stretched from present day northern England to southern Egypt and from Atlantic coast to the shores of Persian Gulf. The romans built many great cities throughout their empire and these cities were all constructed along similar lines. The following cities of Roman Empire are some of the largest during the time period.

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(WorldAtlas, 2021)

These cities include Rome, Ephesus, Antioch, Carthage, Londinium, Jerusalem and Alexandria. All the cities are different in each of their own way categorized by different influential people trade and architecture. The empire has the whole had initiated major cultural and political transformation since the crisis of the third century with the shift towards a more openly autocratic and ritualized form of government.

The adoption of Christianity as the state religion and a general rejection of traditions and values of classical ancient times. The Romans thought of themselves as highly religious and attributed their success as a world power to their collective piety in maintaining good relations with the gods. According to legendary history most of the Roman regions' institutions could be traced to its founder particularly (18:22).

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**DEFORESTATION DURING THE ROMAN PERIOD**

The second king of Rome who negotiated directly with the gods, the Roman enthusiasm for creating and expanding the cities led to significant changes to their environment. Such as extensive quarrying and deforestation to provide wood. Deforestation during the Roman period was a result of the geographical expansion of the Roman Empire with its increased population.

Large scale agriculture and unprecedented economic development we see that environmental damage at the same time which is also said to be the cause of their fall. We see that Romans did have some form of ecological conservation like recycling of glassware was practiced along with architectural design that utilized solar heating. Forests were also under government regulation and protected for future resources.

Unfortunately these attempts may have been too late too little as per the document of the world press. Further in this period we see that key measures were taken by the Roman civilization for making water available for the people of the city. We find Roman water carriers aqueducts the

romans were renowned for engineering marvels aqueduct is one of the examples that carried water for many miles in order to provide a crowded urban population with relatively safe potable water as well as less essential but very Roman aquatic uses.

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## Roman Aqueducts

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- Rome had nine aqueducts.
- Sextus Julius Frontinus (c. 35–105), appointed *curator aquarum* in 97 BC.
- The first of these was built in the fourth century B.C. and the last in the first century A.D.

Rome had 9 aqueducts at the time of the engineering sectors Julius Frontinus appointed Curator for aquarum in 97 main ancient source of the water supply. The first of these was built in the fourth century BC and the last in the first century AD.

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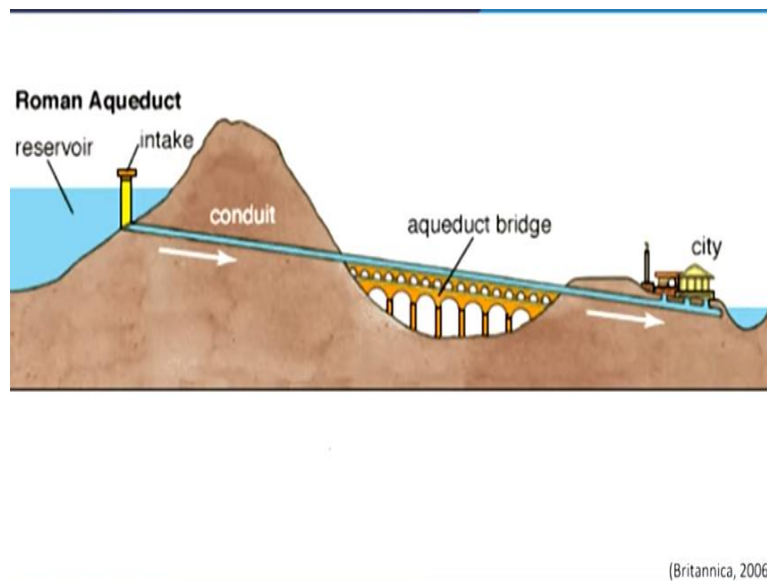


(Britannica, 2006)

Here we can see the advanced system of water supply the aqueducts and the water reservoirs which are still present.



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In this image you can see the engineering involved aqueducts were built because the spring wells Tiber river were no longer providing the safe water that was needed for the swelling urban population indicating the environmental impact of large scale urbanization.

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### TIBER RIVER IN ROMAN EMPIRE



In this period we now face these problems of even larger scale with rapid urbanization across the globe. As per the world press environment and society water did not go to all the residents of Rome. Only the rich had private services and rich were as likely to divert and hence steal the water from the aqueducts as anyone. Water in the residences only reached at the lowest floor.

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## ROME PUBLIC FOUNTAIN



Most Romans got their water from a constantly running public fountain.

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## PUBLIC TOILET



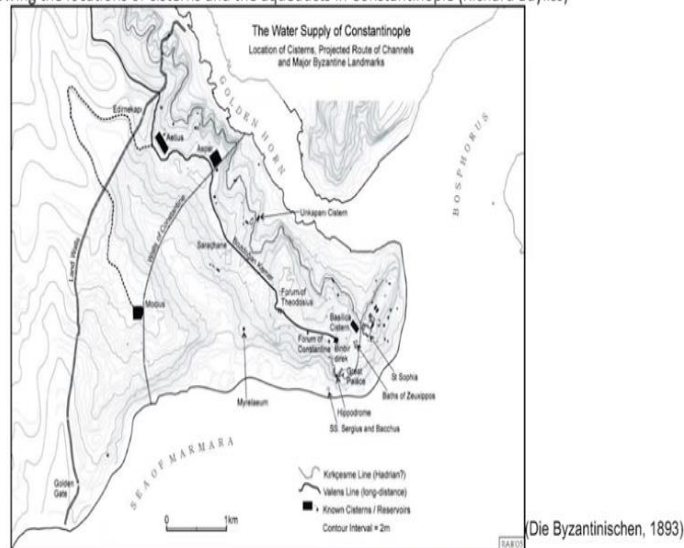
(Ann Olga, 2021)

Aqueducts also supplied water to public Lateran's and baths latrine served 12 to 60 people to once with no dividers for privacy or toilet paper only a spawned or a stick in the water to pass around. Fortunately water ran through the Lateran's constantly some Lateran's elaborate and may have been amusing baths were more clearly a form of entertainment as well as hygiene. The main siever of Rome was Clarka, maxima it emptied into tiber river it was probably built by one of the Etruscan king of Rome to drain the Marshes in the valley between the hills.

During the Romans period water channeled from distant springs to the city was collected in reservoirs and distribution tank built on hill top sites and from the piped in different direction to system houses and public fountains.

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A map showing the locations of cisterns and the aqueducts in Constantinople (Richard Bayliss)



In their book on Byzantinischen water structure of Istanbul tells us that water from dams in Belgrade forest was carried by pipes to the district in greicappi, agrappi at northern edge of the city. Crossing the valleys formed by the 2 streams which flowed into golden horn via aqueduct. From here 3 main lines carried to water to tanks in the district of (()) (23:07) for distribution to rest of the city. We find intricate details of engineering involving aqueduct water level distribution chambers water channels.

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Road junctions water distribution instrument (crucifix) used in Constantinople  
(Istanbul Archeology Museum)



(Die Byzantinischen, 1893).

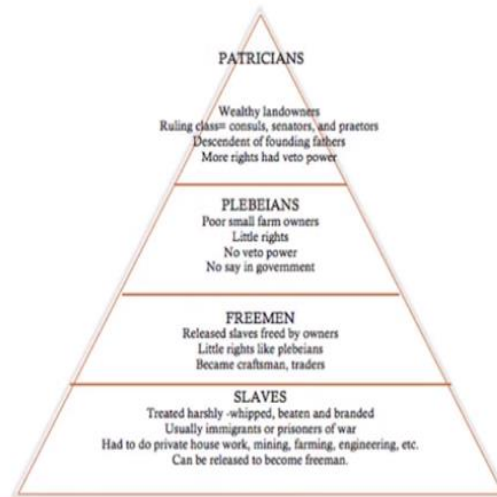
The reasons for the decline of the empire are still debated today and our likely multiple historians also infer that the population appears to have diminished in many provinces. Especially western Europe judging from the diminishing size of fortification built to protect the cities from Barbarian incursions from the third century on. Some historians even have suggested that parts of the periphery were no longer inhabited because these fortifications were restricted to the center of the city only.

So we see in the later period the size of the kingdom and how they were managed started to make empire fall. Further we see fortification eventually reduced its significance we also review the hierarchical social structure they followed.

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### ROMAN SOCIAL CLASS ORDER PRE 494 BC

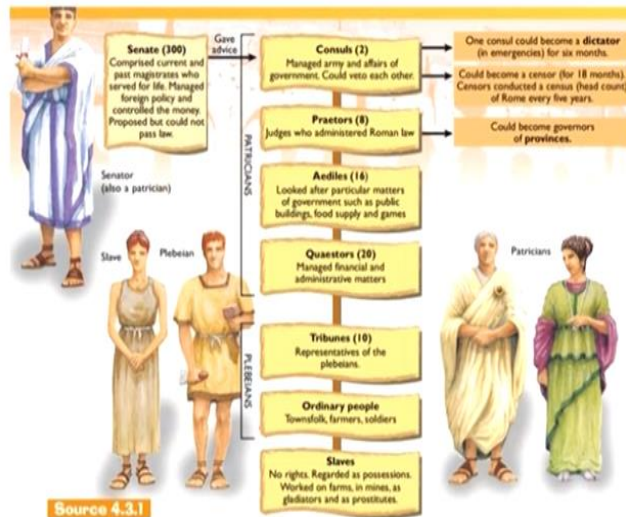


(Weebly, 2020)

In the given hierarchal figure we see a very structured organization of the community the culture of ancient Rome society was divided among 3 major groups. And the top were nobles called patricians who controlled most of the land and held key military and government positions made up 5% of Roman citizens. Most people were commoners called plebeians who were farmers shop keepers or Peasants plebeians paid the majority of taxes made up of 95% of Roman citizen.

At the bottom of the society was slave and other non-Roman citizens as you can see in the image myths in it of the Roman assembly addressing the meeting he government of ancient Rome was originally ruled by kings but in 509 BC the romans created a republic. Or republic is a form of a government in which citizens have the power to elect representatives who make loss for them.

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In the given image we can see the structures of members of Roman republic the most important features of the republic was the senate. Whose 300 members were elected by citizens to make laws and taxes under these 300 members further divided into 2 categories patricians and plebeians. Under patricians you have consoles, praetors, Aediles, Queastors and under plebeians you had tribunes, ordinary people and slaves.

Consoles role was to manage army and affairs of government Petrous acted as judge Aediles role was to help the government in food and building matters. Queastors were bankers where plebeians was group of local people and their, was to elect the patricians. Romans were more advanced than the Greeks in terms of technological skills which they used to develop better infrastructure facilities and construction techniques.

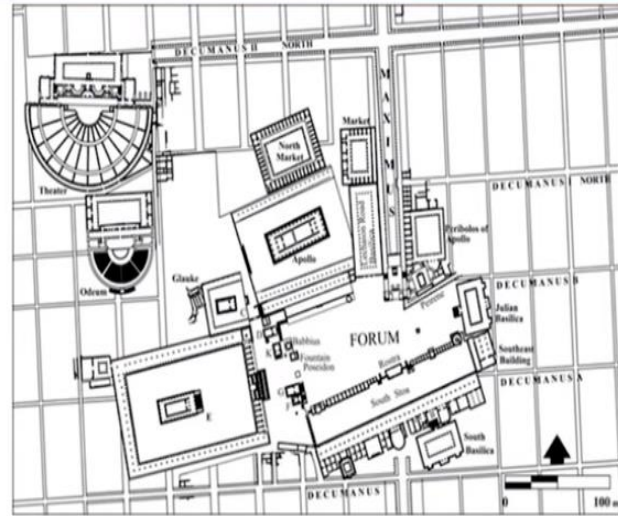
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You can see in the given image lime concrete were invented by the Romans and you can see these stone paved roads. The city in Rome was the largest megacity of that time with the population that may well have exceeded 1 million people with the high end estimate of 3.6 million low end estimates of nearly 0.4 million. A substantial proportion of population under the city jurisdiction lived in numerous urban centers with population of at least 10000 and several military settlements a very high rate of urbanization by preindustrial standards.

The most urbanized part of the empire was Italy which had an estimated rate of urbanization of 32% the same rate of urbanization of England in 1800 most Roman towns and cities had a forum temples and same type of buildings on a smaller scale found in Rome. The large urban population required an endless supply of food which was a complex logistical task including acquiring transporting storing and distribution of food for Rome and other urban centers. Italian farms supplied vegetables and fruits but fish and meat for luxuries.

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Roman Planning (Typical City Layout)

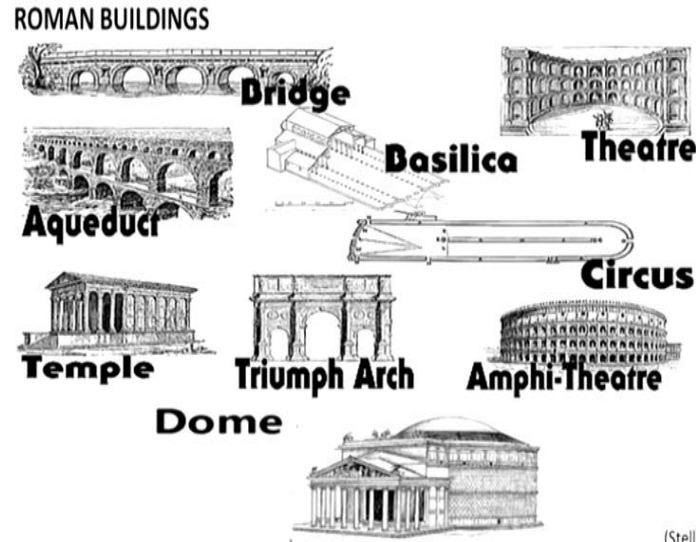
(Stella, 2020)

The characteristics of cities were similar the roads were straight and formed as grid pattern and the center of the town were too long avenues running east to west, north to south. At the intersection of these 2 main roads were the administrative buildings, temples, markets and meeting places. Looking at the characteristic features of the roman town we can see that the roman displayed crude symmetry and artistic rigidity in practice of leveling a hill to make the site confirmed to the plan.

Roman planning was like the chess board system like the principle streets rounding across the length. Grid pattern used for planning in the most roman cities the city was divided into neighborhoods and quarters with their own centers. In this image we can see the forum we can see the theatre we can see the stadium we can see the street pattern, the market places, all this you can see here.

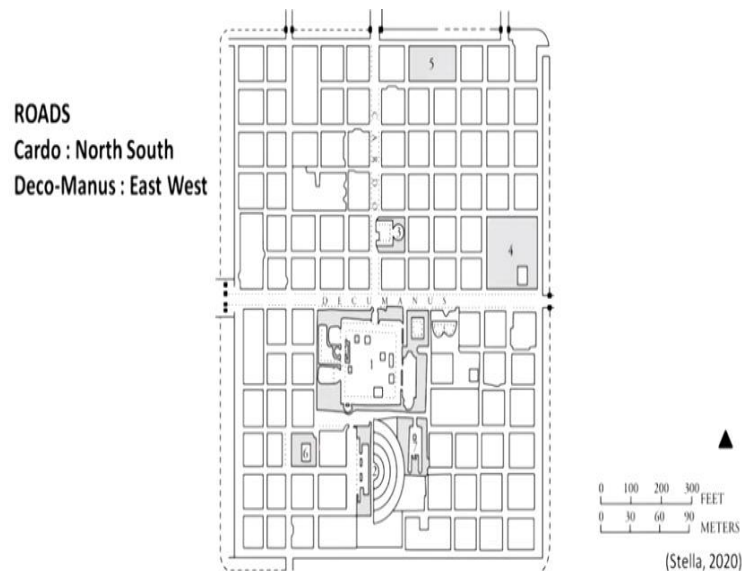
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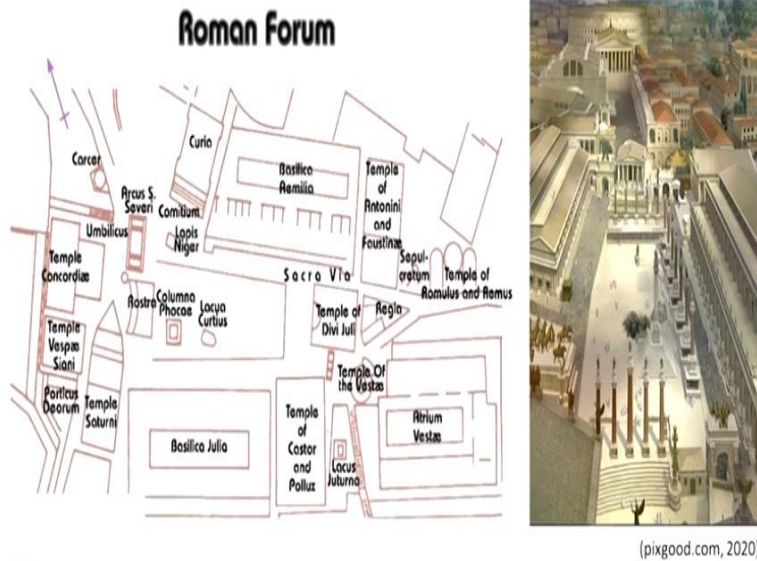
So the main components of the roman buildings you can see the bridge aqueduct, Basilica, theatre, circus, Amphi theatre, Triumph Arch, Dome, Temple. So it took quite some time for other civilization to capture the dome construction.

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You can see the given plan the 2 major central intersected road in the picture Cardo, Deco-Manus. The forum and the intersection of the 2 major roads from the central public space the roman forum also known by its Latin name forum Romanum.

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Is, a rectangular forum surrounded by the ruins of several important ancient government buildings at the center of the city of Rome. Citizens of ancient city referred to this place originally a market place as forum magnum or simply the forum. The forum was massive ranging from 160 feet to 145 feet the market the temple site and the other non-residential buildings were artificially raised above the general street level.

The public building had porticos, colonnades and other features giving variety to architectural scene. Some houses were as big as 200 feet by 200 feet. Many of the oldest and the most important structure of the ancient city were located on near the forum. Roman kingdom earlier shrines and temples were located on the south eastern edge. These included the ancient farmer whole residence the Regia and the temple of Vesta.

As well as the surrounding complex of the western virgins all of which were rebuilt after the rise of the imperial Rome. Looking at the education a context of these cities we see that schooling in the same time was a more formal sense began around 200 BC.

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Education



Abacus



Music

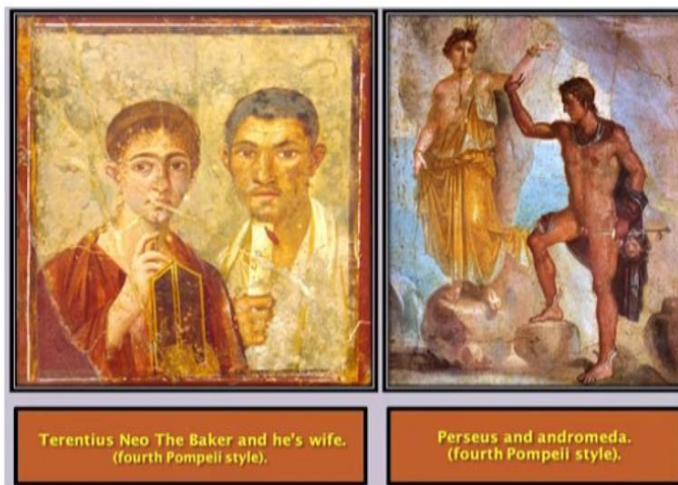
(Internet, 2021)

Education began at the age of around 6 and its next 6 to 7 years boys and girls were expected to learn the basics of reading, writing and counting. By the age of 12 they would be learning Latin, Greek, grammar and literature followed by training for public speaking. Oratory was in art to be practiced and learned at good orator commanded rest so become an effective orator was one of the objective of education and learning.

Poor children could not afford education in some cases services of gifted space were utilized for imparting education. School was mostly for boys however some wealthy girls were tutored at home but still go to school sometimes.

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### Roman Painting Styles



Terentius Neo The Baker and he's wife.  
(fourth Pompeii style).

Perseus and Andromeda.  
(fourth Pompeii style).

(Internet, 2021)

Now looking at the art form we see the most, early Roman painting style show a true scan influences particularly in the practice of political painting in the third century BCE we see Greek art taken as loot from the wars became popular. And many Roman homes were recorded by landscapes by Greek artist. Evidence from the remains at Pompeii shows diverse influence from cultures spanning the Roman world.

An early Roman style of note was encrustation in which interior walls of houses were painted to resemble coloured marble. Another style consisted of painting interiors as open landscape with highly detailed scenes of plants, animals and buildings. We also see portraits sculpture during the period utilize youthful and classical proportion evolving later into a mixture of realism and idealism.

A, music was major part of everyday life in ancient Rome many private and public events were accompanied by music ranging from nightly dining to military parade and maneuvers. Some of the instruments used in Roman music were tubro, Cornu and so on. We also see that senses played a crucial role in administration of the Roman government as it used to determine the class a citizen belongs to or both military and tax purpose. Beginning in the middle republic it was usually carried out every 5 years.

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### Summary

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- ① Discussed the Greek and Roman Civilization
- ② Reviewed the Geographical Spread and Timelines
- ③ Identified key transformations in Civilization, Technology, Philosophies, Economies, Education, Art, Culture , Architecture, Governance, Politics , Sports and Discoveries, Documentation-Census and Record Keeping
- ④ Reviewed Urbanization Trend and Environmental Impact

So summarizing we see that in the session today we saw the Greek and the Roman period. We saw their geographical spread timeline, geographical conditions and the key cities. Further we

saw key transformation in this civilization we saw what was their economy like? What was the philosophy? Education, sports or culture technology architecture political governance, political scenario, governance, sports discoveries, change in spatial planning, key elements water supply and sanitation and social structure.

We also saw a urbanization was increasing and was eventually causing damage to the environment such as deforestation soil deterioration and flooding. We also see record keeping and usage of senses in this period. So there is lot of learning which we can take from all these contexts and what kind of intervene. What kind of steps these cities were taking forward which we can derive lot of learning from these?

That is all for today these are the suggesting readings and videos which you can look more to understand these periods. We would like to thank certain people who have helped us in bringing this up.

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## References

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## Suggested Reading and Watch

(to contemplate different layers of Greek and Roman Civilizations)






These are the references for this section our coverage was limited with the scope to make you aware of the topic there are enormous readings and movies available to explore. Few are suggested here this is not an extensive list you may feel free to suggest more from your experience.

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 Please feel free to ask Questions. 

Let us know about any Concerns you have .

 Do share your Opinions, Experiences and Suggestions.

Looking forward to Interacting and   
Co-learning with you while exploring Cities and  
Urban Planning. 

Please feel free to ask questions let us know about your concerns you have to share your opinion, experiences and suggestions. Looking forward to; interacting and co-learning with you while exploring cities and urban planning thank you.