The Classic Maya Collapse

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INTRODUCTION

The Maya of Mesoamerica have fascinated the public for decades. The latest example is Mel Gibson’s movie Apocalypto (2006) depicting, with many inaccuracies, the ‘decline’ of the Maya civilization. Around 900 A.D. most of the major Maya cities in the southern lowlands were abandoned. Archaeologists refer to this event as the ‘classic Maya collapse’. Why the collapse occurred is widely discussed. Archaeologists and scholars of other disciplines have provided diverse explanations for the phenomenon, which can roughly be divided into two groups: models that emphasize ecological/environmental factors (e.g., climate change, environmental degradation, or diseases), and those that stress socio-political issues (e.g., class conflict or decentralization). In this paper, I will examine different explanations for the classic Maya collapse and how these authors consider the collapse as a result of a combination of multiple factors. I will further critically discuss, based on recent research, the concept of ‘collapse’ and argue for its replacement with the notions of transition or transformation.

EXPLANATIONS FOR THE COLLAPSE

The Classic period of the ancient Maya (ca. 250-900 A.D.) is characterized by the rise of city-states with palaces, temples, and inscribed stone monuments (stelae) throughout what is today southern Mexico, Belize, Guatemala and Honduras. These states were ruled by divine kings or lords (Marcus 2003:86; Paine & Freter 1996:37). The major cities were often surrounded by smaller (satellite) cities governed by sublords (Marcus 2003:102). During the Terminal Classic period around 850-950 A.D. (Lucero 2002:820), fundamental changes occurred. Around 900 A.D. these changes resulted in the cessation of construction of the stelae, hieroglyphic texts and other monuments such as temples and palaces, in the curtailment of production of polychrome ceramics, in the end of the divine rulership, and, eventually, in the abandonment of the major cities in the southern lowlands. Sites in the northern lowlands, however, continued to flourish until around 1000 A.D. (Iannone 2005:26; Rice 2004:2; Sabloff & Andrews 1986:9; Shaw 2003:157, 159). These transformations have been termed by archaeologists as the ‘Classic Maya Collapse’. Scholars have suggested a variety of possible explanations for the ‘collapse’; I will present some of them in the following sections.

Fig. 1: Map of the Maya area (Santley et al. 1986:124)

1 Rice and colleagues (2004:8) suggest 800/830-950/1000 A.D. as dates for the Terminal Classic.
Climate Change

Natural scientists from various disciplines such as geosciences, earth sciences and chemistry, argue that several droughts played a significant role in the collapse. According to Haug and colleagues (2003:1731), three droughts struck the Maya around 810, 860 and 910 A.D. Peterson and Haug (2005:327) add a fourth, which occurred around 760 A.D. These droughts were caused by shifts in the atmosphere (Peterson & Haug 2005:322). Although the Maya had developed techniques to secure access to water such as excavations and quarries as water reservoirs and complex irrigation systems, the southern lowlands depended on rainfall for their agricultural production because natural groundwater resources were scarce (Haug et al. 2003:1733f.; Peterson & Haug 2005:323f., 327). In contrast, the population in the northern lowlands had better access to groundwater and were, therefore, less affected by the droughts. The authors imply that the different access to groundwater is the reason why the northern lowland sites did not collapse at the same time as the states in the southern lowlands (Haug et al. 2003:1734; Peterson & Haug 2005:327).

Drawing on archaeologists and other scholars, the natural scientists list further factors that contributed to the collapse such as rapid population growth, environmental degradation (Haug et al. 2003:1733; Peterson & Haug 2005:328), resource exploitation, and internal warfare (Peterson & Haug 2005:328). Moreover, the droughts undermined the power of the lords. Their authority was closely linked to the control of the water resources and, therefore, declined as their ceremonies and technologies failed to secure rainfall (Haug et al. 2003:1734; Peterson & Haug 2005:328).

Yancheva and colleagues (2007) argue that changes in the global climate between 700 and 900 A.D., specifically migrations in the intertropical convergence zone, caused a drier climate and a series of multi-year droughts in the Maya area (ibid.:74, 77). Although these natural scientists do not present further possible causes, their proposition that the “migrations of the tropical rain belt could have contributed” to the collapse (ibid.:74; my emphasis) implies that other factors may have also played a role.

Shaw (2003), an archaeologist, also suggests climate change as a major factor contributing to the collapse. She argues that anthropogenic deforestation exacerbated an already drier (worldwide cooler) climate resulting in famine (ibid.:157, 164). Due to population growth, the Maya deforested large areas for agricultural use which resulted in increased temperatures, a decrease in evapotranspiration and, thus, in a decrease in rainfall (ibid.:162). Additionally, when rain fell heavily in deforested areas it caused soil erosion and flooding (ibid.:164). Shaw further points out that Maya sites were not uniformly affected by the climate change, referring not only to differences between the northern and southern lowlands but also to different sites within the southern lowlands (ibid.:160f.). According to her, deforestation is a possible explanation for the “mosaic” climate change (ibid.:157, 161).

Moreover, Shaw suggests that droughts affected the Maya in the southern lowlands more severely than those in the northern lowlands because: (a) they were more dependent on rainfall through evapotranspiration, (b) they had less access to groundwater, (c) their agricultural

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2 Evapotranspiration means “the transport of water into the atmosphere from surfaces, including soil (soil evaporation), and from vegetation (transpiration)” (Burba 2006). Other forms of evaporation, contributing to the process of evapotranspiration, are evaporation from wet canopy surface and from “vegetation-covered water surface in wetlands” (ibid.).
practices relied on a water surplus\textsuperscript{3}, and (d) deforestation was more widespread than in the north (2003:162ff.). She concludes that decline of rainfall cannot be viewed as the single cause for the collapse. Instead, she suggests a combination of several factors including population growth, deforestation, drought (regional climate change), a worldwide cooler climate, the declining power of the lords\textsuperscript{4}, and increased warfare\textsuperscript{5} (ibid.:164).

Environmental Degradation

Paine and Freter (1996), two archaeologists, reject collapse models which suggested natural disaster, epidemic disease, external invasion, and peasant revolt as causes in the Copan Valley. They argue that depopulation, which is considered to be one characteristic of the collapse, occurred gradually (ibid.:37, 45). Paine and Freter’s (1996:37, 44) explanation for the collapse includes a combination of related environmental/ecological factors. Population growth resulted in an intensification of agriculture in order to sustain the population, and, consequently, in an increased exploitation of resources. This overexploitation caused soil erosion and a decrease in soil fertility. To put it simply: a degradation of the environmental resources resulted.

Disease

Wilkinson (1995:270f., 284), a cultural anthropologist, argues that yellow fever could have been a significant factor for the large population decline at the end of the Classic period (he claims an 80% to 85% population loss between 800 and 1000 A.D.) and thus for the collapse. Monkeys serve as hosts for the yellow fever virus, which is transmitted through mosquitoes (ibid.:284, 288). Wilkinson suggests that the Maya came into contact with the virus while they were clearing the forest to use the land for agricultural production and/or through monkeys that lived in close proximity to the dwellings (ibid.:279f., 288). The virus was transmitted between humans through mosquitoes, which found many breeding sites in the cities such as broken dishes, open pots, and storage containers in which water was collected (ibid.:280, 288). The Maya were severely affected by the disease because they lacked immunity to the virus (ibid.:289). Although the author acknowledges further reasons for the collapse, such as population growth and other, non-specified, ecological and sociological factors, he views the yellow fever epidemic as a primary cause (ibid.).

Class Conflict and Peasant Revolt

Hamblin and Pitcher (1980), two sociologists, present class conflict between the peasants and the elite and the resulting peasant revolt as the overall explanations for the collapse. Although other factors such as overpopulation, foreign invasion, or diseases could have contributed to the collapse, they consider class conflict as the primary cause (ibid.:262) and try to prove their hypothesis with mathematical models and archaeological artefacts. For example, the faces of elites on stone monuments were mutilated while those of peasants were left intact, or members of the elite were presented on stelae as standing over peasants; the authors view this as evidence of class conflicts (ibid.:248f.). They propose that the elite controlled the intensive agriculture, which resulted in the

\textsuperscript{3} The technologies used by the Maya in the southern lowlands included, for example, reservoirs, canals, and raised fields (Shaw 2003:163.).

\textsuperscript{4} The lords could no longer guarantee rainfall and thus surplus production to sustain the elites and specialists (Shaw 2003:164).

\textsuperscript{5} The lords try to solve the problem by using warfare. However, this strategy resulted in the disruption of agriculture and the displacement of peasants (Shaw 2003:164).
proletarianization of peasants as they were displaced from their land, placing them in a deprived position (ibid.:251).

According to Hamblin and Pitcher (1980:251), a variety of factors contributed to the conflict and triggered peasant rebellions in the different centers, such as overpopulation, drought, famine, and plant disease. Two factors, however, seem to have influenced the conflict in most centers: the exploitation of the peasants by the elite and the leadership of peasant revolts by an ancient order of priest (ibid.:251f.). These priests were disempowered by the elite priests who served the gods of the "Classic pantheon" (ibid.:252). The authors view the 'decline' as a gradual process of 600 years; the destruction of the elite resulted finally in the breakdown of the economic and social systems (ibid.:262f.).

**Decentralization**

Cioffi-Revilla and Landman (1999:585), two political scientists, argue that the political collapse was caused by the failure of the Maya city-states to integrate or unify into a pan-Maya system or state, which "would have been necessary to sustain the growing number of polities already containing millions of inhabitants" (original emphasis; see also ibid.:588). They consider the maintenance of numerous independent polities and the lack of centralization as a root cause, while viewing other proposed causes such as intensification of agriculture, ecological degradation, warfare, and escalation of religious violence (human sacrifice) as "secondary effects of failed political integration" (ibid.:585; original emphasis). The authors suggest that the failure to unify occurred because one or more states lacked the willingness for political centralization, and the material opportunity for the construction and maintenance of a pan-Maya state was absent (ibid.:586f.).

Iannone (2005:26), an archaeologist, also proposes that decentralization contributed to the collapse while acknowledging that no single cause can be determined for the event. She argues that paramount rulers (lords of major centers) started in the 8th century to share their power with increasingly dissatisfied subordinate lords in order to appease them (ibid.:40f.). However, the adoption of power-sharing strategies resulted in increased political instability (ibid.:40). The already tenuous system was exacerbated by factors such as population growth, droughts and declining agricultural production, which finally led to collapse and endemic structural failure (ibid.:40f.).

**Synthesis of Environmental and Socio-Political Factors**

Although some of the previously discussed authors consider multiple environmental and socio-political factors for the collapse, they focus one issue or one cause and its resulting effects. Authors presented in this section, in contrast, provide a detailed discussion of several factors.

Santley and colleagues (1986) propose three interrelated environmental and socio-political factors as significantly contributing to the collapse in the southern lowlands. First, deforestation and intensification of agriculture were attempts of the Maya to sustain the growing population resulting in the degradation of the environment, for example, in soil erosions. Moreover, extensive hunting destructed the fauna. Malnutrition and decline of the population were the consequences of these environmentally exploitative strategies (ibid.:124f., 128, 135, 145f.). Second, malnutrition caused demographic instability: immunity of people was reduced, increasing the possibility of diseases; the reproductive rate of malnourished women sank while child mortality increased (ibid.:125, 141).
Additionally, the intensification of agriculture required more labour power. However, agricultural productivity was limited because the number of producers decreased and the work capacity of the surviving farmers was reduced due to malnutrition (ibid.:145f.).

Third, macroregional resource extraction networks that might have compensated for the local economic stresses were lacking (ibid.:125, 147). The transportation costs for subsistence goods from the peripheries were too high (ibid.:148). The infrastructures of the states could not be sustained at the end of the Classic period. This, together with environmental degradation, resulted in a decline of the authority of the rulers, political instability, and eventually abandonment of the cities (ibid.). Therefore, the authors reject peasant revolts or external invasions as explanations for the collapse and conclude that an “erosion of the system’s economic base” is the primary reason (ibid.:149).

Hughes (1999:84), a historian, draws on archaeological research in his discussion of multiple causes for the collapse, which he presents as a collapse of “[a]ll social, economic, and political systems” in the southern lowlands. The contributing factors include: overpopulation and thus the need for increase in food supply; intensification of agriculture resulting in environmental degradation and soil erosion; deforestation causing erosion, salinization, decline in transpiration and thus rainfall decrease; malnutrition and diseases; and excessive demands of the elite. The rulers increased the construction of monuments and thus kept farmers away from agricultural production while simultaneously exploiting natural resources for the construction process (ibid.:85ff.).

Lucero (2002), an archaeologist, argues that the control of artificial water reservoirs, which was closely linked to the power of the rulers, played an important role in the collapse in the southern lowlands. However, she acknowledges that her model does not explain the diminishing political power of the elite in every Maya center (ibid.:814). She further relates the issue of water control with other environmental and socio-political factors contributing to the collapse. The kings in regional centers or major cities like Tikal, Calakmul or Caracol were responsible for managing the cleaning of water reservoirs and for securing rainfall through the performance of rites, for example, to the rain god Chac (ibid.:815). In turn, farmers had to pay tribute to the lords (ibid.:818).

The power of these rulers was deteriorating during the Terminal Classic for several interrelated reasons. Changes in the climate (to drier conditions) caused a decline in rainfall and thus in resources and subsistence which, in turn, resulted in a failure of the water control system and the rites that had secured rainfall in the past (Lucero 2002:820ff.). Deforestation, soil depletion and diseases further contributed to the diminishing political power of the rulers who “were probably blamed for all the mishaps” (ibid.:822). Other factors for the collapse included in-fighting among elite lineages or warfare, for example, between Palenque and a secondary center (Tonina) or between Calakmul and another Maya group which took “advantage of a weakened rulership” (ibid.:821).

Webster (2002:327f., 345), an archaeologist, argues that three main factors triggered the collapse: failure of the agricultural system and decline of resources, warfare and competition and their destabilizing effects, and rejection of ideology and kingship system because the lords were seen as responsible for the misfortunes. The author considers factors such as drought and increased vulnerability
to it, malnutrition, disease, and peasant revolt as secondary or indirect stresses, which were exacerbated or created by the aforementioned three issues, while overpopulation drove the whole process (ibid.:328, 347).

**DISCUSSION**

Some of the previously discussed models, especially foreign invasion, class conflict, and excessive demands of the elite, are criticized by several authors. Except for Hamblin and Pitcher (1980), none of the presented authors consider foreign/external invasion as a cause. According to Webster (2002:229), this hypothesis is generally discounted (see also Paine & Freter 1996:45; Santley *et al.* 1986:149). Another model that is reviewed and rejected by several authors is the class conflict/peasant revolt hypothesis (Paine & Freter 1996:45; Santley *et al.* 1986:149; Webster 2002:222f.).

Hamblin and Pitcher (1980) were criticized by Lowe (1982:644), an archaeologist, for failing to "establish the role of class conflict in the Classic Maya collapse.” He argues that one of the mathematical models Hamblin and Pitcher used could support other explanations of the collapse (ibid.:645) and that different interpretations of presented archaeological evidence are possible. For example, the destruction of the elite faces on the monuments could have been the result of dynastic upheaval. Furthermore, the figures on which the elite members stand could have depicted defeated chiefs and nobles, not peasants, and thus presented warfare not peasant revolts (ibid.:644).

Related to the class conflict hypothesis is the excessive demand model which is criticized by Webster (1985). According to this model, the demands of the elite for agricultural production and monument construction contributed to the collapse. The author, in contrast, argues that elite demands alone would not have produced intolerable stress (ibid.:395). For example, only 5% of the population belonged to the elite, compared to 90% who were farmers; the last 5% were non-food-producing or only partially food-producing specialists (ibid.:384f.). Increased agricultural production for elite and specialists demands (he calculates an approximately 10% surplus for the elite and specialists) was manageable for farmers because the elite did not export food but consumed the produced amount (ibid.:390f., 395). Furthermore, the construction of monuments was possibly spread over years and in consideration with the seasonality of agricultural production; thus, it did not interfere with farming activities (ibid.:392, 394f.). The author finally proposes that elite demands in combination with other factors could have contributed to the collapse, but he does not view elite demands/policies as a significant cause (ibid.:395f.).

Three issues are especially discussed by several scholars: population loss, the uniformity of the collapse, and the notion of the collapse itself. Some authors list massive population loss as a characteristic of the collapse (Paine & Freter 1996:37; Shaw 2003:164; Santley *et al.* 1986:149; Wilkinson 1995:284), while others have raised doubts of the extent of the population decline. Lucero (1999:242f.; 2002:821f.), for example, argues that the population reorganized, i.e. they migrated from the centres to the hinterlands, built non-platform houses and used decorated gourds instead of ceramic, and, in these ways, left less evidence in the archaeological record.

While several authors acknowledge a difference between southern and northern lowlands (Haug *et al.* 2003:1734; Peterson & Haug 2005:327; Shaw 2003), most of them view the southern lowland collapse as

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uniform. Furthermore, some scholars consider the collapse or decline as a gradual process (Hamblin & Pitcher 1980:262; Paine & Freter 1996:45). Iannone (2005:26) suggests that the collapse occurred gradually or rapidly depending on the center. This author, I propose, can be considered part of a ‘group’ of scholars, mainly archaeologists, who emphasize regional differences and changes within the southern (and northern) lowlands and, consequently, reject the notion of a uniform collapse (Lucero 2002:814; Rice et al. 2004:2, 9; Shaw 2003:161; see also Bove 1981:110f.).

Moreover, several authors criticize the notion of ‘the’ collapse altogether, especially the notion of the collapse of the Maya civilization (e.g., Demarest et al. 2004; Rice et al., 2004). Some of the previously discussed scholars, including archaeologists, use the phrases “decline of Maya civilization” (Santley et al. 1986:123), “Maya civilization collapse” (Williams 1993:705), “Maya demise” (Haug et al. 2003:1731), and “demise of Maya civilization” (Peterson & Haug 2005:322). The idea of collapse in general, and of collapse of the Maya civilization in particular, is problematic for several reasons. First, it is offensive, especially to living Maya (Rice et al. 2004:6). Second, it implies that something morally, aesthetically, and, I add, socially superior declined or regressed into something inferior (ibid.:5). I propose that such a view is based on a Western social evolutionary model in which technologically advanced and socially stratified societies are considered ‘more complex’, ‘more developed’, and (implicitly or explicitly) as ‘superior’.

Evidence of such a presentation of the Maya is found in the following statements: “[p]erhaps what fascinates us most is not the collapse itself, but the inability of the Maya to recover in so many cases” (Marcus 2003:105; my emphasis); “[… ] the more appropriate question is to ask why Maya society failed to recover following dynastic collapse” (Manahan 2004:108; my emphasis); and “[w]hen the conquistadors arrived, they encountered a shadow of Maya civilization” (Hughes 1999:87; my emphasis). I suggest that these claims clearly reveal an image of Postclassic and, possibly, contemporary Maya as incapable of restoring the past Classic ‘glory’ and the ‘complex’ and ‘advanced’ system.

As some authors rightly pointed out, it was not the civilization or culture that collapsed, declined, or disappeared, but a particular political system: the system of divine kingship with its socio-political hierarchies, economic system, inscribed stone monuments, and temples (Demarest et al. 2004:569, 572; Rice et al. 2004:6, 9; see also Lucero 2002:820; Iannone 2005:41). The Maya continued to practice other aspects of their society such as traditional ceremonies (Lucero 2002:820), the belief system, and a core mythic charter (Demarest et al. 2004:569). Therefore, the changes occurring in the 9th century might be more accurately termed and, consequently, viewed as socio-political transitions or transformations rather than as ‘the collapse’ (see also Lucero 1999:241; Rice et al. 2004:9).

CONCLUSION

What caused the ‘Classic Maya Collapse’? This question has fascinated archaeologists and other scholars for decades. In this paper I have presented several explanations for the so-called collapse, which occurred around 900 A.D. They can roughly be divided into two groups: (1) environmental/ecological factors, including climate change due to atmospheric shifts and deforestation, decline of rainfall and drought, increased exploitation of resources, environmental degradation (soil depletion and erosion),
intensification of agricultural production, malnutrition, disease (yellow fever), and demographic instability; and (2) socio-political factors such as class conflict, peasant revolt, competition, warfare, control of artificial water reservoirs, lack of macroregional resource extraction networks, excessive demands of the elite, rejection of ideology and kingship system, and decentralization (failure to unify a pan-Maya state or political instability caused by power-sharing between paramount and subordinate lords). The majority of authors claim that rapid population growth and/or overpopulation contributed to or triggered the collapse.

Moreover, most authors consider the collapse as caused not by a single issue but by multiple factors. However, they propose several combinations of factors and they emphasize different causes. Some authors, for example, suggest one primary or root cause, such as class conflict or the absence of a unified pan-Maya political system. Several scholars stress the non-uniformity of the collapse, i.e. regional differences not only between the southern and northern lowlands but also within the southern lowlands. Having reviewed the various models, it seems most likely to me that different combinations of multiple factors have caused and triggered changes at the various sites. Consequently, this view opposes searches for ‘the one’ cause or for multiple factors that explain a general southern lowland collapse; instead, following current research, the focus ought to be on regional particularities and links between sites (Rice et al. 2004:11).

Finally, I have presented, drawing on recent archaeological accounts, a discussion of the notion of the collapse in general and of the collapse of the Maya civilization in particular. I follow the arguments of Demarest and colleagues (2004) and Rice and colleagues (2004) that the civilization did not collapse, but a particular political system declined or disappeared. I have proposed that the idea of civilization collapse presents a view of the Classic Maya as more complex, advanced and, therefore, ‘superior’ than the Postclassic (and possibly contemporary) Maya. I thus argue for a replacement of the concept of ‘collapse’ (or ‘decline’) with the less judgemental notions of transition or transformations.

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Bibliography


