

Theory #1: Warfare

For many years archaeologists believed the Mayans to be a nonviolent, peaceful, and gentle people. However, we now know that Mayan warfare was intense and ongoing. Too, many records indicate that Mayan warfare was ongoing and likely irresolvable, since they frequently fought against the same enemy. WFO?

Archaeological records show that wars became more intense and frequent around 800 CE. Evidence for this comes from discoveries of several types. First, archaeological excavations have turned up massive fortifications surrounding many Mayan sites. What do you think, detective? Why would a peaceful and pacifist society need such massive walls around their city? Second, a great variety of Mayan stone monuments, ceramics, and paintings depict warfare and the taking of slaves. Finally, archaeologists have been able to decipher the Mayan system of writing - and many inscriptions have been found that boast of conquests throughout the area. In fact, records from many Mayan leaders show that the Maya were obsessed with war. Historian Michael Coe, author of The Maya, shows the Mayan warlike nature when he states that,

"The Annals of the Kaqchikels and the Popol Vuh speak of little but intertribal conflict among the highlanders, while

the sixteen states of Yucatan were constantly battling with each other over boundaries and lineage honor."

Archaeologists made a huge discovery in 2005, which further solidified the argument that the Mayans were warlike in nature. A 1,200 year-old mass grave was uncovered in Guatemala that turned up some 45 skeletons, including the Mayan king Kan Maax and his wife. Many appear to have been killed as a result of sharp spear jabs to the throat. Others were found to have been dismembered in a ritualistic way, likely to please Mayan gods.

Historians and archaeologists believe that one factor that led to the Mayan downfall was their strong appetite for war. Mayan rulers would command their followers to wage a war for some material good (maybe land, water, other resources). It is also possible a war was fought in the name of religion, maybe to please one of the several nature gods the Mayans worshipped. What is strange however, is that historians used to think that the Mayans were peaceful - so something drastically changed to make the Mayans become more warlike. Could something have caused the increased Mayan warfare? It is possible something forced the Mayans to become more warlike?

1.) What reasons have convinced historians that the Mayans were warlike? _____

2.) What do you think, detective? Is it possible that warfare can cause a civilization to fall apart? Why or why not? _____

3.) Historians used to think the Mayans were a peaceful society but have since changed their mind. What are at least TWO reasons that could have forced the Mayans to become more warlike? _____

Theory #2: Disease

It is important to remember that when the Spanish arrived in the early 16th century they still found plenty of people of Mayan decent; only the great Mayan cities were empty. For some reason the Mayans vacated their impressive cities - maybe it was an outbreak of disease that caused the Mayan population to rapidly decline and the remaining people to flee the cities?

It is believed that two massive epidemics greatly affected the Mayan population. The first attacked the Mayan food supply. An insect from the "plant hopper" family known as the Peregrinus maidis has been linked to spreading a virus that infected the top Mayan crop: maize. This disease is most deadly in Central America and in the southwestern United States. In fact, similar crop diseases hit the Anasazi, a native tribe in the American southwest. The high humidity in tropical areas, especially in Central America, make conditions for this disease very suitable, which is one reason why this disease is common



Peregrinus maidis

to this area. Also, this disease is only deadly in areas where maize is cultivated year-long. The Mayans relied so heavily on the maize crop that farmers grew it throughout the entire year. If the maize crop was infected, it would make sense that the Mayans would abandon their urban centers since they might have had to "fend for themselves" to find enough food to survive.

Second, some believe that the introduction of yellow fever doomed the Mayan civilization. Many monkeys are known carriers of yellow fever, especially the Howler monkey which is native to the area. This disease can also be transmitted to bats and mosquitos, which can then pass the disease onto other hosts. Is it possible that an infected howler monkey wandered into Chichén Itzá, a major Mayan capital, and passed on this disease to the people? Sure it is, detective. But, how might the howler monkey have gotten infected in the first place? The yellow fever originated in Africa and it was not until the slave trade in the 1500s that it came to the Americas.



Howler Monkey

1.) What are the two theories that disease caused the Mayan downfall? _____

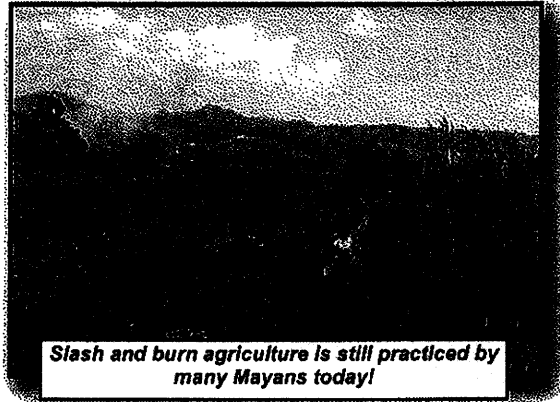
2.) Which of these theories seems more plausible? Why? _____

Theory #3: Famine

Many researchers believe that the Mayans succumbed to a disastrous famine, or a period of extreme food scarcity. One of the reasons for this famine stems from the Mayan practice of what is known as "slash and burn" agriculture. This practice is most popular in areas that are heavily forested, or in areas where there is little good land for farming. Most of the vegetation on a piece of land is cut down, then fire is set to the remaining area. The resulting ashes serve as valuable nutrients to help future crops grow.

Slash and burn agriculture is not sustainable and will only be effective for a short time. In fact, geologists today estimate that this technique will sustain the land for three to five years. In order to regain its fertility, the land will need to be left fallow (unplowed, unused) for ten years. To the Mayans, slash and burn farming was risky - they were likely desperate to feed their local population yet they unknowingly put their civilization in extreme danger.

As the Mayan land became less fertile, the civilization became unable to support itself. Slowly, crop yields lowered to dangerous levels, yet the Mayan population continued to grow. Soon, the Mayans were unable to provide for their population which forced people to leave their cities to reside in the country. Slash and burn methods disrupted the Mayan food supply and placed the civilization at the mercy of their environment. Now, even small changes in their environment (low rainfall, bad growing season) could have presented the Mayans with disastrous consequences.



Slash and burn agriculture is still practiced by many Mayans today!

Already seeing crop yields deplete year after year, how would just one season of low

rainfall affect the Mayans? Every civilization experiences a time of drought - given their farming techniques, how would the Mayans respond when they became faced with these circumstances? What if an invasive bug or disease destroys an entire season of crops? It seems obvious that famine doomed the Mayans.

1.) What is the "slash and burn" style of agriculture and what are the effects of it? _____

2.) What do you know about the harmful effects of this type of agriculture? _____

3.) Why does it seem obvious that the Mayans were likely affected by drought? _____

Theory #4: Disaster or Environmental Change

Surrounded by pyramids, plazas, ball courts, and government buildings, the Mayans discussed philosophy, developed an accurate solar-year calendar, and relished a thick, bitter beverage made from cacao beans: the world's first hot chocolate. Farmers, too, were riding high, turning hillsides into terraced fields to feed the burgeoning population.

Then came the bust, a decline that lasted at least two centuries. By 1100 the residents of once thriving Maya cities seem to have just up and left. But where did they flee to, and why?

The latest Maya climate change study, released in 2012, analyzes stalagmites in a cave in Belize—those lumpy, rocky spires on cave floors—to link climate swings to explain the fall of the empire.

Formed by water and minerals dripping from above, stalagmites grow quicker in rainier years, giving scientists a reliable record of historical precipitation trends. One sample used in the new study, for example, documents fluctuations as far back as 2,000 years ago.

Among the trends revealed by the Belizean stalagmites: "The early Classic Maya period was unusually wet, wetter than the previous thousand years," according to study leader Douglas Kennett, an environmental anthropologist at Pennsylvania State University. "During this time, the population increased rapidly," aided by a surge in agriculture.

During the wettest decades, from 440 to 660, cities sprouted. All the hallmarks of Maya civilization—sophisticated political systems, monumental architecture, complex religion—came into full flower during this era. But this 200-year-long wet spell turned out to be an anomaly. When

the climate pendulum swung back, hard times followed.

"Mayan systems were founded on those [high] rainfall patterns," Kennett said. "They could not support themselves when patterns changed." The following centuries, from about 660 to 1000, were characterized by repeated and, at times extreme, drought. Agriculture declined and—at the same time—social conflict rose, Kennett says.

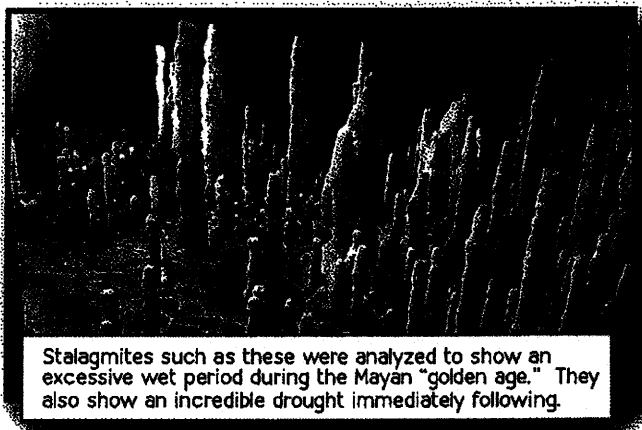
The Maya religious and political system was based on the belief that rulers were in direct communication with the gods. When these divine connections failed to produce rainfall and good harvests, tensions likely developed. Within the scant 25 years between 750 and 775, for example, 39 embattled rulers seized power in the empire—

evidence of "rivalry, war, and strategic alliances," according to Kennett's study.

But times would get even harder. The stalagmite record suggests that between 1020 and 1100 the region suffered its longest dry spell of the last 2,000 years. With

it, the study suggests, came Maya crop failure, famine, mass migration, and death.

By the time Spanish conquistadors arrived in the 16th century, inland Maya populations had decreased by 90 percent, and urban centers had been largely abandoned. Farms had become overgrown and cities reclaimed by forest.



Stalagmites such as these were analyzed to show an excessive wet period during the Mayan "golden age." They also show an incredible drought immediately following.

1.) How have researchers determined that the Mayans were affected by drought? _____

2.) What are TWO reasons that would make you believe the results of this study? _____

3.) Think about the argument that is made in this theory. How might a drought create an environment that allowed the other three theories to develop? After you explain how each of the other theories can be created because of a drought, cross each one out: WARFARE DISEASE FAMINE