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Engineering an Empire

https://www.youtube.com/watch?v=C5obOUDyQ5s

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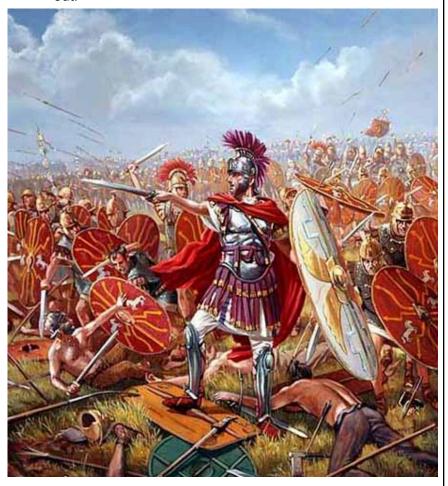
Julius Caesar - Ruled Rome 49-44 BCE - Crossed the Rubicon and brought his troops into Rome - Ended the democratic republic that was Rome



- Decade earlier built humongus bridge
 - Constructed in 10 days
 - 400 yards long
 - Rhine River in modern day Germany
 - Strong enough support 40K soldiers
 - wood
 - Cutting edge design slanted poles



- Expected resistance, but Germans fled!!!!
- Germans flabbergasted by amazing engineering and military display!
- Roman troops explored for 18 days
- Turned around, dismantled bridge, headed home,
- JC was a general at this time and Rome sent a powerful message - we can go anywhere, we have no equal, watch out!



Rome's origins

- Romulus and Remus
 - Two brothers found Rome
 - Raised by shewolf
 - Fought for control
 - Romulus won and Rome was born

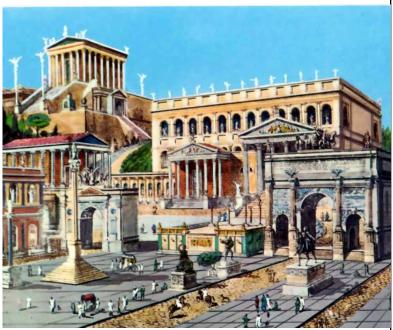


- Tiber River runs through Rome - not huge like Nile





- Built world's first sewer system 2,500 yrs ago still in use!
 - Drained the streets
 - Drained the swamp that became the center of Rome
 - The Roman Forum was built upon the swamp





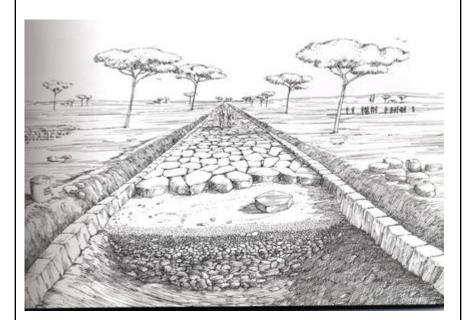
- Rome welcomed outcasts

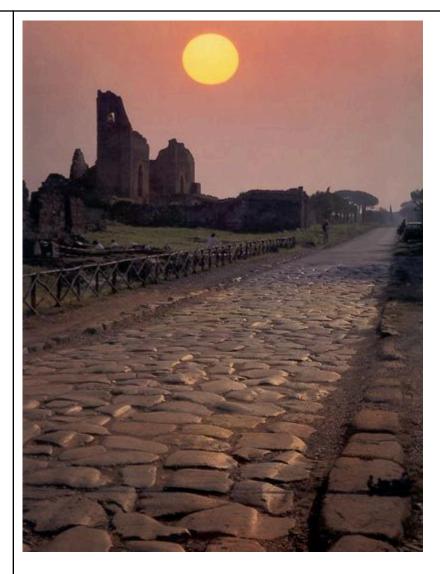
- Took their ideas and improved them - walls, roads, waterways, buildings

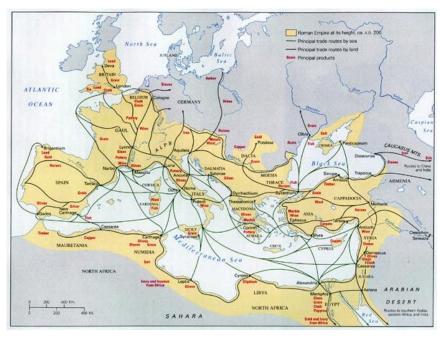
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roads

- 312 BC via Apia
 - Straight line
 - No corners
 - Layers of boulders, sand, gravel and paving stones
 - Sharp angle "turns"
 - Carve through mountains to go straight
 - Rome to southern province 132 miles
 - First real road
 - First national highway
- intimidating! Legions of soldiers could travel quickly to attack feisty neighbors
- great for fast, efficient, economical trading







Augustus	 31 BC- 14 AD Great nephew of Caesar First emperor (democracy died when Julius C took over) Greatest export was Roman city Conquer a territory and build a mini Rome Offered a higher standard of living Better jobs More money Civilized London, Paris, Bonn are some examples of exported Roman cities People flocked to the cities
concrete	- Secret ingredient - volcanic sand added to greatly strengthen the concrete - Highly water resistant - Allowed hugh building projects across empire - http://www.ancient-origins.net/news-history-archae ology/scientists-discover-ancient-roman-concrete-was-far-superior-our-own-00523

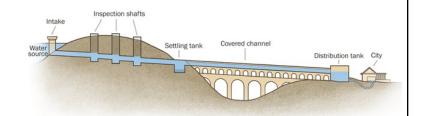
aqueducts

- Man-made water network
- Fresh water from mnts to Rome up to 53 miles
 - For every 100' need 7' decreased slope
 - Straight through mtns
 - Cover waterways
 - Most were in ground, only 20% exposed

Key benefit = Supported much larger population

https://docs.google.com/document/d/113PIIIPeaFG5roQmN I5qNcmJGNWSsNVc8 K0Ipflk-M/edit

http://www.ancient.eu/aqueduct/



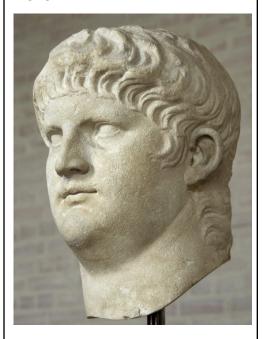


Claudius



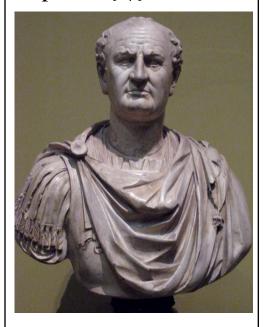
- Built major aqueducts that helped Rome's population skyrocket
- Had transferred control to his "adopted" son Nero instead of his own and then he died four years later, coincidence or connection?!!!!
- Killed by one of his wives deadly mushroom

Nero



- Meglomaniac
- Fiddled while ¾ of Rome burned
- Built luxurious 200 acre palace by plundering the government's coffers and taxing the wealthy
- Driven mad after having his mom killed
- Senate declared him an enemy
- Hunted by his own guards
- Killed himself
- Horrible ruler
- Last ruler related to Julius Caesar

Vespasian 69-79 AD



- anti-Nero football over opera
- Not of royal blood
- Raided Jewish lands, captured 12,000 slaves to build the Coliseum and sold their religious artifacts to finance the building
- Took control after defeating other generals after Nero's demise (not related to JC)



- Built Coliseum in eight years
 - Could be flooded for naval battles via aqueducts and sewers
 - Retractable roof
 - 70,000
 - 160' tall
 - Two Greek amphitheater back to back 360 degree round
 - Entertainment
 - Humans vs. animals
 - Executions
 - Man vs. man gladiator battles
 - Distraction from what the govt was doing
- -died of natural causes 1 year before his son Titus opened the Coliseum
- ten years of stability and prosperity for empire

Trajan 98-117 AD



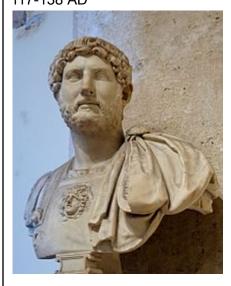
- First non-Italian ruler Spain
- Proved his loyalty to Rome by building a new major aqueduct, repairing roads and constructing massive, new Forum
- Conquered Dacia (modern day Hungary and Romania) and plundered million\$ gold and silver
- Expanded the empire's borders to the their height
- His rule was a time of peace and tranquility
- Very popular, successful ruler of an empire with 50 million Roman subjects
 - 125' stone hill leveled by slaves
 - Giant mall
 - Basilica
 - libraries
 - Courts
 - Govt.
 - Hugh statues
 - 125' statue of Trajan tells story of win over Dacia

FORUM TRAJANI



See a larger version of the map at the below address https://upload.wikimedia.org/wikipedia/commons/thumb/1/1a/Roman provinces trajan.svg/1732px-Roman provinces trajan.svg.png

Hadrian 117-138 AD





- Wall in England
- 73 miles entire width of the country
- Keep out barbarians
- 17 superforts 1,000
- Mile castle w/ 60 soldiers
- Two watchtowers with handful of sentries between mile castles
- 15 feet high
- 9' deep ditch
- 120' wide ditch on other side of wall from coast to coast
- Physical and psychological barrier
- Saved money didn't need as many soldiers to watch the border
- Proved Rome's dominance

Fall of Rome

- Invading barbarians from what is now Germany (Germania) destroyed the aqueducts that brought the necessary fresh water into Rome
- The Empire was too big
 - The army was spread out too far which made it difficult for leaders in Rome to act quickly when trouble started
 - Political leaders were corrupt
 - Too much money spent on army

- Compromise that gave plebians more power
 Plebians could elect tribunes who were equal in power to senators and elect Council of Plebs which was an assembly of all citizens