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History of Science in Latin America

Mayan and Aztecs: Civilization, culture, and Legacy

The Mayan civilization was one of the most advanced and influential cultures of pre-Columbian Mesoamerica. They are known for many different things and we have seen a long lasting impact of their civilization. They are highly known for their remarkable achievements in art, architecture, mathematics and astronomy. The Mayan civilization emerged around 1500 BCE, they developed into a highly sophisticated society that spanned modern day Mexico, Guatemala, Belize, Honduras, and El Salvador. When the Mayans first settled they settled in villages and developed their agriculture based off of corn, beans, and squash. The Mayans were very religious, they worshiped many different gods, and their gods were associated with many different things. Some of these included nature, and celestial events. Their civilization was very passionate about their religion and often their rituals included human and animal sacrifices, and even bloodletting. The act of bloodletting is when they would pierce a part of their body, most commonly done in the tongue. The blood was then scattered or collected and was burned. The act of burning blood represented the transferring of the offering to the gods, the smoke was the 'offering' that was then transported to the gods. The Mayans also made significant advancements in writing, created one of the most complex hieroglyphic systems of the ancient world, and developed their own intricate calendars based on their precise understanding of astronomy. When it comes to architecture, that is one of the things that the Mayans are known for as well, because their cities featured impressive stone pyramids, temples, and observatories, some of these that are

still standing today. Although the Mayan civilization was very successful, they faced periods of decline due to environmental challenges, internal conflicts and societal strain.

The exact origins of the Aztec people are unknown but many people believe that the Aztecs began as a northern tribe of hunter gatherers who came from their homeland Aztlan, which means “White Land” in the traditional language of the Aztecs which was Nahuatl. The Aztec civilization was also a very powerful and highly organized society that flourished in central Mexico during the 14th to 16th centuries. They were known for their very strong military, impressive architecture, and complex social and religious systems. The Aztecs were known as a nomadic culture, which means that their way of living is that they move from place to place and do not stay in one area for long periods of time. This could be for a variety of different reasons. Some of these are, obtaining food, finding a good area for livestock or just finding a different way to make a living. The Aztecs found a spot they wanted to live in, these were several small islands in Lake Texcoco where in 1325 they founded their town of Tenochtitlan. There is also a story behind the findings of the Lake Texcoco, apparently the aztecs saw an eagle perched on a cactus and they took it as a sign to build right there, where they created artificial islands. It is not 100% confirmed that this is how they found the land, but one of many very interesting stories surrounding the Aztecs. This city grew into one of the largest and most sophisticated urban centers in the world at the time, it featured advanced infrastructure for the time like aqueducts, canals and temples. The Aztecs are one of the most extensively documented civilizations at the time of European contact in the 16th century. Like the Mayans the Aztecs also faced their own set of problems, one of the biggest problems being illness. One of the illnesses like the European diseases like smallpox, was something that ultimately led to the fall of Tenochtitlan and the collapse of the Aztec empire. Despite facing their own set of challenges, the Aztec legacy lives

on through modern Mexican culture, through contributions to art, language and the history of the Aztecs remains deeply influential.

Mentioned earlier in this essay the Mayan civilization began around 1500 BCE with the establishment of early agricultural communities across the fertile lowlands of Mesoamerica. These settlements relied on farming and the things that they planted were maize, beans, squash, and cacao laying the foundations for a strong and stable society. This not only became a huge part of their diet but it also influenced trade. Over time these small tiny villages grew into more complex communities, and eventually developed into city states that were governed by hierarchical social structures with kings, nobles, and priests at the top. The very beginning of agriculture began in what is called the early preclassic period. This is seen through the process of annual burnings, which increased the grass in the area and showed indication of human intrusions. Some things that are also associated with this phase were ceramics and household architecture, the time period roughly defined as 2000-1000 BC. There is not much known about the period at this time, but the earliest evidence in the Maya area was found in a site of Cuello, in northern Belize. The people who were from northern Belize began to grow maize, fruits, cacao and a selection of different types of crops with roots. Although most of their diet was supplied by these domesticated crops, they still depended on the importance of the land and the waters. Hunting, fishing and planting crops provided an important part for the first Maya. The middle preclassic dates were between 1000 BC and 300 BC. Many things from this time were recognized archaeologically across most of the Maya area. The things that were found showed that the Maya moved from the coast, up to the river valleys. The houses were very widespread and the communities were still rather small, but there was very little in the way of public architecture. Northern Belize was featured at this time along with many different sites, like Cuello, Cerros,

Nohmul and Lamani show evidence of building activity. The late preclassic period had the most activity in comparison to the other time periods.

The classical period marked the height of the Mayan civilization. It was mostly characterized by the flourishing of the independent city states such as Tikal, Calakmul, Copan and Palenque. Each city state was ruled by a king who claimed his authority. These city states were connected through extensive trade networks that exchanged many different types of goods. Mayan architecture reached its peak during this specific period, with the construction of many monumental pyramids, places and observatories and even ball courts. Many of the things found during this period reflected on the different political, societal and religious history of the Maya. The way that there is so much information on political, societal and religious history is because of the altars and the stelae that the Mayans created. Altars were elevated structures that were used for religious rituals and offerings. This is something not just seen in Mayan culture but even in many different cultures as well. They also served as something that was used for ceremonies, they were often carved into and these carvings were the reason why there is so much information about the Mayan culture. Stelae were similar because they were monuments that were tall sculpted stone shafts, but they were also associated with altars.

The Aztecs were also known as the Mexica. They were considered latecomers to Mesoamerican civilization, and did not really emerge as a dominant power until the 14th century. Originally a nomadic Chichimec group from northern Mexico, they arrived in Mexico around the 12th century CE. Since they were nomads they liked to travel from place to place and only settle in places for short amounts of time, their migration was guided by religious beliefs and particularly a prophecy that their patron god , Huizilopochtli, would lead them to a promised land where they would establish a strong and powerful empire. When the Aztecs entered the

valley of Mexico, the region had already been populated by different older civilizations such as the Toltecs. Despite the Aztecs' low status, they quickly adapted to the region's cultural and political systems, forming different alliances and gaining military expertise and training.

Although the Mayans were very successful, ultimately all good things come to an end. The Mayan civilization experienced a decline in two different time periods. The classical period collapse 800-1000 CE and the postclassic period collapse 1500-1700 CE. There were several different factors that contributed to the decline of the Mayan civilization. They faced many different types of environmental challenges. They were faced with deforestation and soil degradation, agriculture and urban expansion led to widespread deforestation, which contributed to the soil degradation and it lost all of its good nutrients, and this led to the decline in good high quality crops. They were also faced with droughts, paleoclimate data indicated that prolonged droughts struck the region during critical periods, straining water resources and agricultural production. They also faced internal warfare, there was an increased amount of conflict, evidence from archeological sites point to heightened warfare among city states, based off evidence they most likely were competing for resources and political dominance. There was also a disruption of trade routes, which caused widespread conflict, and trade routes were vital for the exchange of goods and cultural cohesion. The Spanish Conquest 16th-17th centuries, although much of the Maya civilization had already declined by the time of European arrival, Spanish colonization marked the final collapse, bringing things like diseases, forced labor and cultural suppression that destroyed remaining Maya societal structures.

The fall of the Aztec Empire happened very quickly in comparison to the Mayans. It happened in the 16th century, marked by Spanish conquest led by Hernan Cortes between 1519 and 1521. Hernan Cortes was born in 1485 in Medellin, Spain. He was born into a family that

was of a modest nobility. In 1519, Cortes led an expedition to mainland Mexico under orders from the Governor of Cuba, Diego Velazquez. Although initially meant for exploration and trade, Cortes disobeyed orders and aimed to conquer the Aztec Empire. He had a couple of key events that happened during this expedition. He made alliances with indigenous groups, and he began to communicate with groups that did not approve of what the Aztecs were doing. These alliances were a very important part of his expedition because they indigenous groups provided thousands of warriors to aid his campaign. These alliances were a pivotal part of the Journey of his exploration because the Aztecs had many enemies due to their tributary system and their practices for example human sacrifice and other rituals. At the beginning of this Expedition Cortez entered the capital Tenochtitlan the Aztec capital in November 1519. The Aztec empire Montezuma II additionally welcomed the Spaniards and for some reason believed that Cortez was linked to one of their gods. Montezuma ultimately built trust with Cortez and Cortez later disobeyed his trust and captured him and used him as a puppet to control the empire this strategy ultimately failed. The rest of the Spanish Conquest unfolded through a combination of different things for example, military actions, alliances and opportunistic exploitation of the internal Aztec weakness. One of the most important parts of the conquest was La Noche Triste also known as the Night of Sorrows. In June 1520 the Spanish were forced to flee their Capital after a major Uprising by the Aztecs many Spaniards and their allies were killed during their retreat. The smallpox epidemic, introduced to the Americas by the Spaniards, was one of the most catastrophic factors that played into the fall of the Aztec empire. This deadly disease, unknown in the Americas before European contact wreaked havoc upon the indigenous population causing many of them to catch this illness. The disease likely arrived in Mexico around 1520, brought by a member of the Spanish Expedition who carried the virus from Europe. Smallpox is highly

contagious and can spread rapidly through contact with infected individuals, clothing, or body fluids. The dense urban population of the Aztec empire particularly in Tenochtitlan ideal conditions for the virus to spread. Since this disease was able to spread very quickly it had very devastating effects. The epidemic killed thousands of Aztecs including Cuitlahuac, who was Montezuma II's successor as emperor. Mortality rates were extraordinarily high because the indigenous population had no prior exposure to smallpox which meant that they had no immunity to the disease. Some estimates suggest that up to 40% of the population in certain areas fell to this disease within a short amount of time. Since the disease was able to spread so quickly and so rapidly this caused a social collapse, entire families were wiped out, and the communities were devastated. This undermined the social political structures of the Aztec empire as laborers, farmers, warriors, and even their leaders died in large numbers. Although some Aztecs did survive this terrible disease, survivors were often too weak to even tend to a few crops or even maintain infrastructure, this led to food shortages and this caused the Aztec empire to weaken even further as a society. Disease also had a psychological impact on the Aztecs, since the disease came so fast and spread so quickly the scale of the epidemic led many Aztecs to believe that the gods had abandoned them which lowered their morale. This disease coincided with other disasters, such as military defeats and the destruction of their capital, which further reinforced the belief that their civilizations were doomed and that was the plan from the gods. The smallpox epidemic in the Aztec empire was an early example of how European diseases devastated many different indigenous populations across the americas. is set the stage for similar outbreaks during different conquests and Amplified the destructive impact of colonization. The smallpox epidemic in Mexico not only played a factor in the fall of the Aztecs but also highlighted some consequences that happened due to the contact between the old world and the

new world. In 1521, Hernan Cortez returned to the capital of the Aztecs after an earlier failed attempt to take the city at this time he came with a larger army, including thousands of indigenous allies who dislike the Aztecs and wanted to see them defeated this siege lasted several months and involved fierce fighting and immense suffering. Tenochtitlan was located on an island in the middle of a lake, it was hard to attack. To weaken the Aztecs, Cortes used boats and land forces to block supplies of food and water. This caused a cutoff to fresh supplies, the people in the city began to starve and suffer from thirst. The army that Cortes brought was very violent and attacked on all sides, which broke the raised roads that connected the island to the mainland. The Aztecs fought back bravely, and they were led by their ruler. Unfortunately they were outnumbered, and lacked the advanced weapons that the Spanish had, such as guns and cannons. Smallpox had already done tons of damage to the Aztec empire and had already weakened the city's population before the siege began. Many people were too sick to fight, and starvation made things worse. Corpses piled up in the streets, and the city became a place of immense suffering. After about 80 days of siege, the Spanish and their allies finally broke into the heart of the city. The Aztec warriors made a last stand and tried to fight back but were overwhelmed. On August 13, 1521, Cuauhtemoc was captured and it marked the end of the Aztec empire.

When it comes to religion both civilizations worshiped a wide range of gods and believed these deities controlled natural forces and human destiny. The Maya and The Aztecs both had gods that were associated with nature, such as rain, maize (corn), the sun, and the earth. These gods were vital to agricultural success and survival. For example, the Mayan rain god Chaac and the Aztec rain god Tlaloc were believed to control rainfall and fertility. Both cultures thought that it was very important to focus on the movements of celestial bodies, such as the sun, the

moon, and the stars. These were seen as divine forces, guiding times, seasons and human activity. The sun god held a special place in both pantheons, as sunlight is essential for crops and life. Although the Aztecs and the Mayans had some similarities when it came to their religion they also had their differences as well. The Mayans were deeply fascinated by the concept of time and its cycles. Their religion focused closely and was tied to their advanced knowledge of astronomy and their intricate calendar systems. They believed that time was cyclical with events repeating and predictable patterns influenced by the god and celestial movements, rituals and ceremonies were conducted to align with significant dates in the calendar to ensure harmony with the cosmos. Mayan religion had an emphasis on creation myths; there were stories found in the *Popol Vuh*, which describes the creation of humans and the origins and stories of their gods. Both the Aztec and the Mayans practiced human sacrifice, but the Aztecs placed a stronger emphasis on war and human sacrifice in their religious practices. They believed that the sun god, Huitzilopochtli, required human blood to sustain his journey across the sky and ensure the continuation of life. Warfare was seen as sacred duty to the Aztecs and wanted to capture prisoners for sacrifice which was a primary motivation for the empire's expansion. Mayans often used a cenote to do their sacrifices, “Recent archaeological studies in several cenotes in Yucatan Peninsula painted a grim picture of this ancient practice when several human skeletons were discovered inside the water-filled sinkholes in Chichen Itza along with other items such as pottery, jewelry, textiles and weapons. Scientists believe that the skeletons belong to people who were cast inside the cenotes to appease their ancient rain deity known as Chaak.” (Chepkemai, Ancient Mayan Sacrificial Sites, 2019.)

The Aztec and the Maya both built very large temples and pyramids as sacred spaces to worship their gods. They both did ritual offerings that included food, incense, and often human

sacrifices. They were common in both religions to honor their gods and maintain a balance in the universe. However, the scale and the focus of the sacrifices differed, with the Aztecs conducting them more frequently and on a larger scale than the Mayans. The religious beliefs of the Maya and the Aztecs have had a long lasting impact. It continues to influence modern-day traditions and cultural identity in mesoamerica. Many of their deities, myths, and rituals are still remembered and celebrated within contemporary mexican and central american cultures. Like mentioned earlier in this text Mayans and Aztecs both constructed monumental architecture to serve as religious and ceremonial centers. These structures were not just functional spaces but they served a bigger meaning and were symbolic representations of their religious beliefs, cosmology, and political power. Mayan pyramids were among the most iconic structures recognized in mesoamerica, they served as temples, tombs and creational platforms. The most famous pyramid at Chichen Itza is El Castillo, a step pyramid dedicated to the feathered serpent god Kukulcan.

This pyramid is an astronomical advancement, the play of the sunlight and the shadow creates an illusion of a serpent slithering down the steps, symbolizing the descent of the god to earth. The Mayans were also advanced astronomers, they had observatories that they built, that was central to their sacred architecture. Structures like the Caracol at Chichen Itza Were designed to track Celestial movements, including the paths of the sun, the moon, venus, and other stars. observatories were essential for determining the timing of religious ceremonies and rituals and it also helped with creating their intricate calendars. The Mayan pyramids were believed to have represented mountains, which were believed to be sacred and a point of connection between the Earth, the sky, and underworld. Their steep steps symbolized the difficult journey towards enlightenment and communion with the gods. Aztec temples, or *teocallis* were often pyramidal

structures that were designed with flat tops that the Aztecs were able to go on top of and perform religious sacrifices and rituals. Templo Mayor was one of the most important religious and ceremonial sites of the Aztec empire, it was located in their capital in the heart of Tenochtitlan. It was a double pyramid with two different shrines on top and each one of them was dedicated to a different God. One was dedicated to the god of war and the sun Huitzilopochtli, and the other was dedicated to the god of rain and fertility, Tlaloc. The temple symbolizes the center of the universe, and its construction was aligned with different significant astronomical events. Archaeological excavations have uncovered different sculptures offerings and different depictions of deities, which shed light on the many different Aztec religious practices and ceremonies. The Aztecs also used something that was like a floating garden (chinampas) around Tenochtitlan also had a spiritual aspect, reflecting their ability to adapt nature to their religious and agricultural needs. Both civilizations used pyramid style architecture as central points of worship and power. Temples were designed with steep steps to elevate the rituals and symbolize closeness to the gods. They both reflected on an advanced understanding of astronomy, aligning their structures with celestial movements to mark important dates. Some of the key differences were that the Maya focused more on agricultural alignment with phenomenal and the cycle nature of time, reflecting their deep interest in the cosmos. The Aztecs, while also astronomical, emphasized temples as stages for large-scale sacrifices, particularly to sustain their gods and ensure the survival of their civilization. These structures for both cultures remind us of the powerful connection between religion, art, and science in Mesoamerican history. The Maya and Aztecs had rich and complex beliefs about the universe, time, and the gods. Both cultures saw the world as guided by powerful forces, with time and existence unfolding in cycles. Their cosmology shaped how they understood life, nature, and the role of humans in keeping the

universe balanced. The Maya believed time was a repeating cycle, and not a straight line. They thought events were part of a larger cosmic order, influenced by the movements of the sun, moon, and stars. The long count calendar, this system tracked time across thousands of years and marked key historical and cosmic events. The Tzolk'in and Haab' calendars, the maya also used two shorter calendars. One was for religious ceremonies (260 days) , and the other for daily life (365 days). Together, they formed a 52- years cycle that was important for rituals and planning. The Mayans believed that each day had its own energy, and that energy was influenced by the gods. Their rulers performed ceremonies based on these cycles to maintain harmony between the heavens and the earth. The Aztecs believed that the world had been created several times before their current era. These cycles were called the "Five Suns," each ruled by a god and ending in disaster. The first four worlds ended in catastrophes like floods, windstorms, or jaguar attacks. The current era, the Fifth Sun, is ruled by the god Huitziopochtli, the god of war and the sun. The Aztecs believed this sun would end in an earthquake. The Aztecs believed they needed to nourish the sun with human sacrifices to keep it moving across the sky. Without these offerings, they feared the sun would stop, and the sun stopping meant that the world was going to end. The Mayan and the Aztec cosmologies reflect their deep connection to nature and the cosmos. These beliefs continue to influence modern mesoamerican culture, reminding us of the creativity and complexity of these ancient civilizations.

Women played essential roles in both Mayan and Aztec societies, contributing to family life, agriculture, religion, and cultural tradition. While both societies were largely patriarchal, women had very specific responsibilities and opportunities that shaped the structure and survival of their communities. In Mayan society, women were respected for their roles in maintaining households and families. Elite women sometimes held positions of power, acting as rulers or

advisors in rare cases. Most women lived as farmers, artisans, or weavers, contributing to the economy and supporting their families. women were responsible for things like preparing food, weaving textiles, and managing the household. the processed corn, which was a staple of the Mayan diet, by grinding it into flour for tortillas or tamales. Women often helped with small-scale farming and cared for gardens which provided essential fruits that were a part of their diet like fruits, vegetables and herbs. Women participated in religious ceremonies, especially in roles involving food preparation and offering sacrifices. Some women participated in religious rituals, especially those dedicated to fertility and childbirth. Some elite women were depicted in Mayan art performing rituals or holding sacred objects, suggesting a connection to the spiritual world. Aztec women had defined roles within their society. While men dominated leadership and warfare, women had significant influence in family life, religious practices, and the economy. Like Mayan women, Aztec women were responsible for household tasks. They played a critical role in agriculture by managing chinampas and growing crops. Women in both civilizations were skilled weavers, producing cloth for clothing, trade, and religious offerings. Women were seen as central to the continuation of their societies, responsible for raising children and passing down cultural traditions. Despite living in patriarchal systems, women in Mayan and Aztec societies contributed significantly to the survival and success of their communities. Their role in mayan life was a contribution and was celebrated as a part of the rich of mesoamerican history.

Writing was Central to the cultural identity of both the Maya and the Aztecs, serving as different tools like communication, religious expression, and the preservation of history. While the Maya are renowned for their hieroglyphic writing and detailed writings, the Aztec made significant contributions through their pictographic scripts and monumental artworks. The Maya

developed one of the most sophisticated writing systems in the ancient world, consisting of hieroglyphics that combined different repeating sounds and logograms which represented whole words or ideas. Their writing was used to record different historical events, religious rituals and myths and achievements of different rulers. Hieroglyphics were mostly seen carved into stone mountains, painted on pottery and written in books made from tree bark paper. Mayan art is known for its intricate details, use of vibrant colors, and different symbolic meanings. common themes were religious rituals, deceptions of god, rules, and many different celestial events. The artworks that they made were tied to their calendar and cosmology. carved Stone monuments, often depicted kings, gods, and historical events, accompanied by hieroglyphic inscriptions.

When it comes to Aztecs and their type of writing the Aztecs use a pictographic writing system, which relies on different images and symbols rather than a true alphabet. These pictographs represented concepts, names, or events but were not fully phonetic like Mayan hieroglyphics. These codices recorded history, genealogies, tributes, laws, and religious ceremonies. They also served a different purpose as instruction manuals for priests and rulers. These different writing systems both had key differences. The Mayans developed more of a phonetic writing system capable of recording spoken language in detail. The Aztecs relied on pictographs and symbols that conveyed concepts but were not as precise as the Maya. The Mayan and the Aztec art and writing remain some of the most significant achievements from the mesoamerican cultures. The Mayans hieroglyphics and codices demonstrate their intellectual sophistication. The Aztec codices and Monumental art reflect their dynamic society, with its emphasis on ritual, warfare, and tribute. Together all these traditions continue to tell stories of the Mayan and Aztec history and culture.

To summarize some of the key points of the Maya and the Aztec civilizations, while sharing some commonalities as influential Mesoamerican cultures, they had distinct characteristics and governance, religion, society, and their responses to conquest. Exploring these aspects highlights their complexities and achievements, as well as enduring their legacy. Both societies were hierarchical and ruled by elites, with rulers considered intermediaries between gods and humans. Religious and military leaders held significant power in shaping policies and society. local city-states or regions often separated semi-independently, especially for the Maya. Both civilizations were polytheistic, worshiping numerous different gods and those gods had different meanings like being connected to nature, the sun, and agricultural cycles. There was some differences throughout the cultures as well, the Maya were organized into city-states with each its own ruler. The Aztecs on the other hand developed more of a unified empire, with a capital at the center, ruled by a single emperor who controlled vast territory through military power and tribute. The conquest of the Maya and the Aztecs highlight the resilience of indigenous cultures despite the profound and large impacts of colonization. Their stories each taught us about adaptation, survival and the ongoing efforts to preserve cultural heritage and history.

Studying the Maya and Aztec civilizations is vital for understanding the complexity and the diversity of pre-columbian societies. These cultures were not just stepping stones to modern history but they were advanced societies that excelled in governance, art, science, and religion which is something that should be recognized till this day. They remind us of the humanities capacity for Innovation and the consequences of different cultural encounters through conquest or colonization. By learning about the Maya and the Aztecs beginning deeper appreciation for the rich history of the Americas and the enduring

influence these civilizations have had on the world today even though it could be easily forgotten about.

Resources

“Aztec Language and Writing.” *HISTORY CRUNCH - History Articles, Biographies, Infographics, Resources and More*,

www.historycrunch.com/aztec-language-and-writing.html. Accessed 5 Dec. 2024.

“Preclassic Period.” *Welcome*,

www.marc.ucsb.edu/research/maya/ancient-maya-civilization/preclassic-period. Accessed 5 Dec. 2024.

“Cult of the Cenote.” *Wikipedia*, https://en.wikipedia.org/wiki/Cult_of_the_Cenote. Accessed 5 December 2024.

“Discover The Differences Between The Mayans and Aztecs.” *World Atlas*, 23 September 2023, <https://www.worldatlas.com/history/discover-the-differences-between-the-mayans-and-aztecs.html>. Accessed 5 December 2024.

“Huitzilopochtli | Aztec God of War & Sun Worship.” *Britannica*, 23 October 2024, <https://www.britannica.com/topic/Huitzilopochtli>. Accessed 5 December 2024.

VanDerwarker, Amber. "Popol Vuh | Mayan mythology, creation story, sacred text." *Britannica*, <https://www.britannica.com/topic/Popol-Vuh>. Accessed 5 December 2024.

"Cult of the Cenote." *Wikipedia*, https://en.wikipedia.org/wiki/Cult_of_the_Cenote. Accessed 5 December 2024.

"The Cenotes Of Mexico: Ancient Mayan Sacrificial Sites." *World Atlas*, <https://www.worldatlas.com/articles/the-cenotes-of-mexico-ancient-mayan-sacrificial-sites.html>. Accessed 5 December 2024.