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This overview of Maya defensive barricades is organized into three sections: generalizations, case studies, and controversies/future directions in the study of Maya defensive barricades. Before discussing Maya defensive barricades, I provide the who, where, and when of Maya culture and history. Maya is a term that is used to define a culture that is primarily concentrated in Guatemala; Belize; the Mexican states of Yucatan, Quintana Roo, Tabasco, Campeche, Chiapas, and Veracruz; and the Western portions of the countries of Honduras and El Salvador. Despite popular narratives for the collapse of Maya society that resulted in vast empty jungle cities, millions of Maya currently live in various parts of the world and many speak one or several of 28 different languages that are linguistically classified as Mayan. Scholars of the Maya have long established affinities among extant Maya groups, the indigenous peoples that Spanish colonizers encountered (e.g., Hernan Cortes, Fray Diego de Landa) and the pre-Columbian peoples of contemporary Guatemala, Belize, Mexico, Honduras, and El Salvador (c.f. Coe 2011; Sharer & Traxler, 2006). Based on the closeness of some linguistic, cultural, and material traits, such as the use of a 260-day calendar, evidence for Maya culture can be found for over 3,000 years and is generally divided into five periods of culture history: Preclassic (2000 BC-AD 250), Classic (AD 250-900/1000), Postclassic (AD 900/1000-1525), Colonial/Historic (AD 1525-1825), and Modern (AD 1825-present). Although the dates for the start and end of each period can vary by scholar and location (site, region), scholars of the Maya generally use the above periods in the order outlined.

Generalizations

Evidence for Maya defensive barricades can be found in every period of their culture history. Although a barricade can be defined as a quickly constructed barrier, I define a defensive barricade as any human construction that is designed to obstruct the movement of people during war. Any barrier to human movement, artificial and natural, could become a defensive barricade, but I focus on human constructions that were designed to have defense as one of their major functions.

Maya defensive barricades were designed in roughly linear and concentric forms. For example, at the Classic period site of Dos Pilas in Guatemala, the Maya constructed two concentric walls around the West Plaza Group that served to defend the sites remaining inhabitants during the political disintegration and rapid depopulation of the site that is often referred to as the collapse of Dos Pilas (Demarest, 2006). Linear defensive barricades are not built exactly in straight lines but are constructed in a roughly linear form with two unconnected ends, such as at the Postclassic/Colonial period Maya site of Tzunun in Chiapas, Mexico (Fig. 1). Linear and concentric forms are not mutually exclusive, but the form of Maya defensive barricades will generally fall into one or both categories.

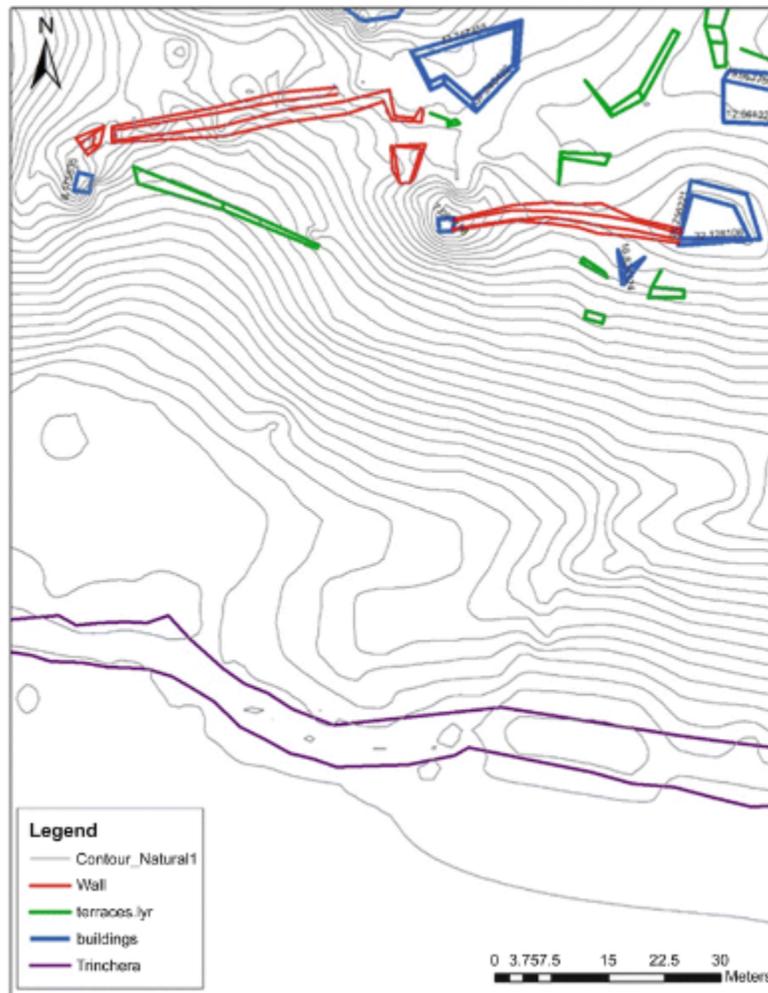


Fig. 1
Linear defensive features at Tzunun, Chiapas, Mexico

Maya defensive barricades can include a combination of ditches, walls, terraces, buildings, and gates. Trenches can be excavated to form dry and wet ditches (Fig. 2). Depending on seasonal rainfall and fluctuations in the local water table, a dry ditch can become a drainage ditch, canal, or moat. The Maya also employed freestanding and retaining walls as defensive barricades (Fig. 3). Retaining walls were generally used to hold back earth and create terraces. Some Maya defensive barricades incorporated preexisting human constructions in the form of terraces or buildings (artificial constructions with a roof and/or four walls). A terrace is an artificially level surface that in the case of defensive barricades is usually denoted by at least one stone retaining wall at an edge of a level surface. Bastions are types of buildings that protrude from a defensive wall that are designed to house defenders, and the Maya built square-shaped bastions. Maya gates could be simple openings, baffled and screened (c.f. Keeley, Fontana & Quick, 2007). Baffled gates force attackers to expose their sides and rear to enemy fire. The exposure of the attacker's weak points is accomplished by creating a path through the gate that requires people to change direction(s) as they walk through the gate. Screened gates are access points in a defensive feature that has an entrance that is obscured to the human eye.



Fig. 2
Ditch and rampart at Tzunun, Chiapas, Mexico



Fig. 3
Stone defensive barricade from Tzunun, Chiapas, Mexico

Maya defensive barricades can be constructed of perishable and nonperishable materials. Perishable materials can include wood, reeds, sticks, thorny plants, and cloth. Nonperishable materials used by the Maya are earth, stone (mainly limestone), and lime mortar. Most known Maya defensive barricades were constructed of a combination of perishable and nonperishable materials. At Dos Pilas and other nearby Classic period sites, the currently visible freestanding stone walls served as bases to support wooden posts for a palisade. The stone bases were used in areas where the soils were too shallow to adequately support a wooden post (Palka, 2001).

It is difficult to place limits on the height or width of Maya defensive barricades because the practice of pre-Columbian Maya warfare is poorly understood. By practice, I mean how the Maya fought wars or what is sometimes referred to as the tactics and art of war. I will elaborate on the issues with practice in the final section of this overview. A Maya defensive barricade can have any width and height as long as it can be established that one of the functions for an artificial construction was to obstruct the movement of attackers. Therefore, at this moment, it cannot be determined solely through calculations of height and width whether or not human constructions served as defensive barricades. Instead, scholars must rely on assembling multiple lines of evidence to build arguments for the defensive function of structures, except in some cases where populations have experienced conflict and can attest to a human construction as being or having been used as a defensive barricade.

Case Studies

This section provides a more in-depth look at two well-known Maya defensive barricades from the sites of Becan, Mexico, and Aguateca, Guatemala. My goal is to provide concrete examples for the above generalizations and to display the diverse ways that the Maya constructed defensive barricades. Through the case studies, I also want to provide some background for research trends on warfare and defensive barricades in Maya studies. The examples are archaeological, but the Maya did not use defensive barricades solely in their past. Many current Maya have experienced war in Chiapas, Mexico, during the 1990s and in the country of Guatemala during the 1980s, and they built defensive barricades in both cases (e.g., Barmeyer, 2008; Inclan, 2009; Menchú, 1984).

The vast majority of data and studies on Maya defensive barricades focus on the past that no living person has experienced, and I rely on this information to provide arguments on Maya defensive barricades that have become well known by scholars. Unfortunately, perishable materials do not preserve well in the hot and moist environments where most Maya archaeological sites are located. Consequently, the majority of data available on pre-Columbian Maya defensive barricades are the remains of nonperishable materials and the occasional recovery of preserved perishable materials.

Becan is a Preclassic Maya archaeological site in Campeche, Mexico, with a dry ditch and rampart that served as a defensive barricade (Webster, 1976). The research conducted by David Webster at Becan is a landmark study on Maya culture and warfare. Webster was not the first to argue that the Maya prior to the Postclassic period conducted warfare, but his study dealt a major blow to the prominent argument of a peaceful Maya civilization prior to the Postclassic period. Becan is located on a limestone outcrop that elevates the site 10 m above the surrounding terrain. The ditch and rampart surround the site by maneuvering around the outcrop, bajos (low-lying areas that seasonally flood), and preexisting structures. The site of Becan contains monumental architecture, and Webster argues that the site was a center for elites. The ditch has an average width of 16 m and height of 2.5 m. The total length of the defensive barricade is 1,890 m. The ditch was excavated to create nearly vertical sides and a flat bottom (Fig. 4). Through excavations, it was revealed that the inner vertical side of the ditch was held in place by a wall composed of limestone. The evidence for the wall was rubble with "nodules the size of golf balls to rocks 30 cm. in diameter or even larger" (Webster, 1976, p. 33). The wall on the inner side of the trench helped to prevent erosion of the ditch.

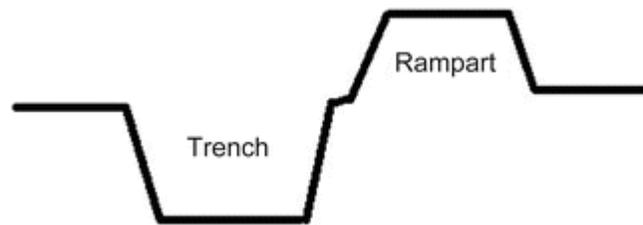


Fig. 4

Profile image of Becan ditch and rampart (Redrawn from Webster, 1976, p. 64)

The material excavated to create the ditch was heaped towards Becan to create the site's rampart. The rampart ranges in width from 10 to 14 m and 1.0 to 3.6 m in height. Together, the ditch and rampart have an average height of 9.6 m, and when the earthworks were used and maintained, they may have had an average height of 11.6 m. The top of the rampart could have served as a parapet (a structure or extension of a structure that can provide cover for combatants), but this argument is currently speculation. Nonetheless, the ramparts as a whole functioned as parapets. No evidence for a palisade was recovered from the excavation of Becan's defenses. The barricade also had multiple causeways that functioned as access points to Becan, and if the access points had gates, they would have been constructed of perishable materials that were not recovered through excavations.

The deciphering of Maya hieroglyphic writing, along with research at Aguateca and other sites in the Petexbatun region of Guatemala, provided the next major jolt in the study of Maya warfare and defensive barricades that resulted in a flurry of research on Maya warfare that continues today. Aguateca is a Classic Maya archaeological site in the Petexbatun region of Guatemala whose past inhabitants used the local terrain together with artificial modifications to create multiple barricades to defend the site (Demarest, 2006; Demarest et al., 1997; Inomata, 2008).

The core of Aguateca contains the site's monumental architecture and was defended by multiple freestanding stone walls (Fig. 5). During the survey and mapping of Aguateca, the stone defensive barricades of Aguateca were found to range from 0.5 to 1.8 m in height and 1 to 2.5 m in width. The total length of the defensive walls is 4,506 m. The site's core was inhabited by Aguateca's elites, and much of the monumental architecture was used for rituals that were tied to Classic Maya rulership. The core of Aguateca is surrounded by an escarpment to the east, a gorge to the south, and a large

sinkhole to the north. These geologic features of the landscape were employed by the Maya as defensive barricades, along with Aguateca's multiple defensive walls. The walls incorporated Aguateca's existing structures as part of the defensive walls. The defensive walls also had multiple access points in the form of causeways, but no remains of gates were recovered. Many sections of Aguateca's stone defensive barricades were not completed because Aguateca was attacked and heavily depopulated before the defensive barricades were finished.

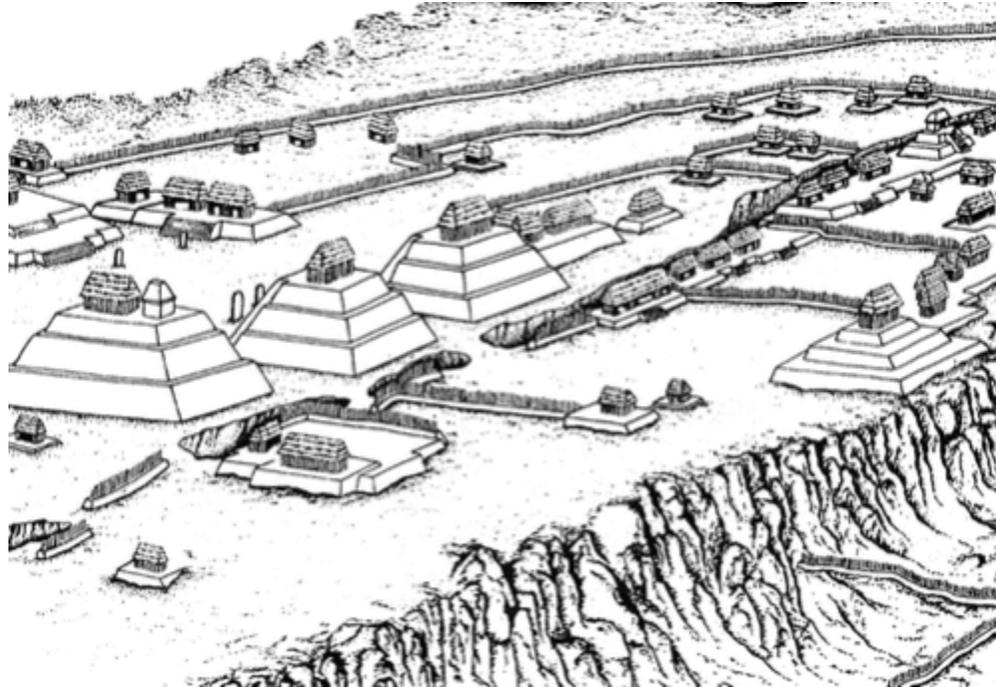


Fig. 5
Aguateca and its defensive barricades (Redrawn from Demarest et al., 1997)

The stone defensive barricades of Aguateca served as bases for wooden palisades. The shallow surface soils of Aguateca would have required the Maya to dig into bedrock to provide adequate foundational support for wooden posts, and the Maya thus created stone bases to support the palisades. The stone walls were likely constructed by a combination of blocks that were naturally formed and blocks roughly shaped by the Maya, but this argument is currently a speculation. There is no evidence for the use of mortar to hold the blocks in place. Excavations of the stone defensive barricades suggest there are three construction forms for Aguateca's stone defensive barricades (Fig. 6). The most common form consists of large stone blocks that are stacked horizontally with rubble inside to create additional support for a wooden post. The second form is similar to the first except that the bottom course of the outer stones is placed vertically. The third form has two levels of flat surfaces. The tallest level likely supported a palisade that served as a parapet, and the lower level would serve as a surface for a person to stand and move on. No postholes were recovered from excavations at Aguateca. But comparative data from other sites in the Petexbatun and because excavations revealed Aguateca's defensive walls were arranged in two vertical lines of stone that would press on an object in the center, Aguateca's stone defensive barricades likely contained a post in the center.

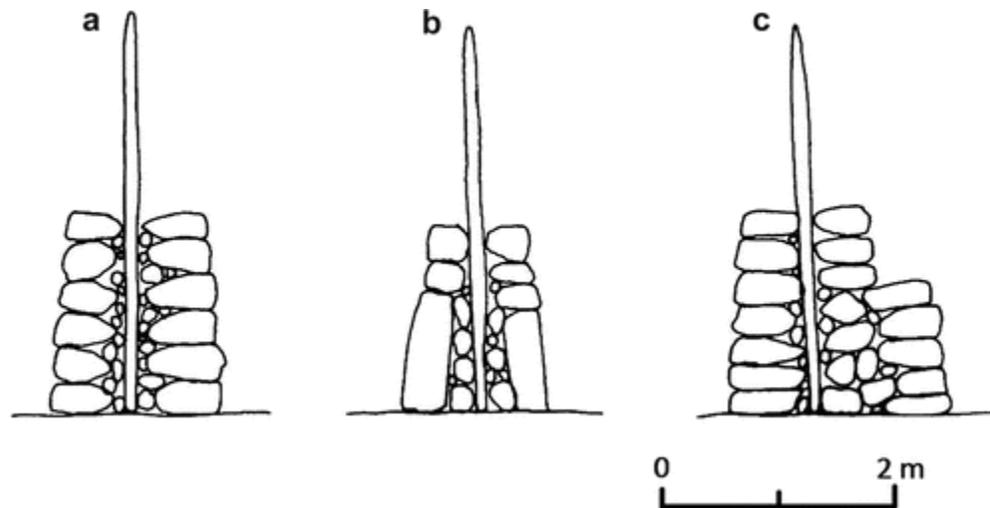


Fig. 6

Aguateca wall forms (Redrawn from Inomata, 2008, p. 32)

Controversies and Future Directions

Three areas in the study of Maya defensive barricades provide controversy and potential for important future insights on the Maya, technology and the social behavior of people. First, the practice of Maya warfare is poorly understood, and this void is causing confusion in understanding what human constructions served as defensive barricades. Second, scholars of the Maya need to continue to shift away from studying the monumental cores of large sites such as Tikal, Copan, and Palenque. Third, studying the relationships among warfare, defensive barricades, and Maya culture and society provides the area with the greatest potential for future study.

Without understanding how the Maya practiced war, scholars will have to rely heavily on universalist and Western assumptions on the practice of war to understand what structures served as defensive barricades. By universalist assumptions, I mean assuming that there are common warfare methods and practices for all people past and present, such as the assumption that all warfare requires the destruction of other people and the production of fear. These assumptions, like all assumptions, need to be examined and tested before they can be assumed to be relevant and a part of past people's experiences. For example, the controversy over whether or not the earthworks of Tikal, Guatemala, served a defensive function highlights how it is necessary to understand the practice of Maya warfare to understand Maya defensive barricades better.

Silverstein and colleagues argue that the Tikal earthworks would not have been effective defensive barricades for the following reasons (2009):

1. There is 300 m bifurcation on the northwest corner of the earthworks that stood alone, away from the rest of the earthworks and terminated at an aguada or small reservoir (Silverstein and colleagues provide no images of the bifurcation).
2. Sections of the earthworks run obliquely on the downward slopes of hills.
3. The height of the earthworks changes at times such that they provide an inadequate barrier for defense.
4. The earthworks are often found in relation to catchment basins (bajos or aguadas), and thus, the ditch could have been dug to tap into the water table.

Silverstein and colleagues admit their hypothesis requires more research and excavations of the Tikal earthworks, but a problem they overlook is that they assume a defensive barricade has to be effective in order to be a defensive barricade. Because the practice of Maya warfare is poorly understood, it is difficult to understand the effectiveness of the Tikal earthworks. Consequently, Silverstein and colleagues use present standards for tactics and effectiveness in their study of the Tikal earthworks that research on the Maya does not support. For example, some sections the Great Wall of Mayapan, Mexico, do not run along the apexes of slopes, but archaeological and documentary evidence supports that the Great Wall functioned as a defensive barricade (Shook, 2009 [1952]). Therefore, the fact the Tikal earthworks are not

solely on the crests of hills does not negate their defensive function. Furthermore, it is unclear why defensive barricades cannot also have hydraulic and other functions and why a structure's functions cannot change over time.

As a field of study, Maya archaeology has focused on large sites with groups of monumental architecture. However, the study of Maya defensive barricades requires archaeologists to study the peripheries of sites and areas away from monumental architecture. Defensive barricades incorporate the landscape they are a part of in order to obstruct movement. Therefore, the study of Maya defensive barricades requires the survey of large tracts of land that could lead archaeologists very far from large cities. Defensive barricades can be found among monumental architectural groups, but research at the Classic period site of Tecolote, Guatemala, highlights that some of the largest Maya sites created defensive barricades far from their monumental cores (Scherer & Golden, 2009). Tecolote is a mid-sized Maya site with multiple defensive barricades that served to create a fortified border for the large Classic site of Yaxchilan that is 16 km SE of Tecolote. Consequently, the study of Maya defensive barricades complements movements among Maya scholars to study the peripheries of sites and shifts Mayanists' focus away from groups of monumental architecture. The shift to studying the peripheries of sites will improve our understanding of the Maya because, if we employ the United States as an analogy, how clearly and comprehensively could anyone understand US culture and society if scholars only investigated the remains of skyscrapers in the largest cities of the United States?

Defensive barricades are technologies in the broadest sense and the adoption of technologies in warfare is a cultural process (Lynn, 2003). Canons and gunpowder did not become dominant technologies in Western European warfare because they were objectively better technologies for war but because in the Western European context, people used castles and gunpowder in ways that people found useful in the practices of Western European warfare and their societies. Therefore, the types of defensive barricades the Maya constructed and may develop in the future provide information on the entanglements of Maya culture and warfare practices. Two current debates that highlight important links between Maya culture and warfare are the development of Maya culture during the Preclassic and the process that is often referred to as the Maya collapse at the end of the Classic period (cf. Demarest, 2006; Demarest, Rice & Rice, 2004; Estrada-Belli, 2011; Inomata, 2008; Webster, 1977). In both debates, evidence for warfare in the form of defensive barricades suggests that conflict played a major role in the social processes of both periods. It is clear that defensive barricades can provide many insights into Maya culture, and with increasing research on Maya warfare, the future will provide more information on the importance of defensive barricades for understanding Maya culture.

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