“Environmental Downfall of Civilizations”

By:

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Environmental Culture

The environmental variable played its most prominent role in the Classic Maya society. The downfall of this society can be based on a fusion of political and natural failures; however, the fundamental failure was environmental, without which political failures would not have followed. What sets the downfall of the Maya apart is that their society relied on agricultural practices to fuel religious beliefs which were used by heads of state to legitimize their right to rule. To understand the repercussions that a failed environment can cause to a civilization, the former Maya city-state of Copan in Honduras serves as the perfect example on human modification and exhaustion of the landscape. The vast and rich lowlands of Central America were the cradle of the Maya civilization; unlike the highlands, the deep forest of the Yucatan had to be continuously cut in order to maintain the area clear for farm land. The periods of AD 300 to 900 were the most prominent and after which there was “abandonment” and a settlement of the northern cities. Prior to its collapse, the Maya thrived thanks to their reliance on maize.
Among the first “great cities” were Tikal (Northern Guatemala) and Copan (Northern Honduras). Not all Maya cities experienced the grandeur that Copan and Tikal achieved; however, it is clear that building projects were central to their culture. The preferred material used by the Maya was limestone, which was cut and burned into lime to use as a plaster for their central plazas. Thus, heavy deforestation was a part of their activity since wood was necessary to produce the lime. The Northern Honduras site of Copan experienced a combination of deforestation and agricultural intensification that exhausted the soil and subsequently, all that had depended on the agriculture; religion, politics, and economy, failed.

Religion and the Environment

Pleasing the gods was essential to maintain balance in the universe to guarantee the growing of the crops; thus, agriculture and mythology were indivisible as part of the Maya culture. The Maya had an intense belief in the supernatural for which temples were built to a great scale. The serpent as part of their art and religious belief was depicted wearing quetzal feathers and jaguar teeth as well as with a human head coming out of its mouth. The ability of the snake to shed its skin is seen as a sign of rebirth; meanwhile, the jaguar is the most powerful animal in the Central Lowlands. As part of Maya ideology, the serpent was meant to protect the Maize God, Yum Kaax, who is at the mercy of the evil deities if it is left unprotected. In addition, calendars developed during the Classic Period were meant to synchronize planting of the crops and religious rituals. The conventional year calendar was made up of twenty days and eighteen months; whereas the lunar calendar served the ceremonial purposes and amounted to 354 days. The importance of the Maya celebration of deities was directed towards the steady growth of their staple crop, maize.

Working Against Nature

The natural conditions of the dense forest in Central America were not ideal for the cultivation of crops; therefore, the Maya had to introduce raised field agriculture in order to elevate the crops, irrigate them, and prevent their flooding. The development of hydraulic systems resulted in their agricultural success. The volcanic soil of the lowlands added nitrogen to the soils which made it ideal for the planting of maize. Although the rains were relatively unpredictable in the Peten forest, the ditching and raise field agriculture made sure to keep the crops irrigated during dry season as well as un-flooded in the wet season.

Theories as to why the Maya civilization declined after AD 900 tend to fall on the ecology side. O.F. Cook looked into the slash-and-burn strategy as a probable cause since this “milpa” agriculture destructs the soil fertility. Others believe that a combination of swidden agriculture, heavy rainfall, and erosion destroyed the good soil because due to the depletion of nutrients and fertility loss. The subsequent collapse of the agricultural system would later result in the political collapse of Copan. The soils of the Peten have low levels of susceptibility to erosion due to the humid climate as opposed to the arid environments in the highlands. The rapid grass growth makes erosion “less obvious”; however, this natural process was disrupted by the heavy slash-and-burn agriculture. Taken together, the rainforest was not the best setting for an agricultural society: in order to produce steady crop yields, the landscape needed to be continuously modified and crop lands moved to regain fertility.

Population Explosion

Growing populations put further stress on food production. At Tikal, population was at
94.9 percent during the Tepeu 1 phase (AD 600-700); later on, during the Tepeu 2 phase (AD 700-830), the population had risen to 100 percent. During the Terminal Classic (AD 830-930), the population shows to have dropped to 14.2 percent in Central Tikal. This significant change in population density supports soil exhaustion as the cause of agricultural practices that depleted the fertility and could not support the population that previously thrived on it. The maximum support capacity of the lowlands on the swidden agriculture has been estimated to have been 77 persons per km². Shortened fallow cycles resulted in lower plant nutrients and fewer crop yield. The terrace irrigation systems did not work well in the Central Peten because sediment accumulation in Lakes Sacnab and Yaxha showed destructive erosion.

**Cultural Indicators for Decline**

As a model for the Maya Collapse, Copan is often used by scholars because of the “cessation” of building projects and its abandonment before AD 900. Construction projects were an indicator of success or failure because they reflect available surplus energy. Population density decrease directly affects construction projects at Copan; thus, the subsequent halt of stelae (record of building construction) coincides with the agricultural exhaustion that took place in the Classic Period (AD 300-900). Craft specialization could no longer be supported by the state due to agricultural failure. In turn, agricultural failure caused a decline in the population that would have carried out the massive building projects. The decline in stelae production took place between AD 534-593 and included a change in style. Because maize was the staple crop as well as the bulk of the economy, the drop in stelae dedication can also suggest that crop yields were insufficient to support craft specialization. A state such as Copan had different levels of hierarchy, the bulk of which were farmers that could support the elite and craft specialists. Without sufficient maize production, the upper strata of society could not be supported which also explains the subsequent abandonment of the site.

Ecological downfall was a central theme throughout the Maya Civilization; however, the environmental failure was different in all parts of the Lowlands. Even though some Maya city-states and chiefdoms developed a raised field system and ditches to counteract the varying rainfall patterns, Copan was at a disadvantage because of its volcanic topography. The scale that Copan reached in the Classic Period contributed to its collapse as an ever growing population turned to agricultural intensification which resulted in soil depletion from deforestation. The political downfall was a byproduct of the agricultural failure because the elite could no longer support the monumental building projects that are the only remnants of their civilization left today. Specifically, Copan is the prime example of how great civilizations can rise by learning how to modify the landscape and take advantage of the land’s natural resources; however, this is often done without planning for future consequences resulting in the failure of the economy, politics, and religious systems, which were all dependent on agriculture.
Environmental Downfall of Civilizations

We do not know where we’re going until we know where we’ve been. This phrase has resonated through time and often applied to lesson-learned cautionary tales of great past empires like the Romans and the Ottoman Turks falling by the weight of their power. However, to attribute the failures of these two past societies on internal reasons often separates those failures from the more natural causes. The environmental variable played its most prominent role in the Classic Maya and Mesopotamia. The downfall of these societies can be based on a fusion of political and natural failures; however, I will argue that the fundamental failure was environmental, without which the political failures would not have followed. What sets the downfall of the Maya and Mesopotamia apart is that their societies were incredibly reliant on agricultural practices which fueled religious beliefs and was used by heads of state to legitimize their right to rule. The following literature, taken together, touches upon the political and agricultural areas that would cause Mesopotamia and the Maya to fall; however, each one fails to stand alone to place the blame on ecological basis of the downfall.

Collapse of Ancient States and Civilizations

In 1982, Norman Yoffee and George L. Cowgill gathered different seminar papers at the School of American Research in Santa Fe. Their material focused on the collapse of different civilizations in order to create a common ground and “develop a theory” of how cultures “persist or expand.”¹ The contributors included historians, a sociologist, and a political scientist.² The

human curiosity as to why societies rise to great scales and fall with the passing of time is largely due to “social changes.” Yoffee looks at a civilization as “organic,” that means those civilizations go through the cycle of “birth, growth, and death.” The theory of “environmental degradation” as a direct cause of the downfall of civilizations was studied by Rice Odell from 1977 to 1980. Odell makes the point that as societies evolve from “simple collectivities,” the civilization placed “harsh demands” on the natural ecology. The high demand for production in order to support a growing population would cause “ruination” of the “arable land”; in turn, this sparked political collapse. The author expands on the political collapses of the Mesopotamian states of the Akkadian Period (ca. 2350-2150 BC), Ur Dynasty (ca. 2100-2000 BC), and the Babylonian Period (ca. 1900-1600 BC).

In particular, the Babylonian “First Dynasty” conquered other city-states and abolished the prior system of “land tenure” to replace it with ownership by the Babylonian crown. The crown leader, Hammurabi and Samsuiluna, began projects of “canal irrigation” in favor of agriculture and transportation. After Hammurabi’s centralization of the empire, salinization became a “threat to productivity” because agricultural product prices “inflated” placed further stress to maintain stable crops.

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2 Cowgill and Yoffee, ix
3 Ibid, 2.
4 Ibid.
5 Ibid, 5.
6 Ibid, 6.
7 Ibid.
8 Ibid, 46-54.
9 Ibid, 52.
10 Ibid.
11 Ibid, 53.
Another look at collapse is from the “catastrophe” perspective, this means that a drastic change in a system’s behavior.\(^\text{12}\) The cause of collapse is seen as internal rather than external. This is the particular perspective by which the Maya collapse is categorized in *Collapse of Ancient States and Civilizations*. The Late Classic Period (AD 600-830) in the lowland Maya showed “population peaks”; meanwhile, the Terminal Classic (AD 830) shows abandonment of Maya sites with decreasing population.\(^\text{13}\) In between these periods, the agricultural activity had “expanded into marginal areas” in order to support the population growth; subsequently, warfare to expand territory had stimulated population increase.\(^\text{14}\) The agricultural intensification resulted in “fertility loss” through land erosion since the deforestation process continued throughout the Late Classic.\(^\text{15}\) The examples from Mesopotamia focus on political downfall beyond the city-state boundaries.\(^\text{16}\) Political collapse is not the particular focus of my paper and the text will not be useful in this respect; however, I intend to explain how these are merely a part of environmental changes and placing the bigger focus on ecological damage caused by the Maya and Mesopotamians.

Overall, the bigger focus will be on the environmental degradation as the proximate cause for the collapse of the great ancient civilizations mentioned above for which politics plays a minor part in comparison to environmental reasons. The comparative element will rely on the different landscapes in which both societies thrived and which were drastically modified. Yoffee’s strength is acknowledging that environmental degradation played a central role in Mesopotamia’s downfall; however, he spends time on the political systems that were a result of the thriving environment. T. Patrick Culbert takes a different approach in this book regarding the

\(^{12}\) Cowgill and Yoffee, 9.  
\(^{13}\) Ibid, 74.  
\(^{14}\) Ibid.  
\(^{15}\) Ibid, 98.  
\(^{16}\) Ibid, 16.
Maya. Culbert does shed light on the political causes, but he also devotes time to explaining the environmental reasons for it.

**Maya Subsistence**

Kent Flannerty looks into the relation of population growth, intense agriculture, deteriorating environment, and the sociopolitical evolution in the book *Maya Subsistence*. The subsistence strategies at the Classic Maya explain all of these processes which were investigated through the use of archeology. Although this book looks at the development of subsistence strategies strengthening trade and political evolution; it also touches upon the conservation strategies of water and soil. In particular, the abundance of vegetation in the Yucatan Peninsula due to rainfall was both a blessing and a curse, this was because the accumulation of water flooding the crops. This problem would give rise to hydraulic techniques which would be orchestrated by political figures.

The maintenance of the raised field agriculture created stability of the Mayan staple crop, maize. This crop boom led to population growth and the subsequent events previously mentioned. Obviously, this is Kent Flannerty’s biggest strength; in turn, his biggest weakness is in part four of the book where he focuses on Post-classic Maya and the Colonial era. In this section, Flannerty looks into trade and the role of women in Maya society and economy. How this all relates to my topic is by shedding light on the Mayan over-reliance of their natural environment which had negative effects on the landscape as well as their civilization.

**Irrigation Civilizations**

Angel Palerm prepared an Annual meeting in Tucson, AZ in 1953 for the American Anthropological Association to look into the irrigation activities of different Civilizations in

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18 Ibid, 158.
order to do a comparative analysis. The published work includes Robert Adam’s paper on the stages of development of ancient Mesopotamia. His focus is on the drainage of the Tigris and Euphrates “deep canals” that supported cereal and vegetables as well as bringing fish to their diets. Adam’s weak point is his emphasis on metal weaponry as a benefit of the increasing crops supporting craft specialization. Although this particular part is very short, it does represent the reliance of the state on its agricultural practices and shows how a potential failure would set off a domino effect to where the political system would fall.

**Collapse: How Societies Choose to Fail or Succeed**

Jared Diamond’s book, *Guns, Germs, and Steel*, makes bold claims about environmental determinism of the east-west axis as the reason why the Western European nations have come to dominate the world. In his next book, *Collapse: How Societies Choose to Fail or Succeed*, Diamond makes the even bolder claim that societies caused their own decline. He compares past and present cultures, the Maya among them, on environmental “fragility,” politics, external relationships. Deforestation is a major variable as well as rainfall, isolation, and soil fertility. In the fifth chapter, he focuses on the Maya downfall as a combination of climate change, population growth, and the environmental “damage.” The agricultural “productiveness” of the soil in the Yucatan Peninsula is due to the “unpredictable” rainfall which is also the cause of crop failure since the rain might not fall as expected. To solve this problem, raised fields were constructed to retain waterfall and irrigate the crops. At the Copan site, the prominent agricultural practice was “floodwater farming” as well as “tilling” soil fertility. The population

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21 Ibid.
22 Ibid, 21.
23 Ibid, 160.
24 Ibid, 164.
grew to a proximate 27,000 people in AD 750-900 in Copan. Erosion followed from the clearing of land for agriculture which exposed the soil; in turn, the wood would be burned for “fuel” or making “lime plaster” to pave the streets.\(^\text{25}\) The White lime plaster became a commodity and the Maya “went overboard” to create it by burning wood, a major contribution to deforestation and soil erosion.\(^\text{26}\)

These different texts provide an ecological and political perspective to the downfall of the Maya and Mesopotamia. More importantly, they show how political failures can be caused by environmental problems, which seems to be the predominant reason for the fall of these great civilizations. Yoffee’s perspective of societies as “organic” falls into place with the explanation of population growth and political evolution explained by the subsequent texts on Maya Subsistence and Irrigation and put together by Diamond’s ongoing criticism as to why these societies caused their own demise.\(^\text{27}\) The missing link in the literature is how severe ecological failures can result in the subsequent failure of the state altogether. To understand the repercussions that a failed environment can cause to a civilization, the former Maya city-state of Copan in Honduras serves as the perfect example on human modification and exhaustion of the landscape.

The vast and rich lowlands of Central America were the cradle of the Maya civilization; unlike the highlands, the deep forest of the Yucatan had to be continuously cut in order to maintain the area clear for farm land. Later historians and archeologists would ponder on the negative consequences that deforestation may have had on the Maya way of life.\(^\text{28}\) The periods of AD 300 to 900 were the most prominent and after which there was “abandonment” and a  

\(^{25}\) Diamond, 169.\(^\text{26}\) Ibid.\(^\text{27}\) Cowgill and Yoffee, 2.\(^\text{28}\) Herbert J Spinden, Ancient Civilizations of Mexico and Central America (New York: Anthropological Handbook Fund, 1928), 73.
settlement of the northern cities. Prior to its collapse, the Maya thrived thanks to their reliance on maize; as a result, the different city-states were able to fund building projects whose remnants tell stories of their ways of life. Among the first “great cities” were Tikal (Northern Guatemala) and Copan (Northern Honduras). Not all Maya cities experienced the grandeur that Copan and Tikal achieved; however, it is clear that building projects were central to their culture. The preferred material used by the Maya was limestone, which was cut and burned into lime to use as a plaster for their central plazas. Thus, heavy deforestation was a part of their activity since wood was needed to produce the lime. The Northern Honduras site of Copan had experienced a combination of deforestation and agricultural intensification that exhausted the soil; subsequently, all that depended on the agriculture (religion, politics, and economy) failed.

Pleasing the gods was essential to maintain balance in the universe to guarantee the growing of the crops; thus, agriculture and mythology were indivisible as part of the Maya culture. The Maya had an intense belief in the supernatural for which temples were built to great scale. The serpent as part of their art and religious belief was depicted wearing quetzal feathers and jaguar teeth as well as with a human head coming out of its mouth. The ability of the snake to shed its skin is seen as a sign of rebirth; meanwhile, the jaguar is the most powerful animal in the Central Lowlands. As part of their ideology, the serpent is meant to protect the Maize God (Yum Kaax) who is at the mercy of the evil deities if it’s not protected. Calendars developed during the Classic Period were meant to synchronize planting of the crops and

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29 Spinden, 73.
30 Ibid, 75.
31 Ibid, 79.
32 Ibid, 111.
33 Ibid, 99.
34 Ibid, 100.
religious rituals. The conventional year calendar was made up of twenty days and eighteen months; whereas the lunar calendar served the ceremonial purposes and amounted to 354 days.\footnote{Spinden, 140-141.}

The importance of the Maya celebration of deities was directed towards the steady growth of their staple crop, maize. The natural conditions of the dense forest in Central America were not ideal for the cultivation of crops; therefore, the Maya had to introduce raised field agriculture in order to “elevate” the crops, manage to irrigate them and prevent their flooding.\footnote{Flannerty, 188.} The development of hydraulic systems was responsible for their agricultural success. The pattern for raised fields was discovered in the Peten forest of the Yucatan Peninsula by Alfred Siemens in 1969.\footnote{Ibid, 195.} The volcanic soil of the lowlands added nitrogen to the soils which made it ideal for the planting of maize.\footnote{Ibid, 105.} Although the rains are relatively unpredictable in the Peten forest, the ditching and raise field agriculture made sure to keep the crops irrigated during dry season as well as un-flooded in the wet season.

Theories as to why the Maya civilization declined after AD 900 tend to fall on the ecology side. O.F. Cook looked into the slash-and-burn strategy as a probable cause since this “milpa” agriculture destructs the soil fertility.\footnote{Patrick T. Culbert, \textit{The Classic Maya Collapse} (Alburquerque: University of New Mexico Press, 1973), 23-24.} Others believe that a combination of swidden agriculture, heavy rainfall, and erosion destroyed the good soil because it depleted the nutrients and caused fertility loss.\footnote{Ibid, 24.} The subsequent collapse of the agricultural system in order to support growing populations would later on result in the political collapse.\footnote{Ibid, 37.} The soils of the Peten have low levels of susceptibility to erosion because of the humid climate as opposed to the arid
environments in the highlands.\textsuperscript{43} The rapid grass growth makes erosion “less obvious”; however, this natural process was disrupted by the heavy slash-and-burn agriculture.\textsuperscript{44} Taken together, the rainforest is not the best setting for an agricultural society because in order to produce steady crop yields the landscape would have to be continuously modified and crop lands moved to regain fertility.

Growing populations put further stress on food production. At Tikal, population was at 94.9 percent during the Tepeu 1 phase (AD 600-700); later on, during the Tepeu 2 phase (AD 700-830), the population had risen to 100 percent.\textsuperscript{45} During the Terminal Classic (AD 830-930), the population shows to have dropped to 14.2 percent in Central Tikal.\textsuperscript{46} This significant change in population density supports soil exhaustion as a cause of agricultural practices that depleted the fertility and could not support the population that previously thrived on it. The maximum support capacity of the lowlands on the swidden agriculture has been estimated to have been 77 persons per km\textsuperscript{2}.\textsuperscript{47} Shortened fallow cycles result in lower plant nutrients and less crop yields.\textsuperscript{48} The terrace irrigation systems did not work well in the Central Peten because sediment accumulation in Lakes Sacnab and Yaxha showed destructive erosion.\textsuperscript{49}

As Herbert Rittlinger encountered on his trip to Central America, the Maya have not completely disappeared from Central America as suggested by modern historians. Ethnically Mayan men and women still settle the lowlands but the period when they were one of the great world civilizations is long gone.\textsuperscript{50} Esther Boserup came to the conclusion that as the population density arose in the Classic Maya, the “availability” of land was reduced until permanent

\begin{itemize}
\item \textsuperscript{43} Culbert, 338.
\item \textsuperscript{44} Ibid.
\item \textsuperscript{45} Cowgill and Yoffee, 82.
\item \textsuperscript{46} Ibid.
\item \textsuperscript{47} Ibid, 95.
\item \textsuperscript{48} Ibid, 98.
\item \textsuperscript{49} Ibid.
\item \textsuperscript{50} Herbert Rittlinger, \textit{Last of the Maya}. (New York: Taplinger Publishing Company, 1962).
\end{itemize}
cropping appeared.\textsuperscript{51} Expanding crop lands in highly populated zones along with shorter fallow periods brought insect infestation and plant disease which maize was subjected to in “low-lying” areas.\textsuperscript{52} The Lowlands experienced different climatic variability concerning the degrees of droughts.\textsuperscript{53}

As a model for the Maya Collapse, Copan is often used by scholars because of the “cessation” of building projects and its abandonment before AD 900.\textsuperscript{54} The reason why construction projects were an indicator of success or failure was because they reflect the “surplus energy” that was available.\textsuperscript{55} Population density decrease would directly affect construction projects at Copan; thus, the subsequent halt of stelae (record of building construction) coincides with the agricultural exhaustion that took place in the Classic Period (AD 300-900).\textsuperscript{56} Craft specialization could no longer be supported by the state because of agricultural failure; in turn, agricultural failure caused a decline in the population that would have carried out the massive building projects. The decline in stelae production took place between AD 534-593 as well as a change in style.\textsuperscript{57} Because maize was the staple crop as well as the bulk of the economy, the drop in stelae dedication can also suggest that crop yields were insufficient to support craft specialization. A state such as Copan had different levels of hierarchy of which the bulk were farmers that were able to support the elite and craft specialists. Without sufficient maize production, the upper strata of society could not be supported which also explains the subsequent abandonment of the site.

\textsuperscript{51} Culbert. 332.
\textsuperscript{52} Ibid, 486.
\textsuperscript{53} Ibid.
\textsuperscript{56} Ibid, 52.
\textsuperscript{57} Ibid, 61.
The drainage basin of upper Copan (Honduras) is about 200 sq miles and volcanic rock that makes only fifteen percent of the soil to be “high quality” which were mostly in the valley floors. The landscape falls within the lowland range of temperature and rainfall. In AD 750-800, the population around the river drainage was about 142 people per sq. mile when during the Copan King Yax Pasaj’s time (AD 736) it was roughly 2422 people per sq. mile. The intensive farming took its toll on the landscape. In 1989, David Webster excavated the zone of Copan’s “Las Sepulturas” residence where a 9.2 ft trench exposed a Maya floor. A low “cobble platform” had been built on top of the floor as well as a “substantial building” with a corridor between them. Webster found in that corridor dark soil made up to “potsherds” and debris as well as 23.6 inches of “silty clay” which buried the platform. The eroded soil had been “washed down” from the northern flank of the valley and covered the building that had once stood 23ft high leaving a visible 4.9ft for Webster. Because of the obsidian (volcanic rock) debris in the corridor, the event was able to be date the soil to AD 792-819. The elite residences, such as Las Sepulturas, began to be flooded and buried under sediment. Pollen that had been collected in the Northern Hills, extracted from a swamp by David Rue, and dated to AD 1000-1100 was used to point the extent of environmental degradation in Copan. Grasses that point to agricultural clearing and maize were present; meanwhile, broad-leafed trees that typically grow in the tropical forest as well as pine tree signature were extremely

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58 David Webster. The Fall of the Ancient Maya: Solving the Mystery of the Maya Collapse. (New York: Thames & Hudson, 2002), 296.
59 Ibid, 297.
60 Ibid, 312.
61 Ibid.
62 Ibid.
63 Ibid, 313.
64 Ibid.
65 Ibid.
66 Ibid.
67 Ibid, 314.
weak.\textsuperscript{68} The pollen examination points to deforestation as prevalent and that the forest was relatively “denuded” of tress which began to recover in AD 1250; therefore, this shows a probable cause of erosion from soil exposure.\textsuperscript{69} Although the pollen sample came from a later time, population density was greater in the Late Classic and clearing for farms, construction material, and fuel were a part of daily life. With fertility loss of soils, the movement to new “usable lands” which were subsequently deforested for farm land maximized the level of agricultural intensification in order to feed a growing population.\textsuperscript{70} As previously mentioned, maize as the staple crop took part in the agricultural intensification; a further negative consequence on the soil was the depletion of nitrogen from the soil.

Ecological downfall was a central theme throughout the Maya Civilization; however, the environmental failure was different in all parts of the Lowlands. Even though some Maya city-states and chiefdoms were able to develop raised field systems and ditches to counteract the varying rainfall patterns, Copan was at a disadvantage because its volcanic topography allowed for less arable land. The scale that Copan reached in the Classic Period contributed to its collapse as an ever growing population turned to agricultural intensification; thus, soil depletion from deforestation backed them into a corner. The political downfall shows to be a byproduct of the agricultural failure because the elite could no longer support the monumental building projects which are the only remnants of their civilization left today. Specifically, Copan is the prime example of how great civilizations can rise by learning how to modify the landscape and taking advantage of its natural resources; however, this is often done without planning for the consequences and it results in the failure of the economy, politics, and religious systems which stemmed from the ecological variable.

\textsuperscript{68} Webster, 314.
\textsuperscript{69} Ibid.
\textsuperscript{70} Ibid, 315.
Bibliography


This work looks at the archeological perspective to precisely date the downfall of the Classic Maya culture. The book looks into the theories of the collapse in different Maya cities of Central Peten, Tikal, and other Southern cities to consider the ecological and historical factors that contributed to their downfall. The most important part of the book, and the most useful, is the overall cultural ecology of the Lowland Maya; the socieconomics, subsistence, settlement, ecosystem, etc.


The Terminal Classic downfall of different areas (eg. Western Peten, Petexbaum, Calakmul, Copan) are examined. Most importantly, it pays particular attention to Copan, Honduras and its cultural history and political decentralization.


The author pays special attention at how the Maya had pre-determined their downfall by exhausting the landscape of Central America.


The different hydraulic strategies employed by the Maya are examined in this book; raised fields, irrigation, as well as ditching. The importance of these strategies would maximize crop yields by irrigating during low seasonal rainfall and preventing flooding when it did rain steadily.


This is a first-hand account of the exploration into Central America by Herbert Rittlinger and his wife and their interpretation of what’s left of the Maya culture.


The part of this book that pertains most to my subject is in the second chapter which looks at the different aspects of the Maya culture; religion, art, architecture, math, etc. Although
at first sight this doesn’t seem to go with the ecological factor, the failure of the environment damages these other aspects of society and ultimately resulted in their downfall.


This book devotes a chapter to my particular case study of the Copan Maya by looking at the context in space and time. The positive aspect is also that the book separates the downfall effects of the commoners from that of the elite since they played different parts in the society. Population density and environmental degradation affected each other equally and it’s what will be of greater use to the explanation of the downfall of this particular kingdom.


The first part of this book is devoted to Copan and Quirigua, two of the most prominent Maya kingdoms. The Author also makes the effort to compare and contrast their collapse and explains the Stela (vertical markers dating events) at Copan. The Stela is particularly useful to show exactly when the culture began to decline at Copan.
Self-Assessment Essay

College has been a four-year marathon in which the finish line is graduation; along the way, I’ve developed and refined the skills of story-telling from a historical perspective. Although the topics have varied over the years, mostly through the upper level courses I’ve been able to write more engaging analytical papers. Among the courses that have encouraged thoughtful analysis are; Theory & Practice, Aztec & Maya Archeology, US & Vietnam, and History Seminar. These courses allowed me an insight into interpreting history past and present. Among the works dealing with the past is a movie critique of *Apocalypto* and the Maya Ecological Downfall; from the Archeology and Seminar courses respectively. Theory & Practice and U.S & Vietnam dealt with American involvement in war, which accounts for present history compared to the Maya. Much like archeology and anthropology, history is mostly the interpretation of past events from the evidence left through literature, artifacts, and expert analysis.

**Levi Richardson: A Black Civil War Veteran**

In the spring of 2008, the Theory & Practice course theme was Shippensburg’s Black Civil War Veterans and my particular subject was Levi Richardson. As history will tell us, the experience for African Americans during the Civil War was relatively different from that of White Veterans; however, those differences were more apparent when the soldiers sought pension from the federal government. Native to Berkley Country in Virginia, Richardson had moved to Shippensburg and joined the Union army hoping that the promises of freedom would be realized. Like many colored regiments, Richardson was subjected to harsh conditions which were the reason he had to be discharged from duty on December 5th, 1865. According to Dr. Alexander Seward, his examination of Richardson in 1866 showed that the patient was
“suffering” from disease of a “rheumatic character” that had completely affected his hip and knee; in the same visit, the doctor had determined Richardson’s conditions to be a “total” disability.\(^1\) Subsequently, Richardson had to employ the help of the Common Pleas Court of Cumberland Co. in November of 1870 in order to prove that he had “performed” as an Army Private in the 127\(^{th}\) Regiment of the USCT (United States Colored Troops).\(^2\)

These primary source documents showed the process that black veterans, like Levi, had to undergo in order to get their pension; however, many did not succeed. The process for Richardson was strenuous and the amount of surgeon’s certificates filed on his behalf which proved that he had legitimate disabilities seemed to not have sufficed. Although pension was given to Levi Richardson, at twenty four dollars a month in 1902, it was hardly enough to survive and take care of his family. After the death of Richardson, his widow, Margareta, carried on with the effort to get just pension; overall, his second-class citizen status proved to be a detriment. Thus, this primary source driven work increased my ability to analyze and interpret documents along with contemporary historical conditions.

**Ho Chi Minh: Nationalism in Vietnam**

Conflicting Views of the Vietnam War continue to divide American scholars. The man who fueled the effort for Vietnamese independence, Ho Chi Minh, had been regarded as a hero by his people and as a villain by his foes. The particular approach that I decided to take was the fluorescence of nationalism in Vietnam and how Ho became an agent in creating national identity. As a nation that has been continuously divided by colonialism and war, the beginning of the end was marked by discontent with French foreign rule that began in the mid 1800s under the guise of religious conversions. In 1890, when Ho Chi Minh was born, the colonial rule was seen

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\(^1\) Dr. Alexander Seward. *War of 1861, Act of July 14, 1862 Pension Claim*. Filed Nov. 5, 1869.

as a “predator” that only “revolution” could defeat.\(^3\) The advantage of getting French schooling brought new ideas of enlightenment and freedom to Ho; as a result, he left to Paris and became involved with “politically minded” people and also developed socialist writing.\(^4\) By January 1919, the Versailles Conference took place and Ho wanted to present an argument for “emancipation”; however, after being ignored, Ho became a member of the ninth cell of the French Communist Party.\(^5\) Ho Chi Minh acknowledged the hypocrisy of western ideals about self-determination and freedom in denying the Vietnamese those basic rights. After visiting Russia and China, Ho got more deeply involved with the communist party; however, this was merely a desperate effort to bring justice to his people by seeking support from the Axis powers.

Nationalism was growing in Vietnam, the French General Leclerc acknowledged the its role in 1947 and realized that the only way to eliminate communism was to get rid of Vietnamese nationalism.\(^6\) The partition of Vietnam by the 17\(^{th}\) parallel only infuriated and encouraged recruitment into the Viet Cong and the Viet Minh guerilla forces. The light at the end of the tunnel was seen by Ho at the 1954 Geneva Conference.\(^7\) The French had to “withdraw” from Vietnam; consequently, the US abandoned its anti-imperialist policy in fear of the domino theory.\(^8\) Thus, the era of US phase of the Vietnam War had begun. Often popular opinion will push us to take sides; however, this infamous conflict has taught me to look at both sides of the argument in order to create a comprehensive history.

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\(^4\) Ibid, 21.
\(^5\) Ibid, 24-33.
\(^8\) Ibid, 240.
Apocalypto: Fact or Fiction?

Analyzing and critiquing a movie comes with its own set of challenges. For the sake of entertainment, movie makers mix historical facts and create a distorted look of the past that becomes engrained in popular culture. Mel Gibson directed Apocalypto, a movie about a young Maya man who is captured in a raid along with many of his village members who are taken to be sacrificed to the Sun God. In his effort to shock the audience, Gibson misinterprets Maya practices and brings in elements which do not match up to the archeological and historical evidence. The architecture shown in the film matches up to the Post-Classic city-state of New Chichen Itza (950-1250AD); in order to separate fact from fiction, the accurate events had to be brought to the forefront.

The shift from endemic warfare to conquest warfare by the Maya took place in the Late Classic Period (600-830AD) through the Post Classic (after 900AD). The competition between city-states to control jade, obsidian, as well as manpower was met with the overexploitation of crops to support the elite and army. The practice of heart sacrifice had been brought to Chichen Itza from the Toltec Tula culture of Central Mexico to offer blood sacrifice and encourage the growth of crops; therefore, that much is accurate in the film. Where fiction begins to take shape is the portrayal of Maya people stricken with what appears to be smallpox. Although the “Puuc Zone” of the Yucatan had seen the presence of malaria and yellow fever, it was not until 1348 that the smallpox disease appeared in England and brought later on to Central America. Among other inaccuracies, the most evident comes at the end of the film as the protagonist successfully escapes and takes his family to the coast of Yucatan. At the culmination of the movie, a Spanish

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9 David Webster. The Fall of the Ancient Maya. (New York; Thames & Hudson, 2002), 418.
10 Ibid.
12 Webster, 247.
ship is seen in the distance which is a major mistake since the first Spaniards to arrive to the coast were Juan Diaz de Solis and Vicente Yañez Pinzon in 1506, 256 years after the Post-Classic Chichen. Thus, the lesson learned from this project is how sensitive historical facts have to be treated in order to tell an accurate story that will serve as an educational tool, not merely a work of fiction.

**Environmental Downfall of Civilizations**

My interest for ancient civilizations made it easier to apply it to the topic of environmental history. Although not a central theme in the *Apocalypto* critique, ecological factors encouraged conquest warfare in the interest of finding arable land. The broad idea that I decided to take in this paper was ecological failure as the basis for the subsequent downfall of religion, politics, and social structure in civilizations such as the Maya. The particular case study was the Maya city-state of Copan in modern-day Honduras. The overreliance on maize in Maya society called for heavy “deforestation” which exposed the soil to erosion.

The Copanese Maya had thrived on the agricultural success due to their “raised-field” strategy to keep the crops from flooding during the heavy rainfall as well as keep them irrigated during drought. That success resulted in overpopulation and further stress on the land to produce enough crops to support it. The building projects began to decline in 534-593AD which means that the crop to support craft specialization was not enough. As a hierarchical society in which the farmers maintained the upper classes, a failure in the agricultural system

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resulted in the abandonment of the city-state in search for a stable settlement. In sum, developing a theory and supporting it to make a case for the basic reason that great civilizations cause their own demise is the major lesson that I took from this project.

Overall, what I have taken from this group of projects, as different as they have been, is to interpret, analyze, theorize, and be highly critical of what is put in front of me. Although I am not planning on pursuing a career as a historian, all the skills that I’ve gained from writing the wide range of papers can be applied to any area which may require thoughtful analysis. Disagreement with other historians can be a good and encourage the development a new set of theories in search for a new interpretation of the distant or recent past.