

“When the Fullness of Time Had Come”

The Roman Empire

The Roman Empire

Table of Contents

<i>“When the Fullness of Time Had Come”</i>	1
Jesus Came at Just the Right Time	8
A unifying language.....	8
A unifying law and government.....	8
A unifying system of trade	9
The “Pax Romana”	9
Philosophical and religious exhaustion.....	9
The Jewish world longed for a Messiah	10
The Roman world needed a census	10
The Fall of Rome	11
Roman Law.....	13
What is Roman law?	13
Characteristics of Roman law.....	13
Stages in the development of Roman law	14
Bases of Roman law	14
Principles of Roman law.....	15
Roman Construction Techniques	16
Contracting documents regulated the work and payment to contractors.....	16
Current contracting methods are structured similarly	17
The evolution of material use over time transformed the scale and efficiency of construction	17
Material use dependent on skilled labor limited construction.....	17
The industrialization and standardization of material production allowed for innovation in construction	18
The modular nature of Roman infrastructure provided organized methods for its construction	18
Wall Construction	19
Arch Construction	19
Column Construction	20
Conclusion.....	20
References	21

The Roman Empire

The Amazing Engineering of Ancient Roman Roads	22
What Were Roman Roads Like?.....	23
How Were Roman Roads Built?	23
The Appian Way	25
Services on the Roads	26
The Survival of the Roman Road System	26
The Roman Provinces.....	29
Varying Borders.....	30
Principate	31
Italian Provinces	31
Sources.....	31
The Julian Calendar	32
The Roman Calendar	32
Beware the Ides; and the Kalends; and the Nones.....	32
The History of the Julian Calendar	33
The Naming of the Months on your Calendar	34
Conclusion.....	34
A Brief History of the Roman Empire.....	36
Founding (c. 625 BC)	36
Period of Kings (625-510 BC)	36
Republican Rome (510-31 BC)	36
Imperial Rome (31 BC – AD 476).....	37
Listing of Roman Leaders	37
Julio-Claudian Dynasty	37
Flavian Dynasty	38
The Five Good Emperors.....	38
Antonine Dynasty.....	38
Severan Dynasty.....	38
The Soldier Emperors.....	38

The Roman Empire

Gallic Empire (West)	39
Palmyrene Empire.....	39
The Soldier Emperors (<i>continued</i>)	39
Western Roman Empire.....	39
Eastern Roman Empire	39
Constantine Dynasty	40
Western Roman Empire.....	40
Eastern Roman Empire	40
The Jews in Roman Times	41
The Roman Economy	43
Origins of the Roman Economy	43
Roman Dependence on Trade and Imperial Supply Chains.....	44
Slavery as the Bedrock of the Roman Economy	44
Far Flung Trade Routes of the Roman Empire	45
Industry and Manufacturing in the Roman Empire	45
The Roman Market Economy.....	46
The Roman Economy and the Fall of Rome	46
The Roman Banking System.....	48
The Roman money changers.....	48
The <i>mensarii</i> or Rome's public bankers	49
The <i>nummularii</i> or the officers of the mint	50
Conclusion.....	50
The Roman Currency.....	51
Roman monetary history	51
The Roman Units of Measure	57
Roman Units of Length	57
Roman Units of Area	58
Uncial divisions of the jugerum.....	59
Roman Units of Volume	61

The Roman Empire

Roman Liquid Measures.....	61
Roman Dry Measures.....	62
Roman Units of Weight.....	63
Subdivisions of the uncial	64
The Roman Numerals.....	66
Brief Overview of the System	66
Original Forms of the Roman Numerals	67
Evolved Version of the Roman Numerals	67
How are Large Numbers Represented in Roman Numerals?	68
How did the Romans come up with this system?	68
Before the Romans, what numeral system was used for numbering?.....	69
Usage in the Modern Era	69
How famous is the Roman numerals in today's Greece?	70
Roman Medicine	71
Pandemic in the Roman Empire.....	71
Medical care in Ancient Rome	71
Hospitals in the Roman Empire.....	72
Medical equipment in the Roman Empire	73
Complementary therapies in the Roman Empire	73
Ancient Roman Medicine.....	74
What medicine did the ancient Roman use?	74
What herbs were used as medicine by the Romans?	74
How were wounds treated in ancient Rome?	74
What did they call the Roman doctors?	75
Influence of Greek medicine on ancient Roman medicine.....	75
General Roman medicine.....	75
Progression of medicine	76
Famous Specialists of ancient Roman medicine	77
Hospitals in the ancient Rome	78

The Roman Empire

Dreams as diagnostic methods	78
Major health issues in the ancient Rome	79
Conclusion.....	80
Christianity versus Roman Religion.....	81
What made Christianity distinct from Roman religion?	82
What was the origin of Christianity in the early Roman Empire?.....	82
How did the Romans react to Christianity?	82
Religion in Ancient Rome	82
Eastern Influences on Ancient Religion in Rome	83
The Assimilation of Cults.....	84
Judaism in Ancient Rome	85
The Roman Empire and Christianity	85
Christianization in the Roman Empire	86
Conclusion.....	87
The Roman Empire Secret Police	88
Frumentarii Were Not Entirely Innocent	88
The Roman Empire Agriculture and Food.....	90
Introduction	90
The “Delightful” Life.....	90
Crops	91
Other Crops.....	92
Farming Practices.....	92
Trade	93
Economics	93
Mechanization	94
Acquiring a Farm	95
Aristocracy and the Land	95
Running a Farm in Rome.....	96
Problems for Farmers	97

The Roman Empire

Entertainment in the Roman Empire.....	98
Gladiatorial fights.....	100
Chariot Races	101
Fans and riots in the world of Romans	102
Games	102
Libraries.....	104
Riddles.....	105
Theatre performances	105
Feasts	106
Education	106
Bread and games.....	107
Taxation in the Roman Empire.....	108
Communication across the Roman Empire.....	110
Art of the Roman Empire	111
Roman Sculpture.....	112
Roman Wall Paintings	113
Roman Mosaics	114
Minor Arts	115
Legacy.....	116

Jesus Came at Just the Right Time

Jeff Sanders

2018

In Galatians 4:4-5 the Apostle Paul writes, *“When the fullness of time had come, God sent forth His Son, born of a woman, born under the law, to redeem those who were under the law, so that we might receive adoption as sons.”* And in Romans 5:6 the Apostle adds that *“at just the right time, Christ died for the ungodly.”* The Bible is clear that Jesus came to earth at the exact right time.

Why was the time during the reign of Caesar Augustus and Herod the Great so perfect? Here are seven reasons from history demonstrating how the arrival of Jesus the Messiah was not a cosmic accident, but rather a perfectly timed answer by God for a world that was ready to hear the greatest news ever.

A unifying language

The ancient Mediterranean world had a unifying language. Greek was the universal language in the Roman Empire, and it was known in regions beyond (such as Persia). Latin was the primary language of the Western Roman Empire, and Aramaic was the first language of Jesus and His apostles, but Greek was known at least as a second language throughout the empire.

Over three hundred years before Christ, Alexander the Great had spread the language of the Greeks from Athens to Egypt to the border of India. By the time Jesus was born, Greek literature, science, and art were widely known, and one could speak Greek anywhere in the empire and be understood. The New Testament was first written in this international language of the day, and then almost immediately translated into other languages (such as Latin and Syriac/Aramaic).

A unifying law and government

The Greco-Roman world had a unifying law and government. Roman law had unified people from modern-day Britain to Egypt under one civil code. For the most part, Roman law was just and fair for all people groups, and many people wanted to be Romans in order to benefit from their just laws.

The New Testament shows the Apostle Paul, who was both a Jew and a Roman citizen, often appealing to Roman law whenever he believed he was being treated unjustly (Acts 16:35-40). When Paul appealed to Caesar for a fair trial, it is Roman law that allowed him to be sent to Rome to stand trial before the Emperor. The story of Acts shows that Roman law was the vehicle providentially used by a sovereign God to get the gospel from Jerusalem to Rome.

The Roman Empire

A unifying system of trade

The Roman Empire had a unifying system of transportation. When I was in Rome a few years ago, I walked along the Appian Way — the same road, the same stones that Paul walked on along the way to prison.

Jesus, Mary, and Joseph took the coastal road from Israel to Egypt to escape Herod. Peter used Roman roads to get to Caesarea to speak to Cornelius in Acts 10. Paul and his companions used Roman roads to take the gospel across Asia Minor and Greece. Soon, Christians were traveling Roman-built roads across Gaul and Hispania and North Africa. God used the network of roads that were built by Rome for His glory.

At the time of the birth of Jesus, the Roman military had also banished piracy on the high seas. Paul and his pals could take ships from Antioch to Cyprus and Asia Minor and Greece on their missionary journeys without fear of being attacked by pirates. The only major fear was of storms at sea, like the one Paul faced in Acts 27:13-44.

The “Pax Romana”

The ancient world at that time enjoyed the “Pax Romana.” From the time of Caesar Augustus to Marcus Aurelius (27 B.C. to A.D. 180), the Mediterranean world enjoyed peace under Roman rule. Yes, there were a few outbreaks of local wars, such as the Jewish revolt in A.D. 66-73 and later the Bar Kokhba revolt of A.D. 133-135, but for the most part, the Roman Empire was free from invasions or major civil upheavals.

So the early Christian faith was born in a time of peace, and had time to expand across the empire without fear of invading armies. (Of course, the periodic persecutions, both local and empire-wide, were problems from time to time.)

Philosophical and religious exhaustion

The pagan world at the time of Jesus’ birth was philosophically and religiously exhausted. As I read Greek and Roman stories about their gods and heroes such as “The Iliad” and “The Aeneid”, I am struck by the absolute insensitivity of the gods. They really don’t care about the human race. The gods do not love you. They have no covenants with mankind. They do not sacrifice themselves out of love to rescue or redeem sinful, fallen humans.

The gods cannot transform your life and offer no forgiveness or assurance of everlasting life. There is no promise of heaven for the faithful and certainly no resurrection. But honestly, there was nothing in the Roman pantheon or in the philosophies of Plato or Aristotle that could give hope to either slave or centurion. The faith revealed in Jesus Christ, however, was like rain falling on cracked and parched earth. Here was a God who entered the human race to go on a rescue mission and actually secure the salvation of all who would repent and believe. Unlike

The Roman Empire

pagan believers, followers of Christ could actually find redemption and freedom from their old debauched lives and enter into a new transformed life here and now. Paganism had nothing to offer in comparison.

The Jewish world longed for a Messiah

The Jewish world was eagerly expecting a Messiah, but was also deeply divided and legalistic. The Jewish world certainly expected a Messiah, and although the idea of a suffering Servant-Messiah is clearly in the Old Testament (Isaiah 52:13- 53:12), it seems that most simply wanted a conquering king who would drive out the hated Romans.

There were many sects in Israel at the time, such as the Pharisees, Sadducees, Herodians, and Essenes. All believed they knew what was best for everyone. While the Pharisees probably had a pure motive in erecting their own traditions to prevent people from breaking the Law of Moses, they succeeding only in reducing living by faith to a man-made legalistic code that missed the whole point of loving God and loving one's neighbor.

The Jewish world had simply exchanged their former worship of stone idols for man-made traditions that became new idols. In their apostasy, they were ready for a Messiah who really could set them free.

The Roman world needed a census

Ordering the census may not have been the most important thing Caesar Augustus did that day, but it set in motion a series of events that brought Mary and Joseph to Bethlehem, the City of David, where the Messiah would be born (Micah 5:2). Caesar did not know he was actually the tool of God, working on just another day of activities — but ultimately He was fulfilling ancient prophecy from God's Word.

A Roman census was issued in 6 BC, and Herod died in 4 BC, so Jesus was born sometime between those two dates.

It was no accident that Jesus was born at that time. It was no accident that there was a universal language, a unifying system of law and transportation, military peace across the Mediterranean, a very barren religious world, and a census bringing a young couple unexpectedly to their ancestral hometown. It was no accident at all. It was instead ... the fullness of time.

The Roman Empire

The Fall of Rome

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2011

Generations of German schoolchildren were taught that the Roman Empire fell because of the Germans. In a sense, that's correct. But how were they able to do this? Were they the sole cause, or was the situation more complex than this?

Rome in the 1st and 2nd centuries A.D. was the world's first superpower and arguably history's only true superpower – absolutely dominant militarily, politically, economically, and culturally. One language, one law, and one currency accepted from the North Sea to the Sahara Desert. The travels of Saint Paul are the best tribute to Roman peace and justice. When he was arrested, and the officer threatened to beat him, Paul said, "You cannot beat me. I am a Roman citizen. I have the right to due process." Indeed, the global economy and global culture of the empire made the spread of Christianity possible.

Yet at that same time, thinkers like Tacitus were pondering whether or not their empire could last much longer. Some of them drew analogies to the human body that just wore out. Tacitus blamed decadence and corruption.

The simple truth is that individual Roman leaders made individual and critical mistakes. This is why all empires fall. The Romans made two critical mistakes in particular, one in terms of foreign policy, the other in terms of the economy.

Caesar Augustus made the first mistake by deciding not to expand the empire. His peace with the Iranians left their large, technically superb army between Rome and some major sources of natural resources, such as the wheat of Egypt. Secondly, he urged there be no more further expansion against Germany. Tiberias ultimately agreed with him and after A.D. 16, there more no more serious attempts to conquer the Germans. When Rome fell victim to civil war and political instability in the 3rd century A.D., both the Iranians and Germans attacked Rome again and again.

Rome recovered by the end of the 3rd century, but in such a way that it had transformed all of what made it efficient. The middle class had been the very foundation of the Roman Empire – well- educated, proud of their wealth, investing in the empire, investing in the free-market

The Roman Empire

economy. Rome had social mobility, too; slaves were able to buy their freedom and become part of the vital economic class. But by the 3rd century, the tax burden on the middle class was so enormous that investment was impossible.

Meanwhile, the Roman bureaucracy which in the heyday of Caesar Augustus had been small and efficient, was now bloated with useless jobs – the main cause of the tax increases. The army, too, had to expand in the face of foreign dangers, becoming ever less efficient and more costly. All of this transformed the Roman Empire into a totalitarian despotism where instead of social mobility; everyone was tied to the jobs of their ancestors.

As long as the empire had continued to expand, it brought in large amounts of money. The last emperor to be truly expansionistic was Trajan (r. 98-117). He pushed across the Danube into the land we know as Romania today and brought back enough gold, wealth, and slaves to stimulate the Roman economy through Marcus Aurelius (r. 161-180). Without expansion, the empire ran into debt. When the Germans and Iranians attacked in the 3rd century, the Romans did not have the money to pay for defense and chose the worst possible course of action: devaluing their silver-based currency. Thus inflation swept the Roman Empire, fixed incomes were wiped out, and one more enormous burden was laid at the feet of the middle class. The middle class perished, and as the middle class perished, so perished the Roman Empire.

Like the Romans, the Western powers have so far failed to solve the problems of the Middle East and Central Europe. The U.S. tried, as did the Romans, shock and awe, followed by nation building; they finally resorted to annexation. The Romans were not welcomed as liberators; the people revolted, and ultimately the Middle East became a quagmire.

The Germanic situation is comparable our failure to bring Russia into the orbit of the free economic world. When communism collapsed, the Russian expected something like the Marshall Plan, to rebuild them economically as we had Germany after World War II, ensuring a sound basis for democracy. Instead, we left it with the worst aspects of capitalism. In the midst of this, the United States and many European nations have allowed their economies to become debt riddled, piling unimaginable sums generation after generation.

All human things pass away, just as the Roman Empire passed away. But Rome left some enduring legacies, the most far-ranging of which is Christianity.

Roman Law

Collaborative Research Group

2016

What is Roman law?

Roman law is the set of rules and laws that existed in the different periods of ancient Roman society, from the 5th century B.C. until the death of Emperor Justinian I in AD 565. C. The oldest evidence of the Roman legal system is the text “The law of the XII Tables” from the middle of the 5th century B.C. that details rules of coexistence for the people of Rome.

At the beginning of the 6th century, Emperor Justinian I compiled the legal texts of the time into a single legal text called *Corpus iuris civilis*, which means “Body of civil law”. It consisted of the most influential legal document in history that established a parameter of what was allowed and what was prohibited.

Furthermore, the emperor convened a committee to select the Roman lawyers. From then until today, the legal order is maintained and updated as societies evolve.

Roman law was the basis of the modern legal order worldwide, with the exception of the nations in which Muslim, Hindu and Chinese law are applied, in addition to customs that are not written but are followed by tradition or social ethics and differ from one culture to another.

Starting in the 18th and 19th centuries, several European countries began to replicate the foundations of Roman law for the legal system of their nations. For example: Spain promulgated the Commercial Code in 1885 and the Civil Code in 1889, laws that remain in force although they have undergone several modifications over the years.

Characteristics of Roman law

Roman law was characterized by:

- Establish norms that impose social duties and establish the bases for the coexistence of the population.
- Reflect important changes in the legal order of Ancient Rome.
- Being the antecedent of the division of powers and Civil Law today.

The Roman Empire

- Being bilateral, that is, it requires the interactivity of two or more parties, such as the State and the people, who must fulfill obligations reciprocally.
- Not recognizing the right of equality for the entire population, since it continued to consider slaves as property of the nobility.

Stages in the development of Roman law

Roman law throughout the history of Rome was divided into the following stages:

- **Ancient law (753 - 130 BC).** It was the stage that was characterized by the norms based on customs and that were embodied in the *Law of the XII Tables* that was directed to the population and resulted in a rigid and severe legal order.
- **Classical law (130 BC - 230 AD).** It was the stage that was characterized by the organization of jurisprudence of the legal order, such as the Senate and by formalizing the law as a science.
- **Post classic law (230 - 527 AD).** It was the stage that was characterized by the absolute power exercised by the emperor to regulate the areas of public and private life of citizens.
- **Justinian Law (527 - 565 AD).** It was the stage that was characterized by a legislative reform that made it possible to compile the norms and laws in force, in a formal and codified way, in a single text.

Bases of Roman law

The main bases that gave rise to the Roman law of Ancient Rome were:

- **Customs.** They were the first social norms adopted.
- **The law.** They were rules established by the authorities, such as the collection of taxes or the deprivation of rights for those considered slaves.
- **The plebiscites.** They were the legal procedures in which a popular vote was called.
- **The jurisprudence.** It was the adoption of law as a science, made up of sentences and decisions by a court of justice.

The Roman Empire

- **The Senate consults.** They were the representatives of the ruling class who took deliberations of the Senate with the value of law.
- **The imperial constitutions.** They were the regulations established by the emperors.

Principles of Roman law

Roman law promulgated three general principles formulated by the Roman jurist Domicio Ulpiano, advisor to the Emperor Alexander Severus.

The three general principles were:

- ***Honeste vivere (live honestly)***. It consists of a moral and legal precept.
- ***Alterum non laedere (do not harm the other)***. He who harms others violates their rights and is exposed to sanction.
- ***Suum cuique tribuere (give each his own)***. It consists of complying with the law, contracts, agreements and recognizing the rights of others.

Roman Construction Techniques

Brian Zabala

2022

Much of what we know of ancient Rome is largely due to the traces of their civilization that have survived until today. During my time in Rome, I noticed that these traces were embedded at every level of the built environment. From the generous use of columns borrowed from ancient structures, to the continuing relevance of public buildings adapted for modern use, there are many instances of Roman construction enduring in the present.

However, what interested me the most was the mystery surrounding ancient construction. How exactly were these enduring examples of Roman structures built? What logistical challenges were involved during construction? And who was responsible for maintaining them? While we may never know the exact details, there are many clues available that allow us to make several assumptions about the construction process.

In this article, I will examine how public infrastructure, such as aqueducts, temples, baths, and other public works, was built. Specifically, I will explain how evidence of ancient Roman infrastructure construction as described by surviving contract documents, the evolution of material usage, and the methods for construction of remaining structures show that the construction process has changed little since then.

Contracting documents regulated the work and payment to contractors

Like in modern times, contracting provided the legal, economic, and practical means for construction in ancient Rome. The construction and maintenance of public buildings was the responsibility of the offices of multiple elected officials. Most notably, these included the *aediles*, who were responsible for enforcing the maintenance of public buildings, and *censors*, who were responsible for managing and financing maintenance and construction of public works, among other responsibilities (Britannica). This public infrastructure included walls, temples, roads, theaters, bridges, and other structures. Construction and maintenance was dedicated to contractors who bid on contracts initiated by the *ensor*, who would award the contract to the lowest bidder. The *ensor* was also responsible for managing public funding of these projects, and had the ability to contract tax collection to contractors as well. The terms of each contract were published by the *ensor* describing the “rights and duties” of the contractor (Puteoli).

The Roman Empire

Officially, public funds collected through taxes were appropriated by the Roman Senate to provide funding for public projects. However, this was not always the case, as individuals, such as the emperors during the imperial period, provided their own money toward the construction of public buildings to win social and political influence.

Current contracting methods are structured similarly

Generally, an owner or their representative will award contracts to contractors. On government or public projects, the design-bid-build format is widely used, with contracts usually awarded to the lowest bidding contractor. However, some projects may work as design-build, meaning work is contracted to a single firm that manages both the design and construction. While the idea of contracting is not new, some key differences include the legal terms and consequences of contracting work, and the responsibilities of the contractor.

The evolution of material use over time transformed the scale and efficiency of construction

Roman society greatly depended on materials available nearby, as they provided the most easily attainable sources of stone, wood, and clay. Some public projects, such as the Pont du Gard aqueduct in southern France, sourced its limestone exclusively from a limestone quarry created during construction about 600 meters away (Adams, 1994). However, the ways in which these materials were used not only had a significant effect on what could be built, but also how they were built. The introduction of new materials, such as concrete, made possible the construction of new architectural elements, such as domes.

However, as Roman society grew, so did its need for critical infrastructure to support a growing population. Some argue that the changes in material use over time were a response by industry in order to build faster and more efficiently. The following sections discuss these changes in more detail.

Material use dependent on skilled labor limited construction

Early on, cut stone was most prevalent in the construction of public buildings. However, the rate at which stone could be extracted from the mines and quarries served as a “limiting factor” in the speed of construction (Wilson, 2006). Construction would have likely benefitted from using materials close to the site in order to offset the time it took to produce these materials through lower transport times. Stone such as tuff, made of compressed volcanic ash, is widely available close to the city of Rome. It was used extensively in construction in the form of large blocks and bricks that were mined in and around the city.

The Roman Empire

Tuff was not only widely available, but also soft enough to collect with small cutting tools. The rough shaping of the blocks was conducted in the mines, where the blocks were transported out to the site by road or by river. Stonemasons were required on site to chisel the stones to the correct size and assist in the placement of blocks of tuff during construction (Blagg, 1976). However, this took a considerable amount of time, as early structures were primarily gravity-supported, requiring precise placement of each part of the structure.

Other stones, such as travertine, were often mined near rivers such as the Aniene, where large blocks could be rotated onto wooden barges in trenches while the river was blocked and divided into various sections. Once the barrier between the river and the trenches were removed, they began to fill and the barges were allowed to float. Afterwards, the remaining barriers to the flow of the river were also removed, which lowered the water level upstream and in the trenches. The flow then pushed the barges out into the river. As the Aniene flows into Tiber, this process allowed transport of quarried travertine directly to central Rome.

The industrialization and standardization of material production allowed for innovation in construction

Over time, this process was superseded by the increasing use of brick, which could be produced at a large scale at particular sizes. This standardization allowed for multiple brick suppliers to contribute to a single project, which increased the speed at which construction could be completed (Wilson, 2006). Mortar was required with brick use, and was primarily produced with lime and gypsum (Delaine, 2021). During construction involving significant uses of brick, it was common to find kilns on site to provide mortar for building.

The use of bricks also allowed for the use of more unskilled labor during construction, making a larger number of workers available for each task at a time. Skilled stonemasons were no longer a determining factor in the speed of construction. While these methods were not a new discovery, the scale of Roman material production was unmatched until about the 14th or 15th centuries (Wilson 2006).

The modular nature of Roman infrastructure provided organized methods for its construction

Several basic, but repeating elements served as the foundation elements of Roman structures. These include walls, arches, and columns. The figures below illustrate some examples of these basic elements in Roman construction. The Baths of Caracalla are one example of Roman wall building in public infrastructure that is evident today. However, much of what is left would not have been visible except for during construction, as the remaining eroded concrete cores were faced with brick, which was then faced with more decorative stone, such as marble.

The Roman Empire

Over time, existing construction methods constantly evolved, often in response to geographic, economic, and technological challenges and discoveries. New developments, such as the addition of *pozzolana* to concrete, increased the speed and types of uses available for concrete construction, such as for underwater structures. The use of fired clay as a durable and replicable building material offered a substantial improvement over unfired clay, and was used extensively in later periods.

Wall Construction

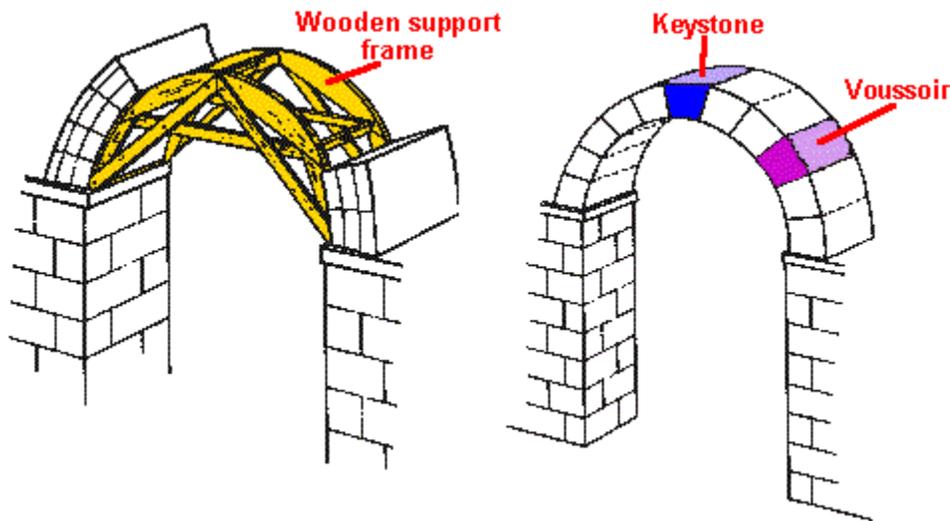
Earlier wall construction used *opus incertum*, which consisted of blocks of tuff placed outside an inner concrete core. This was superseded by *opus reticulatum*, which is a more uniform method of facing that uses tuff chiseled into bricks, which are angled and shaped as triangles to promote bonding with the concrete fill. Ultimately, *opus testaceum* became the most prevalent method of wall construction due to the development of industrialized brick production, as discussed in the previous sections. This method is similar to *opus reticulatum*, but instead, standard size clay bricks are used. The addition of bonded tiles at vertical intervals up the wall appears to be in response to the growing height of structures built within this method, which required curing of the previous concrete layers to avoid settling.

Evidence for the use of *opus testaceum* at the Baths of Caracalla is prevalent. It is considered the second largest Roman public bath, only smaller than the Baths of Diocletian. Large wall sections required a more robust method for wall construction in order to support the significant vertical and lateral loads imposed by the wide barrel vaulted ceilings.

Arch Construction

While walls constituted the primary structural support of each building, arches provided a practical means of supporting the functional and aesthetic features, including entrances, windows, halls, bridges, and arcades. The figure below shows an example of arch construction. Prior to the placement of the voussoirs, or wedge-shaped stones, wooden supports, called centering, are used to hold them in place until the keystone completes the arch, which is held in place in compression.

The Roman Empire



One example of public infrastructure that relied heavily on arches was the aqueducts. While much of what is visible today include the elevated arcades of aqueducts such as the Aqua Claudia, the majority of Roman aqueducts were constructed underground. In order to transport water from the source about 45 kilometers east of Rome, tunnels were dug through the foothills along the Aniene to maintain a steady grade.

The arcade sections constructed for earlier aqueducts primarily used stacked stone blocks placed by heavy lifting equipment, such as wooden cranes, pulleys, and levers. Stones were fitted in place by skilled workers, while centering, scaffolding and other temporary and wooden structures were reused as each section was completed (Wilson, 2006).

Column Construction

Columns were used for more than just structural purposes. They were also used as decoration, and in many cases, were used as monuments with various themes, such as the Column of Marcus Aurelius in Rome.

While early columns were chiseled from single blocks of stone, the majority were composed of several smaller stone disks that were stacked in the shape of a column. This is the case with the monument columns, such as the Column of Marcus Aurelius, and Trajan's Column.

Conclusion

Where there are no official records, it is often left to imagination when considering what construction looked like in ancient Rome. However, after closer examination, it becomes clear that there was a legal and practical order when constructing public buildings. The changing use

The Roman Empire

of materials and the means through which they were used in construction are reflected in the walls, arches, and columns that are inherent in each Roman structure.

While there are vast voids in our understanding of construction in ancient Rome, traces of history along with modern interpretation provide for a clearer picture of the construction process in antiquity. Through drawings, ruins, and historical reference, it becomes more evident that despite the vast difference in time between then and now, some aspects of ancient construction are not unlike those that exist for construction today.

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The Roman Empire

The Amazing Engineering of Ancient Roman Roads

Carl Seaver

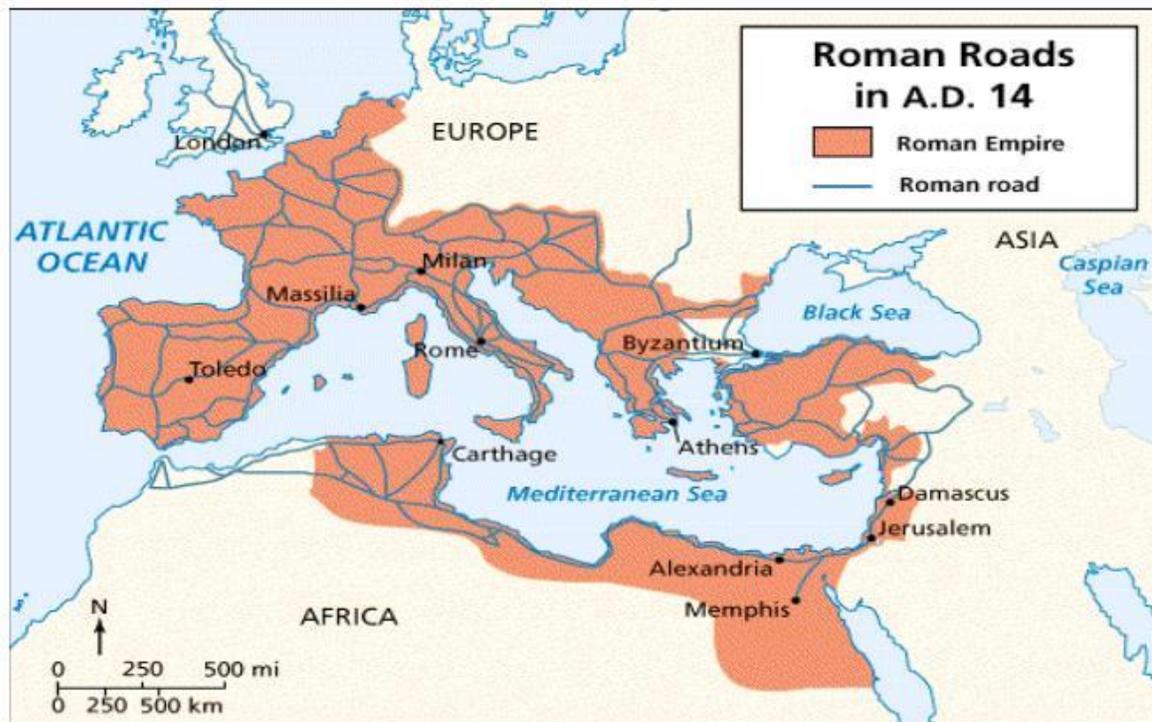
October 26, 2022

In 1810, by which time he had built an empire that spanned most of continental Europe, if the Emperor of France, Napoleon Bonaparte, wanted to get a message from Paris to Rome, he couldn't send it any faster than the Romans were able to nearly 2,000 years ago.

This is because by the first and second centuries AD, at the height of its empire, Rome had created a network of roads across Europe, the Levant, and North Africa, which allowed people to travel as fast and efficiently as was possible before the advent of steam engines.

Here we examine the impressive engineering feat that was the Roman road network.

Imperial Roman Road System



The Roman Empire

What Were Roman Roads Like?

The Roman roads were built uniformly, with the parameters varying depending on whether they were main arterial roads connecting substantial towns and cities or more regional roads.

The *viae publicae* or public roads were the more substantial, often being up to seven meters wide. These were for heavy traffic and, notably for the legions to be able to march between provinces quickly.

Consequently, these were often referred to as *viae militares*, meaning military roads or ways. On the other hand, the smaller roads, variously known as the *viae rusticae* or *viae agrariae*, effectively meaning rural roads or farming roads, were much smaller.

Depending on the exact use to which they were put, they could be as narrow as a meter and a half, but usually somewhere between three and a half meters.

The intention here was that these would be wide enough for a horse to pass along or, more typically, a horse-drawn cart.

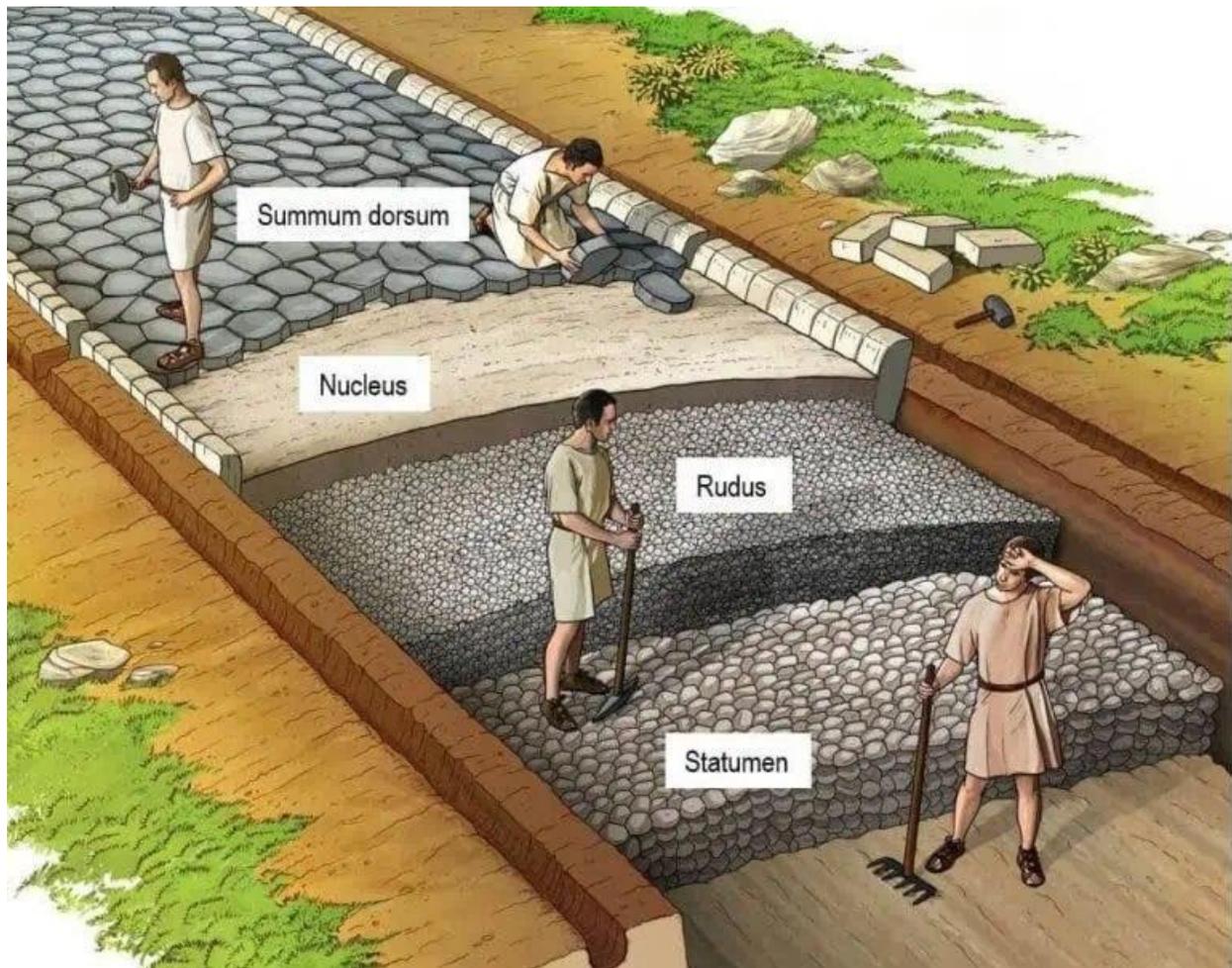
How Were Roman Roads Built?

The roads were made with an under-layer of crushed rubble, placed on leveled-out and flattened ground to eliminate bumps and undulations. This made for a nice, smooth pathway and had the advantage of draining water off.

On the more regional roads, this might have been the top surface of the road, but the larger public roads were paved and filled in using concrete.

The Romans were highly skilled in engineering. They carried out these processes only after they expansively surveyed the area to determine the best sites to build a road.

The Roman Empire



Throughout the construction process, a very precise layering of different-sized stones and materials was laid in place and then compacted to ensure the road was as securely built as possible.

When it was finished, edge stones were placed along the sides of the road itself, and then a *crepido* or footway was constructed at a slight elevation from the road itself on either side. Thus, Roman roads also had curbs and footpaths.

Finally, a significant road maintenance system developed during the Republican period and expanded under the emperor. This saw commissioners appointed to each province to oversee the upkeep of the roads in their areas.

The Roman Empire

The Appian Way

The Romans built many famed roads, but perhaps none was as central to the Roman identity and history as the Appian Way.

This ran from Rome itself southwards along the coast of Italy to the town of Capua and then forking eastwards towards Brindisi in the southeast of the peninsula.



Like all Roman roads, it was named after the individual who had first overseen its construction, Appius Claudius Caecus, a Roman censor who began constructing the road in the late fourth century BC.

This was when Rome was still only a regional power in central Italy. Still, the road was necessary to expand from the Latium region to the peninsula's south.

The Appian Way continued to be used by the Romans for the next 800 years, a perennial reminder of how the Republic had expanded centuries earlier by constructing route ways to the south of Italy. See current photo of the Appian Way at the end of the monograph.

The Roman Empire

It also became the road most traveled by the Roman elite in imperial times, as the Roman aristocracy began building villas and mansions outside Rome on the coast south towards cities and towns like Capua and Pompeii.

Services on the Roads

Of course, if one was going to travel along a road from Rome to northern Germania in ancient times or from Alexandria in Egypt to Carthage in what is now northern Tunisia, then one needed to stop along the way.

Our intrepid traveler might not need gas, but his horses needed to be fed and watered, and he needed to get supplies and possibly a bed to sleep in.

In Roman times such a traveler would have found plenty of places to avail of such services. On the main roads, way-stations called *mansiones* were built every 25 or 30 kilometers.

These were centered on taverns and hostels where people could eat and rent a room for the night.

These way-stations often developed into small villages, particularly along the busier roads of the empire, as wheelwrights, blacksmiths, veterinarians, and other professionals whose services were needed to repair carriages and tend to horses located their businesses here.

Stables of horses were kept in some of these way-stations, often government-funded ones, so that imperial messengers who needed to travel quickly along the roads could change horses as they went.

In this fashion, news of an attack by a Germanic tribe on the northern border could be sent speedily from the town of Augusta Treverorum on the site of modern-day Trier south to Rome in just under two weeks.

The way-stations also became locations at which the equivalent of Roman post-offices was established.

The Survival of the Roman Road System

By the empire's peak in the second century AD, the Romans had built over 350 great roads, their equivalent of motorways. These connected all of the empire's provinces and stretched out over 80,000 kilometers.

The Roman Empire

However, like everything else Rome established, the system of maintenance of the roads began to decline and then collapse from the third century AD onwards, as the empire entered a period of prolonged crisis.

As it did, travelers from Rome to cities like Augusta Treverorum or Lugdunum in Germania and Gaul would have noticed the paved roads were starting to show holes or bits of damage.

But, while they might have sustained some wear and tear over the years, the Roman roads survived well beyond the collapse of the Western Roman Empire in the fifth century AD.

Indeed, they continued to form the main travel routes for Europeans in Western Europe throughout the Middle Ages and beyond.

Today, many motorways and highways in Italy, France, western Germany, Britain, and Spain are built along the routes the Romans established two millennia ago.

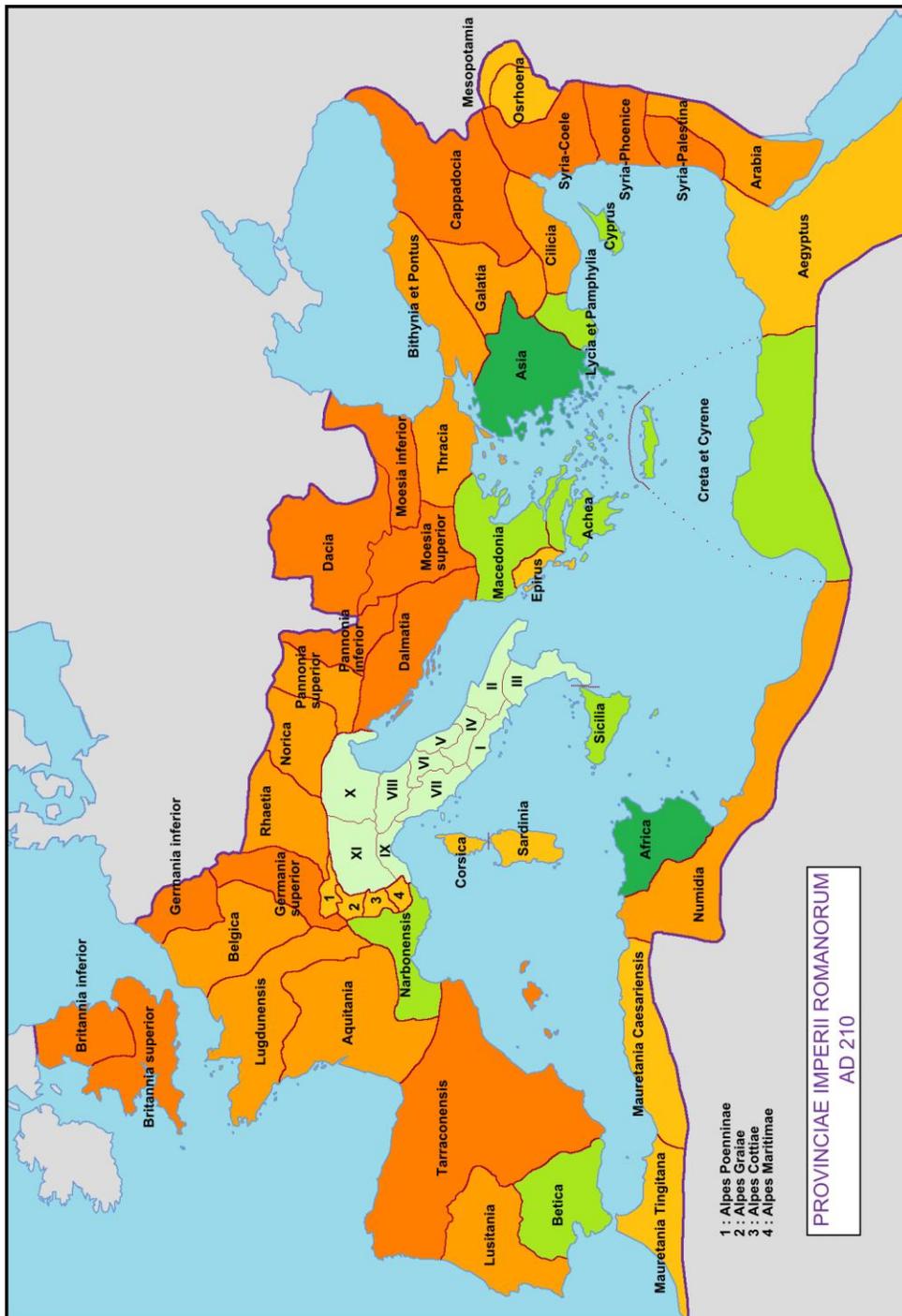
Indeed this marks their road system as one of the incredible engineering feats of human history.

The Roman Empire



The Roman Empire

The Roman Provinces



By N.S. Gill

The Roman Empire

January 31, 2019

Roman provinces (Latin *provinciae*, singular *provincia*) were administrative and territorial units of the Roman Empire, established by various emperors as revenue-generating territories throughout Italy and then the rest of Europe as the empire expanded.

The governors of the provinces were often selected from men who had been consuls (Roman magistrates), or former praetors (the chief justice of magistrates) could also serve as governor. In some places such as Judaea, the comparatively lower ranking civil prefects were appointed the governor. The provinces provided a source of income for the governor and resources for Rome.

Varying Borders

The number and borders of the provinces under Roman rule changed nearly constantly as conditions altered in the various locations. During the latter period of the Roman Empire known as the Dominate, the provinces were each broken into smaller units. The following are the provinces at the time of Actium (31 BCE) with the dates (from Pennell) they were established (not the same as the date of acquisition) and their general location.

- Sicilia (Sicily, 227 BCE)
- Sardinia and Corsica (227 BCE)
- Hispania Citerior (eastern coast of the Iberian Peninsula, 205 BCE)
- Hispania Ulterior (southern coast of the Iberian Peninsula, 205 BCE)
- Illyricum (Croatia, 167 BCE)
- Macedonia (mainland Greece, 146 BCE)
- Africa (modern Tunisia and western Libya, 146 BCE)
- Asia (modern Turkey, 133 BCE)
- Achaia (southern and central Greece, 146 BCE)
- Gallia Narbonensis (southern France, 118 BCE)
- Gallia Citerior (80 BCE)
- Cilicia (63 BCE)
- Syria (64 BCE)
- Bithynia and Pontus (northwestern Turkey, 63 BCE)
- Cyprus (55 BCE)
- Cyrenaica and Crete (63 BCE)
- Africa Nova (eastern Numidia, 46 BCE)
- Mauritania (46 BCE)

The Roman Empire

Principate

The following provinces were added under the emperors during the Principate:

- Rhaetia (Switzerland, Austria, and Germany, 15 BCE)
- Noricum (parts of Austria, Slovenia, Bavaria, 16 BCE)
- Pannonia (Croatia, 9 BCE)
- Moesia (Danube river region of Serbia, the Republic of Macedonia, and Bulgaria, 6 CE)
- Dacia (Transylvania, 107 CE)
- Britannia (Britain, 42 CE)
- Aegyptus (Egypt, 30 BCE)
- Cappadocia (central Turkey, 18 CE)
- Galatia (central Turkey, 25 BCE)
- Lycia (43 BCE)
- Judaea (Palestine, 135 CE)
- Arabia (Nabataea, 106 CE)
- Mesopotamia (Iraq, 116 CE)
- Armenia (114 CE)
- Assyria (disagreement on location, 116 CE)

Italian Provinces

- Latium et Campania (Regio I)
- Apulia et Calabria (Regio II)
- Lucania et Bruttium (Region III)
- Samnium (Regio IV)
- Picenum (Region V)
- Tuscia et Umbria (Regio VI)
- Etruria (Regio VII)
- Aemilia (Regio VIII)
- Liguria (Regio IX)
- Venetia et Ager Gallicus (Regio X)
- Transpadana (Regio XI)

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The Roman Empire

The Julian Calendar

John Rampton, CEO of Calendar, Inc.

January 2020

The Roman Calendar

By the time of the establishment of the Roman Empire, we had several millennia of experimentation completed with various calendrical systems and with multiple different ways of marking time. We had stone circles and stone markings. We had the lunar calendars and combinations of solar and lunar calendars.

We still weren't getting it right. That the amount of time the Earth took to revolve around the sun couldn't be counted in whole days. When a civilization couldn't count an entire day, it meant that calendars in different places and times around the world would regularly fall out of sync with the seasons. If a calendar is out of sync with the seasons — it's out of sync with the stars and the movement of the moon.

The earliest Roman calendars were little better than most. These calendars, too, started as lunar calendars, tracking the development of the moon over 29.5 days. With the early Roman calendars, they only lost ten or eleven days a year. At the same time, early Rome also had a nundinal cycle derived from the Etruscans. The nundinal cycle was an eight-day week, ending with a market or a festival. Farmers would head to the city to buy and sell goods. Children had no classes on that day, and slave-owners warned their property not to enjoy themselves too much.

A year in early Rome is believed to have been made up of 38 such nundinal cycles, divided into ten months of 30 or 31 days. How the Romans dealt with the remaining days is unclear. Some scholars have claimed that the Romans disregarded them while others suggest that the early Romans practiced intercalation, inserting extra days into the calendar to fill the gap and make sure that the calendar didn't fall out of sync with the seasons.

Beware the Ides; and the Kalends; and the Nones

The end of the Roman kingdom and the growth of the Roman Republic led to another revision of the calendrical system. Now the Romans were influenced by Greek calendars which divided the year into twelve lunar months, alternating between 29 and 30 days. The Romans, however, gave the third, fifth, seventh, and tenth months of 31 days each. Every other month was 29 days, except February which had 28 days and 29 in each leap year.

The Roman Empire

Each month, too, was carefully divided. The Romans called the first of the month “kalends,” the origin of the English word “calendar.” They called the day before the middle of the month the “ides,” and the eight days before the ides (or nine days counting inclusively) they called “nones.” Those moments are likely to reflect the calendar’s lunar origins, and mark the sighting of the crescent moon, the quarter moon, and the full moon.

We can begin to see and understand a bit of information about the foundation of the calendar that we use today. In particular, we note the use of an intercalary month in February to keep the months aligned with the seasons. But the Roman calendar did have one interesting difference.

After the establishment of the Roman Republic, control over the intercalation passed to the high priests. By adjusting the number of days in February, they were able to lengthen or shorten the term of office of the consuls they supported. It was as though a political party could determine the length of a year and make the year longer when they were in office. The priests could gerrymander the calendar.

The History of the Julian Calendar

In 48 BC, Julius Caesar proposed a reform to the Roman calendar. The high priests’ willingness to adjust the length of the year in accordance with the rule of their political allies or to skip intercalation if it suited them meant that the calendar drifted out of alignment with the year. The Second Punic War against Carthage and the Civil Wars, in particular, meant that few people outside Rome knew the current date. Between 63 BC and 46 BC, the calendar had only five intercalary months instead of eight, and none between 51 BC and 46 BC. Historians have called these years the “years of confusion.” Julius Caesar had spent time in Egypt, knew what day it was, and wanted a more conventional way of maintaining the calendar.

After returning from the African campaign in 46 BC, Caesar added two intercalary months between November and December, increasing that year by 67 days. The year had already been increased from 355 to 378 days, so in 46 BC the calendar was now 445 days long.

The reform then added ten days to every year. Two days were added to January, Sextilis (which is now August) and December. Another day was added to April, June, September, and November. February continued to be 28 days. The new calendar removed the previous intercalary month, replacing it with a new leap day placed before the kalends of March. Romans continued to mark kalends, ides, and nones, but the pattern of the calendar that would come to be used by much of the modern world had been formed.

The Roman Empire

The Naming of the Months on your Calendar

The new calendar spread across the empire and also into neighboring states and client kingdoms, where calendars became 365 days with one leap day, initially every three years but eventually every four years.

The names of the previous months remained mostly unchanged. January honored the god, Janus who symbolizes “new beginnings.” These gods are interesting to study for many reasons, but the god Janus had one head, but two faces. In honor of this god, one face could look forward to the future, and one face looked back to the previous year. Every month had deep reflections, thoughts, concerns, and deliberations to come to a consensus of opinions. The calendar was vastly serious to these people.

February is likely to derive from the Februa festival. March was for the god Mars. The origins of April, May, and June are unclear; but may have been derived from the Etruscan god Apru, and the gods Maia and Juno respectively. An alternative theory is that April comes from the Latin word “aperire,” to open, while May and June are old terms for “senior” and “junior.”

The remaining months were named after their order in the calendar. Quintilis was the fifth month; Sextilis, the sixth; September, the seventh; October, the eighth; November, the ninth; and December, the tenth. The Julian reform pushed the months down the calendar so that December became the twelfth month without changing its name. Quintilis, however, the birth month of Julius Caesar, became Iulius (“July” in English), and Sextilis became Augustus or August.

Other emperors tried to rename months too. Caligula tried to call September “Germanicus” to honor his father. Nero wanted to April to be called “Neroneus.” Domitian wanted October to become “Domitianus.” These names didn’t stick.

Conclusion

The calendar has come a long way over the last few thousand years. Early calendar makers fixed the problem of measuring annual time in a year that doesn’t have an even number of days. We’ve created one calendar that’s universally used even as other people use different calendars for religious and cultural events.

We’ve figured out how to plan ahead and describe events that we know are coming up. And we now have a way to keep our calendars with us at all times, to share our events, and fill them up endlessly, complete with reminders and notifications.

But we’re still not done. While companies like Google and Microsoft have built complex time management platforms, some functions are still tricky. It’s always hard, for example, for people

The Roman Empire

to make bookings with staff at companies or healthcare centers. Finding spare time among a group of friends trying to arrange a time to meet can be a challenge. Selling time slots in a calendar isn't automatic or available on any of the main digital calendar platforms.

We've come a long way from stone circles marking the solstice.



The Roman Empire

A Brief History of the Roman Empire

Curator - Milwaukee Public Museum

From its founding in 625 BC to its fall in AD 476, the Roman Empire conquered and integrated dozens of cultures. The influence of these cultures can be seen in objects, such as oil lamps, made and used throughout the Empire.

The history of the Roman Empire can be divided into three distinct periods: The Period of Kings (625-510 BC), Republican Rome (510-31 BC), and Imperial Rome (31 BC – AD 476).

Founding (c. 625 BC)

Rome was founded around 625 BC in the areas of ancient Italy known as Etruria and Latium. It is thought that the city-state of Rome was initially formed by Latium villagers joining together with settlers from the surrounding hills in response to an Etruscan invasion. It is unclear whether they came together in defense or as a result of being brought under Etruscan rule. Archaeological evidence indicates that a great deal of change and unification took place around 600 BC which likely led to the establishment of Rome as a true city.

Period of Kings (625-510 BC)

The first period in Roman history is known as the Period of Kings, and it lasted from Rome's founding until 510 BC. During this brief time Rome, led by no fewer than six kings, advanced both militaristically and economically with increases in physical boundaries, military might, and production and trade of goods including oil lamps. Politically, this period saw the early formation of the Roman constitution. The end of the Period of Kings came with the decline of Etruscan power, thus ushering in Rome's Republican Period.

Republican Rome (510-31 BC)

Rome entered its Republican Period in 510 BC. No longer ruled by kings, the Romans established a new form of government whereby the upper classes ruled, namely the senators and the equestrians, or knights. However, a dictator could be nominated in times of crisis. In 451 BC, the Romans established the "Twelve Tables," a standardized code of laws meant for public, private, and political matters.

Rome continued to expand through the Republican Period and gained control over the entire Italian peninsula by 338 BC. It was the Punic Wars from 264-146 BC, along with some conflicts with Greece that allowed Rome to take control of Carthage and Corinth and thus become the dominant maritime power in the Mediterranean.

The Roman Empire

Soon after, Rome's political atmosphere pushed the Republic into a period of chaos and civil war. This led to the election of a dictator, L. Cornelius Sulla, who served from 82-80 BC. Following Sulla's resignation in 79 BC, the Republic returned to a state of unrest. While Rome continued to be governed as a Republic for another 50 years, the shift to Imperialism began to materialize in 60 BC when Julius Caesar rose to power.

By 51 BC, Julius Caesar had conquered Celtic Gaul and, for the first time, Rome's borders had spread beyond the Mediterranean region. Although the Senate was still Rome's governing body, its power was weakening. Julius Caesar was assassinated in 44 BC and replaced by his heir, Gaius Julius Caesar Octavianus (Octavian) who ruled alongside Mark Antony. In 31 BC Rome overtook Egypt which resulted in the death of Mark Antony and left Octavian as the unchallenged ruler of Rome. Octavian assumed the title of Augustus and thus became the first emperor of Rome.

Imperial Rome (31 BC – AD 476)

Rome's Imperial Period was its last, beginning with the rise of Rome's first emperor in 31 BC and lasting until the fall of Rome in AD 476. During this period, Rome saw several decades of peace, prosperity, and expansion. By AD 117, the Roman Empire had reached its maximum extent, spanning three continents including Asia Minor, northern Africa, and most of Europe.

In AD 286 the Roman Empire was split into eastern and western empires, each ruled by its own emperor. The western empire suffered several Gothic invasions and, in AD 455, was sacked by Vandals. Rome continued to decline after that until AD 476 when the Western Roman Empire came to an end. The eastern Roman Empire, more commonly known as the Byzantine Empire, survived until the 15th century AD. It fell when Turks took control of its capital city, Constantinople (modern day Istanbul in Turkey) in AD 1453.

Listing of Roman Leaders

Metropolitan Museum of Art

October 2004

Julio-Claudian Dynasty

Augustus	27 B.C.–14 A.D.
Tiberius	14–37 A.D.
Gaius Germanicus (Caligula)	37–41 A.D.
Claudius	41–54 A.D.
Nero	54–68 A.D.
Galba	68–69 A.D.
Otho	69 A.D.

The Roman Empire

Vitellius	69 A.D.
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Flavian Dynasty

Vespasian	69–79 A.D.
Titus	79–81 A.D.
Domitian	81–96 A.D.

The Five Good Emperors

Nerva	96–98 A.D.
Trajan	98–117 A.D.
Hadrian	117–138 A.D.
Antoninus Pius	138–161 A.D.
Marcus Aurelius	161–180 A.D.

Antonine Dynasty

Antoninus Pius	138–161 A.D.
Marcus Aurelius	161–180 A.D.
<i>with</i> Lucius Verus	161–169 A.D.
Commodus	177–192 A.D.
<i>with</i> Marcus Aurelius	177–180 A.D.
Pertinax	193 A.D.
Didius Julianus	193 A.D.
Pescennius Niger	194 A.D.

Severan Dynasty

Septimius	193–211 A.D.
Caracalla	211–217 A.D.
<i>with</i> Geta	211–212 A.D.
Macrinus	217–218 A.D.
Diadumenianus	218 A.D.
Elagabalus	218–222 A.D.
Alexander Severus	222–235 A.D.

The Soldier Emperors

Maximinus I	235–238 A.D.
Gordian I and II (<i>in Africa</i>)	238 A.D.
Balbinus and Pupienus (<i>in Italy</i>)	238 A.D.
Gordian III	238–244 A.D.
Philip the Arab	244–249 A.D.

The Roman Empire

Trajan Decius	249–251 A.D.
Trebonianus Gallus (<i>with Volusian</i>)	251–253 A.D.
Aemilianus	253 A.D.
Gallienus	253–268 A.D.
<i>with Valerian</i>	253–260 A.D.

Gallic Empire (West)

Postumus	260–269 A.D.
Laelian	268 A.D.
Marius	268 A.D.
Victorinus	268–270 A.D.
Domitianus	271 A.D.
Tetricus I and II	270–274 A.D.

Palmyrene Empire

Odenathus	c. 250–267 A.D.
Vaballathus (<i>with Zenobia</i>)	267–272 A.D.

The Soldier Emperors (*continued*)

Claudius II Gothicus	268–270 A.D.
Quintillus	270 A.D.
Aurelian	270–275 A.D.
Tacitus	275–276 A.D.
Florianus	276 A.D.
Probus	276–282 A.D.
Carus	282–283 A.D.
Carinus	283–284 A.D.
Numerianus	283–284 A.D.
Diocletian (<i>and Tetrarchy</i>)	284–305 A.D.

Western Roman Empire

Maximianus	287–305 A.D.
Constantius I	305–306 A.D.
Severus II	306–307 A.D.
Constantine I	307–337 A.D.

Eastern Roman Empire

Diocletian	284–305 A.D.
Galerius	305–311 A.D.

The Roman Empire

Maxentius (<i>Italy</i>)	306–312 A.D.
Maximinus Daia	309–313 A.D.
Licinius	308–324 A.D.

Constantine Dynasty

Constantine II	337–340 A.D.
Constans	337–350 A.D.
Constantius II	337–361 A.D.
Magnentius	350–353 A.D.
Julian	361–363 A.D.
Jovian	363–364 A.D.

Western Roman Empire

Valentinian	364–375 A.D.
Gratian	375–383 A.D.
Valentinian II	375–392 A.D.
Eugenius	392–394 A.D.
Honorius	395–423 A.D.
Constantinius III	421 A.D.
John	423–425 A.D.
Valentinian III	425–455 A.D.
Petronius Maximus	455 A.D.
Avitus	455–456 A.D.
Majorian	457–461 A.D.
Severus III	461–465 A.D.
Anthemius	467–472 A.D.
Olybrius	472 A.D.
Glycerius	473–474 A.D.
Julius Nepos	474–475 A.D.
Romulus Augustulus	475–476 A.D.

Eastern Roman Empire

Valens	364–378 A.D.
Theodosius I	379–395 A.D.
Arcadius	395–408 A.D.
Theodosius II	408–450 A.D.
Marcian	450–457 A.D.
Leo	457–474 A.D.
Zeno	474–491 A.D.
Anastasius	491–518 A.D.

The Roman Empire

The Jews in Roman Times

Devillier Donegan Enterprises

2006

In the first century AD, Jews lived across the Roman Empire in relative harmony. Protected by Rome and allowed to continue their religion, everything was fine until rebellion in Judaea led to a major change in the practice of their faith.

By the beginning of the first century AD, Jews had spread from their homeland in Judaea across the Mediterranean and there were major Jewish communities in Syria, Egypt, and Greece. Practicing a very different religion from that of their neighbors, they were often unpopular. As a result, Jewish communities were often close-knit, to protect themselves and their faith.

Jews in Rome

Jews had lived in Rome since the second century BC. Julius Caesar and Augustus supported laws that allowed Jews protection to worship as they chose. Synagogues were classified as colleges to get around Roman laws banning secret societies and the temples were allowed to collect the yearly tax paid by all Jewish men for temple maintenance.

There had been upsets: Jews had been banished from Rome in 139 BC, again in 19 AD and during the reign of Claudius. However, they were soon allowed to return and continue their independent existence under Roman law.

The temple in Jerusalem

Although each Jewish community worshipped at its own synagogue, the temple in Jerusalem remained the spiritual center of their worship.

The temple had been rebuilt three times. The first was when it had been destroyed in 587 BC by Nebuchadnezzar II of Babylonia. The second was when it had been plundered and wrecked by Judaea's foreign rulers. The third time, it had been rebuilt by Herod the Great in 20 BC.

It had several gates and chambers, some of which were open only to men, some only to women, while others were reserved for priests.

The temple was the meeting place of the Jewish Council, called the Sanhedrin. It also held

The Roman Empire

Jewish Holy Scriptures and documents. Outside was the temple square – this was a marketplace, where pilgrims could buy sacrificial animals and convert foreign currency into temple coins.

Rebellion in Judaea

Although Judaea was ruled by the Romans, the governors there had practiced the same kind of religious tolerance as was shown to Jews in Rome [expert]. However, Roman tactlessness and inefficiency, along with famine and internal squabbles, led to a rise in Jewish discontent.

In 66 AD, this discontent exploded into open rebellion. Four years later, the Roman army had crushed the revolt, but had also destroyed the temple. The sacred treasures were seized and shown off in a procession through the streets of Rome.

Destruction of the temple

The destruction of the temple fundamentally changed the nature of Judaism. Taxes that were once paid to the temple were now paid to Rome, and the Jewish tradition of worshipping in the temple was over. With only the Western Wall remaining of the temple in Jerusalem, the local synagogues now became the new centers of the Jewish religion.

The Roman Empire

The Roman Economy

Caleb Strom

July 23, 2020

The Roman Empire is ironically known for both its greatness and its weaknesses. The Roman economy is no exception. The Roman economy represents an ancient economy that was large and powerful enough to create an empire that spanned the Mediterranean and lasted several centuries. The Roman economy is also known for its deficiencies which eventually led to the decline and fall of the Roman Empire.

Origins of the Roman Economy

The city of Rome emerged sometime between the 8th and 9th century BC from a collection of farming communities that had established fortifications near the Tiber River . According to legend, Rome was founded in 753 BC. The city was ruled by kings until 509 BC when the last king was overthrown. After this, Rome became a republic and remained one until 31 BC, after which Augustus Caesar made Rome into a monarchy in 27 BC. This was the beginning of the Roman Empire.

During the early Republican period, the Roman economy was largely based on agriculture. The backbone of this agrarian economy was made up of small-scale farmers. They would raise crops and sell them in the city. These farmers were not only responsible for providing food for the city of Rome, but also for its protection. By the Republican era, Rome had adopted the Greek hoplite style of military organization. The city was defended by a volunteer militia made up of Roman citizen landowners. Roman farmers would till the land in peace time and take up whatever weapons and armor they could afford to fight for the Republic in war time.

Over time, as Rome began to fight longer and more expensive wars, it became less practical for soldiers to have to constantly come back from war and till their fields. Roman agriculture became increasingly large scale, until most agricultural production was performed by large estates owned by the very wealthy Roman elite which were worked by slaves. As the Roman Empire grew, the Roman economy also developed significant trade and manufacturing sectors. The Roman economy was complex for the ancient world, containing many aspects of a modern market economy. Nonetheless, the Roman economy was still simple and agrarian by modern standards.

The Roman Empire

Roman Dependence on Trade and Imperial Supply Chains

Agriculture remained central to the Roman economy throughout its history. The primary agricultural products in the Roman Empire included grain, olives, and grapes. The olives for olive oil, the grapes for wine, and the grain for bread were all important for the Roman lifestyle.

Grain was incredibly important for the Roman economy. One of the reasons that the Roman Empire continued to grow was to gain access to more grain-growing provinces. Two of the major sources of grain in the later Roman Empire were North Africa (modern-day Tunisia) and Egypt. There was also a significant amount of grain produced in Sicily. The distribution of grain in the Roman Empire was very much dependent on trade and imperial supply chains. Grain would be shipped to the Port of Rome, Ostia, where it would then be shipped all over the Empire. Farmers were allowed to submit a portion of grain as a tax to the Roman government instead of a monetary tax amount. This provided a source of free grain which politicians could distribute to gain popularity. According to some historians, however, this provided little incentive for farmers to produce more grain because more grain meant more taxes. Despite the grain production in the Roman Empire, many people were not able to make enough to buy grain for themselves and grain had to be doled out by the government as a result.

Slavery as the Bedrock of the Roman Economy

Slavery was another important aspect of the Roman economy. While agricultural slaves were relatively rare during the early history of Rome, the eventual loss of most independent small farms left much of the agricultural land in the hands of the Roman elites who used large numbers of slaves to tend their fields.

Slaves were also used in urban contexts in workshops of various sorts. Roman bakery slaves are known to have been poorly treated, though many Roman slaves actually lived relatively pleasant lives.

Roman slavery was distinct from the slavery of the early modern period: it was not race-based and it was far easier for slaves to gain their freedom. Eventual freedom was in fact expected for most slaves. Once slaves bought their freedom, these new freedmen often had better opportunities than the freeborn poor because they already had industrial and managerial training that they could use to find work. There is even evidence of poor freeborn Romans selling themselves into slavery to increase their future prospects.

It has been said that slavery held the Roman economy back. For example, it could be argued that technologies utilizing waterpower and horsepower, which could improve agricultural

The Roman Empire

yields, were never developed during the time of the Roman Empire because slaves were considered sufficient to do the work. The same could be said of manufacturing. Ancient historians point out that some, though not all, of the technology necessary for an industrial revolution, such as steam power, was available to the ancient Romans. One possible reason that there was no industrial revolution in ancient Rome might have been that they were too reliant on slaves to consider creating steam-powered engines.

Far Flung Trade Routes of the Roman Empire

Some historians have suggested that at the height of the Roman Empire, the Roman economy allowed for a standard of living similar to 17th or 18th century Europe. If this is true, it was likely due to trade. The Romans were able to establish trade routes throughout Europe, Asia, and Africa. Far flung trade routes allowed them to attain silk from China, gold and silver from Spain, iron and tin from Britain, exotic animals and ivory from Africa, and spices and cotton from India.

These trade routes were facilitated by the renowned Roman roads built to mobilize the Roman legions. After the legions built the roads, it was only natural that they would become major trade routes. Trade goods could be transported short distances by oxen or horse-drawn wagons and carriages. Land travel was, however, slow, dangerous and the amount that could be carried was limited by weight considerations. Oxen could carry more than horses, but horses were faster. Goods that only needed to be transported short distances and certain small expensive luxury goods could be transported by land, but most goods were transported by sea.

At its height, in the 1st and 2nd centuries AD, the Roman Empire completely encircled the Mediterranean Sea and part of the Black Sea. The Roman navy had also virtually eliminated piracy, making maritime travel a relatively safe and timely method for transporting goods. Food, precious metals, and stone were mostly transported by sea. Storms, as well as poor navigation equipment and charts, however, still created danger for Mediterranean ships which were relatively primitive compared to later seagoing vessels.

Industry and Manufacturing in the Roman Empire

Mining was one of the most important industries in the Roman Empire. Silver and gold from Spain were used to make coins. Stone quarried from Italy and Greece was used to make the arches and monuments for which Rome is famous, and Britain was an important ancient source of iron for weapons which Rome used to maintain regional dominance.

The Roman Empire

In addition to coins, weapons and other items important to the Roman state, many towns and cities across the Empire had local industries which produced pottery, glassware, weapons, textiles, and jewelry among other commodities.

The Roman Market Economy

In the late 20th century, the economist and historian Carl Polanyi suggested that there were three types of economies in the ancient world: economies that were based on reciprocity, redistribution, or exchange. Economies based on reciprocity are common in traditional societies where people distribute goods based on obligations and social traditions. The goal is to distribute goods fairly based on obligations that derive from relationships. In redistributive economies, all the goods produced are collected by a centralized institution and then redistributed.

Exchange economies rely on currency or bartering to distribute goods. Exchange economies are essentially market economies. Ancient Rome appears to have had a functioning market economy based on its labor and capital markets. In contrast, Medieval Europe is believed to have had a primarily reciprocal and redistributive economy with a few isolated cases of market economies around cities.

Modern anthropologists do not necessarily agree with Polanyi's characterization of ancient economies. Many ancient economies that were not thought to be market economies are now known to have had at least some market elements, including the Assyrian Empire and the Aztec Empire. Nonetheless, historians agree that the Roman economy was a primitive market economy where the exchange of goods was partly governed by the price-fixing of the market.

On the other hand, the Roman political economy was not entirely market oriented. Many industries were essentially organs of the Roman state. Also, the Roman government was required to provide its citizens with rations of grain because many of them were not able to feed themselves, especially in the late Roman Empire, as the Roman state began to decline.

The Roman Economy and the Fall of Rome

The explanations for the fall of Rome are innumerable. Part of the reason for the fall of Rome appears to be weaknesses in the Roman economy. One weakness may have been that the Roman Empire simply stopped expanding. The Roman Empire had to continually grow to increase access to grain and natural resources to support its economy. Once the Roman Empire stopped growing, it was probably inevitable that Rome would run out of resources.

The Roman Empire

Another reason appears to be that the Roman Empire was heavily dependent on long distance trade and supply chains. The majority of the grain produced to feed the population of the Roman Empire was grown either in modern-day Tunisia or Carthage, or in Egypt. Once the Western Roman Empire lost control of Carthage to the Vandals in the early 5th century, the city of Rome was not able to feed its population. At one point the city was mostly abandoned due to the lack of food. The same could probably be said of other resources as well.

Once Rome began to lose control of critical provinces, the empire was not able to feed its population or even pay its armies. It could be said that outsourcing, particularly of grain production, made the Roman Empire vulnerable if the supply chains on which it depended ever became disrupted. The disruption of supply chains was not the only factor leading to the fall of Rome, but it definitely contributed to the collapse of an empire already dying due to civil wars, constant invasions, and declining birth rates, among other problems.

Likewise, one of the reasons that the eastern Roman Empire, or the Byzantine Empire, was able to remain intact for almost a thousand years longer was because it was able to keep its economy together. The eastern Roman Empire still had control of Egypt, the other breadbasket of the Roman Empire, so it was able to continue to feed its population. By the time Egypt was conquered by the Arabs in the 7th century, enough local agriculture had developed in Greece and Asia Minor that the Byzantine Empire was able to continue to sustain itself despite the loss of Egypt and most of its eastern lands.

Furthermore, the vast wealth of Rome was not evenly distributed. Most of the luxuries of Roman life were available only to the very wealthy. Most people lived in much poorer conditions. The average Roman apartment lacked plumbing and was overcrowded. Also, the widespread trade networks of Rome did not necessarily benefit the poor who were more vulnerable to the diseases which were also carried by trade.

The fall of the Roman Empire is used as a cautionary tale in many ways, particularly when it comes to the importance of maintaining a strong and balanced economy for the survival of a civilization. How similar is modern civilization's economic situation to that of Ancient Rome? This may be an important question to consider.

The Roman Banking System

Vita-romae.com

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As incredible as it may sound today, temples consecrated to the ancient Gods were also the first banks in ancient Rome. Many temples, especially the ones situated in and around the various *Fora*, held in their basements State treasures and the money of wealthy Romans noting that other civilizations, for example in the Mesopotamian region and in ancient Greece, also used their temples to store treasure and money.

To illustrate how strange this may seem today, one can imagine churches and cathedrals having, just like banks, large underground safes and people going to church to pray and... withdraw money.

Because temples were occupied by priests and devout workers and because they were usually heavily guarded, they were considered as depositories of unquestioned security. Wealthy Romans commonly stored their money in various temples at various locations so that they could gain easy access to it without the burden of carrying it around. Having their money in various temples also decreased the risk of losing their entire fortune in case a temple caught fire or was attacked. There were literally thousands of temples throughout the Roman territories that were also repositories. The Temple of Saturn in Rome, still visible today, housed the Aerarium or Rome's public treasury. The Temple of Castor and Pollux became the depository for the State treasury during the imperial period. Some temples, such as the Juno Moneta temple, also minted money.

It is only during the Empire, that public deposits were in majority held in private repositories rather than in temples.

The Roman money changers

Priests were therefore also bankers. They kept track of deposits and they loaned money for an interest noting that they did not pay interest on deposits. They were involved in currency exchange and currency validation. They could also forgive a debt in its entirety.

They were however other types of bankers in ancient Rome. The *argentarii* were money changers and their role became more important as commerce and trade expanded throughout the Mediterranean between the 3rd century BC to the 3rd century AD. The image of Jesus overthrowing the tables of the money changers in the temple in Jerusalem comes to mind.

The Roman Empire

Money changers had shops and stalls in the Forum, not far from the large temples. The first money changers were actually called *trapezites* (from the Greek word *trapeza* which means counter). They were Greek bankers dealing with bank transactions in counting houses around the Forum, for example exchanging drachmas for sesterces or vice versa. Because Greek commerce in the Mediterranean was dominant at the beginning of the Roman Republic, they were the first bankers in Rome. The Greek term was overtime replaced by the Latin term *argentarii* (also called *argenteae mensae exercitores*, *argenti distractores* or *negotiatores stipis argentariae*) or the Roman money changers.

The *argentarii* were private and free individuals totally independent from the State who belonged to a guild which accepted only a limited number of new members. Their shops or stalls around the Forum were state-owned property and built by the censors. Their main function was to exchange foreign currency for Roman currency (*permutatio* in Latin). Their functions expanded over time to include almost every money transaction including holding other people's money, lending money, participating in auctions, determining the value of coins and detecting forged coins, and circulating newly minted money. The *argentarii's* reputation could vary. Some were highly respected and belonged to the upper class, usually the ones carrying business on a large scale and with very wealthy clients. Some were looked down upon, usually the ones charging usury rates and doing business on a small scale and/or involved in shady transactions.

The *mensarii* or Rome's public bankers

During periods of general poverty which were often the periods when Rome was at war, the problem of citizens' indebtedness was important and represented a threat to the stability of the Republic. In ancient Rome, being unable to fulfill one's debt obligations did not mean a bad credit file. It potentially meant slavery for the average citizen!

To solve the problem of people's indebtedness, public bankers called the *mensarii* were introduced in 352 BC. A five man commission called the *quinqueviri mensarii* was created along with a public bank. The *quinqueviri mensarii* would cover from public resources citizens who could provide enough security (for example, a property). Citizens who could not provide enough security, gave up their property to their creditors after proper valuation of their property by public officials. Over a century later, in 216 BC, a commission of three people was created with wider functions.

Mensarii were often confused with the *argentarii* even in ancient times even though they were public, not private, bankers. Over time the functions of the *mensarii* became very similar to that

The Roman Empire

of the *argentarii*: they held deposits, they determined the value of coins, tested the genuineness of money, etc. The *mensarii* had an excellent reputation and were highly respected. Their role was considered positive as they were able to address the problem of excess debt and solve many people's debt problems.

The *nummularii* or the officers of the mint

The *nummularii* held a bank that put new coins into circulation. They took old or foreign coins and exchanged them for new coins. Their role was to put new coins into circulation and to test the quality of new coins. Because they could test the quality of new coins, they knew how to test the quality and value of coins in general.

They were sometimes called upon when large transactions were involved in order to test the genuineness and value of coins, just like the *argentarii*. Actually many of the *nummularii*'s functions were the same as the *argentarii*'s: they exchanged foreign currency for Roman currency, they held deposits and lent money, they participated in auctions and large commercial transactions, and they made payment of behalf of clients and executed payments abroad through local bankers.

Conclusion

Ancient Roman banking was quite sophisticated and banking activities were quite similar to modern-day banking, be they the widespread use of credit, foreign exchange, the use of cheques or the detailed recording of transactions. The sophistication of banking activities is also a reflection of the incredible advancement of Roman society.

The Roman Currency

Alfred Deahl

The impact of the Roman coinage system is self-evident all around the world. The denarius, for instance, inspired the pennies of medieval Europe, and found its name fossilized in the denomination marker d. of British pre-decimal coinage; much of the Arab world still uses a currency called the dinar. Even our shared understanding of what a coin should look like is firmly rooted in the Roman past. We take for granted our round, metal coins which depict a ruler or an important figure, curiously in profile, on the 'obverse' (front), and bear on the reverse a symbolic image, along with a legend naming the ruler and stating the denomination. Today's coins are part of a tradition of close imitation that started in the early medieval period. Despite subsequent evolution, modern coinage has not deviated far from the stylistic template struck by the Romans – after some trial and error. That tale is told below.

Money is no Roman invention – but the English word itself comes from the name of the location of Rome's first mint (a word which also derives from it): the temple of Juno Moneta. This epithet reflects local worship of a goddess called Moneta, who was gradually assimilated into the deity Juno, wife of Jupiter. What started as a remnant of religious worship gradually became synonymous for a mint and later, after the Roman period, for money itself.

Understanding how the Roman coinage system developed helps us to develop insight into our own numismatic conventions, and can also improve our understanding of Roman history: imagery on Roman coins, especially in the Imperial (49–27 BC) and Imperial (27 BC – AD 476) periods can illuminate aspects of what is essentially propaganda. The portraits provide an important data source for how Roman portraiture evolved. Metallurgical studies can tell us about economic phenomena such as inflation, particularly when they demonstrate the debasement of currency. The study of coin dies (the design of individual metal stamps inferred through variations in coin appearance) and hoards (large coin deposits removed from circulation at a single point in time) can help us understand how and in what quantity currency circulated.

Roman monetary history

Rome was very much a latecomer among the monetarized societies of the Hellenistic Mediterranean. Coinage first emerged in Rome around 300 BC, centuries after it arose throughout the Greek world. During this period, certain numismatic conventions had already been established, most importantly the preference for round coins, with a portrait in profile on

The Roman Empire

the obverse. Their symbolism was tied to city-state identity, and (later in the Hellenistic period) to the monarchies which held the balance of power in the region.

Throughout this period in Rome, the economy was more or less based on a bartering system. *Pecunia*, the Latin word for money, was a derivative of *pecus* (the word for cattle), revealing how livestock was at the centre of the economic system before the advent of coinage. Gradually, what we call *Aes Rude* (chunks of cast bronze) began to be used to facilitate exchange of goods. *Aes Rude* can be seen as the prototype for the first coinage system in Rome. Precious metals have always been valuable on account of their scarcity and durability: this rendered them almost uniquely suited for economic exchange until comparatively recently, because portable quantities could conveniently be traded for goods.

Initially, Roman coinage was a part of three separate money systems, which had arisen organically and independently of one another, but were gradually rationalized: (1) *Aes Signatum* (bronze ingots weighing about 1500g); (2) silver and bronze *Romano-Campanian* coinage (genuine struck coins); (3) *Aes Grave* (cast bronze disks). None of this was ever properly planned; scholars still debate about what the precise original functions of this coinage even were.

Coins were produced in very low quantities, particularly when compared to the amounts of precious metals that were plundered in warfare. At this early stage, the Roman economy was only a partially monetarized system: it is unlikely that there was any popular usage yet. Most probably, coins were thought convenient for official purposes, such as repaying loans to the state from private citizens, or for construction projects or religious dedications. Mercenary soldiers were also likely to have been paid in coins. Indeed, mercenaries seem to have been responsible for much of the coin production in Magna Graecia (former Greek colonies in Southern Italy, Sicily and beyond), and were perhaps the primary reason why Rome's great enemy Carthage issued any coins at all (their armies were entirely composed of mercenaries).

Coinage in the Roman world must have also arisen from a desire to compete with the Greek world. Hellenization grew as a result of Roman expansion; this is clearly reflected in the predominantly Greek designs and iconography of Roman coins from the beginning.

Romano-Campanian coinage consisted of limited irregular bronze and silver issues. The difference in material reflected these coins' area of circulation: silver coins circulated in Campania; whereas the bronze used for these in central Italy reflected earlier systems of exchange. These coins were not produced centrally in Rome, but in towns under the growing

The Roman Empire

Roman hegemony; their designs tended to be specific to each town. They were identified as 'Roman' by their reverse ROMANO legend (which later became ROMA).

The technique of striking coins involves engraving two dies, placing a heated metal disk, or flan, between them, and hitting it with a heavy object to produce a coin. This was copied from Greek cities; the silver coinage struck in Campania, also borrowed the weight standards from Neapolis (modern Naples). Striking enabled faster and eventually mass production, especially as dies could be used for hundreds of coins before beginning to show signs of wear.

Both *Aes Signatum* and *Aes Grave* were cast in Rome. This is best viewed as an amalgam of the large cast ingots of the north and the round coinage of the south. This system revolved around the *As* (whole unit) which equated to the Roman pound, or *libra* (324g), which was subdivided by weight into the following divisions: *semis* (half), *quadrans* (quarter), *sextans* (sixth) and *uncia* (twelfth). These names persisted well into the Imperial period, even when this was no longer a system based on weight.

All *Aes Grave* coinage marked denominations on the reverse, and generally featured standardized designs with a fixed deity on the obverse. Like the *Aes Signatum*, they were cast in Rome at the Temple of Juno Moneta on the Capitoline.

These coinage systems emerged in ad hoc fashion, and at first fit awkwardly into the pre-existing economies of each region. But a general system steadily became rationalized, until a relationship between the systems was defined. The *Aes Signatum* totally disappeared; silver coins were equated to the value of three asses; finally, common symbols and elements arose and predominated (all c. 250 BC).

Harmony did not last for long. The Second Punic War (218-201 BC) devastated the Roman economy: existing coinage underwent a severe reduction in weight, although the stated value remained the same to enable the mint's supply of bullion to be stretched further. Coinage was even issued sporadically in gold to help fund the war effort. The *As* perhaps underwent the most dramatic transformation, dropping in weight from around 300g to 50g.

Around 211 BC, the denarius was introduced, at a value of 10 *asses* (its name means 'containing ten'). This was a small silver coin (4.5g) that was first struck in large quantities from the silver obtained by Marcellus' sack of Syracuse the previous year. The *quinarius* ('containing five') and *sestertius* ('containing two and a half') were also introduced, although these were not frequent issues.

The Roman Empire

These denominations were to remain largely unchanged until the Imperial period. The currency now effectively held a token value, as the value of the bullion they contained no longer matched their tariff prices following the economic trauma of the Hannibalic war. Rome in this period increasingly transformed into a monetized society: coin issues became more frequent, and even regularized; coins became standard for paying soldiers. Henceforth they began to exist in the public sphere beyond their original state-based functionality. There was of course significant economic change in the following century: the *denarius* was actually re-tariffed to 16 *asses* in 141 BC; but the name remained.

Designs for coins were controlled by the *tresviri monetales* ('monetary magistrates', or 'mint magistrates'), a subcommittee of three senators appointed to oversee the mint (a *tresvir* or *triumvir* denotes a member of a trio of magistrates). The *tresviri* chose the iconography, which became increasingly political over time. In the mid 2nd century, the most common reverse was the *biga* type, with Victory displayed triumphantly driving a two-horse chariot (a *biga* is a pair of horses). This was presumably chosen to reflect the success of Roman conquests, especially in the Eastern Mediterranean over Greece.

Towards the end of the second century, aristocrats began using coinage to promote themselves and their families. Individual *moneyers* (often guided by the *tresviri*) started issuing coins with iconographic references to their own ancestors. But the full propaganda value of coinage only became apparent in Rome at the end of its Republican period. Julius Caesar (100-44 BC) famously placed his own living face on the obverse of Roman coins. It was a step he gradually built up to: first he had his own portrait featured on coins in the province of Bithynia (47 BC), where such a practice was less controversial than at home. In Rome, he carried on with modes of self-promotion that had already existed on the coinage for more than half a century until 44 BC, when he decisively he broke with tradition:

Caesar's step was audacious, and not only because of the eyebrow-raising divine association. Since coins in the Greek East coins represented the heads of monarchs, Caesar was in fact aligning himself with Hellenistic kings – a damning association in a proudly Republican society. The conspirators who assassinated him had propaganda tools of their own: their 'Ides of March' denarius depicted the *pileus* (the cap of liberty given to slaves when they were manumitted) alongside two daggers, which clearly demonstrates how coins had become a vehicle for openly political messages:

From the reign of Augustus (27 BC – AD 14), Caesar's adoptive son and eventual successor, the full potential of the political value of coins became apparent. Augustus reformed the coinage

The Roman Empire

system wholesale, regularizing denominations and establishing a new mint at Lugdunum (modern-day Lyon). Like Caesar, his portrait graced the obverses of the new currency system – the imperial iconography right from the start was stamped into the fabric of Rome’s Economic system. The vague, makeshift currency system of the Republic, which was predicated on irregularly-issued denominations, was now replaced with a robust, codified, multi-metallic system:

Augustus’ ageless portrait dominated the obverses surrounded by legends containing his various accumulations of titles. Gone were the gods, who were now relegated to the reverses (if they were lucky!), or omitted entirely. Since coins were mass-produced and widely circulated beyond the periphery of Rome, the significance of this power projection is easily overlooked – especially since we have become so familiar with numismatic portraiture. But for the contemporary Roman this was something very new: coins brought the image of the ruler to the masses for the first time, since statuary by definition stayed put where it was and was generally confined to urban environments.

As coins increasingly became a vehicle for politics, and a tool of imperial propaganda, so too did they become an area for dissent. The Stoic philosopher Epictetus (c. AD 50–135) famously stated, “Whose imprint does this *sestertius* bear? Trajan’s? Give it to me. Nero’s? Throw it out, it will not pass, it is rotten” (Discourses 4.17). Manifestly such a thing as coin preference did exist: coins were rarely withdrawn from circulation. Occasionally, this could manifest itself in more extreme ways:

The system established by Augustus persevered for most of the Imperial period. By the time of Nero’s reign (AD 54–68) the denarius had been gradually debased (by diluting the silver with copper); this tell-tale sign of inflation continued, until it was essentially replaced in the third century by the emperor Caracalla’s Antoninianus (a double-denarius). Yet even this was not to last for long, as the empire was consumed by the political tumult following the end of the Severan dynasty, commonly referred to as the Crisis of the Third Century (AD 235-284).

Throughout this prolonged period of civil wars, the denomination system was completely eroded; by the end of the century, most coins looked the same – small bronze disks with varying silver content. Diocletian, who ruled from AD 284 to 305, was responsible for reforming the coinage system, which survived throughout late antiquity and in the Eastern Roman Empire.

What I have outlined above is true of Republican and Imperial Rome from roughly the 3rd century BC to the 3rd century AD). But many Roman provinces operated with their own

The Roman Empire

coinage systems. In western provinces of the Empire that lacked pre-existing monetary systems and traditions, there was more widespread circulation of coins from Rome, whereas Eastern provinces carried on with their own long-standing minting traditions, and generally used their own coins. Nevertheless, throughout the Imperial period, members of the Imperial family featured on numerous issues of the Eastern provinces, often as a local initiative to honor the emperor.

These independent systems all eroded gradually as Imperial coinage became more widespread. Only the longest-established mints (for example, that of Alexandria on the northern coast of Egypt), were able to last, but none survived the third century AD.

In the fourth century, minting became a more institutionalized process (if not a centralized one), with cities across the empire producing essentially the same coins. A few specific letters on the legend designated the mint where a given coin had been struck. Coins, for instance, began to be struck in Londinium (London), first by various pretender emperors in the third century, but later by the various imperial administrations of the 'Dominate' that began with Diocletian and ended soon after the withdrawal of the Romans in AD 410.

Over these six centuries, Rome forged its own numismatic conventions: what began as a system of bullion exchange, developed into a financial system like our own, where coins possessed a value beyond their mere weight as metal. Moreover, they came to be used as a mass-produced medium of political representation and propaganda. The system which evolved is one that has been replicated and propagated throughout history. Although Rome fell, her numismatic revolutions continue to live on.

The Roman Empire

The Roman Units of Measure

Infogalactic.com

Roman Units of Length

Roman unit	English name	Equal to	English equivalent	Metric equivalent	Notes
digitus	finger	$\frac{1}{16}$ pes	0.728 in 0.0607 ft	18.5 mm	
uncia pollex	inch thumb	$\frac{1}{12}$ pes	0.971 in 0.0809 ft	24.6 mm	
palmus	palm width	$\frac{1}{4}$ pes	0.243 ft	74 mm	
palmus major	palm length	$\frac{3}{4}$ pes	0.728 ft	222 mm	in late times
pes	(Roman) foot	1 pes	0.971 ft	296 mm	
palmipes		$1\frac{1}{4}$ pedes	1.214 ft	370 mm	
cubitus	cubit	$1\frac{1}{2}$ pedes	1.456 ft	444 mm	
gradus pes sestertius	step	$2\frac{1}{2}$ pedes	2.427 ft	0.74 m	
passus	pace	5 pedes	4.854 ft	1.48 m	

The Roman Empire

decempeda pertica	perch	10 pedes	9.708 ft	2.96 m	
actus (length)		120 pedes	116.496 ft	35.5 m	
stadium	stade	625 pedes	607.14 ft	185 m	600 Greek feet Equivalent to the English cable
mille passus mille passuum	(Roman) mile	5000 pedes	4854 ft 0.919 mi	1.48 km	
leuga	(Gallic) league	7500 pedes	7281 ft 1.379 mi	2.22 km	

Roman Units of Area

Roman unit	English name	Equal to	Metric equivalent	Description
pes quadratus	square foot	1 pes qu.	0.0876 m ²	
scrupulum or decempeda quadrata		100 pedes qu.	8.76 m ²	the square of the standard 10-foot measuring rod
actus simplex		480	42.1 m ²	4 × 120 pedes

The Roman Empire

		pedes qu.		
uncia		2400 pedes qu.	210 m ²	
clima		3600 pedes qu.	315 m ²	60 × 60 pedes
actus quadratus or acnua		14400 pedes qu.	1262 m ²	also called <i>arpennis</i> in Gaul
jugerum		28800 pedes qu.	2523 m ²	
heredium		2 jugera	5047 m ²	
centuria		200 jugera	50.5 ha	formerly 100 jugera
saltus		800 jugera	201.9 ha	

Uncial divisions of the jugerum

Roman unit	Roman square feet	Fraction of jugerum	Metric equivalent	Description
dimidium scrupulum	50	$\frac{1}{576}$	4.38 m ²	

The Roman Empire

scrupulum	100	$\frac{1}{288}$	8.76 m ²	
duo scrupula	200	$\frac{1}{144}$	17.5 m ²	
sextula	400	$\frac{1}{72}$	35.0 m ²	
sicilicus	600	$\frac{1}{48}$	52.6 m ²	
semiuncia	1200	$\frac{1}{24}$	105 m ²	
uncia	2400	$\frac{1}{12}$	210 m ²	
sextans	4800	$\frac{1}{6}$	421 m ²	
quadrans	7200	$\frac{1}{4}$	631 m ²	
triens	9600	$\frac{1}{3}$	841 m ²	
quincunx	12000	$\frac{5}{12}$	1051 m ²	
semis	14400	$\frac{1}{2}$	1262 m ²	= actus quadratus
septunx	16800	$\frac{7}{12}$	1472 m ²	
bes	19200	$\frac{2}{3}$	1682 m ²	

The Roman Empire

dodrans	21600	$\frac{3}{4}$	1893 m ²	
dextans	24000	$\frac{5}{6}$	2103 m ²	
deunx	26400	$\frac{11}{12}$	2313 m ²	
jugerum	28800	1	2523 m ²	

Roman Units of Volume

The core volume units are:

- *amphora quadrantal* (Roman jar) – one cubic *pes* (Roman foot)
- *congius* – a half-*pes* cube (thus $\frac{1}{8}$ *amphora quadrantal*)
- *sextarius* – literally $\frac{1}{6}$, of a *congius*

Roman Liquid Measures

Roman unit	Equal to	Metric
ligula	$\frac{1}{288}$ congius	11.4 ml
cyathus	$\frac{1}{72}$ congius	45 ml
acetabulum	$\frac{1}{48}$ congius	68 ml
quartarius	$\frac{1}{24}$ congius	136 ml
hemina or cotyla	$\frac{1}{12}$ congius	273 ml
sextarius	$\frac{1}{6}$ congius	546 ml

The Roman Empire

congius	1 congius	3.27 l
urna	4 congii	13.1 l
amphora quadrantal	8 congii	26.2 l
culeus	160 congii	524 l

Roman Dry Measures

Roman unit	Equal to	Metric
ligula	$\frac{1}{288}$ congius	11.4 ml
cyathus	$\frac{1}{72}$ congius	45 ml
acetabulum	$\frac{1}{48}$ congius	68 ml
quartarius	$\frac{1}{24}$ congius	136 ml
hemina or cotyla	$\frac{1}{12}$ congius	273 ml
sextarius	$\frac{1}{6}$ congius	546 ml
semimodius	$1 \frac{1}{3}$ congii	4.36 l
modius	$2 \frac{2}{3}$ congii	8.73 l (or 8.62 l)
modius castrensis	4 congii	(12.93 l)

The Roman Empire

Roman Units of Weight

(Based upon one libra = 5076 grains, 328.9 grams, or 11.60 oz)

Roman unit	English name	Equal to	Metric equivalent	Description
uncia	Roman ounce	$\frac{1}{12}$ libra	27.4 g	lit. "a twelfth"
sesuncia or sescunx		$\frac{1}{8}$ libra	41.1 g	lit. "1 $\frac{1}{2}$ twelfths"
sextans		$\frac{1}{6}$ libra	54.8 g	lit. "a sixth"
quadrans teruncius		$\frac{1}{4}$ libra	82.2 g	lit. "a fourth" lit. "triple twelfth"
triens		$\frac{1}{3}$ libra	109.6 g	lit. "a third"
quincunx		$\frac{5}{12}$ libra	137.0 g	lit. "five-twelfths"
semis or semissis		$\frac{1}{2}$ libra	164.5 g	lit. "a half"
septunx		$\frac{7}{12}$ libra	191.9 g	lit. "seven-twelfths"
bes or bessis		$\frac{2}{3}$ libra	219.3 g	lit. "two [parts] of an <i>as</i> "
dodrans		$\frac{3}{4}$ libra	246.7 g	lit. "less a fourth"
dextans		$\frac{5}{6}$ libra	274.1 g	lit. "less a sixth"

The Roman Empire

deunx		$1\frac{1}{12}$ libra	301.5 g	lit. "less a twelfth"
libra	Roman pound libra		328.9 g	lit. "balance"

Subdivisions of the uncia

Roman unit	English name	Equal to	Metric equivalent	Description
siliqua	carat	$\frac{1}{144}$ uncia	0.19 g	lit. "carob seed" The Greek κεράτιον (<i>kerátion</i>)
obolus	obolus	$\frac{1}{48}$ uncia	0.57 g	lit. "obol", from the Greek word for "metal spit"
scrupulum	scruple	$\frac{1}{24}$ uncia	1.14 g	lit. "small pebble"
semisextula		$\frac{1}{12}$ uncia	2.28 g	lit. "half-little sixth"
sextula	sextula	$\frac{1}{6}$ uncia	4.57 g	lit. "little sixth"
sicilicus siciliquus		$\frac{1}{4}$ uncia	6.85 g	lit. "little sickle"

The Roman Empire

duella		$\frac{1}{3}$ uncia	9.14 g	lit. "little double [sixths]"
semuncia	half-ounce semuncia	$\frac{1}{2}$ uncia	13.7 g	lit. "half-twelfth"
uncia	Roman ounce		27.4 g	

The Roman Empire

The Roman Numerals

World History Edu

March 19, 2019

The Roman numerals are symbols from the ancient Roman Empire that were commonly used to represent small numbers. The system could also incorporate larger numbers. And for centuries, they were the typical way of writing numbers in the empire. This numerical system was also widespread across Europe up until the Middle Ages. The question on most historians' minds about this topic is that how far did the Roman numeral system go? Detailed answer will be provided to the above question as well as the modern usage of the Roman numerals.

Brief Overview of the System

Broadly speaking, the Roman numeral uses 7 main letters of the Latin alphabet to represent numbers. The symbols are as follows:

Roman symbol	Name	Arabic Value
I	<i>unus</i>	1
V	<i>quinque</i>	5
X	<i>decem</i>	10
L	<i>quingenta</i>	50
C	<i>centum</i>	100
D	<i>quingenti</i>	500
M	<i>mille</i>	1,000

To form numbers with the Roman numerals, the *subtractive* or additive notation is deployed. Whenever a symbol is placed after another symbol, the resultant value is the sum of the two symbols.

For example, II means I+I (1+1) = II (2). Similarly, MM= M+M=1,000+1000=2,000. And VIII= V+I+I+I= 8

However, if the symbol comes before another symbol of greater value, the result is obtained by subtracting the two values. IV means V-I= 4. Similarly, XL= L-X= 40, and XC= C-X= 90.

The Roman Empire

Original Forms of the Roman Numerals

As mentioned above, the Roman numeral is a form of numeric system that owes its origins to ancient Rome. Unlike its current form of 7 symbols, only three symbols were used: I, V, and X (1, 5, and 10 respectively) in the original forms. What the ancient Romans then did was to add 1(I) as the number progressed. So for example the integer 4 will be represented as IIII. Then 7 will have VII. 9 will be VIIII. These three symbols (I, V, and X) were like tally marks. Therefore, numbers 1 to 10 were:

I, II, III, IIII, V, VI, VII, VIII, VIIII, and X

Evolved Version of the Roman Numerals

The above Roman numerals (without the notation or additive principle) can get a bit confusing to eyes. For example IIII could easily be mistaken for III at a quick glance. Therefore, and over the centuries, the Roman numeral system witnessed slight changes. The revised version employed what is called the *subtractive* and additive notation. So instead of having IIII, 4 will now be IV. And the "I" before a V means one less than V (5). And instead of having VIIII for 9, the *subtractive* notation means that 9 will be IX. So the first 10 integers under the *subtractive* and additive notation will go like this:

I, II, III, IV, V, VI, VII, VIII, IX, X

For numbers above 10, X, L and C are used very much. In this regard, the *subtractive* and additive notations are applied here as well. That is, when a symbol appears to the left of another symbol, it means they should be deducted. Conversely, when the symbol appears to the right of the symbol, it means they should be added (the additive notation). Numbers 10, 20, 30, 40, 50, 60, 70, 80, 90, and 100 will be written as follows in Roman numerals:

X, XX, XXX, XL, L, LX, LXX, LXXX, XC, C

In a similar fashion as the above, the numbers hundred to one thousand (100 to 1000) will be as follows:

C, CC, CCC, CD, D, DC, DCC, DCCC, CM, M

D and M, as stated above, represent 500 and 1000 respectively. Symbols CD (400) and CM (900) use the same *subtractive* and additive notation made mention above.

The Roman Empire

How are Large Numbers Represented in Roman Numerals?

You must have been wondering by now that after 3,999, the Roman numbering system will become a bit unpleasantly long. Yes, you are right! The problem of excessive repetition comes to fore when dealing with larger numbers in their thousands. In the ancient Roman Empire, this problem was taken care of using several ways. They had special numbers for such cases. The mirrored C (ↀ) was the commonest symbol for large numbers back then.

As the empire progressed, an altered version of the 3 symbols (I, V and X) started gaining popular usage for numbers in the thousands. The Romans placed a line above the symbols. Also, Roman numerals in the hundreds of thousands had additional lines on their sides.

\bar{I}	= 1,000	$ \bar{I} $	= 10,000
\bar{V}	= 5,000	$ \bar{V} $	= 50,000
\bar{X}	= 10,000	$ \bar{X} $	= 100,000

In modern times, numbers greater than 3,999 are rarely represented by Roman numerals. And considering the century that we are in, it will take a very long time before we started struggling with representing the years in roman numerals. For now, a typical 21st century year can be represented very cleanly using the Roman numeral system. For example, the year 2018 can be written as MMXVIII. The year 2299 can have a rather longer numeral: MMCCXCIX. But years or numbers of those sorts are still very much manageable as compared to numbers greater than 3999.

How did the Romans come up with this system?

The answer is simple. Tallying! As the Romans counted, every 5th count was struck with special symbol. And every tenth count was struck with another special symbol. Those special symbols vary sharply from place to place. What is interesting however is that for numbers 1 to 4, sticks or stick-like shapes were used. Numbers 1 to 10 back then may have looked like this:

The Roman Empire

I-1
II-2
III-3
IIII-4
IIII-5 or IIII Λ
IIII Λ I-6
IIII Λ II-7
IIII Λ III-8
IIII Λ IIII-9
X-10

Note how these symbols, Λ and x, appear like the modern versions of V and X. Back then, many Romans used an inverted V in place of 5.

Before the Romans, what numeral system was used for numbering?

Prior to the Romans, a similar system during the Etruscan Civilization was used. The Etruscans were a very vibrant 8th to 3rd century BCE culture prior to the Romans conquering them. Historians believe that the Roman numeral system as well as a host of other Etruscan cultural and historical artifacts and belief systems were assimilated into the burgeoning Roman Empire. With regards to the origins of those Etruscan counting and numbering system, we can safely assume that they must have come from a simple act such as tallying.

Alternatively, some historians hold the view that the Roman numeral system is the product of hand gestures. Numbers 1 to 4 correspond to the four fingers. The thumb that is shaped like a V represents 5.

For numbers 6 to 10, the two hands were used. When the counting got to 10, the two thumbs were crossed to make an X sign.

Usage in the Modern Era

Historical documents show that the Roman numerals were gradually replaced by the Arabic numerals (that is 1,2,3,...) which were more convenient. The Arabic numerals were first

The Roman Empire

introduced into Europe around about the 11th century. It was popular among Arabic merchants and traders. As time went on, their numerals gained wide spread in all of Europe. Regardless of this, the Roman numeral system is still commonly preferred dealing with the following (till date):

Regnal numbers of monarchs, rulers and Popes to this date still deploy the Roman numerals. The tradition first began in the Middle Ages. During the reign of Henry VIII (pronounced as Henry the eight), the usage started picking up momentum. Prior to this, the monarchs used epithet to distinguish one from another. An example of such epithet will be: Edward the Confessor, Charles the Simple of France, and Joan the mad of Spain. With the help of Roman numerals, epithets were not so necessary in their titles. This is evident in the titles of some European monarchs and popes. Examples of such titles with Roman numerals are Louis XIV (Louis the fourteenth), King George II, Charles IV of Spain, and King Edward VII. In modern times, we can make mention of these titles Pope John Paul II (Pope John Paul the second), Queen Elizabeth II, Pope Benedict XVI and Felipe VI.

Post the French Revolution, the French resorted to using the Roman numerals to write down the years. For example Napoleon conquest of Egypt that took place in the years 1798 and 1799 can be written as MDCCXCVIII and MDCCXCIX.

How famous is the Roman numerals in today's Greece?

Prior to the Romans conquest and movement into ancient Greece, the Greeks themselves had their own number system. Therefore, it is fair to say that in Greece today the Greek numerals are used in the places and situations where Roman numerals are used in other parts of the world.

Roman Medicine

Novel Rome Alone

October 26, 2020

Pandemic in the Roman Empire

Just as we are coping with a pandemic today, Ancient Rome also had to – between 165 and 180 AD, the Antonine Plague (also known as the Plague of Galen) spread across the Roman Empire. The Roman Empire stretched as far as Africa and the Middle East, covered large swathes of “Europe” and encompassed what we now know as “Britain”.

Antonine Plague reached its peak around 180 AD, when as many as 2,000 people a day died in Ancient Rome and hundreds of thousands across the Roman Empire also lost their lives.

Some commentators believe that plague might even have contributed to the downfall of the Roman Empire – others that it was the making of the Roman Empire.

Slight changes in the climate may also have contributed to traditional farming methods and deforestation heralding a rise in insect-borne diseases like malaria, as mosquitoes took full advantage of the warm climate and land increasingly being covered with water.

Ancient Rome had a sophisticated underground water system, however, with water from the hills above Rome being pumped underground to provide clean water. If you stand on the Spanish Steps, deep in the ground beneath you is one of the existing Roman subterranean aqueducts channeling clean water to supply the Trevi Fountain!

Medical care in Ancient Rome

The Ancient Romans were remarkably sophisticated when it came to medical care, however – there is evidence that they practiced surgery and even experimented with amputation and prosthetics on soldiers injured in battle.

Ancient texts record diseases such as leprosy and infections like tuberculosis. Roman citizens would have lived in close proximity to each other in towns and cities, and these provided a breeding ground for infectious diseases.

The Romans, however, are famous for their sewerage systems, latrines and public baths – but public baths could also be breeding grounds for disease.

The Roman Empire

They used herbal-based remedies, just as we do now – most pharmaceuticals are now synthetic versions of natural substances.

To treat nervous disorders, the Ancient Romans used fennel, which they believed had calming properties.

Coughs and chest infections were treated with marshmallow (*Althaea officinalis*) – and for skin infections, they gave themselves a good rub down with crushed garlic.

Verbena would be used to treat wounds – it was known as a treatment for “iron” wounds, so was frequently used for battle wounds.

The Romans even had a remedy for men with fertility issues – and prescribed eating large amounts of parsley.

Hospitals in the Roman Empire

The Ancient Romans were also responsible for setting up the first hospitals – unfortunately, there was no National Health Service in Ancient Rome, but the military and slaves were admitted to hospital if ill as they were considered key workers.

It is thought the first hospitals were established somewhere between 1 AD and 2 AD by Emperor Trajan. These were field hospitals called *valetudinaria*, which were originally tented medical centers that were portable – but later became permanent centers of care for Roman soldiers and also slaves.

A *valetudinarium* had a large entrance hall so that wounded soldiers could be triaged – just as modern hospitals do. There were four wings, which comprised a dispensary, a hospital kitchen, refectory, accommodation for nursing staff and doctors, washrooms and latrines.

The plebs would have to take care of themselves, however, if they fell ill – and Ancient Romans were extremely suspicious, so illness might be seen as fated: for example, as divine retribution for some misdeed or even a curse. The Ancient Romans worshipped many different gods and goddesses, so in lieu of being able to afford medical care, an offering or a prayer to a god or goddess might have to suffice.

Aesculapius was the ancient god of health and medicine – and he is depicted with a snake-like staff, a symbol of medical practice that still exists today.

The Roman Empire

Medical equipment in the Roman Empire

Women in Ancient Rome perhaps fared slightly better than their male counterparts – midwives were common, as were specula instruments for vaginal examinations.

The ancient Romans were, in fact, very keen on medical instruments – men may wince now, but in Ancient Rome the male catheter made out of bronze or steel was common, as were specula for rectal examinations.

Other common medical instruments the Ancient Romans wielded cheerfully were probes, cauterization instruments, tubes, and bone levers to pop bones back into place (ouch).

Doctors were common in Ancient Rome, but one renowned Roman doctor was Galen, after whom the plague was named. He became Emperor Marcus Aurelius's personal doctor and was famous for dissection, including animals like pigs. He also studied human anatomy, although human dissection was illegal in Ancient Rome.

Emperor Marcus Aurelius ruled from 26 April 121 to 17 March 180 AD – he succeeded Emperor Antoninus Pius, after whom the plague pandemic in the Roman Empire was also named. Both emperors died of natural causes rather than plague – perhaps because they would have been shielded, just as we have been doing recently.

Complementary therapies in the Roman Empire

Complementary medicine as we know it is also recorded in the Roman Empire. As we have seen, the Ancient Romans used herbal treatments – but cupping was one therapy widely used, as well as massage; and, of course, hot and cold baths to promote hygiene, blood circulation and to treat illnesses.

The ancient physician Asclepiades was a great promoter of alternative therapies – he studied medicine in Alexandria before moving to Rome in 1 BC.

You can reach for your lyre because he prescribed music to promote sedation, something dentists and doctors use today. He was unusual in that he believed patients should not be subjected to physical pain if at all possible – and devised therapies to treat patients painlessly as much as possible.

The good news is that for headaches and fever, he prescribed a glass of good old *vino rosso* – red wine! (Obviously, not with paracetamol or other painkillers).

Ancient Roman Medicine

by Niti Joshi

November 8, 2021

Ancient Roman medicine was contributed dramatically by the Hippocratic Corpus's knowledge and the combination of regimen, treatment of diet, and surgical procedures.

It was most prominent in the works of two Greek physicians- Dioscorides, a Roman army physician, and Galen. They performed public demonstrations, practiced medicines, and recorded their findings in the Roman Empire.

Ancient Roman medicine had specializations like ophthalmology and urology. They increased their knowledge of the human body through various inventions of surgical procedures using forceps, scalpels, and catheters.

The Romans heavily practiced healing based on herbs, chants, prayers, and charms readily available in the household.

The Romans encouraged providing public health facilities throughout Rome and developed from the demands of the battlefield and lessons from the Greeks.

They adopted the theory of the four senses of humor from the Greeks, which remained popular in Europe till the seventeenth century.

What medicine did the ancient Roman use?

The Romans performed surgeries using opium and scopolamine to relieve pain and acid vinegar of cleaning wounds. They carried a tool kit with arrow extractors, catheters, scalpels, and forceps, sterilized in boiling water before use.

What herbs were used as medicine by the Romans?

They used anise, basil, garlic, cumin, coriander, oregano, myrtle, wormwood, catnip, etc., as medicine.

How were wounds treated in ancient Rome?

Flesh wounds were treated by irrigation, antiseptics, herbal medication, surgeries, and bandages and dressings. The Roman army used field hospitals to increase the speed of treatment.

The Roman Empire

What did they call the Roman doctors?

They were called Asclepiades of Hippocrates. Fathers who were doctors themselves passed on these names to their sons for the continuation of their profession.

Influence of Greek medicine on ancient Roman medicine

Greek medicine highly influenced Roman medicine. Like the Greek physicians, the Roman physicians depended on naturalistic observations rather than spiritual rituals, but not the absence of spiritual beliefs.

They believed famines and plagues were divine punishments, and satisfying the gods would end them. Later, the Romans formed a concept of contamination that started practices such as improved sanitation and quarantine.

Galen, one of the first well-known doctors in Rome, became an expert on human anatomy, in Greece, by dissecting animals, including monkeys. His expertise and significance in ancient Rome led him to become the personal physician of Emperor Marcus Aurelius.

Greek symbols and gods influenced Roman medicine. The *caduceus*, the treatment character, was initially associated with Hermes, the Greek god of commerce. He carried the *caduceus*, a staff wrapped with two snakes associated with the Roman god Mercury.

The construction of the temple of Apollo Medicus in 431 BCE in Rome with the recognition for having healing powers shows the establishment of the Greek doctors in Rome.

Archagathus of Sparta, the 1st medical practitioner of Ancient Greece in Rome, is known for bringing the use of ancient Greek medical practices to Ancient Rome. He was an expert in treating asking problems and treating wounds caused during any battle or war.

Asclepiades of Bithynia was known for soft treatments that included gentle exercises, bathing, and massaging, which were sometimes prescribed along with wine and water.

General Roman medicine

Materiamedica, one of the most impactful works of drug that Dioscorides of Anazarbus did, mentions both plant and herbal remedies. However, the most effective ones are the autumn crocus which contains colchicine, and poppy juice which contains morphine.

He also proposed that specific stones that have beneficial properties, such as green jasper, could be a perfect solution for stomach aches or any issues related to the stomach.

The Roman Empire

Likewise, wearing stones by any pregnant woman could help her in quick and easy delivery.

The pills and medicines were usually made from plants, herbs, and metallic ingredients. Celsus described the elements of a drug to treat cold and cough could be pepper, saffron, myrrh, cinnamon, costmary, castoreum, poppy tears and galbanum.

Cato believed cabbage helped indigestion, and using somebody's urine for bathing would help constipation, especially the urine of a person who consumed a lot of cabbage.

Similarly, the fumes of boiled cabbage, if directed toward the woman's womb, would increase her fertility.

Surgery was usually considered the last resort because of the apparent risks and the discomfort and pain it causes. They performed sophisticated operations such as removing cataracts, draining fluids, reversing circumcision, and trephination with the help of specialized surgical instruments.

The wounds after the surgery would be stitched using linen thread, flax, and metal pins, whereas the dressing was done using sponges soaked in oil, vinegar, or even wine.

The doctors dealt mainly with skin, digestion, fertility problems, bone fractures, gout, epilepsy, fluid retention, and depression.

The difficult cases such as injuries to the heart, brain, spine, kidneys, liver, arteries, and other delicate organs were usually avoided to protect their medical reputation as they acknowledged how they couldn't do anything with those cases.

Progression of medicine

The first biologist and a great Greek philosopher, Aristotle, contributed much to medicine in ancient Rome and studied the world of living things. He laid the foundations of comparative anatomy and embryology.

After Aristotle, a famous medical school was established in 300 BCE during the reign of Alexandria.

Herophilus, whose thesis on anatomy was extraordinarily unique, and Erasistratus, considered the founder of physiology, were two of the best medical teachers in that school. Erasistratus distinguished the difference between sensory and motor nerves.

The Roman Empire

Asclepiades of Bithynia, contrary to the beliefs of Hippocrates, refused the healing power of nature and came up with the atomic theory.

The acknowledgment of disease to the contracted and relaxed condition of the solid particles is what he believed made up the body.

Asclepiades thought to restore harmony between the particles cured the disease. He used remedies such as massage, poultices, tonics, fresh air, and a corrective diet to achieve balance, gave attention to mental health, and differentiated between hallucination and delusion.

He released mentally unstable people from dark asylums and treated them with therapy, soothing music, soporifics- especially wine and exercises to improve attention and memory.

Galen acknowledged and followed the Hippocratic method and recognized that arteries contain blood, not air. He displayed how the heart sets the blood in motion but didn't know that the blood circulates.

To his knowledge, he had to examine the animals, particularly apes, as dissecting the human body was illegal at that time.

Soranus of Ephesus wrote a book on childbirth, infant care, and women's disease. He despised abortion and encouraged various contraceptive methods.

He also proposed a live-saving technique during childbirth that described a problematic delivery's assistance by turning the fetus in a podalic version in the uterus.

The Romans set a great example in terms of public health. Along with unmatched water supply in the city, gymnasiums and public baths were built, and sewage disposal was adequate.

They built hospitals and provided the army with medical officers while the poor were appointed with general physicians.

Famous Specialists of ancient Roman medicine

Aulus Cornelius Celsus wrote an encyclopedia including a part on medicine that mentioned a mint-flavored perfumed steam bath would help sweat and rejuvenate the body.

It said eating snakes would help rid abscesses and that epilepsy could be cured by drinking the slain gladiator's blood.

The Roman Empire

It also mentioned that plastering hot mallow root that was boiled in wine would treat gout, and the death of a person could be indicated by cold ears, hard forehead skin, sunken eyes and temples, and pointed nose.

He categorized food as those that cooled the body, especially vinegar, cherry, and cucumber, and food like salt, wine, pepper, and onion produced heat in the body.

Dalen, an all-rounder scholar, advised new mothers on applying bandages soaked in wine for sterilization. Galen suggested that the imbalance among the bodily fluids caused illnesses such as black bile, blood-related illness, and yellow bile.

The theory of cold, heat, dry, and wet that could be used in all treatments remained influential for more than 1500 years.

Hospitals in the ancient Rome

The first hospitals in ancient Rome were reserved for slaves and soldiers, and physicians followed armies and ships to assist in injuries.

Most deaths occurred due to poor sanitation, famine, epidemics, malnutrition, warfare, and health system development lagged due to superstitions and religious beliefs.

They built the earliest Roman hospitals during the reign of Emperor Trajan in the 1st and 2nd centuries. *Valentudinarium* were field hospitals for wounded soldiers. Initially, it started in clusters of tents that helped doctors manage different wounds and various herbs required.

It was established when the army expanded beyond the Italian peninsula and couldn't be cared for in private homes any longer. Over time, permanent facilities replaced these temporary forts.

A valetundinarium usually has a rectangular building with four wings, connected by an entrance hall used as a triage center.

The hospitals could accommodate around five thousand men, and there were a large hall, reception wars, dispensary, kitchen, staff quarters, and washing and restroom services.

Dreams as diagnostic methods

The interpretations of a patient's dream were used to determine what treatment they received with the theme of knowing the patient.

The Roman Empire

They believed the physician should know essential aspects of the patient's lives to understand how to treat them, including their climate, food intake, sleep quality and quantity, how much they drink, and any injuries.

They made conclusions to determine what needed to be done to set them back to equilibrium.

They believed that the soul served the purpose the brain has been discovered to do, so they took dreams into reference during diagnosis.

They thought the soul was responsible for sensation, pain, motion, and other physiological concepts and continued these works even when asleep. Hence, dreams show what caused the person distress.

They believed a person was healthy and in equilibrium if the dreams consisted of everyday daily events. However, the more chaotic the dreams, the more ill the person was thought to be.

Major health issues in the ancient Rome

The average lifespan of the Roman people was 22 years. Children were not considered human up to the talking age since most children died before 12 months, and only 1.3 percent had tombstones in their burial.

The most common diseases in ancient Rome were Malaria and tuberculosis. People were dying tremendously as mosquito-breeding marshes surrounded many Roman cities.

People resorted to raven caws and decapitating puppies as a desperate method for cures and magic as malaria swept off the extensive Roman Empire. Tuberculosis, however, had been present since the birth of history and was called the silent killer.

Romans claimed lead poisoning to be the reason for high sterility rates, miscarriages, and stillbirths. The source of lead ingestion was lead water pipes and wine additives.

Cancer was another health issue faced by the Romans, which according to the Hippocratic Corpus, was caused by excess black bile and was termed Carcinus (crab) as some cancers appeared crab-like.

Plague, brucellosis, wheat allergy, and sexually transmitted diseases like syphilis were some other diseases prevalent in the city.

The Roman Empire

Conclusion

The Romans were highly influenced by the Greeks on medicine and added their methods by focusing on public health and disease prevention.

Like Greece, there was no medical training or qualifications among the Romans, and forms of practice depended on the individual learning of the practitioner and through accuracy of his diagnosis.

They progressed in their anatomical knowledge and surgery; however, it was still highly flawed in application.

They were highly superstitious and religious and thus, believed that a person was diseased due to offending the gods and that only by satisfying the gods would they be cured.

They were heavily operative with herbal treatments and identified many plants associated with curing various diseases. Surgery was considered the last option due to the discomfort it caused and the risk it carried.

However, they carried out sophisticated operations such as removing cataracts, draining fluids, trephination, and reversal of circumcision with the help of specialized surgical instruments.

Christianity versus Roman Religion

Neha Uddin

March 24, 2022

Today's Rome, though not the capital of a vast empire still remains globally significant with over 1 billion people viewing considering it the center of the Roman Catholic faith.

Rome's eventual admission of Christianity, after years of apathy and persecution, influenced the majority with the new hope and faith.

Saint Peter was persecuted along with numerous others, during the time of the assassination and persecution of the Christian by the then Emperor Nero.

However, in 319 AD, Roman Emperor Constantine started constructing the cathedral over the grave of Saint Peter to make it his Basilica.

Ancient Rome was an intensely religious culture from its inception, where religious, offices and political offices coexisted.

Julius Caesar initially held the highest position amongst the priest and was honored as Pontifex Maximus. He, later on, landed on being chosen as Consul, the highest Republican political post.

Similarly, the Romans also worshiped many gods, some of which were the counterpart of the Ancient Greeks deities, and the city of Greek was replete with temples where the power of the gods and goddesses was placed according to sacrifice, ritual, and festival.

In fact, at the top of his powers, Julius Caesar achieved god-like status and was venerated after he died. Likewise, Augustus, the successor of Caesar, also embraced this practice.

Moreover, even though this apex to this heavenly status occurred after his death, the Emperor was still a deity to the Romans. However, this idea was later found exceedingly offensive by the Christians.

With the expansion of Rome, it confronted new religions that had to be tolerated by the majority and adopted by some. On the other hand, some were picked out for persecution, mainly due to their nature that was not accepted by the Romans and was considered different than all the Romans.

The Roman Empire

The religion of Bacchus, a Roman embodiment of the Greek god of wine, was suppressed for alleged orgies.

At the same time, the Roman forces wiped out all the Celtic Druids as the procedure of the inhuman acts of sacrificing humans.

Even the Jews were oppressed, especially following Rome's protracted and violent occupation of Judea.

So then, how did Rome come to embrace Christianity which subsequently led to Rome becoming one of the most venerated Christian capitals in the modern world?

What made Christianity distinct from Roman religion?

The Roman religion worshiped several gods and regarded the Emperor as a god. In contrast, Christianity believes in a single God and criticized many Roman beliefs and customs.

What was the origin of Christianity in the early Roman Empire?

In 313 AD, Emperor Constantine enacted the Edict of Milan, which recognized Christianity as the Roman Empire's official religion; ten years later, it had become the central religion Empire.

How did the Romans react to Christianity?

During the first two centuries CE, Christians were periodically persecuted (officially punished) for their beliefs.

However, the official policy of the Roman state was to overlook Christians unless they blatantly challenged imperial authority.

Religion in Ancient Rome

The Romans were religious, and their success as a world power was attributed to their collective piety (pietas) in keeping good connections with the gods.

The Romans were noted for honoring various deities, which earned them the ridicule of early Christian polemicists.

From the commencement of the historical period, the inclusion of Greeks on the Italian peninsula shaped Roman culture, establishing various religious rituals that became as vital as the cult of Apollo.

The Roman Empire

In like manner, the Romans also sought common ground between their primary gods and those of the Greeks (*interpretatio graeca*), incorporating Greek stories and iconography for Latin literature and Roman art.

The Etruscan religion had a significant impact on ancient Roman religion, notably on the practice of augury.

Legend has it that most of Rome's religious institutions may be traced back to its founders, particularly Numa Pompilius, the Sabine second king of Rome who dealt directly with the gods.

As the Roman Empire grew, migrants to Rome took their native cults with them, most of which became widespread among Italians.

Christianity was ultimately the most effective, becoming the official state religion in 380. Religion was a core component of everyday life for ordinary Romans in ancient times to elaborate on this notion.

Each home had a domestic shrine where prayers and libations were dedicated to the family's domestic deities.

The city was peppered with neighborhood shrines and sacred sites such as springs and trees. The Roman calendar was also designed to accommodate religious observances.

Eastern Influences on Ancient Religion in Rome

There was a concerted effort to restore previously believed belief systems among the Roman populace during Augustus' reign. By this point, these once-held values had been corroded and met with skepticism.

The imperial order placed a premium on commemorating outstanding men and events that led to the doctrine and practice of divine kingship.

Post-Augustus Emperors held the role of Chief Priest (*Pontifex Maximus*), merging political and ecclesiastical power under one title.

Another outcome of eastern hegemony in the Roman Empire was the formation of mystery cults, which worked through a hierarchical comprising of the conveyance of knowledge, virtues, and authority to those inducted through secret rites of passage.

The Roman Empire

The most renowned of these was the Mithras cult, which was especially popular among soldiers and was based on the Zoroastrian deity Mithra.

Pessimism with earthly goods, an emphasis on death, and a preoccupation with the hereafter became a prevalent motif among the eastern secret religions present in Rome.

These characteristics later led to the allure of Christianity, which was often seen as a mystery religion in its early phases.

The Assimilation of Cults

The Roman Empire grew to include various peoples and cultures. In general, Rome pursued the same inclusionist policy that had recognized Latin, Etruscan, and other Italian peoples, cults, and deities as Roman.

Those who recognized Rome's sovereignty kept their cults and religious calendars separate from Roman religious law.

Likewise, Sabratha, a newly formed municipality, constructed a Capitolium near its existing temples to Liber Pater and Serapis.

Autonomy and concord were official policies, but new foundations established by Roman citizens or their Romanized allies were likely to adhere to Roman cultic patterns.

Romanization provided different political and practical benefits, particularly to local elites. The extant effigies from Cuicul's 2nd century AD forum are of emperors or Concordia.

By the middle of the first century AD, Gaulish Vertault abandoned its native cultic sacrifice of horses and hounds in favor of a nearby newly created Romanised cult.

By the end of the century, Sabratha's so-called tophet was no longer in use.

Dedications to Rome's Capitoline Triad by Colonial and subsequently Imperial provinces were a logical decision, not a centralized legal mandate.

The splendid Alexandrian Serapium, the temple of Aesculapius at Pergamum, and Apollo's holy grove at Antioch were all major cult centers to "non-Roman" deities.

Traders, legions, and other travelers also brought cults from Egypt, Greece, Iberia, India, and Persia. Cybele, Isis, Mithras, and Sol Invictus cults were especially important.

The Roman Empire

Some of these were initiatory faiths with profound personal importance, similar to Christianity in that regard.

Judaism in Ancient Rome

Jews and Judaism were permitted at Rome by diplomatic contract with Judaea's Hellenized elite for at least a century before establishing the Augustan principate.

Diaspora Jews shared many characteristics with the predominantly Hellenic or Hellenized communities that surrounded them.

There are scant records of early Italian synagogues, but one was dedicated at Ostia during the mid-1st century BC, and numerous more are known during the Imperial period.

The acceptance of Judaea as a client kingdom in 63 BC extended the Jewish diaspora; in Rome, this resulted in increasing official investigation of their faith.

Julius Caesar recognized their synagogues as genuine collegia. Several thousand Jews lived in Rome by the time of the Augustan era.

In some instances, Jews were legally excluded from official sacrifice throughout several eras of Roman administration.

To Cicero, Judaism was a *superstitio*, but to the Church Father Tertullian, it was a *religio licita* (an officially permitted religion) in opposition to Christianity.

The Roman Empire and Christianity

The Romans discovered early Christianity as an irreligious, new, defiant, even atheistic sub-sect of Judaism. It purported to repudiate all forms of religion and was thus superstitious.

By the conclusion of the Imperial period, Nicene Christianity was the only permitted Roman religion; all other religions were considered heretical or pagan superstitions.

In 64 AD, preceding the Great Fire of Rome, Emperor Nero accused Christians of being easy scapegoats, and they were later persecuted and executed.

The Roman state's stance toward Christianity was one of persecution from then on.

"Contemporaries were inclined to decode any problem in religious terms" during the many Imperial crises of the third century, regardless of their commitment to particular practices or belief systems.

The Roman Empire

Christianity garnered its conventional base of assistance from the powerless, who appeared to have no theological investment in the Roman State's well-being and threatened its survival.

The majority of Rome's aristocracy practiced various versions of inclusive Hellenistic monism.

Neoplatonism, in particular, integrated the miraculous and austere within a typical Graeco-Roman cultic framework.

Christians considered these behaviors sinful and a significant source of economic and political instability.

Following religious disturbances in Egypt, Emperor Decius issued a proclamation requiring all subjects of the Empire to actively seek the benefit of the state through observed and verified sacrifice to "ancestral gods" or face a penalty: only Jews were excused.

Christianization in the Roman Empire

The Roman Empire's Christianization began around AD 30–40, slowly and with difficulty, in the Roman province of Judaea in the territory of Palestine.

Beginning with fewer than 1000 people, Christianity expanded at an estimated annual compound rate of approximately 3.4 percent, attaining approximately 200,000 people by the end of the 2nd century, half of the Empire's citizenry by 350, and ultimately overarching the majority of its 6–7 million people in the 5th century.

Christianity and the traditional Roman religion were found to be irreconcilable.

Since the 2nd century, the Church Fathers have labeled the many non-Christian religions practiced across the Empire as "pagan."

Some researchers believe Constantine's efforts contributed to Christianity's rapid growth, although many modern scholars disagree.

Constantine's distinct brand of Imperial orthodoxy did not outlive him. Following his death in 337, two of his sons, Constantius II and Constans, seized over the Empire and re-divided their Imperial inheritance.

Constantius was a member of the Arian sect, but his brothers were Nicene Christians.

The Roman Empire

Conclusion

Ancient Christianity developed as a part of Roman society, and as a result, Christianization was not a one-way street.

Some features of its cradle culture were absorbed by Christianity, which corresponded with changes within Graeco-Roman polytheism.

How much Christianity brought about a shift in polytheism (also known as paganism) and how much polytheism attributed to changes in Christianity are both concerns of Christianization.

According to Roger Bagnall, the advent of Christianity came at the expense of paganism, at least in part.

This story has typically been portrayed in competition and conflict between them.

However, Graeco-Roman polytheism was not a unified entity, nor were its various manifestations universally antagonistic to Christianity.

The Roman Empire

The Roman Empire Secret Police

By A. Sutherland

August 12, 2019

Frumentarii' was a special military elite in Roman Empire that served as the emperor's secret police.

At the turn of the second and third century AD, they watched the actions of senators, high-ranking military men, and Christians.

Initially, however, they were collectors of wheat in the Roman Empire. They dealt with tax collection and were responsible for controlling and regulating grain deliveries to the capital.

However, their role evolved during Hadrian's reign (117-138 CE); they expanded and focused on internal stabilization. Their tasks also involved arrests of suspected individuals.

The frumentarii' was Emperor Hadrian's special unit of the *Praetorians* to control the political situation in Rome during the emperor's absence.

His secret police unit had to protect the emperor from possible conspiracies and investigate significant individuals and their lives.

Hadrian wanted to know much, and as he once said, "he wanted to know *things that should not be known*," which probably applied to the private lives of individuals in his vicinity.

According to Hadrian, *knowledge – of whatever sort – was power*.

There is very little information about this unit, but ancient inscriptions on gravestones confirm that frumentarii, who always worked in uniforms, were usually attached to individual legions.

They carried out particular tasks in different places and were stationed at the Castra Peregrina in Rome. They did not hide themselves and lived openly. Their uniforms determined their affiliation.

According to studies, the frumentarii unit had high moral and social status and was very proud. The inscriptions on their gravestones attest to it.

Frumentarii Were Not Entirely Innocent

These officers were disliked by Roman society because, among others, they spied on people.

The Roman Empire

Due to abuses committed by this secret police, the emperor Diocletian (284-305 CE) dissolved the unit and replaced it with the so-called *agentes in rebus* ("general agents"). This change was based on the fact that they were recruited from civilians, *not* military men. The unit contained from 200 to 1000 men.

The changes introduced by Diocletian were unsuccessful, and abuses committed by the *frumentarii* agents continued. They entirely operated in the Byzantine Empire until the 8th century.

Many were very privileged; as a control organ superior to the local governors, they monitored the entire Roman province.

They were feared depending on their relations, and at the same time, their work was highly appreciated by the emperors who gave them promotions to hold important government positions.

Senior officers who served well and impeccably had opportunities to work in the Praetorian prefectures, where they exercised their control over the bureaucracy.

They had civil and criminal judicial immunity; for example, inspectors performed their functions above the provinces.

The Roman Empire Agriculture and Food

By Matthew A. McIntosh

July 10, 2019

Introduction

Roman Agriculture describes the farming practices of ancient Rome, an era that lasted 1000 years. From humble beginnings, the Roman Republic (509 BCE to 27 BCE) and empire (27 BCE to 476 CE) expanded to rule much of Europe, northern Africa, and the Middle East and thus comprised a large number of agricultural environments of which the Mediterranean climate of dry, hot summers and cool, rainy winters was the most common. Within the Mediterranean area, a triad of crops was most important: grains, olives, and grapes.

The great majority of the people ruled by Rome were engaged in agriculture. From a beginning of small, largely self-sufficient landowners, rural society became dominated by latifundium, large estates owned by the wealthy and utilizing mostly slave labor. The growth in the urban population, especially of the city of Rome, required the development of commercial markets and long-distance trade in agricultural products, especially grain, to supply the people in the cities with food.

The “Delightful” Life

Agriculture in ancient Rome was not only a necessity, but was idealized among the social elite as a way of life. Cicero considered farming the best of all Roman occupations. In his treatise *On Duties*, he declared that “of all the occupations by which gain is secured, none is better than agriculture, none more profitable, none more delightful, none more becoming to a free man.” When one of his clients was derided in court for preferring a rural lifestyle, Cicero defended country life as “the teacher of economy, of industry, and of justice” (*parsimonia, diligentia, iustitia*)]. Cato, Columella, Varro and Palladius wrote handbooks on farming practice.

In his treatise *De agricultura* (“On Farming”, 2nd century BC), Cato wrote that the best farms contained a vineyard, followed by an irrigated garden, willow plantation, olive orchard, meadow, grain land, forest trees, vineyard trained on trees, and lastly acorn woodlands. Though Rome relied on resources from its many provinces acquired through conquest and warfare, wealthy Romans developed the land in Italy to produce a variety of crops. “The people living in the city of Rome constituted a huge market for the purchase of food produced on Italian farms.”

The Roman Empire

Land ownership was a dominant factor in distinguishing the aristocracy from the common person, and the more land a Roman owned, the more important he would be in the city. Soldiers were often rewarded with land from the commander they served. Though farms depended on slave labor, free men and citizens were hired at farms to oversee the slaves and ensure that the farms ran smoothly.

Crops

Grains

Staple crops in early Rome were millet, emmer and spelt which are species of wheat. According to the Roman scholar Varro, common wheat and durum wheat were introduced to Italy as crops about 450 BCE. Durum (hard) wheat became the preferred grain of urban Romans, because it could be baked into leavened bread and was easier to grow in the Mediterranean region than common (soft) wheat. Grains, especially baked into bread, were the staple of the Roman diet, providing 70 to 80 percent of the calories in an average diet. Barley was also grown extensively, dominating grain production in Greece and on poorer soils where it was more productive than wheat. Wheat was the preferred grain, but barley was widely eaten and also important as animal feed.

Olives

The Romans grew olive trees in poor, rocky soils, and often in areas with sparse precipitation. The tree is sensitive to freezing temperatures and intolerant of the colder weather of northern Europe and high, cooler elevations. The olive was grown mostly near the Mediterranean Sea. The consumption of olive oil provided about 12 percent of the calories and about 80 percent of necessary fats in the diet of the average Roman.

Grapes

Viticulture was probably brought to southern Italy and Sicily by Greek colonists, but the Phoenicians of Carthage in northern Africa gave the Romans much of their knowledge of growing grapes and making wine. By 160 BCE, the cultivation of grapes on large estates using slave labor was common in Italy and wine was becoming a universal drink in the Roman Empire. To protect their wine industry, the Romans attempted to prohibit the cultivation of grapes outside Italy, but by the 1st century CE, provinces such as Spain and Gaul (modern day France) were exporting wine to Italy.

The Roman Empire

Other Crops

The Romans also grew artichoke, mustard, coriander, rocket, chives, leeks, celery, basil, parsnip, mint, rue, thyme 'from overseas', beets, poppy, dill, asparagus, radish, cucumber, gourd, fennel, capers, onions, saffron, parsley, marjoram, cabbage, lettuce, cumin, garlic, figs, 'Armenian' apricots, plums, mulberries, and peaches.

Farming Practices

In the 5th century BC, farms in Rome were small and family-owned. The Greeks of this period, however, had started using crop rotation and had large estates. Rome's contact with Carthage, Greece, and the Hellenistic East in the 3rd and 2nd centuries improved Rome's agricultural methods. Roman agriculture reached its height in productivity and efficiency during the late Republic and early Empire.

Farm sizes in Rome can be divided into three categories. Small farms were from 18–108 iugera. (One iugerum was equal to about 0.65 acres or a quarter of a hectare). Medium-sized farms were from 80–500 iugera. Large estates (called latifundia) were over 500 iugera.

In the late Republican era, the number of latifundia increased. Wealthy Romans bought land from peasant farmers who could no longer make a living. Starting in 200 BC, the Punic Wars called peasant farmers away to fight for longer periods of time.

Cows provided milk while oxen and mules did the heavy work on the farm. Sheep and goats were cheese producers and were prized for their hides. Horses were not widely used in farming, but were raised by the rich for racing or war. Sugar production centered on beekeeping, and some Romans raised snails as luxury food.

The Romans had four systems of farm management: direct work by owner and his family; tenant farming or sharecropping in which the owner and a tenant divide up a farm's produce; forced labor by slaves owned by aristocrats and supervised by slave managers; and other arrangements in which a farm was leased to a tenant.

Cato the Elder (also known as "Cato the Censor") was a politician and statesman in the mid-to-late Roman Republic and described his view of a farm of 100 iugera. He claimed such a farm should have "a foreman, a foreman's wife, ten laborers, one ox driver, one donkey driver, one man in charge of the willow grove, one swineherd, in all sixteen persons; two oxen, two donkeys for wagon work, one donkey for the mill work." He also said that such a farm should

The Roman Empire

have “three presses fully equipped, storage jars in which five vintages amounting to eight hundred cullei can be stored, twenty storage jars for wine-press refuse, twenty for grain, separate coverings for the jars, six fiber-covered half amphorae, four fiber-covered amphorae, two funnels, three basketwork strainers, [and] three strainers to dip up the flower, ten jars for [handling] the wine juice...”

Trade

There was much commerce between the provinces of the empire, and all regions of the empire were largely economically interdependent. Some provinces specialized in the production of grains including wheat, emmer, spelt, barley, and millet; others in wine and others in olive oil, depending on the soil type. Columella writes in his *Res Rustica*, “Soil that is heavy, chalky, and wet is not unsuited to the growing for winter wheat and spelt. Barley tolerates no place except one that is loose and dry.”

Pliny the Elder wrote extensively about agriculture in his *Naturalis Historia* from books XII to XIX, including chapter XVIII, *The Natural History of Grain*.

Greek geographer Strabo considered the Po Valley (northern Italy) to be the most important economically because “all cereals do well, but the yield from millet is exceptional, because the soil is so well watered.” The province of Etruria had heavy soil good for wheat. Volcanic soil in Campania made it well-suited for wine production. In addition to knowledge of different soil categories, the Romans also took interest in what type of manure was best for the soil. The best was poultry manure, and cow manure one of the worst. Sheep and goat manure were also good. Donkey manure was best for immediate use, while horse manure wasn’t good for grain crops, but according to Marcus Terentius Varro, it was very good for meadows because ‘it promotes a heavy growth of grass plants like grass.’”

Economics

In the grain-growing area of north Africa (centered on the ancient city of Carthage, a family of six people needed to cultivate 12 iugera/ 3 hectares of land to meet minimum food requirements (without animals). If a family owned animals to help cultivate land, then 20 iugera was needed. More land would be required to meet subsistence levels if the family farmed as sharecroppers. In Africa Proconsularis in the 2nd century AD, one-third of the total crop went to the landowner as rent.

Such figures detail only the subsistence level. It is clear that large scale surplus production was undertaken in some provinces, such as to supply the cities, especially Rome, with grain, a

The Roman Empire

process known as the Cura Annonae. Egypt, northern Africa, and Sicily were the principal sources of grain to feed the population of Rome, estimated at one million people at its peak.

For yields of wheat, the number varies depending on the ancient source. Varro mentions 10:1 seed-yield ratio for wheat as normal for wealthy landowners. In some areas of Etruria, yield may have been as high as 15:1. Cicero indicates in *Verrem* a yield of 8:1 as normal, and 10:1 in exceptionally good harvest. Paul Erdkamp mentions in his book *The Grain Market in the Roman Empire*, that Columella was probably biased when he mentions a much lower yield of 4:1. According to Erdkamp, Columella wanted to make the point that “grain offers little profit compared to wine. His argument induces him to exaggerate the profitability of vineyards and at the same time to diminish the yields that were obtained in grain cultivation. At best Columella provides a trustworthy figure for poor soils; at worst, his estimate is not reliable at all.”

Average wheat yields per year in the 3rd decade of the century, sowing 135 kg/ha of seed, were around 1,200 kg/ha in Italy and Sicily, 1,710 kg/ha in Egypt, 269 kg/ha in Cyrenaica, Tunisia at 400 kg/ha, and Algeria at 540 kg/ha, Greece at 620 kg/ha. This makes the Mediterranean very difficult to average over all.

An agricultural unit was known as a *latus fundus* mentioned by Varro as a great estate. Which can be interpreted as a *Latifundia* or at 500 iugera or around 125 hectares because this is the land limit imposed by Tiberius Sempronius Gracchus as tribune in 133 BCE.

In 99 there was an Egyptian crisis due to inadequate flooding.

Pliny the Younger stated that for “long it was generally believed that Rome could only be fed and maintained with Egyptian aid”. However, he argued that “Now [that] we have returned the Nile its riches... her business is not to allow us food but to pay a proper tribute.

Mechanization

The Romans improved crop growing by watering growing plants using aqueducts. An increasing amount of evidence suggests that some parts of the industry were mechanized. For example, extensive sets of mills existed in Gaul and Rome at an early date to grind wheat into flour. The most impressive extant remains occur at Barbegal in southern France, near Arles. Sixteen overshot water wheels arranged in two columns were fed by the main aqueduct to Arles, the outflow from one being the supply to the next one down in the series. The mills apparently operated from the end of the 1st century AD until about the end of the 3rd century. The

The Roman Empire

capacity of the mills has been estimated at 4.5 tons of flour per day, sufficient to supply enough bread for the 12,500 inhabitants occupying the town of Arelate at that time.

Vertical water wheels were well known to the Romans, described by Vitruvius in his *De Architectura* of 25 BC, and mentioned by Pliny the Elder in his *Naturalis Historia* of AD 77. There are also later references to floating water mills from Byzantium and to sawmills on the river Moselle by the poet Ausonius. The use of multiple stacked sequences of reverse overshot water-wheels was widespread in Roman mines.

There is evidence from bas-reliefs that farmers in northern Gaul (present day France) used a kind of automatic harvester or reaper when collecting ripe grain crops. The machine, called the "vallus" or "gallic vallus", was apparently invented and used by the Treveri people. It cut the ears of grain without the straw and was pushed by oxen or horses. Pliny the Elder mentions the device in the *Naturalis Historia* XVIII, 296. Possibly because the vallus was cumbersome and expensive, its adoption never became widespread and it fell into disuse after the 4th century CE. Scythes and sickles were the usual tools for harvesting crops.

Acquiring a Farm

Aristocrats and common people could acquire land for a farm in one of three ways. The most common way to gain land was to purchase the land. Though some lower class citizens did own small pieces of land, they often found it too difficult and expensive to maintain. Because of the many difficulties of owning land, they would sell it to someone in the aristocracy who had the financial backing to support a farm. Though there were some public lands available to the common person for use, aristocrats also tended to purchase those pieces of land, which caused a great deal of tension between the two classes. "Mass eviction of the poor by the rich underlay the political tensions and civil wars of the last century of the Roman Republic." Another way to acquire land was as a reward for going to war. High ranking soldiers returning from war would often be given small pieces of public land or land in provinces as a way of paying them for their services. The last way to obtain land was through inheritance. A father could leave his land to his family, usually to his son, in the event of his death. Wills were drawn out that specified who would receive the land as a way of ensuring that other citizens did not try to take the land from the family of the deceased.

Aristocracy and the Land

Though some small farms were owned by lower class citizens and soldiers, much of the land was controlled by the noble class of Rome. Land ownership was just one of many distinctions

The Roman Empire

that set the aristocracy apart from the lower classes. Aristocracy would “reorganize small holdings into larger more profitable farms in order to compete with other nobles.” It was considered a point of pride to own not just the largest piece of land, but also to have land that grew high quality produce. As Marcus Cato wrote “when they would praise a worthy man their praise took this form: ‘Good husband good farmer’; it is from the farming class that the bravest men and the sturdiest soldiers come.” The farms would produce a variety of crops depending on the season, and focused on trying to acquire the best possible farm under the best possible conditions. Cato discusses many of the primary focuses of the farmer and how to distinguish a great piece of land. He notes that a good farmer must take precious time to examine the land, looking over every detail. Not only did the land need to be perfect for purchase, but the neighbors must maintain their farms as well because “if the district was good, they should be well kept.” Individuals looking to buy a piece of land had to also take into consideration the weather of the area, the condition of the soil, and how close the farm would be to a town or port. Careful planning went into every detail of owning and maintaining a farm in Roman culture.

Running a Farm in Rome

While the aristocracy owned most of the land in Rome, they often were not present at the farms. With obligations as senators, generals, and soldiers at war, many of the actual landowners spent very little time working on their farms. The farms instead were maintained by slaves and freedmen paid to oversee those slaves. The overseer of the farm had many responsibilities that coincided with maintaining the land. He was responsible for ensuring that the slaves were kept busy and for resolving conflicts between them. An overseer had to be dependable and trustworthy in that the land owner had to know that the person he hired to run the farm was not going to try to steal any of the produce from the farm. Overseers were also responsible for ensuring that both servants and slaves were properly fed and housed, and that they were assigned work fairly and efficiently. They had to ensure that any orders given by the owner of the land were followed diligently and that everyone on the farm honored the gods completely and respectfully, which Romans believed was necessary to ensure a bountiful harvest.

The majority of the work was done by servants and slaves. Slaves were the main source of labor. In Roman society, there were three main ways to obtain a slave. The first and possibly most common way to gain a slave was to buy one on the market. Slaves were purchased at auctions and slaves markets from dealers or were traded between individual slave owners. Another way slaves were acquired was through conquest in warfare. As Keith Hopkins explains

The Roman Empire

in his writings, many landowners would go to war and bring back captives. These captives were then taken back to Roman territory and either sold to another citizen or made to work on the capturer's farm. The final way a slave could be obtained was through birth: if a female slave gave birth to a child, that child became property of the slave's owner. Extramarital relations with women who were not citizens was not considered to be adultery under Roman law (and Roman wives were expected to tolerate such behavior), so there was no legal or moral impediment to having children being fathered by a slave's owner or overseer.

Slaves were relatively cheap to use because they were property; their treatment depended on the humanity of their owners, who met the needs of their slaves on what they cared to spend, not what they had to. Overseers motivated slaves by imposing punishments and by giving rewards. "If the overseer sets his face against wrongdoing, they will not do it; if he allows it, the master must not let him go unpunished."

Problems for Farmers

Roman farmers faced many of the problems which have historically affected farmers up until modern times including the unpredictability of weather, rainfall, and pests. Farmers also had to be wary of purchasing land too far away from a city or port because of war and land conflicts. As Rome was a vast empire that conquered many lands, it created enemies with individuals whose land had been taken. They would often lose their farms to the invaders who would take over and try to run the farms themselves. Though Roman soldiers would often come to the aid of the farmers and try to regain the land, these fights often resulted in damaged or destroyed property. Land owners also faced problems with slave rebellions at times. "In addition to invasions by Carthaginians and Celtic tribes, slave's rebellions and civil wars which were repeatedly fought on Italian soil all contributed to the destruction of traditional agricultural holdings. Also, as Rome's agriculture declined, people now judged others by their wealth rather than their character."

Entertainment in the Roman Empire

By Imperiumromanum

2022

Free food and entertainment always helped to win the electorate's approval.

The patricians competed with each other for which of them would provide citizens with a better and more impressive show. It was the desire to please the crowd that led to the development of the Games. The wealthy Romans did not spare coins to create great games to delight the people.

Thanks to the ability to win votes this way, some made their career, while others went bankrupt. But as a political weapon, a good spectacle and a sumptuous feast were unbeatable. The rate was high. It was worth spending a fortune to gain a public office.

The advantages of organizing the games were also noticed by the emperors, who used it to lighten the public mood in the Empire and wanted to please the crowds. Some of them organized competitions because they loved them, like Commodus.

The Romans took a great passion for the Olympics. They were made at every opportunity. This is how a Roman historian Suetonius describes the games, organized by Julius Caesar:

He sponsored spectacles of various kinds: a gladiatorial contest, plays in all regions of the city, and performed by actors in every language, as well as circus performances, athletic contests, and a sea battle.

In a gladiatorial fight in the Forum, Furius Leptinius, a man of a praetorian family, and Quintus Calpenus, who had once been a senator and legal advocate, fought to the finish. The children of the princes of Asia and Bithynia performed a Pyrrhic dance. During the plays, the Roman knight Decimus Laberius performed in a mime he himself had written and, when he was given five hundred thousand sesterces and a golden ring, he left the stage and crossed the orchestra to take his seat in the fourteen rows. For the circus races, the area of the circus itself was extended at either end, with a broad canal surrounding the circuit. Here the noblest young men made displays with four-horse and two-horse chariots and by jumping between pairs of horses. Two squadrons, one of older and one of younger boys, performed the Troy game. Five days of animal fights were provided. For the final one, two battle lines were drawn up, with five hundred

The Roman Empire

foot soldiers, twenty elephants, and three hundred knights assigned to each side. And so that there would be more space for the encounter, the central barriers were removed and in their place two camps were set up, one facing the other. In a temporary stadium constructed in an area of the Campus Martius, athletes competed for three days. In the sea-battle, which took place on a lake excavated in the lesser Codeta, ships with two, three, and four banks of oars from the Tyrian and Egyptian fleets engaged, manned by a huge number of fighters. Drawn by all these spectacles, a vast number of people flooded into Rome from every region, so that many of the visitors had to lodge in tents put up in the streets or along the roads. And the crowds were so great on a number of occasions that many people were crushed to death, even including two senators.

– Suetonius, *Lives of the Caesars*, **The Deified Julius Caesar**, 39

During the reign of Augustus, there were 65 days of shows in the year, and in the following centuries, there were more free rather than working. Nero put on chariot races over the bloody gladiatorial struggles, which he diversified with his own imagination, ordering to harness camels instead of horses. As a 20-year-old young man, in 59 CE, he organized games on the occasion of shaving his youthful beard. They were called Iuvenalia and their tradition lives to this day in the name of the student's festival. For the Roman people, demanding bread and games (panem et circenses), sea battles imitating real events were also organized in the arena filled with water or in specially built pools.

The following types of shows were distinguished:

Gladiatorial fights – bloody struggles of people and animals. The tradition of gladiatorial fights comes from the Etruscan custom of worshipping the dead through struggles instead of human sacrifices.

Chariot races – two athletes were racing and trying to reach the post as soon as possible. There were four teams: red, white, green and blue. The spectator who came to the races was dressed in the colours of the favoured team. This entertainment was the most popular.

Naumachia – staged naval battles are shown on specially created pools (sometimes in amphitheatres) or natural lakes. They usually depicted the victorious battles of Roman troops.

The Roman Empire

Theatre – theatre of ancient Rome was a very diverse and interesting form of art. There were various festivals, street theatres, acrobatics and great performances of Plautus' comedies or the tragedies of Seneca the Younger.

Gladiatorial fights

The Romans enjoyed watching fights, initially during the republic they were fights between the prisoners of war. The games so popular in Rome were organized not only by the rulers but also by candidates seeking office to win the support of the Roman people. During the empire, gladiatorial struggles developed. Perhaps gladiatorial fights were derived from the tradition of fighting at the grave of the deceased during the funeral ceremony. The people wanted the fights to be organized even on the occasion of the funeral of insignificant people. Records of organizing such events were to be found in people's wills.

Special schools for gladiators were formed, which trained them to fight in the arenas. Gladiators came mainly from slaves, prisoners of war but also from poor free people, they were strong men practiced in martial art. They were equipped with a sword and a shield; they often fought with wild animals. Their existence was very uncertain because there could always be a stronger gladiator who could deprive him of life. The audience watching the games decided about giving or taking the gladiator's life.

During the Empire, the games were mainly organized by the emperor who rented the schools of gladiators. All victories and successes of the Empire were accompanied by the games. It is difficult to determine exactly where the huge popularity of gladiatorial struggles in Roman society came from. Perhaps in this way, the accumulated emotions were vented.

In the beginning, the games were held on forums and with time they were moved to huge amphitheatres. Initially, they were built of wood, with time the stone amphitheatres began to be erected. The most famous is of course Colosseum, also known as the Flavian Amphitheater, built on an elliptical plan. In the centre, there is an arena filled with sand measuring 86 by 54 meters, and around there are rows of seats for 50 000 viewers on four floors equipped with arcades, supported on columns and pillars. The use of arcades on four floors was possible due to the use of concrete. Colosseum is a combination of practicality with decorativeness. Numerous exits made it possible to leave the amphitheatre quickly; two of them were intended for the emperor. Under the surface of the arena, there were cages with wild animals, warehouses for stage decorations and trapdoors. The emperor sat on a special podium, and special places were designated for priests and vestals. For protection against heat or rain, the canvas curtain was stretched.

The Roman Empire

Due to the fact that gladiatorial games enjoyed such popularity, amphitheatres were built in other cities, for example in Verona, Pompeii, but none were as powerful as the Colosseum. The amphitheatre in Pompeii was built c. 80 BCE, it was intended for 20 000 places, built in a hollow and surrounded by an earth embankment.

During the *ludi circenses*, or gladiators' games, crowds of people filled the amphitheatre. Gladiators fighting with animals provided a lot of excitement. They were not regular and frequent entertainment, although they could last for many days. The games, as they were rather expensive, were organized in aim to gain popularity or after the wars that were victorious for Rome, especially when they accompanied triumphs, or for completely exceptional reasons, as in 80 CE, when the opening of Colosseum was to end the long mourning caused by the eruption of Vesuvius. The spectators were the representatives of all states: emperors, priests of Vesta, senators, equites, plebeians and slaves. But not everyone was pleased to see them.

Chariot Races

The entertainment of the Romans was also a chariot race, which took place in the longitudinal stadiums called circus, of which the Roman Circus Maximus is best known. Its construction was initiated by Julius Caesar and completed by Augustus. Circus Maximus could seat up to 180 000 spectators. The circuit on which the chariot races were held was surrounded by a three-storey audience, the first floor was made of stone and two more were made of wood. Of course, the best places in the first rows were reserved for dignitaries, ordinary viewers took their seats alone, there were no tickets or fees. The chariots belonged to four camps marked with colours – blue, white, red and green. The races were an opportunity to place bets, gambling led many people to ruin. The race began with a procession that reached the Circus Maximus from the Capitol through the Roman Forum. The chariots were harnessed either in two or four horses. The chariots participating in the race did about eight kilometers around the stadium. Mostly the races ended before the evening, but sometimes they were continued with the artificial light of the lamps.

Romans willingly visited Circus Maximus. Roman intellectuals criticized this way of spending free time. And yet the circus attracted representatives of all groups of Roman society. More than one emperor from the windows of the palace on the nearby Palatine Hill looked with curiosity towards the Circus Maximus tracks, where he had his own lodge.

Fans and riots in the world of Romans

It seems that stadium excess is a figment of our times. However, 2 000 years ago, ancient Romans had similar problems. The message of Tacitus about a tragic event has survived to our times (Annals, XIV.17). In 59 CE in Pompeii, there was a riot between the locals and fans from the nearby Nuceria. The conflict was initially being “solve” with the heap of stones, but later – with swords. The result was a real slaughter of newcomers – many with severed limbs and numerous wounds went to the capital. At the request of the emperor, the Senate dealt with the matter, and eventually decided to punish the city with a 10-year ban on organizing the games. Sponsors of events and inciters of the fuss were sentenced to exile.

Games

The most popular game of antiquity, known to this day in a changed form, was dice games. Why in changed form? The game was called tali, and the dices were originally bones of sheep or goats (the Greek name in the singular astragalos indicates the description of the stool bone, in man the equivalent of the conduit). Practical Romans did not want to play with the remains of food – so they made bronze or metal cubes. What’s more – even a bone-shaped vase was found.

In this game, the main activity was throwing the dice, of course. The exact way of scoring is not clear today, however, it is known that some throws had their names – the best was called “Venus throw” and in the worst case the player got a “dog throw”. There was also a variant of the game (tropia), where bones were thrown into a vessel with a narrow neck.

However, the Romans knew also small cubes marked like ours today’s bones (only the sum of the meshes on the opposite sides was always seven). The difference between them (tesserae) and tali mainly consisted of the rate, which was higher in tesserae. Most likely Romans used three cubes, while the Greeks used two. A well-known cup was used today, from which bones were thrown out. The ancients, however, also knew board games and they were also used for gambling. One such popular game was duodecim scripta or duodecim scriptorum (“twelve marks” or “twelve lines” – the name obviously refers to some element of the game, but it is not known whether the number of fields on the board in one row, the result of roll dice or number of rows fields on the board?). The terminology also causes trouble, because the Romans called alea or tesserae any gambling games or those using bones.

In any case, the game was about moving all fifteen pieces from one side of the board to the opposite one. The board itself consisted of 36 squares. Players threw three dice from the cup.

The Roman Empire

When one piece landed on a field occupied by the opponent, he had to return to the start. Just like playing backgammon, two pieces were unbeatable.

The game is related to the Egyptian Senet, certain medieval games, and also the mentioned backgammon. It is interesting, that when gambling was banned in Rome, the duodecim scripta modified the squares of the board to letters that form the slogans such as: “Parthi occisi Britto victus ludite Romani” (“With the Britons conquered and the Parthian killed, play on the Romans”) or “Levate dalocu ludere nescis idiot recede” (“Get up from your seat; you don’t know how to play, you idiot”).

There was also a game called Latrunculi (the term from which the origin of the name is suspected is “latrones” and refers to bandits or mercenaries). The size of the board was varied (8 × 8, 8 × 12, 10 × 9, 11 × 10). Each of the two players has counters – normal and one unique (usually referred to as *aquila* – “eagle.” Players move their stones successively. Any piece can move in any horizontal and vertical lines, any number of squares. If an opponent’s piece is between the two pieces of the player, then the surrounded one is being removed from the board. The object is to immobilize the “eagle” – to surround it so that it cannot move.

The Roman board game – Tabula Lusoria is more of a description of the board and it means more or less the same in Latin as the “tablet for (playing) games”. The game is intended for two players and consists of a special, rosette board with eight boxes arranged in a circle with one central field connected to each field in a circle (picture) and two sets of pieces in two colors, three in each.

This is a simple strategy game of the ancient Romans, played in mass by soldiers bored in barracks or during breaks in military missions and civilian citizens of Rome. Its universality is evidenced by numerous boards engraved in stones where the legionaries were stationed and in places of public utility for the entire Roman Empire. This game never ends in a draw like in a traditional tic tac toe. In addition, you can draw the board yourself and the game counters can be stones or cones.

If the previous game was referred to as ludus latrunculorum, board games with pebbles as counters were called ludus calculorum. There was also a game called terni lapilli, which can be compared to the game of tic-tac-toe, if not for the fact that no signs of the circle and cross were used, but only tokens. It is not clear how many tokens each player had to use, so perhaps the association with the game known to all of us is wrong.

The Roman Empire

We cannot say much about many of the games mentioned above. We use poetic texts (Martial, Ovid), the writings of Plato, Pliny and Varro, as well as discoveries at archaeological sites throughout Europe. Often, however, we have to guess the rules – in the sources available to us, they have never been unequivocally and thoroughly written down.

Some of these games may seem familiar to us – most probably some of them have evolved over the years to take on a modern form. There would be nothing strange about it, board games (and more!) were known even when Egypt was a powerful state.

Libraries

The Romans did not despise intellectual pastimes; they collected books, creating whole libraries. Books were written on parchment, and the publishing houses employed copyists to copy them. After the purchase of the book, when it was in use, more copies were made. Private libraries were first created. On the initiative of Julius Caesar, the first public library was created in Rome. For this purpose, he commissioned this plan to Varro, but he ultimately did not manage to implement his idea. It was done by Gaius Asinius Pollio, who located the library in the Atrium of Liberty (Atrium Libertatis) in the Roman Forum, where the seat of the censors was located. The collection included both Latin and Greek works. However, the fate of this first Roman public library is unknown.

In 28 BCE Augustus opened a library on the Palatine in the temple of Apollo, which contained Greek and Latin works. The director of this esteemed institution was a grammarian and poet, a friend of Ovid, Pompey Macer. This library, called the Palatine library, was burned during the unfortunate fire in 64 CE. Then it was renovated by Domitian. However, it was again destroyed by the damaging element in 363 CE and burnt completely. It was not the only library founded by Augustus; he also founded the so-called Bibliotheca Octavia. It was located at the Porticus Octaviae in the Field of Mars. And this one, however, did not resist the destructive power of fire and burned in 80 CE. However, Domitian once again showed up and immediately ordered to renew it.

Emperor Tiberius, following in the footsteps of his father, set up a library in the temple of the Divine Augustus. This one burned in 69/70 CE. The next founder of the library was Trajan, who opened the so-called Bibliotheca Ulpia in the Trajan's Forum. Hadrian did not want to be worse and founded another one. The last library, about which creation we learn from ancient sources, was founded by Alexander Severus. During the reign of Constantine the Great, there were 28 libraries in Rome, some of them were certainly private foundations. The book collections grew

The Roman Empire

thanks to the constant protection of the rulers. Of course, there was censorship. There were times when some of the works were dragged from the libraries and burned, like the Holy Inquisition and the List of Prohibited Books.

Libraries in other cities, both in Italy and in the provinces, arose from the kindness of wealthier citizens. For example, Pliny the Younger founded the library in his hometown, Comum, at the cost of 1 million sesterces. In Suessa, in Lazio, Hadrian's mother-in-law funded the famous Bibliotheca Maridiana. Noteworthy are the libraries in Carthage and Timgad in Numidia. The last one was funded by Marcus Iulius Flavius Rogatianus (he allocated 400 000 sesterces for this good cause). Provincial libraries met the needs of local readers and in addition to Latin or Greek works also contained those written in their native languages. Unfortunately in the 4th century CE interest in reading fell. As Ammianus Marceline's writes: "libraries are like closed graves".

Riddles

In addition to games/team plays, the Romans were also passionate about guessing games such as micatio digitis. The rules were very simple: two players, holding one hand behind their backs, the other, at the beginning clenched in a fist, at the same time quickly open. The one who guessed the sum of the fingers shown by the opponent won. They also had to play with, guessing on which side the thrown coin would fall. The rules of many games popular at that time with the lack of detailed descriptions remain unknown. It is known that many of them used boards; players drew diagrams even on the steps of public buildings. These boards were to be used for games whose rules resembled draughts or chess. They often played dice, but this game was forbidden all year round, with the exception of Saturnalia, celebrated in December in honour of the god Saturn (from that time comes the custom of giving small gifts). This ban was readily exceeded; it was also done by officials responsible for law obedience and emperors. The dice was their constant pastime: with varying luck, this game played Augustus, Tiberius, Caligulia, Claudius, Nero, Vespasian, Domitian and their successors played it. As you can see, not everyone wanted to spend the otium according to Cicero's advice, ie. seeking a respite from public activities in mental effort.

Theatre performances

Theatre was not at all a common entertainment. It was possible to see there, not only theatre performances but also unusual specimens of flora and fauna. Initially, these novelties were shown during triumphal parades or performances in the amphitheatres, but later there was no further opportunity to do so: they were exhibited, for example, in public buildings. The Romans

The Roman Empire

were eager to see foreign plants, such as ebony trees or commiphora, and animals, such as tigers or twenty meters long snakes. Crowds of people gathered around public displays of exhibits, such as bones of giant animals: whales or crocodiles. Once, a great stir in Rome was caused by a tooth that was thirty centimeters long.

Although the spectator who sat in the theatre was not as well-dressed as the Greek one, all the people, including slaves, were present there. During the performance, viewers expressed their emotions and opinions. Especially mime and pantomime were highly appreciated in Rome, and the popularity of serious dramatic works ended with the republic.

Feasts

The Romans liked to feast. With time, the tendency to luxury and luxury displaced the strict customs of the ancestors, which commanded restraint also in the dining room. Feasts in wealthy homes could go on forever. They became glamorous and long, dishes – unusual and surprising; until finally, in the Roman houses appeared vomitoria – places where you could relieve the stomach, making room for the next dishes. The less affluent inhabitants of Rome visited restaurants and bars. Many delicious, ancient dishes could not be tasted today without worrying about the consequences, but then they were considered delicious and eaten willingly. In a city like Rome, restaurants and bars were often open all night: quite a large group of its inhabitants did not have a kitchen in their own houses. In restaurants divided by category, you could spend time eating, drinking wine, sitting at a game table or talking.

Education

This kind of entertainment did not satisfy the needs of intellectuals, people interested in science, literature, philosophy. As the conquests increased, interest in Greece became more and more frequent, and more frequent became also the contact with its inhabitants, slaves and free people. The Greeks were also curious about Rome and they were visiting it more and more often. It is interesting that the practical descendants of Romulus showed great interest in the views of Greek philosophers. This interest was shared by mature people and youth. It happened that young people resigned from sports training in the Field of Mars to listen to discussions about philosophy. This caused the Senate's great anxiety, which, fearing the influence of Hellenism on prevailing customs, from time to time ordered to remove Greek philosophers and speakers from the city. And yet *Graecia victa ferum victorem vicit* – "Conquered Greece, in turn, defeated its savage conqueror": under its influence in Rome begin to arise literary circles, gathering not only Romans but also Greeks. It is customary for the authors to read fragments of their works in small and closed circles, in the shadow of the porticos, in the baths, at the

The Roman Empire

emperor's home or at the home of the writer himself or at the publisher (bookseller). Fragments of poetry, historical works, tragedies and speeches were presented. Over time, many meetings with creators become public and open. In the next centuries, other literary circles were created by wealthy protectors of talented poets and writers, eg. by Gaius Maecenas, Valerius Messala Corvinus and Gneus Asinius. During the empire, each day brought a meeting with another writer. There were also people reprimanding the others for listening to the words of a poet or writer to pass the time. The author counted on discussion, criticism and comments.

Much time was spent on reading. Not every Roman having scientific and literary interests had a proper collection of works to study. The library of Cicero's publisher, the mysterious Atticus, who eagerly invited his friend to one of the suburban villas, would be able to give himself up to his scientific and literary passions without any problems. Public libraries appeared in Rome only during the empire, and the first was opened on the Palatine by Augustus. In the footsteps of the first emperor went his successors: Tiberius, Vespasian, Trajan and others; at the end of the empire in Rome there were thirty libraries.

Bread and games

Finally, it is worth mentioning that the Roman people, demanding food and entertainment, shouted the famous words "Bread and games" (Panem et circenses). It was a phrase created by the ancient Roman poet Juvenal and was later adopted by the Roman people. These demands were implemented, among others, through gladiators' games, during which coins were thrown into the crowd, or organization of public feasts for thousands of people. It also happened that bread, grain and money were given away to individuals (during the empire, a fixed amount was thus allocated to one person, in the 1st century CE it was 75 denarii); the number of those donated in this way during the reign of Augustus was about two hundred thousand. The dispensation of this type was organized by rich citizens of other cities, and its special form was maintenance funds for the orphans.

The purpose of giving away was not so much humanitarian or to calm social tensions but to gain the popularity needed in political activities. Contacts with the people were an opportunity for the emperors to get to know the moods among the society.

The most generous donors included, among others, Sulla, Julius Caesar, Pompey or Trajan. The last of these emperors is the author of the thought: "The Roman people can be kept in peace only by distributing grain and games".

The Roman Empire

Taxation in the Roman Empire

By Martin Armstrong

May 30, 2019

The Roman economy was more like the USA during the mid-19th century in that it was pre-industrial. About 80% of its inhabitants worked in agriculture, which was about where we were in 1840. There was no social agenda of trying to redistribute wealth from one class to the other. Still, there were social programs. But the socialistic agenda that was adopted by modern governments has sought not merely to redistribute wealth among the classes, but it has justified bigger government on a grand scale never before witnessed in history. The tax rate in the ancient Roman Empire was about 5% with some paying as little as 2%. The actual cost of government during the Roman Empire was minimal compared to the modern standard. The Roman Emperor Trajan (98-117 AD) formalized the *alimenta*, which was a welfare program that helped orphans and poor children throughout Italy. It provided general funds as well as food and subsidized education. The program was supported initially out of Dacian War booty, and then later by a combination of estate taxes and philanthropy. So there were programs to take care of people who needed help.

Virtually all the taxes and rents raised by the imperial government were spent on the military, which came out to be about 80% of the imperial budget in 150 AD. This military spending constituted about 2.5% of the empire's GDP. Obviously, we do not really see separatist's movement until the mid-3rd century when Valerian I (253-260 AD) was captured by the Persians. With the cost of the military coming in about 2.5%, this explains the lack of tax rebellions. The tax enforcement was nowhere near as intrusive as we see today. The US military budget comes in about 4% or twice that of the Roman Empire. The Roman Empire lasted far longer than any modern state for it seems to have been much more tolerable of a burden, whereas the U.S. military budget will be around 20% at times of total expenditure.

The primary purpose of my investigation into the monetary system of the world is very simple. The political unrest ONLY rises when there is economic tension. Turn the economy down and you will get historically civil unrest. Additionally, it is interesting to see what policies produce the best and worst results. Augustus (27-14 AD) created a real land boom as he issued a tremendous amount of coinage creating a booming economy. He was followed by Tiberius (14-37 AD) who imposed austerity and issued very little coinage by comparison. That resulted in an economic depression in 33 AD and this was in part reflected in the Jewish rebellions over taxes. Remember the story that Jesus asks whose picture is on the coin and he replies to give to

The Roman Empire

Caesar what is Caesar's? So we can see the impact of austerity throughout history to extract the best policies under which we should live to promote like Rome – Pax Romanum.

The Roman Empire

Communication across the Roman Empire

By Christina Min

The Roman Empire was so strong because they had the ability to communicate with the masses and within their own empire very well. Communication was what held the society together, through believing in common myths laws, and demonstrating a common bond passed down from generation to generation.

They communicated with their people by talking to a mass amount of the public at one time (orations) while using iconography (hand gestures) that could be read from far away, where the voice would not carry. An example of a communication hand gesture is the 'V' sign, commonly known as the peace sign in our modern society. However, in Ancient Rome, it meant the number 5, which was why '5' in Roman numerals is a 'V'. Also, the gesture with the clenched fist pressed against the chest, was used to show anger in the ancient Roman civilization.

Continuing on, another major way of communication was through writing. The Romans introduced writing to the Northern Europe for the first time, and the Latin alphabet is still used there. However, in Ancient Rome, there were only 22 letters in the alphabet. Millions of texts were written, from great stone inscriptions to private letters scrawled on wax tablets, and from elegant poems and histories on papyrus scrolls, to trade accounts scratched on broken pots.

Furthermore, the Ancient Romans also developed a postal service called *curtus publicus*, to aid the governors of distant provinces in communicating with the citizens. This postal system, *curtus publicus*, means 'state runners service', and delivered the messages in a relay system. These relay stages were established at convenient distances along the great roads of the empire, forming a vital part of Ancient Rome's military and administrative system.

The Roman Empire

Art of the Roman Empire

By Mark Cartwright

September 1, 2017

The Romans controlled such a vast empire for so long a period that a summary of the art produced in that time can only be a brief and selective one. Perhaps, though, the greatest points of distinction for Roman art are its very diversity, the embracing of art trends past and present from every corner of the empire and the promotion of art to such an extent that it became more widely produced and more easily available than ever before. In which other ancient civilization would it have been possible for a former slave to have commissioned his portrait bust? Roman artists copied, imitated, and innovated to produce art on a grand scale, sometimes compromising quality but on other occasions far exceeding the craftsmanship of their predecessors. Any material was fair game to be turned into objects of art. Recording historical events without the clutter of symbolism and mythological metaphor became an obsession. Immortalizing an individual private patron in art was a common artist's commission. Painting aimed at faithfully capturing landscapes, townscapes, and the more trivial subjects of daily life. Realism became the ideal and the cultivation of a knowledge and appreciation of art itself became a worthy goal. These are the achievements of Roman art.

Roman art has suffered something of a crisis in reputation ever since the rediscovery and appreciation of ancient Greek art from the 17th century CE onwards. When art critics also realized that many of the finest Roman pieces were in fact copies or at least inspired by earlier and often lost Greek originals, the appreciation of Roman art, which had flourished along with all things Roman in the medieval and Renaissance periods, began to diminish. Another problem with Roman art is the very definition of what it actually is. Unlike Greek art, the vast geography of the Roman Empire resulted in very diverse approaches to art depending on location. Although Rome long remained the focal point, there were several important art-producing centers in their own right who followed their own particular trends and tastes, notably at Alexandria, Antioch, and Athens. As a consequence, some critics even argued there was no such thing as 'Roman' art.

In more recent times a more balanced view of Roman art and a wider one provided by the successes of archaeology have ensured that the art of the Romans has been reassessed and its contribution to western art in general has been more greatly recognized. Even those holding the opinion that Classical Greek art was the zenith of artistic endeavor in the west or that the Romans merely fused the best of Greek and Etruscan art would have to admit that Roman art is

The Roman Empire

nothing if not eclectic. Inheriting the Hellenistic world forged by Alexander the Great's conquests, with an empire covering a hugely diverse spectrum of cultures and peoples, their own appreciation of the past, and clear ideas on the best way to commemorate events and people, the Romans produced art in a vast array of forms. Seal-cutting, jewellery, glassware, mosaics, pottery, frescoes, statues, monumental architecture, and even epigraphy and coins were all used to beautify the Roman world as well as convey meaning from military prowess to fashions in aesthetics.

Artworks were looted from conquered cities and brought back for the appreciation of the public, foreign artists were employed in Roman cities, schools of art were created across the empire, technical developments were made, and workshops sprang up everywhere. Such was the demand for artworks, production lines of standardized and mass produced objects filled the empire with art. And here is another factor in Rome's favor, the sheer quantity of surviving artworks. Such sites as Pompeii, in particular, give a rare insight into how Roman artworks were used and combined to enrich the daily lives of citizens. Art itself became more personalized with a great increase in private patrons of the arts as opposed to state sponsors. This is seen in no clearer form than the creation of lifelike portraits of private individuals in paintings and sculpture. Like no other civilization before it, art became accessible not just to the wealthiest but also to the lower middle classes.

Roman Sculpture

Roman sculpture blended the idealized perfection of earlier Classical Greek sculpture with a greater aspiration for realism and mixed in the styles prevalent in Eastern art. Roman sculptors have also, with their popular copies of earlier Greek masterpieces, preserved for posterity invaluable works which would have otherwise been completely lost to world art.

The Romans favored bronze and marble above all else for their finest work. However, as metal has always been in high demand for reuse, most of the surviving examples of Roman sculpture are in marble. The Roman taste for Greek and Hellenistic sculpture meant that once the supply of original pieces had been exhausted sculptors had to make copies, and these could be of varying quality depending on the sculptor's skills. Indeed, there was a school specifically for copying celebrated Greek originals in Athens and Rome itself. Roman sculptors also produced miniaturized copies of Greek originals, often in bronze, which were collected by art-lovers and displayed in cabinets in the home.

Roman sculpture did, however, begin to search for new avenues of artistic expression, moving away from their Etruscan and Greek roots, and, by the mid-1st century CE, Roman artists were

The Roman Empire

seeking to capture and create optical effects of light and shade for greater realism. The realism in Roman portrait sculpture and funerary art may well have developed from the tradition of keeping realistic wax funeral masks of deceased family members in the ancestral home. Transferred to stone, we then have many examples of private portrait busts which sometimes present the subject as old, wrinkled, scarred, or flabby; in short, these portraits tell the truth. By later antiquity, there was even a move towards impressionism using tricks of light and abstract forms. Sculpture also became more monumental with massive, larger-than-life statues of emperors, gods, and heroes, such as the huge bronze statue of Marcus Aurelius on horseback now in the Capitoline Museum, Rome. Towards the end of the Empire, sculpture of figures tended to lack proportion, heads especially were enlarged, and figures were most often presented flatter and from the front, displaying the influence of Eastern art.

Sculpture on Roman buildings and altars could be merely decorative or have a more political purpose. For example, on triumphal arches the architectural sculpture captured in detail key campaign events, which reinforced the message that the emperor was a victorious and civilizing agent across the known world. A typical example is the Arch of Constantine in Rome (c. 315 CE) which also shows defeated and enslaved 'barbarians' to ram home the message of Rome's superiority. Such a portrayal of real people and specific historical figures in architectural sculpture is in marked contrast to Greek sculpture where great military victories were usually presented in metaphor, using figures from Greek mythology like amazons and centaurs such as on the Parthenon. Altars could also be used to present important individuals in a favorable light. The most famous altar of all is the Ara Pacis of Augustus (completed 9 BCE) in Rome, a huge block of masonry which depicts spectators and participants at a religious procession. It seems as though the figures have been captured in a single moment as in a photograph, a child pulls on a toga, Augustus' sister tells two chatterers to be silent, and so on.

Roman Wall Paintings

The interiors of Roman buildings of all description were very frequently sumptuously decorated using bold colors and designs. Wall paintings, fresco, and the use of stucco to create relief effects were all commonly used by the 1st century BCE in public buildings, private homes, temples, tombs, and even military structures across the Roman world. Designs could range from intricate realistic detail to highly impressionistic renderings which frequently covered all of the available wall space including the ceiling.

Roman wall painters (or perhaps their clients) preferred natural earth colors such as darker shades of reds, yellows, and browns. Blue and black pigments were also popular for plainer

The Roman Empire

designs, but evidence from a Pompeii paint shop illustrates that a wide range of color shades was available. Subjects could include portraits, scenes from mythology, architecture using trompe-l'oeil, flora, fauna, and even entire gardens, landscapes and townscapes to create spectacular 360° panoramas which transported the viewer from the confines of a small room to the limitless world of the painter's imagination. An outstanding example is the 1st century BCE House of Livia on the Palatine hill in Rome which includes a 360° panorama of an impressionistically rendered garden. The scene runs around one room and completely ignores the corners. Another splendid example is the 1st century CE private villa known as the House of the Vettii in Pompeii.

As the art form developed, larger-scale single scenes which presented larger-than-life figures became more common. By the 3rd century CE one of the best sources of wall painting comes from Christian catacombs where scenes were painted from both the Old and New Testament.

Roman Mosaics

Roman mosaics were a common feature of private homes and public buildings across the empire from Africa to Antioch. Mosaics, otherwise known as *opus tessellatum*, were made with small black, white, and coloured squares of marble, tile, glass, pottery, stone, or shells. Typically, each individual piece measured between 0.5 and 1.5 cm but fine details, especially in the central panel (*emblemata*) were often rendered using even smaller pieces as little as 1mm in size. Designs employed a wide spectrum of colours with colored grouting to match surrounding *tesserae*. This particular type of mosaic which used sophisticated colouring and shading to create an effect similar to a painting is known as *opus vermiculatum*, and one of its greatest craftsmen was Sorus of Pergamon (150-100 BCE) whose work, especially his Drinking Doves mosaic, was much copied for centuries after.

Popular subjects included scenes from mythology, gladiator contests, sports, agriculture, hunting, food, flora and fauna, and sometimes they even captured the Romans themselves in detailed and realistic portraits. One the most famous Roman mosaics today is one from the House of the Faun, Pompeii, which depicts Alexander the Great riding Bucephalus and facing Darius III on his war chariot. Not just floors but also vaults, columns, and fountains were decorated with mosaic designs too.

Roman mosaics artists developed their own styles, and production schools were formed across the empire which cultivated their own particular preferences - large-scale hunting scenes and attempts at perspective in the African provinces, impressionistic vegetation and a foreground observer in the mosaics of Antioch, or the European preference for figure panels, for example.

The Roman Empire

The dominant (but not exclusive) Roman style in Italy itself used only black and white tesserae, a taste which survived well into the 3rd century CE and was most often used to represent marine motifs, especially when used for Roman baths. Over time the mosaics became ever more realistic in their portrayal of human figures, and accurate and detailed portraits became more common. Meanwhile, in the Eastern part of the empire and especially at Antioch, the 4th century CE saw the spread of mosaics which used two-dimensional and repeated motifs to create a 'carpet' effect, a style which would heavily influence later Christian churches and Jewish synagogues.

Minor Arts

The minor arts of ancient Rome were wide and varied; illustrating in many cases the Roman love of finely worked precious materials with detail and often miniaturized designs. They included jewellery of all kinds, small gold portrait busts, silverware such as mirrors, cups, plates, figurines etc., gem-cutting and engraving, sardonyx cameos, seals, vessels and ornaments in cut-glass, inlaid, gilded or enameled bronze vessels, carved and engraved ivories, fine decorated pottery, plaques for addition to furniture, elements of military uniforms and weapons, medallions, coins, terracotta oil lamps, embroidered Tyrian purple cloth, and illustrated books. Subjects of decoration included the imperial family, private individuals, mythology, nature, and such standard motifs as geometrical shapes, acanthus leaves, vines, meanders, rosettes, and swastikas. Works are often signed by the craftsman, who may be foreign or Roman.

Items of silverware and carved gems were especially appreciated and frequently collected by those Romans who could afford them. Kept in the home, they would, no doubt, have been shown to admiring visitors and used as conversation pieces. The Roman love for intricately detailed and tiny carvings on gems counters the traditional view that Roman art was preoccupied with all that was massive and inelegantly bulky. Signet rings, a symbol of family pride and an important method of signature along with seal-stones, were, like gemstones, carved using small drills with a diamond point or lap-wheel which were rotated using a horizontal bow on the shaft. Cornelian and onyx seem to have been the material of choice for more functional items, but sapphires and aquamarine are amongst the more precious gems the Romans imported from such far-flung places as India.

Roman jewellers were especially skilled in their craft. Learning from those who had gone before, they employed the full range of metalworking skills such as gilding, granulation, repoussé, inlay, open-work etc. Rings, necklaces, bracelets, brooches, buckles, earrings, pendants, anklets, and hair nets were all produced in precious metals, often with extraordinary

The Roman Empire

detail and craftsmanship. As time went on, jewellery generally became heavier and more flashy and was by no means limited to women's dress.

Legacy

In many ways, the Romans continued and perpetuated the arts of earlier civilizations, but as the art historian Martin Henig here summarises, their artistic efforts came to much more than that:

Roman achievement...totally belies the philistine reputation that has been popularly ascribed to ancient Rome. Inheriting the Greek traditions, Roman craftsmen continued to innovate, and their work never ceases to astonish us by its delicacy of form. (Henig, 165)

Contributions from Roman art to the general development of western art include a determination to record actual historical events; wall paintings in different styles which captured the architecture of the day, natural views or still life - including people and ordinary objects which were rarely previously depicted in art; and realistic portraiture of humble citizens. None of these was wholly new in art but the Romans, as in so many other fields, pushed the possibilities of an idea to its limits and beyond.

By the end of the Roman period new ideas in art were developing and would continue to do so, but Roman art would have a lasting effect on all who followed, not least in medieval Christian art and drawings on manuscripts. Perhaps, though, their greatest contribution to world art was the fostering of the idea that the appreciation of art for its own sake was a fine thing and that to possess art objects or even a collection was a real badge of one's cultural sophistication. In addition, even for those who could not afford their own art, there was the provision of public art galleries. Art was no longer the exclusive domain of the rich, art was for anyone and everyone. The Romans, like no other culture before them, were champions of art as a popular, affordable, and accessible means of expressing and communicating the human spirit.