



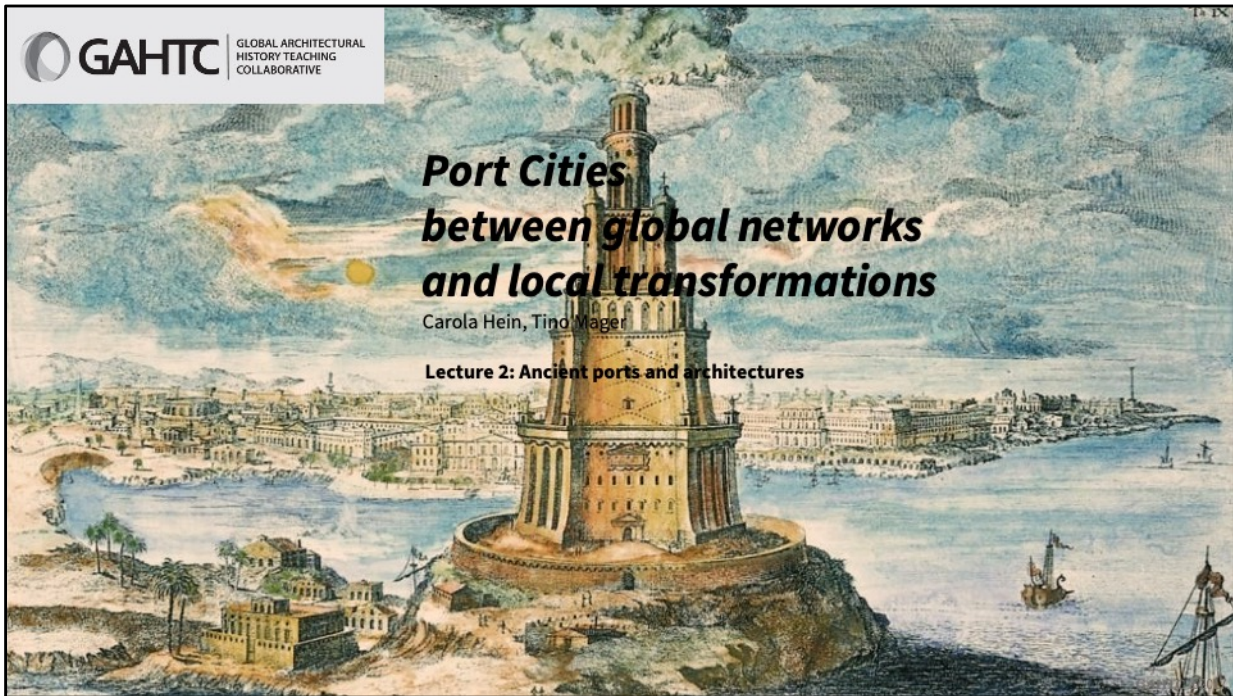
Lecture Abstract:

This lecture provides an introduction into the topic by highlighting the role of navigable water for interconnected port and city development around the world. It addresses maritime networks, flows and connectivity between places and looks at power relationships.

Image:

[https://commons.wikimedia.org/wiki/File:Pharos_Alexandria_\(Fischer_von_Erlach\).jpg](https://commons.wikimedia.org/wiki/File:Pharos_Alexandria_(Fischer_von_Erlach).jpg)

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Lecture Abstract:

Commodity flows have connected far away regions across continents, with port cities serving as hubs and military stations. As trading goods changed over time, so did port city hubs and the networks they served. States, nations and empires used port cities to establish their maritime reach. There, sea- and land-based economic and power relationships played out and shaped port city architecture and its urban planning.

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Port Cities between global networks and local transformations

Carola Hein, Tino Mager

Lecture 2: Ancient ports and architectures

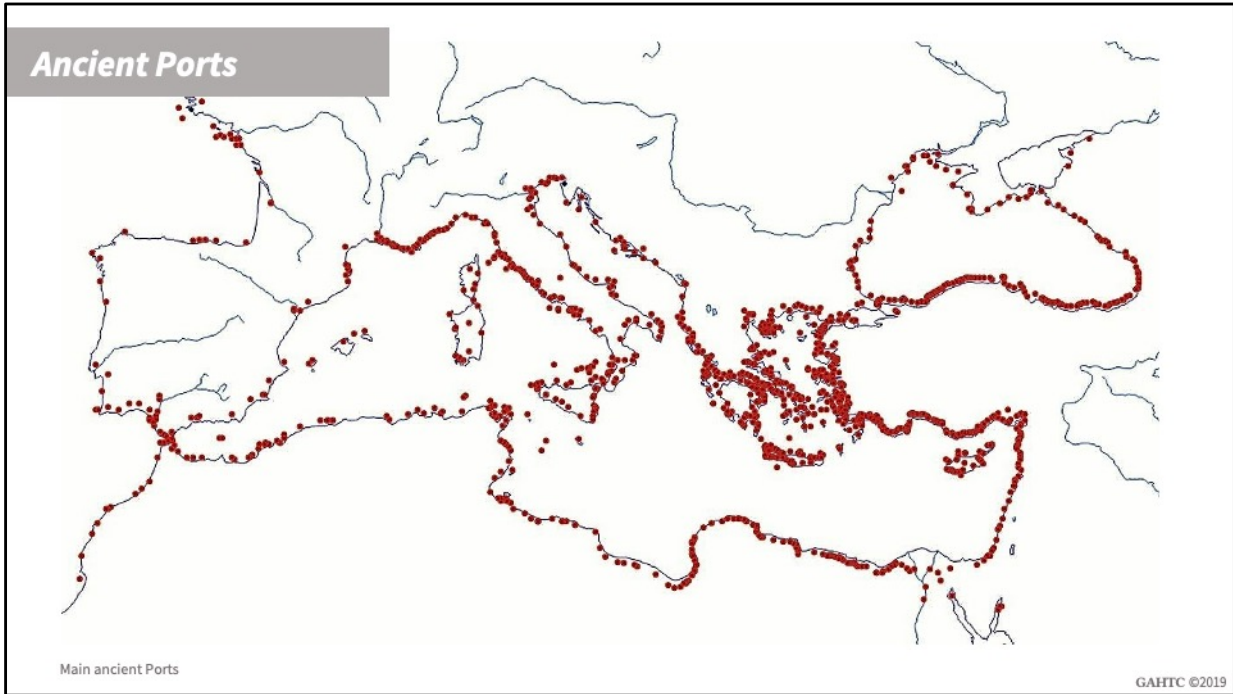
Part One: Phoenicians

Part Two: Ancient Greece

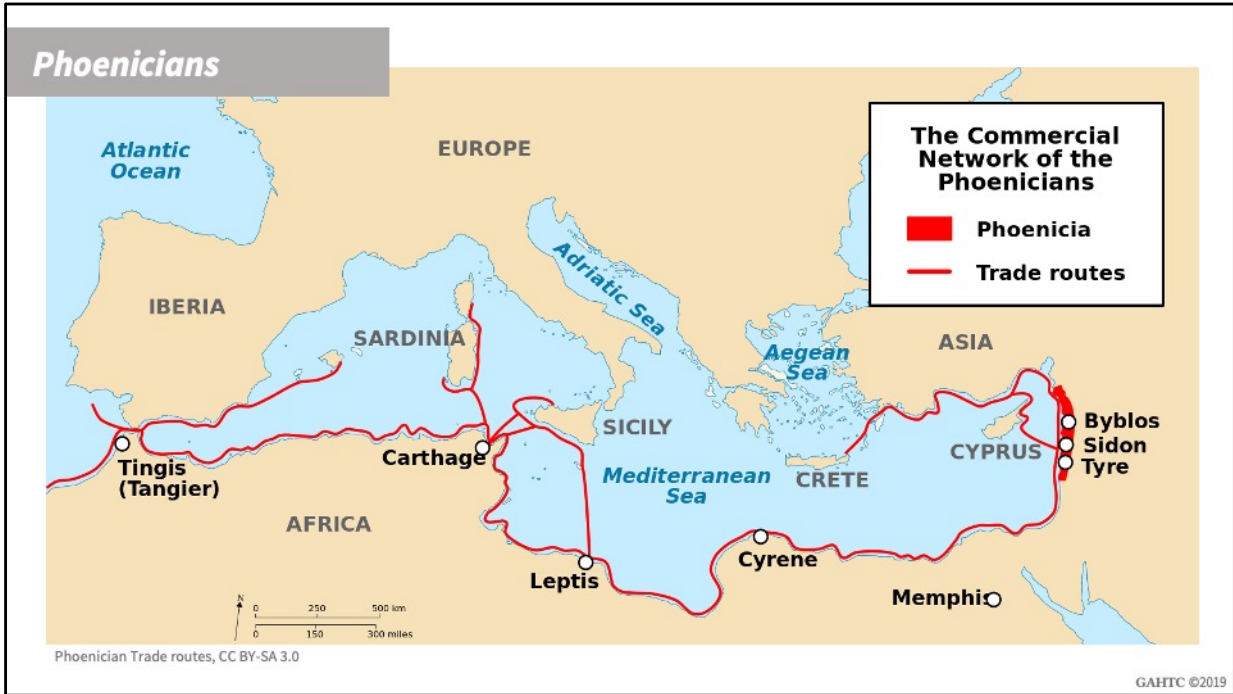
Part Three: Roman Empire

Lecture Abstract:

The second lecture sheds light on ancient port cities in Mesopotamia and Egypt, along the coast of the Mediterranean Sea and in East Asia. These cities prospered due to their role as trading hub for goods.



Hosting such trade hubs also meant important military and defense investments. Other networks of shipping existed in South East Asia, creating their own architectural patterns.



The Phoenicians (1st Millennium BC) were the first civilization to colonize across the Mediterranean, spreading amongst other things trade, shipbuilding, geography, navigation, the use of books and the very first alphabet. They built fortified port-cities many of which had artificial harbors carved out of land, or made of wood. Significant buildings included temples, warehouses and fortifications few of which remain.

Image source:
https://commons.wikimedia.org/wiki/File:PhoenicianTrade_EN.svg

Phoenicians



Assyrian Warship, built by Phoenicians (700 BC) CC BY-SA 3.0

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This contemporary depiction of an Assyrian Warship gives an impression of how the Phoenicians may have colonized wide parts of the Mediterranean.

Image source:

<https://en.wikipedia.org/wiki/Phoenicia#/media/File:AssyrianWarship.jpg>

Phoenicians



Reconstruction of the port of Carthage (2009) © Alexander Hoernigk

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Carthage was by far the most important port-city of the Phoenician thalassocracy that dominated the western Mediterranean for centuries until it clashed monumentally with the Roman Republic during the 3rd century's Punic Wars. Carthage was responsible for the colonies established in the Iberian Peninsula and the first sea trade in the Atlantic ocean, trading with tribes from the west coast of Africa up to the British islands. It holds a special place in the mythological narratives and artistic traditions of both European and African civilizations.

On the left side of the picture you can see the harbour, which consisted of a trading port and a naval port. The trading port was a large rectangular basin, connected to the sea by a canal. The basin was artificially constructed, this invention of the Phoenicians is called Kothon (Punic for "to run away, to separate".).

The commercial port is connected to the circular naval port, which accommodated more than 200 warships. The island in the middle housed the Admiralty.

The basins can still be seen today, unfortunately there is not much left of the architecture.

Image source:

© Alexander Hoernigk (via Wikimedia Commons)

https://commons.wikimedia.org/wiki/File:Karthago_Hafen_Rekonstruktion_2009-04-11_15.20.32.jpg

Phoenicians



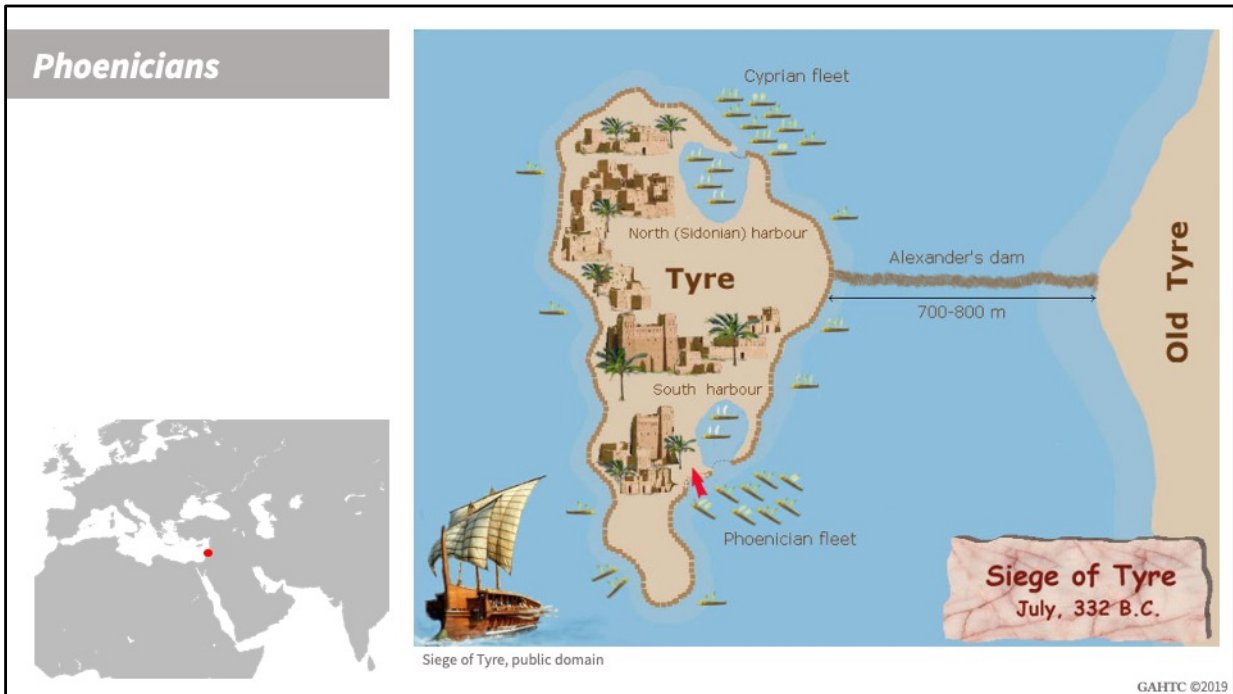
Remains of Punic houses on the Byrsa hill (2018) CC BY 2.0

GAHTC ©2019

Like these Punic houses on the Byrsa hill, the architectural remains of Carthage are archaeological in nature. Byrsa was a fortress protected by walls over the port of the city. Settlements were built around it. Byrsa was the military centre of Carthage which became the most powerful trading centre in the western world. The typical Phoenician house had three or four rooms arranged in different ways. Normally, a long corridor allowed access to adjoining rooms. The courtyard, the main source of light and air, was the centre of domestic activities in the Punic house. Maritime connections helped to spread this type of house throughout the Mediterranean.

Image Source:

<https://www.flickr.com/photos/liakadaweb/41133902034>



Tyre was the first fortified island with two artificial ports carved from the rocky island. In mythology it was the birthplace of Europe and Dido. This city was one of the world's first republics and stayed independent until being conquered by Alexander the Great who famously transformed the island into a peninsula for the purposes of the siege. The two natural harbours, which were of great importance for the city, are clearly visible. However, they were also the gateway for the enemies.

Image Source:

https://commons.wikimedia.org/wiki/File:Siege_of_Tyre_332BC_plan.jpg

Phoenicians



The Balawat Gates (883-824 BC) CC BY-NC-SA 4.0

GAHTC ©2019

One of the greatest artifacts to document the city of Tyre is the gate of Balawat that depicts a battle between Assyrians and Phoenicians, showing the extensive fortifications of Tyre with gated walls extending to the water along with phoenician naval forces.

Image Source:

http://www.britishmuseum.org/research/collection_online/collection_object_details/collection_image_gallery.aspx?assetId=325668001&objectId=282817&partId=1

Phoenicians



Byblos (2001) CC BY-SA 3.0

GAHTC ©2019

In the 3rd millennium BC, Byblos became an important port. It was especially significant for the trade of cedar wood to Egypt. This trade relation eventually became a political dependence: the kings of the city of Byblos were vassals of the Egyptian pharaohs, wrote their names in Egyptian hieroglyphics and bore Egyptian titles.

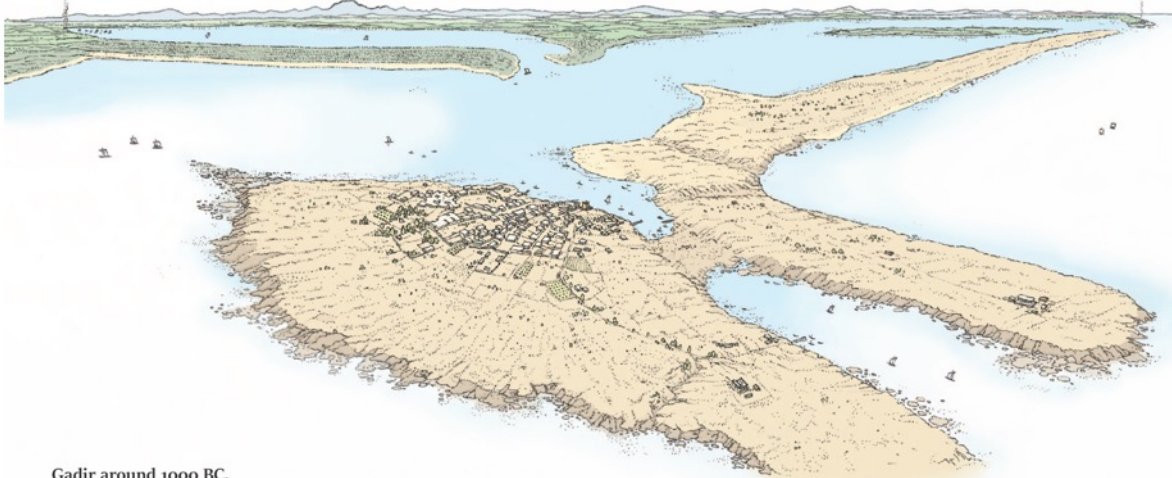
Byblos, due to its port, was the main trading centre for papyrus, the raw material for the production of papyrus rolls, which were also used for the transmission of literature in the Greek world. The Greek word for book, “biblio” is taken from the name of the city along with the English “bibliography” and the French “bibliothèque”.

Byblos is one of the oldest permanently populated places on earth. Its long history may be seen as a sign of the importance of trading sites.

Image Source:

[https://commons.wikimedia.org/wiki/File:Byblos\(js\)_5.jpg](https://commons.wikimedia.org/wiki/File:Byblos(js)_5.jpg)

Phoenicians



Gadir around 1000 BC,
a Phoenician city founded by colonists from Tyre

Cadiz

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Ancient Gades or Gadir was a Phoenician trading post from 1104 BC in modern day Cadiz. The straits of Gibraltar were since called the Herculean Pillars, after the Phoenician god Melquart, transcribed as Hercules in Greek.

Ancient Greece



Ancient Greece and its Colonies, CC BY-SA 3.0

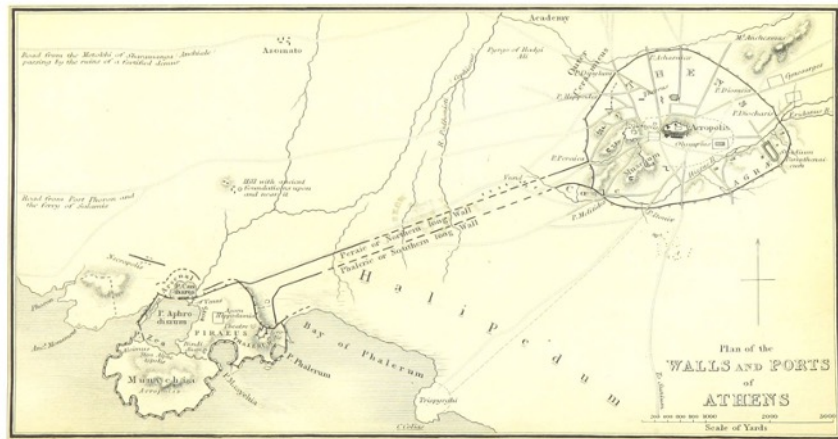
GAHTC ©2019

As the map shows, the colonies of ancient Greece were all by the sea. The coastal strips were reached and conquered with the help of ships. Also the trade relations and the organization of the colonies were realized mainly by seafaring.

Image Source:

https://commons.wikimedia.org/wiki/File:Greece_and_its_colonies_in_550_BC.jpg

Ancient Greece



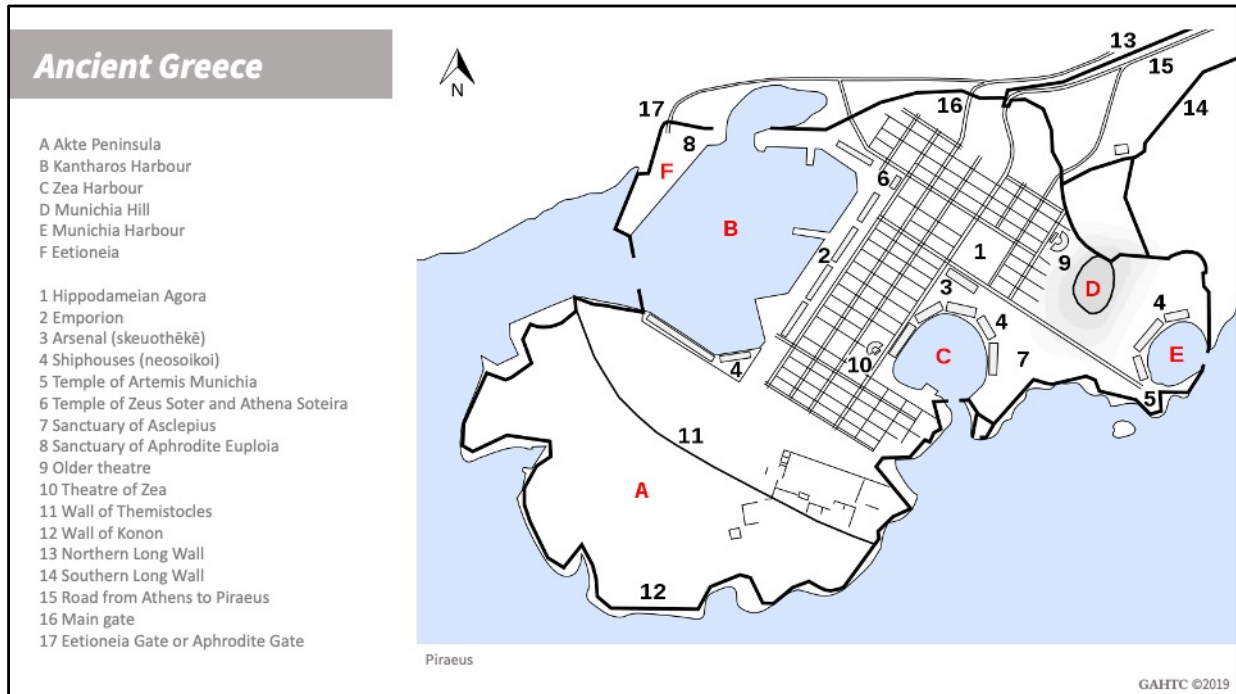
Piraeus and Athens (1847) public domain

GAHTC ©2019

Under Themistocles (524 BC - 459 AD) the port of Athens was moved to the protected bay of Piraeus. He fortified the bay and built a war fleet. Trade flourished in the new port. Athens and Piraeus were connected by a walled-in path.

Image Source:

[https://commons.wikimedia.org/wiki/File:THIRLWALL\(1847\)_p4.020_PLAN_OF_THE_WALLS_AND_PORTS_OF_ATHENS.jpg](https://commons.wikimedia.org/wiki/File:THIRLWALL(1847)_p4.020_PLAN_OF_THE_WALLS_AND_PORTS_OF_ATHENS.jpg)



Piraeus was constructed according to the Hippodamian plan, which goes back to Hippodamus of Miletus. It is a grid plan, an orthogonal system of even plots of land of equal size, nestled among ports of various scales. (Hippodamos was also involved in the reestablishment of the town of Miletus and the Panhellenic town of Thurioi. The Hippodamian Scheme is a further development of existing city models. The rectangular parcels are set into double-row blocks and are accessed by wide main streets with narrower side streets. The system was adopted in the Roman cities and can still be seen today in many city layouts.)

Image Source:

https://commons.wikimedia.org/wiki/File:Plan_Piraeus.svg

Ancient Greece



Remains of Nesoikoi (2012) CC BY-NC-SA 2.0

GAHTC ©2019

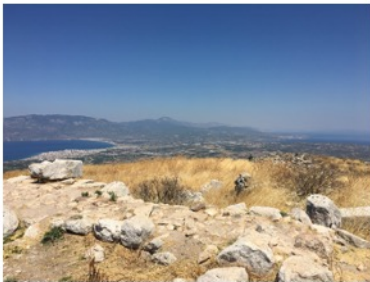
A large number of *Nesoikoi* (ship hangars) were built in the harbour. They were used in particular to store warships outside the water. Nesoikoi were longish halls, consisting mainly of columns to allow a good ventilation. The floor in the shape of an inclined plane allowed an easier installation of the ships which were pulled longitudinally out of the water.

Image Source:

<https://www.flickr.com/photos/dandiffendale/8292686164>

Ancient Greece

What is a Port?



Isthmus of Corinth (2007) CC BY 2.5

GAHTC ©2019

Corinth was the main naval antagonist of Athens throughout the archaic and classical age. Corinth was connected with two port cities one on each side of the “diolkos”, a land passage through which ships would be transported from the Aegean sea to the Corinthian gulf. The whole area was overseen by the “Acrocorinth”, a fortified mountaintop with wide-ranging views to Corinth and the coast.

Image Source:

Map: https://en.m.wikipedia.org/wiki/File:Korinth_Isthmus_de.png

Photo: Carola Hein, 2019

Ancient Greece

What is a Port?



Remains of the Doilkos (2007) CC BY-SA 3.0

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The Doilkos was a route across the Isthmus of Corinth. On it ships could be transported on carts from the Corinthian to the Saronic Gulf. The Doilkos was a paved grooved path of about 7 km (4,3 miles) length on which carts were kept in track like a railway. The construction of a canal was already underway in ancient times. However, this was only built 1881 to 1893. The Doilkos illustrates how closely ports and infrastructure on land are interdependent and how the need for close interconnection can also produce technical innovations.

Image Source:

https://commons.wikimedia.org/wiki/File:Vestige_de_diolkos.JPG



Miletus was the richest Ionian city-state of the ancient Greek world. The first city-state to be planned around 450 BC, by Hippodamus who was considered by Aristoteles as the father of city planning. The same man built Piraeus and Rhodes and wrote the *Urban Planning Study for Piraeus* (451 BC). The map of Miletus also shows the difficulty of adapting the grid to the sometimes mountainous territory and of relating it to the surrounding irregular coastline and its ports.

Image source:

https://commons.wikimedia.org/wiki/File:Miletos_stadsplan_400.jpg

Ancient Greece



Milet, the markets and surroundings around 200 AD (2007) public domain

GAHTC ©2019

The grid plan is clearly visible in the model. The harbor basin in the foreground is a natural harbor whose banks were not fortified. Smaller ships could thus be pulled ashore. The market places were close to the port, in the background the still preserved market gate of Miletus can be seen.

Image source:

https://commons.wikimedia.org/wiki/File:Pergamon_Museum_Berlin_2007077.jpg

Ancient Greece



Market gate of Miletus (2014) CC BY-SA 4.0

GAHTC ©2019

The market gate of Miletus dates back to Roman times. In it, however, different architectural styles are united. It is in the Hellenistic building tradition and there are Greek elements such as the arch gate and the column propylon, but also Roman elements such as the stage facade. The building served representative purposes within the prosperous city, it is not a part of the city fortifications.

Image source:

https://upload.wikimedia.org/wikipedia/commons/9/98/Market_Gate_of_Miletus_in_the_Pergamon_Museum.jpg

Ancient Greece



Syracuse (2012) CC BY-SA 2.0

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Syracuse was the greatest city in population as well in grandeur of Magna Grecia. Syracuse was also the place of major innovations that spread to the world. Under the tyrant Dionysius I the city was extensively fortified and a citadel-island (foreground) was built in-between the city and the port where Dionysus and his guards would reside, imposing his power to the people and naval trade at the same time. He was the monarch to establish a one-man rule empire (seemingly republic) in the western world. He also introduced the use of siege engines and heavier ships such as the quadrireme and the quinquereme.

Image source:

https://commons.wikimedia.org/wiki/File:Ortigia_dall%27alto.jpg

The Greek theatre of Syracuse is the largest Greek theatre in existence while the temple of Apollo was the first one in Italy dedicated to the Greek God.

Ancient Greece



Syracuse, model of the temple of Apollo (2012) CC BY-SA 3.0

GAHTC ©2019

The Greek theatre of Syracuse is the largest Greek theatre in existence while the temple of Apollo was the first one in Italy dedicated to the Greek Gods. Temples are widespread throughout the Mediterranean and technical features as well as building materials could be quickly transported by ship from one port city to the next.

Image source:

https://commons.wikimedia.org/wiki/File:Museo_Orsi_modellino_tempio_1474.JPG?uselang=de

Ancient Greece



Johann Bernhard Fischer von Erlach: Lighthouse of Alexandria (1721) public domain

GAHTC ©2019

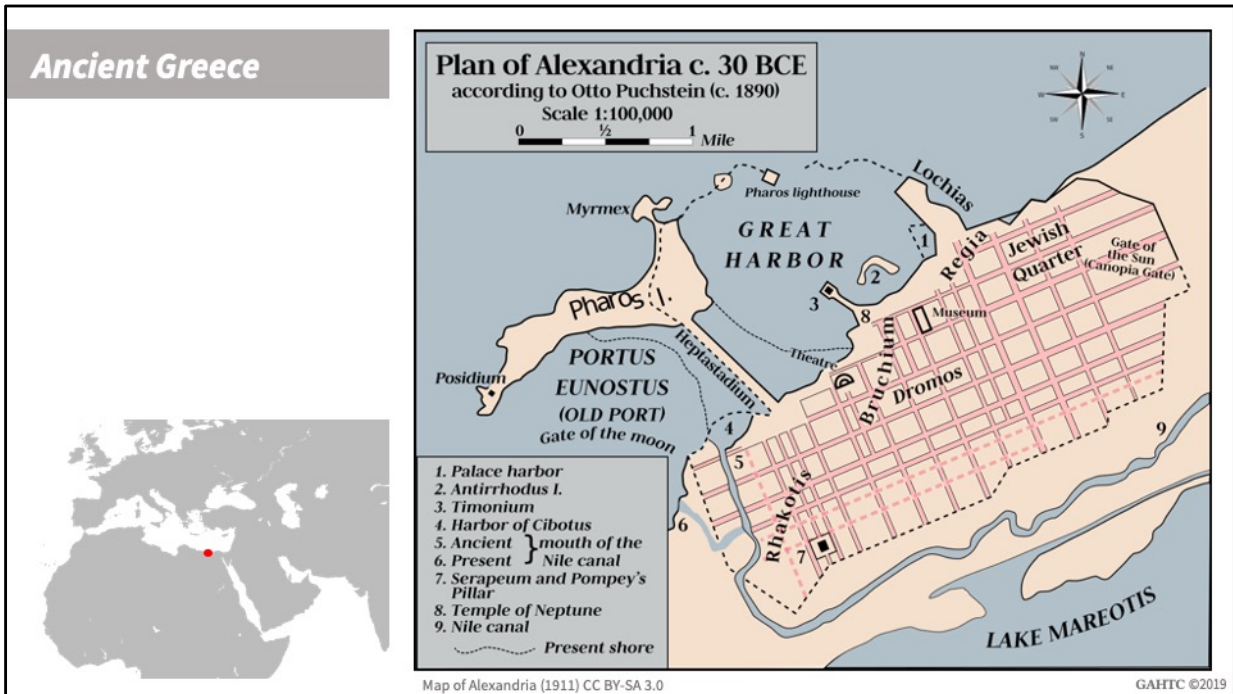
The lighthouse of Alexandria was probably the first lighthouse ever. It is certainly the most famous port city building of antiquity. The lighthouse was between 115-160 meters high and was built from about 299 to 279 B.C. by order of Ptolemaios I. The lighthouse is divided into three parts: a square base, an octagonal structure and a round crown.

This unique building was the highest in the world next to the pyramids. In the 14th century the lighthouse was finally destroyed by earthquakes.

To this day, lighthouses characterize the image of coasts and ports. They are typical of the unique characteristics of port cities and essential for shipping and orientation.

Image source:

[https://commons.wikimedia.org/wiki/File:Pharos_Alexandria_\(Fischer_von_Erlach\).jpg](https://commons.wikimedia.org/wiki/File:Pharos_Alexandria_(Fischer_von_Erlach).jpg)

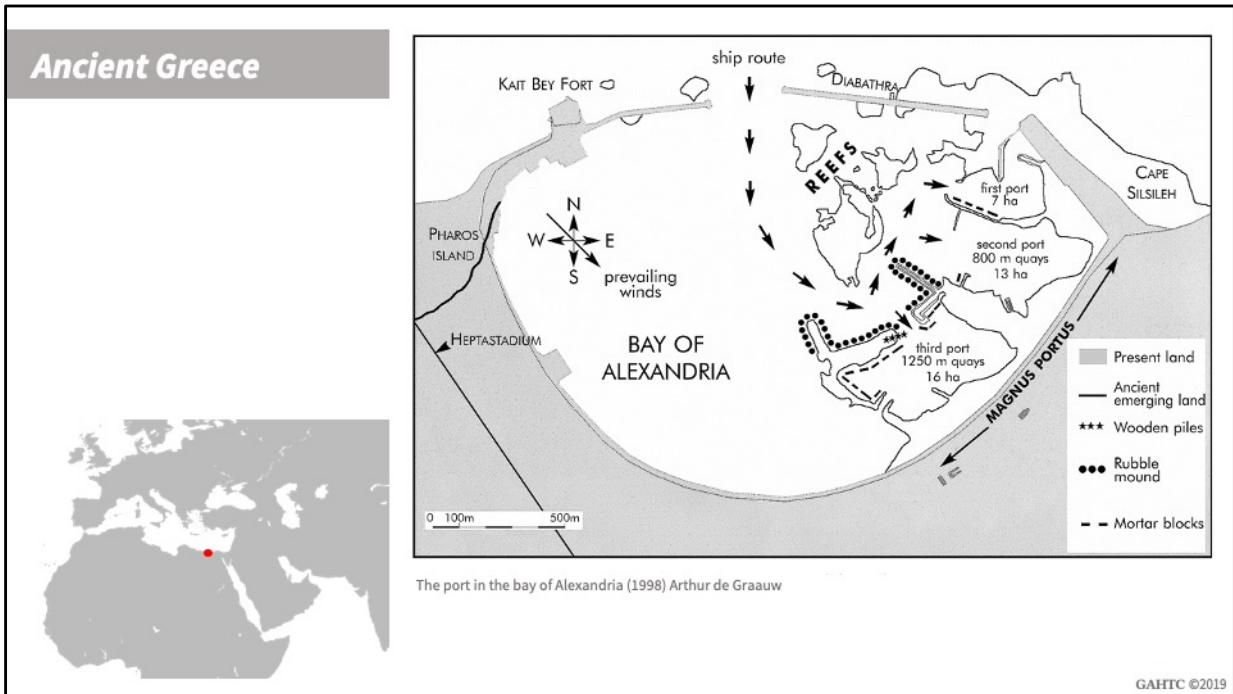


The map shows the city and port of Alexandria. The typical rectangular structure of the streets is clearly visible. The lighthouse was built on the island of Pharos, west of the port.

At this point it should also be noted that islands and island states could only find a meaningful connection to the rest of the world through ports.

Image source:

https://commons.wikimedia.org/wiki/File:Plan_of_Alexandria_c_30_BC_Otto_Puchstein_1890s_EN.svg

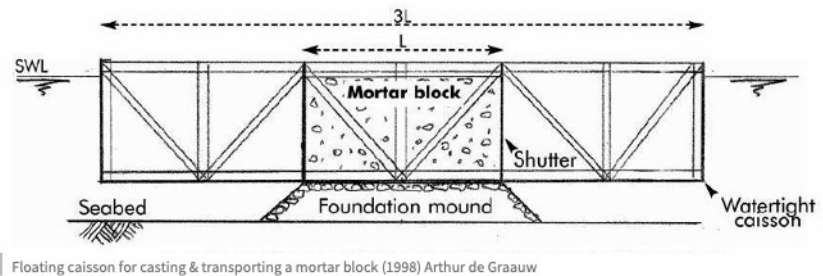


In ancient times the shoreline was different from today's. Port cities regularly adapted their infrastructures and governance patterns to changing coast lines. They also installed breakwaters, that protected the large bay from the open sea. The illustration illustrates these differences.

Image source:

<http://www.ancientportsantiques.com/a-few-ports/alexandria/>

Ancient Greece



Floating caisson for casting & transporting a mortar block (1998) Arthur de Graauw

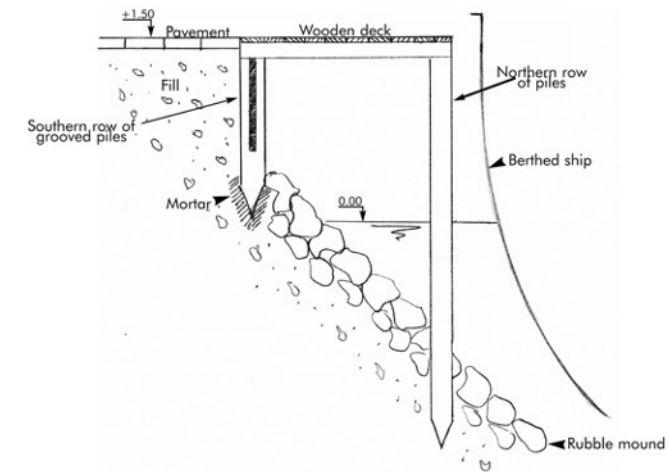
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The inner breakwaters consist of a sloping mound on the seaward and a quay made of mortar blocks on the leeward side. Therefore, floating units were created, that could bring the blocks to their position. Ports require special (building) technology that lead to progress in construction and design.

Image source:

<http://www.ancientportsantiques.com/a-few-ports/alexandria/>

Ancient Greece



Archaic quay of Alexandria (1998) Arthur de Grauw

GAHTC ©2019

In ancient times the shoreline was different from today's. The illustration shows these differences. While ships originally moored on flat shores, quays were built later. These can be seen in the illustration.

Image source:

<http://www.ancientportsantiques.com/a-few-ports/alexandria/>

Ancient Greece



Halicarnassus (1802) Public domain

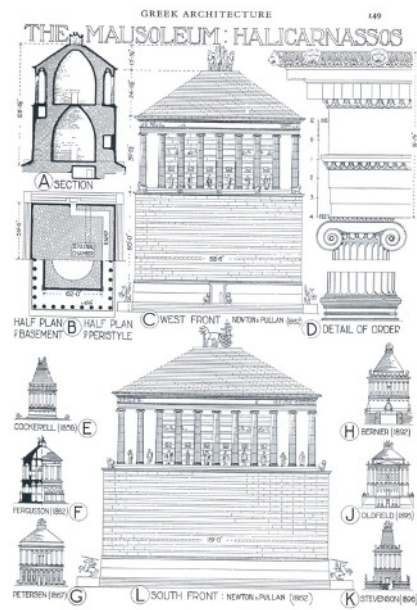
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Halicarnassus was a major naval power under the rule of queen Artemisia, the first woman to rule a thalassocracy, whom Herodotus himself a Hallicarnasean praises for judgment and rule. The Mausoleum, one of the seven wonders of the ancient world, was placed in the same axis with the city's harbor and main square. The city was also the first to have a sheltered harbor and dockyard.

Image source:

<https://i.pinimg.com/originals/74/7d/97/747d97aebc8ae468265a404ccd6e54e8.jpg>

Ancient Greece



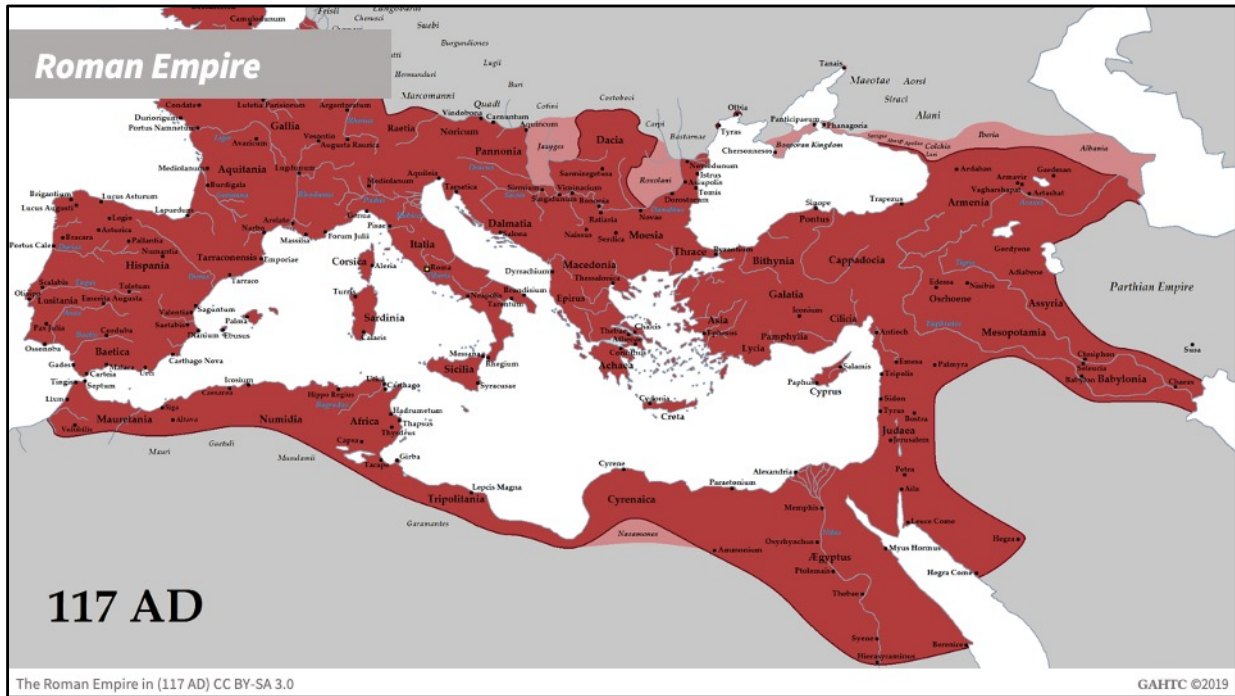
Banister Flight Fletcher: Halicarnassus, Mausoleum (1896) Public domain

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The most famous building of the city was the Mausoleum. It is one of the seven wonders of the ancient world. Like the lighthouse of Alexandria, the colossus of Rhodes and the temple of Artemis in Ephesus, it was located in a port city. This testifies to the cultural richness of the port cities of antiquity, which are in constant exchange and also competing with each other.

Image source:

https://commons.wikimedia.org/wiki/File:Mausoleum_-_Halicarnassos_149.jpg



At the time of its heyday, the Roman Empire comprised Southern Europe, the North African coast and large parts of Western Europe and Asia Minor. Art and architecture were linked to Greek antiquity. Rome was an empire with a sea in its middle. That made it necessarily a seafaring empire.

Image source:

[https://upload.wikimedia.org/wikipedia/commons/0/00/Roman_Empire_Trajan_117 AD.png](https://upload.wikimedia.org/wikipedia/commons/0/00/Roman_Empire_Trajan_117_AD.png)



Ostia used to be the main port of landlocked Rome, 20 km outside the city. Note the hexagonal harbor added during Trajan's rule. The older harbor basin in front of it is now silted up.

Image source:

[https://commons.wikimedia.org/wiki/File:Fiumicino_03_\(RaBoe\).jpg](https://commons.wikimedia.org/wiki/File:Fiumicino_03_(RaBoe).jpg)



The port was connected by a channel and a road with Rome. Around the hexagonal basin there were warehouses.

Image source:
<https://de.m.wikipedia.org/wiki/Datei:ModellPortusRomaeClaudius.jpg>

Roman Empire



Roman coin (64 AD) CC BY-SA 2.5

GAHTC ©2019

The Roman coin from the time of Emperor Nero shows the port of Ostia on its back. It shows the importance of the port and shipping to hold together the Roman Empire. The hexagonal basin is clearly visible. Its use as a motif reflects the great importance of the port.

Image source:

https://commons.wikimedia.org/wiki/File:NERONE-RIC_I_178-87000967_PORTUS.jpg

Roman Empire



Port of Classe, Mosaic in the Basilica of Sant'Apollinare Nuovo (2016) CC BY-SA 4.0

GAHTC ©2019

Classe was the Port of Ravenna and the naval base for the eastern Mediterranean roman fleet. The mosaic features the fortifications and depicts representative buildings within the city.

Image source:

https://commons.wikimedia.org/wiki/File:Harbor_of_Classe_mosaic_-_Sant%27Apollinare_Nuovo_-_Ravenna_2016.jpg



Today only a few remnants of the ancient port city remain. The printed glass wall gives an idea of the former buildings in the harbour.

Image source:

https://commons.wikimedia.org/wiki/File:Antico_porto_di_Classe-Percorso_archeologico.jpg

Roman Empire



Roman Fresco from Stabiae. Perhaps the harbor of Pozzuoli (2009) public domain

GAHTC ©2019

A rare contemporary representation of a Roman port, probably showing the port of Pozzuoli. A pier and numerous steles with statues are clearly visible. The pier was 370 metres long and rested on pillars connected by arches. The pier was decorated with triumphal arches and columns. The remains of the ancient building were covered in 1930 with the present pier.

Next to Pozzuoli and built by Augustus, Portus Julius was the first port to be specifically built to house the western Roman fleet, around 30 BC. Being built in times of war, the port was interconnected with two inland lakes where 300 ships were constructed and trained in secrecy until finished.

Image source:

https://commons.wikimedia.org/wiki/File:Stabiae_-_Port_Scene_-_MAN.jpg

Roman Empire



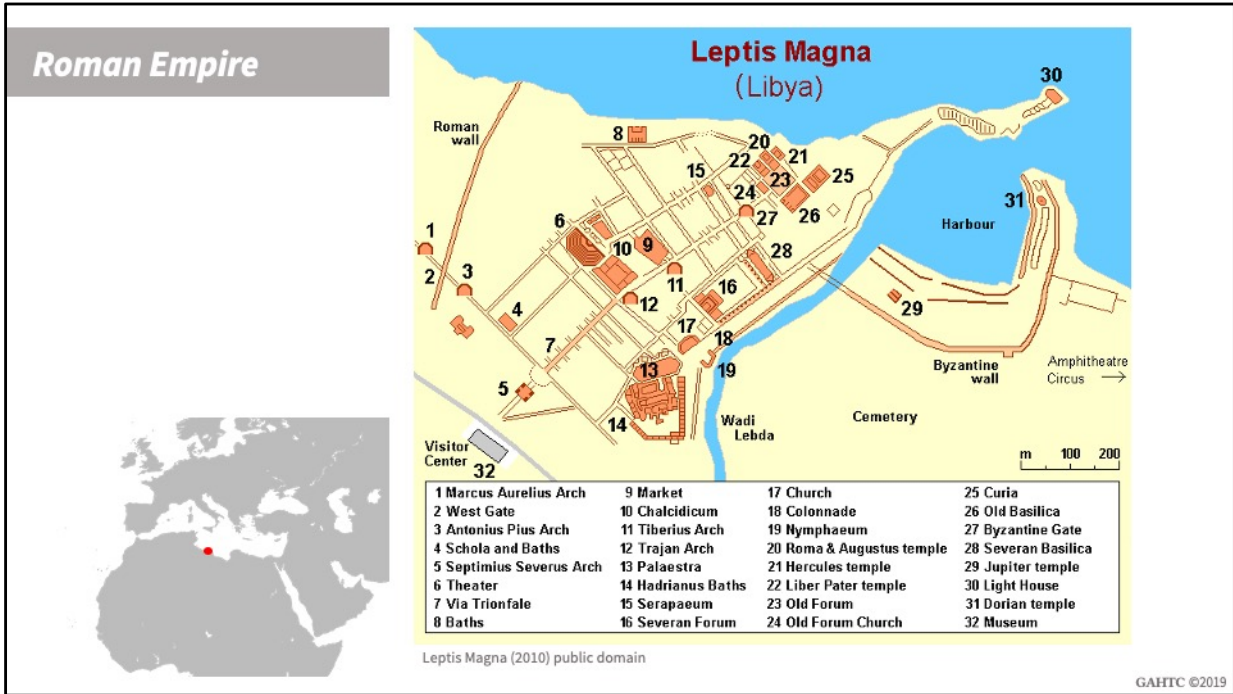
Remains of ancient Caesarea (2005) public domain

GAHTC ©2019

The aerial view of Caesarea, the most important Roman port city in the territory of present-day Israel, shows many typical elements of Roman cities: a theatre, a hippodrome and in the background an aqueduct. The harbour basin is also clearly visible. Unfortunately, the connected layout of most of the ancient port cities is not so well recognizable today.

Image source:

<https://commons.wikimedia.org/wiki/File:Caesarea.JPG>



Leptis Magna is the largest preserved ancient city. As in other ancient port cities, we see here a direct neighbourhood of port and city centre. The port uses natural conditions and is protected by construction measures from the open sea and also from attackers. The harbour itself is relatively simple, breakwaters, quays and warehouses characterise the place. The harbour itself contributed to the fact that architectural forms and urban plans quickly spread over the entire area of the Roman Empire. The port cities were more directly connected than places connected by long land passages. All the prosperous cities of antiquity were accessible by ship.

Image source:

https://commons.wikimedia.org/wiki/File:LY-Leptis_Magna.png

Roman Empire



Leptis Magna, Severan Basilica, (2nd C) CC BY-SA 3.0

GAHTC ©2019

The remains of the basilica bear witness to the city's wealth and to the architectural skills of its builders. Its dimensions are still considerable for today's standards.

Image source:

https://commons.wikimedia.org/wiki/File:Severan_Basilica.JPG?uselang=de

Roman Empire



Leptis Magna Theatre (2010) CC-BY-2.0

GAHTC ©2019

The theatre, a building that can be found in all ancient metropolises, testifies to secular culture and gives an impression of the former animation of the place. Like the Basilica, it is an example of the spread of building forms facilitated by seafaring.

Image source:

[https://commons.wikimedia.org/wiki/File:Leptis_Magna_Amphitheatre._\(7251116584\).jpg](https://commons.wikimedia.org/wiki/File:Leptis_Magna_Amphitheatre._(7251116584).jpg)

Roman Empire



Leptis Magna, Measure converter (2nd C) CC-BY 3.0

GAHTC ©2019

This measure converter also bears witness to trade relations. Various measurement units are carved into the stone and can be converted into other measurement systems with its help. It is a symbol for the ability of port cities to connect different foreign elements and to benefit from them.

Image source:

https://en.wikipedia.org/wiki/File:Market_Leptis_Magna_03.JPG

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