

Maya collapse cycles

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Classic Period Maya society (A.D. ~250–850) is almost as well known for its collapse as for its tremendous accomplishments in hieroglyphic writing, monumental art, and architecture and an extensive, populous network of cities and towns that crossed the terrain of parts of four modern nations (Mexico, Guatemala, Belize, and Honduras). Indeed, interest in the political and demographic collapse of this civilization around the 9th century A.D. is inextricably linked to its earlier majesty, and ancient Maya culture has evoked romantic interest about lost cities in the jungle since the early 19th century explorations of Stephens and Catherwood (1). Even today, avid public and academic interest remains trained on this quintessential case study and the degree to which the lessons of the Maya apply to apocalyptic currents in our own world as we abut against the struggle of political will and environmental impacts and constraints. Recent popular books written by David Webster (2), Jared Diamond (3), Patricia McAnany and Norman Yoffee (4), and Charles Mann (5) respond to the quest for analogs in Maya history. Scientific research has pushed forward our understanding of the complex processes underlying the Classic era Maya collapse, which is now known to have been the culmination of a range of different factors across a diverse political and biotic landscape. It is no longer possible to evoke a single, simple causal factor, although clearly, anthropogenic environmental impacts and untimely climatological events rank highly among the contingencies that triggered the downfall of the most fragile, populous areas of the Maya area interior.

The paper by Turner and Sabloff (6) provides a valuable historical perspective on the long-term investigations of the Classic Period Maya collapse. It rallies diverse data on human impacts to the environment and addresses issues of sustainability that rendered parts of the Maya area particularly vulnerable to a set of severe and frequent droughts of the ninth century A.D. (7). The most rapid and dramatic collapse is witnessed at political capitals and their territories in the southern Maya realm of northern Guatemala, western Belize, the southern interior of Mexico's Yucatan peninsula (and northern Chiapas), and the Copan area of Honduras. The largest cities in these areas were home to populations of 50,000–120,000, and they were surrounded by networks of secondary towns and villages that were likewise abandoned within a pe-



Fig. 1. Reconstruction drawing of the Temple of Kukulcan, Mayapan, the principal pyramid of the largest capital city of the Postclassic Maya world. Postclassic Maya civilization coalesced in northern Yucatan, Mexico after the collapse of Classic era Maya society. Illustration is by Luis Góngora (courtesy of Carlos Peraza Lope, Instituto Nacional de Antropología e Historia Mayapan Project).

riod of 50–100 y, generally, from A.D. 800 to A.D. 900. The agrarian landscape of these regions was entirely different from the forested, scarcely inhabited vast tracts that characterize the area today. In its review of extensive and intensive agrarian modifications of the environmentally heterogeneous landscape of the Maya area, the article also contributes to an important and current global literature on the large scale of anthropogenic transformations of the environment that enhanced subsistence sustainability (5, 8).

Understanding the environmental and demographic contexts of this precipitous collapse does not fully explain the phenomenon. Turner and Sabloff argue that historical, political decisions and strategies must also be taken into account, for two compelling reasons. First, Maya civilization endured for many centuries before the ninth century collapse; powerful states and densely inhabited political landscapes are known from the fourth century B.C. Earlier dynamic cycles of prosperity and demise (9) were followed within a century or two by demographic recovery or more immediately by the rise of victorious rivals. Deeper Maya history reveals the capacity to overcome earlier challenges of environmental constraints, climatic disasters, and warfare. The difference with the ninth century collapse is the fact that whereas soils and biotic communities recovered within two centuries in the southern Maya core area, the region was not resettled as one might expect if environmental con-

ditions were the prime factor. The Classic Maya collapse was a variable, complex phenomenon that prompted a mosaic of local responses, transitions, and transformations across the lowlands region (10). Abandonment of various towns and cities occurred anywhere from the late 700s until the late 900s in the southern realm, and a few settlements were not abandoned at all (11).

The lack of Postclassic resettlement of the southern/central Maya lowlands is not due to the total disappearance of Maya civilization. Even in the Petén, smaller populations lingered at aquatic hubs such as the lakes region to the south of Tikal until long after Spanish arrival (12). The field of Mesoamerican archaeology is still processing recent chronological information that reveals that the great northern polity of Chichen Itza arose by the eighth century A.D. and had its apogee during the ninth and tenth centuries A.D., precisely when the southern metropolises fell (13). The rise of a northern empire coincidental with the fall of the southern Maya heartland attests to the importance of political and economic factors. The inadequacy of a simple environmental model is driven home by the fact that

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Chichen Itza and its peers are located in northern Yucatan, which has less surface water than the southern tropical zone (14). Itza aggression and alliance building at southern sites near the Caribbean coast have long been documented and these data make sense in the context of this political shift (11, 15–17). Chichen Itza's command of seaborne trade and long-ranging contacts in the Mesoamerican world set the stage for the amplification of mercantile institutions (18) that Sabloff and Rathje (19) initially identified as a key component of societal transformation from the Classic to the Postclassic Periods.

However, Chichen Itza and its Puuc region peers fell from power by the 11th century A.D., when the full process of Terminal Classic Maya collapse may have ultimately been realized (13). Environmental factors can be identified for this interval as well (7), and the Maya area was without a prominent political capital until the middle of the 12th century when Mayapan rose to fill in the void. As the authors discuss, during the Postclassic Period (A.D. 1100–1500), state formation cycles were renewed in new localities nearer to the coasts of the Caribbean and Gulf of Mexico and in the interior northern peninsula, where the city of Mayapan was located. Mayapan was the primary political capital of a regional confederacy of unequalled size and magnitude for the Postclassic era. Under its domain, Maya civilization again resurged as is evident in burgeoning Caribbean and Gulf Coast trade networks; a nested local, regional, and long-distance market system; populous towns; a proliferation of hieroglyphic codex books on religious matters and astronomy; mural art; public monumental architecture; and a cosmopolitan international elite culture (Fig. 1). Although the Turner and Sabloff (6) article empha-

sizes the shift of commerce toward seaborne trade, the inland location of the Mayapan and earlier Chichen Itza political capitals, along with their most important political peers and subjects, suggests that overland routes were also important after the fall of Classic era centers. The agrarian needs of Mayapan, with a population of 15,000–17,000 people, as well as the sustenance required by the central towns of its confederacy, would have been favored by interior locations. For example, Mayapan was located near the ring of cenotes, a series of underground water sources created by the Chicxulub crater (20).

Mayapan fell only decades (~1448) before Spanish contact (1511) due to a partially parallel set of circumstances faced by Classic era centers. The collapse model advocated by Turner and Sabloff calls for a consideration of political, economic, and climatic constraints to stability and prosperity. The utility of this model is not exhausted for the case of the Classic era collapse. Archaeological data and ethnohistorical accounts together suggest that Mayapan, like its Classic Period predecessors, during the latter part of its occupation contended with around 150 y of episodic droughts of great severity and resultant cycles of food shortages, challenges to market economies, political instability and warfare, and periodic outmigration (21). Even after the city fell, the region is said to have been subjected to intense cold, an epic hurricane that destroyed forests and orchards, an epidemic, and more prolonged warfare that ceased only a few years before Spanish arrival (21). The possibilities for political stability and recovery were delayed in northern Yucatan and were truncated by Colonial Period disruptions beginning with epidemics and ending with the sustained impacts of Spanish conquest. In this late

case on the threshold of European contact, it is possible to observe the close interplay of compromised possibilities for agrarian sustainability and political stability.

Despite Mayapan's problems, it is noteworthy that the Maya region as a whole was not uniformly affected. Spanish eyewitnesses report networks of impressively constructed coastal towns and sophisticated market systems that continued to thrive even in the absence of a dominant Maya political capital (22). Literacy continued into the Colonial era when the vast majority of Maya codices were confiscated and destroyed by the Spanish clergy. Testimonies of far-ranging, prosperous trade networks Contact contributed in important ways to the foundations of Sabloff and Rathje's (19) model of the amplification of mercantile institutions during the Postclassic era. Thus, even for the Postclassic Period, the Maya region exhibits a mosaic of local adaptations, transformations, responses to political collapse, and environmental travesties.

Research focused on answering the question of the collapse of Maya society must now be qualified with specific parameters. Depending on which polities, which parts of the Maya area, and which centuries are under investigation, the respective weight of warfare, demography, agrarian constraints, and climatic disasters varies in importance as an explanatory mechanism (10, 21). Turner and Sabloff's article contextualizes the historical development of the Maya collapse debate and it reconciles two contending causal factors—political and environmental—under the rubric of a human–environmental model that allows for variation and complexity through space and time. This approach is applicable well beyond the Classic era Maya case.

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