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Annotated bibliography  
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A bibliography is a list of sources that have been used for research purposes on a topic. Generally, a bibliography only includes the bibliographic information, such as the author, title, and publisher, among others. An annotation is a summary and/or evaluation of a piece of research. Therefore, an annotated bibliography includes a summary and/or evaluation of each source.

This annotated bibliography, consisting of summaries for 10 peer-reviewed scholarly sources, focuses on the following 2 periods of time: At the peak of the Maya Civilization, and during the gradual decline and eventual collapse of the Maya Civilization.

<https://scholar.google.ca/scholar?hl=en&as_sdt=0%2C5&q=The+collapse+of+mayan+civilization&btnG=>

Drought and the Maya:

1. Aimers, J., & Hodell, D. (2011). Drought and the Maya: the collapse of the Maya civilization is often attributed to drought, but is the explanation really as simple as that? On the basis of evidence from their respective fields, an archaeologist and a palaeoclimatologist call for a more nuanced assessment. *Nature*, *479*(7371), 44+. <https://link-gale-com.ezproxy.lakeheadu.ca/apps/doc/A272364688/AONE?u=ocul_lakehead&sid=bookmark-AONE&xid=c88698b6>

During the period known as the Terminal Classic (roughly A.D. 750 to 1050), archeological research on the Mayan Civilization has provided a wealth of information regarding a sharp decline and eventual collapse of the Maya civilization. Evidence to support this have ranged from political events and warfare to climate change and severe drought. The data itself was collected from monuments of conquest, human bone, fauna, and flora, dated via the radiocarbon dating using trace amounts of carbon 14. Interestingly, collapse may not be the correct term to describe the long process of Maya decline, as many similar civilizations experienced similar periods of growth and decline. Nevertheless, arguments derived from this information is a matter of debate because of the complexity of discovered archeological data. This summary is relevant to my project because the summary gives a brief description of the natural or human-driven mechanisms which could have contributed to the collapse of the Maya Civilization. Because I am focusing on a period in the Maya Civilization history where their population declined sharply and eventually collapsed, the referenced article has many important details for my project.

1. Dunning, N., & Beach, T., & Beach-Luzzadder, S. (2012). Kax and kol: Collapse and resilience in lowland Maya civilization. *PNAS,* 109(10) 3652-3657. <https://doi.org/10.1073/pnas.1114838109>

Particularly in the past 3 millennia, humans have bene the dominant driver of ecological change; sometimes manipulating the fate of the Maya Civilization. Since the 19th century, images of Ancient Maya have been associated with images of beautiful buildings in various states of decay, crumbing palaces, and vegetation-covered temples. These vague images have created countless arguments for the fate of the Classic Period in the Maya Civilization. Modern society today, like Maya, has many similar elements which serve as a warning for modern civilization: its large size, sophisticated urban culture, abandonment of many large areas, dwindling resources, and drastic changes in climate. In Mayan history, there are few examples of rapid depopulations similar to the one which ended the Maya Civilization, in contrast to the mass regional abandonment in the Terminal Classic, which played out at least 125 years. However, even those areas which did not experience abandonment eventually collapsed because of changes which brought on long-term population loss. At the heart of the Maya region centered around the Yucatán Peninsula and areas of Mexico and Central America, a region ranging from 40 to 300 metres in elevation is referred to as the elevated interior region (EIR). This region, in addition to being the centre of cultural development and great architecture, was the focus of mass collapse. Compared to the Maya communities centered in lowlands, those in elevated portions were more susceptible to collapse: lakes and water sources were few and far between and surface drainage was very slow and seasonally-dependent. In an elevated region with such little rainwater, and little-to-no groundwater, this would cause widespread droughts. Additionally, the Maya lowlands were subject to frequent hurricane strikes and forest fires over widespread areas, destroying large areas of resources such as crops and animals, or contaminating water sources. Much of the landscape of the EIR was tropical and dense forest cover, being well-suited to the agricultural system of the ancient Maya, but settlements still faced difficulties, especially as population density increased. Traditional Maya agriculture is highly adapted to the seasonal rhythms of regional precipitation. However, because the Maya lowlands experienced drying trends recurring on an apparent cycle, the shifts lead to increases in the frequency and severity of droughts. This summary of content is relevant to my project because the summary gives more of an in-depth explanation of the mechanisms which contributed to the collapse of the Mayan Civilization. Because I am focusing on a period in the Mayan Civilization history where their population declined sharply and eventually collapsed, the referenced article has many important details for my project.

1. Zeitlin, R. N. (1984). Archeology and volcanism in Central America. *Science*, *226*, 163+. <https://link-gale-com.ezproxy.lakeheadu.ca/apps/doc/A3472821/AONE?u=ocul_lakehead&sid=bookmark-AONE&xid=49347507>

As a starting point for archeological research into the ancient civilisations such as the Maya, studies were conducted in El Salvador starting in 1975; El Salvador was one of the main geographical regions where the Maya Civilization flourished. More specifically, one of the accomplishments of the project was to document the Holocene volcanic activity which, emitted by Mount Ilopango, wreaked havoc on a densely-populated area of Protoclassic Maya settlement. One of the most particularly catastrophic volcanic eruptions, occurring in A.D. 260, inspired much research into the change of human ecology as a result of the deep and widespread ash deposits following the volcanic eruption. To acquire the most accurate samples, the site of focus was an environmentally-diverse 546 square-kilometer area in the intermontane Zapotitan basin, 30 kilometers west of Ilopango, where geological sampling, settlement pattern surveys, and two archeological site excavations took place. Although modest in size and quality, the archeological material analyzed (soil, tephra deposits, ceramic remains, lithic artifacts, pollen, and fauna) are very informative about the past geological and cultural history of Maya Civilization in that region. Additionally, excavations at a Late Classic period household add some neat evidence about highland Maya life and material culture. Many Mesoamerican prehistorians agree that the lowland Maya culture did not flourish as a choice, instead being forced due to mass movement away from the culturally-important but volcano-ravaged lands of El Salvador, in the highland Maya. However, after 150- to 200- years post-eruption, rapid repopulation took place in El Salvador. In support of this, there is a seeming lack of human remains in the lowlands during the Protoclassic-Early Classic periods, followed by archaeological evidence of lowland-related pottery and stone tools at sites in the highlands, dating to the beginning of the Late Classic. The suggestion for this sudden repopulation is to re-establish trade and procurement networks, particularly for exotic trade goods such as polychrome pottery and obsidian. However, another theory suggested for the sudden repopulation of El Salvador following the volcanic eruption is part of a gradual, population-pressure-induced expansion of Maya agriculture. This summary is relevant to my project because the summary gives a brief description of several factors which may have contributed to the collapse of the Maya Civilization, most notably volcanic eruptions, and a boom in population increase. Because I am focusing on a period in the Maya Civilization history where their population declined sharply and eventually collapsed, the referenced article has many important details for my project.

1. Freidel, D. (2006). The Maya. *Journal of the Royal Anthropological Institute*, *12*(3), 676+. <https://link-gale-com.ezproxy.lakeheadu.ca/apps/doc/A152571890/AONE?u=ocul_lakehead&sid=bookmark-AONE&xid=d4be109d>

Recent lake core analyses in the lowlands of Venezuala, combined with sediment analysis from various coasts, unearth important information regarding droughts which occurred in the first millennium A.D., particularly in the latter-half. Drought or other extreme drying events impacted some significant events in Maya history, most notably the collapse of the great city of El Mirador, the cease of elite activity in the mid-Classic ‘hiatus’, and the collapse of the Central Area of modern-day Mesoamerica (Yucatan Peninsula) around 900 A.D. Because of the ongoing droughts in the latter-half of the first millennium A.D., the Mayan culture was forced to undergo rapid cultural adaptations, crippling the Maya economy and culture. Particularly, Maize, being as much as 80% of the Mayans diet, was unfortunately very sensitive to drought, and Maize crops died in large scale as a result, creating an agricultural crisis. The Maya lived in Mesoamerica geographically near other civilizations, in which they traded, allied, and warred with their neighbors’ from the time of the first settled farming communities in the Preclassic period. In lowlands adjacent to the Maya lowlands, a civilization known as the Olmec used religion to shape political institutions and others in the Preclassic Maya. In addition to climate change causing widespread drought and agricultural crisis’ in Mesoamerica, geographical changes could have caused the breakdown of supply routes and alliances, further placing strain on the Mayans resource base. Saying all this, the ninth-century collapse in central Mesoamerica has three major factors: dense populations stressing the weakening environment, severe episodes of drought, and constant warfare further straining the Maya resources. Interestingly, more so than any other factor, warfare on an increasingly destructive scale brought down the ruling elite: the Central Maya Area fought themselves into demographic destruction. Like any other ruling elite who is corrupted and blinded to the reality of a situation, the arrogance and short-sightedness of the ruling elite played a central role. This source is relevant to my project because it contains information about how warfare, agriculture, and the breakdown of trading networks was a significant factor in the decline and collapse of the Maya Civilization in the Terminal Classic era (800 A.D. to 1000 A.D.).

1. Andrews, E. W. (2012). Francisco Estrada-Belli. The first Maya civilization: ritual and power before the Classic period. *Antiquity*, *86*(331), 271+. <https://link-gale-com.ezproxy.lakeheadu.ca/apps/doc/A284753586/AONE?u=ocul_lakehead&sid=bookmark-AONE&xid=278b9ece>

Epigraphers are professionals who specialize in the study of inscriptions as writing; they identify pieces of writing, clarify their meanings, categorize their uses according to dates and cultural contexts, and draw conclusions about specific details of both the piece of writing and of the writer. Because of the Maya’s significant advancements in the realm of artwork and linguistics, one of the most important advancements made in Maya archeology over the past 50 years has involved the deciphering of hieroglyphics - incomprehensible symbols, alphabetic elements, or syllabic elements - by epigraphers. This has allowed a great understanding of the early Maya elites, sites, and regions, whose settlements and artifacts are often buried under many centuries of sediment layers. The focus of this summary is on the excavations and survey by the Holmul Project at Holmul, Civil, La Sufricaya, and others in northeastern Guatemala. The earliest excavation at Holmul discovered a large pottery collection dating from 700 to 1000 BC, with similar material being found from sites in Belize, lowland Guatemala, and the Puuc Hills and northwestern Yucatan. Radiocarbon dating of these discovered the artifacts were part of the Middle Preclassic Maya lowland. A large preclassic era (1800 BC – 1000 BC) site Cival was discovered to contain several large buildings made of stone, including a pyramid. The purpose of such a site was mainly for public rituals. Additionally, the architecture was linked to the development of ruling elites, the yearly agricultural cycle, maize (corn crop) cultivation, and aspects of Maya cosmology. These types of builds were amongst the first architectural features, which marks the origins of Maya public construction and architectural rituals in the southern Maya lowlands. A small early classic (1000 BC – 400 BC) ceremonial center was found about 1 kilometer from the centre of Holmul, augmented by traditional artwork, fragments, and status of famous warriors - ‘Teotihuacan-style warriors’. It is suggested that this center was of strategic value in securing land routes to Caribbean ports, and establishing trading centers with other groups. One of the most prominent sites found, however, was El Mirador, which contained ceramics, pottery, and one of the largest Mesoamerican pyramids, analyzed to be from the preclassic (1800BC – 1000BC) period. This source is relevant to my project because it contains information about early Maya sites found and excavated contained valuable insights into early Maya Civilization and architectures.

1. Hutson, S. R. (2017). History, politics and meaning among the Classic Period Maya of the southern lowlands. *Antiquity*, *91*(356), 533+. <https://link-gale-com.ezproxy.lakeheadu.ca/apps/doc/A494099403/AONE?u=ocul_lakehead&sid=bookmark-AONE&xid=9d4d42b8>

This article explores three books related to Maya archaeology: Ritual, violence, and the fall of the Classic Maya kings, excavations in residential areas of Tikal, and mortuary lowlands of the Classic Maya: rituals of the body and soul of individuals. Ritual, violence, and the fall of the Classic Maya kings focuses on the 9th century A.D., when kingship was discredited and crumbled in many places, and made a scapegoat model which is bound to always fail. The article referenced above investigates that an individual’s capacity to determine and make meaning from their environment through conscious and creative actions are often the mediator between environmental downturns and socio-political disasters. Additionally, Politics in Maya societies were fluid, conflictive, and subject to constant negotiation due to internal considerations such as factional competition or warfare with other civilizations over resources or territory. Excavations in the residential areas of Peten Basin, Tikal (modern-day Guatemala), revealed artifacts and other archeological materials which were commonly given to royal members of the Maya Civilization, indicating a royal family lived in Tikal. Further, excavation data was used to provide a history of that family and suggests that people who occupied places such as Tikal after the eradication of kingship were people from the same communities carrying on generational practices, memories, and relationships. Mortuary lowlands of the Classic Maya housed rituals of the body and soul of the deceased to expedite the departure of the soul and facilitate its rebirth and renewal in later generations. The reconstruction of social bonds among the survivors of a group of deceased individuals was of utmost importance, to essentially preserve society. The basis of specific practices performed were based on widely held Maya beliefs about life, death, supernatural beings, and cosmology. The article concludes by describing that Maya archaeology has become more robust and is using empirical data to address meaning, motivation, and political action in the past. This source is relevant to my project because it contains additional information about three specific aspects of their society: mortuary rituals, termination deposits, and political organization which will be useful in explaining a little of how the Maya civilization functioned during the Classic Period (250 A.D. to 800 A.D.).