

The Formative Period in Mesoamerica

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Key Points

- Sedentary farming villages and pottery appear during the Initial Formative.
- Long-distance exchange of Early Formative items with “Olmec-style” symbols reflects shared belief systems across Mesoamerica.
- Monumental architecture and differential burial practices provide evidence for emergent social inequality in the Middle Formative.
- Large cities appear during the Late Formative in both the highlands and tropical lowlands.
- Some regions experienced decline in the face of droughts during the Terminal Formative.

Glossary

aDNA (ancient DNA) A term used to describe DNA samples extracted from humans, animals, and/or plants recovered from archaeological contexts.

Ballcourt A term describing large masonry structures that create a long narrow alley flanked by two walls with vertical and sloping faces. Ballcourts were used to play the Mesoamerican ballgame, which, for Classic period societies, re-enacted a creation story recorded in religious texts.

Complex (pottery) A term that identifies a recurring pattern of association of pottery vessel types, decoration, surface color, or other technical attributes that are both temporally and spatially discrete.

E-Group Sometimes called “E-Group Assemblages”, E-Groups typically consist of a pyramidal structure on the west side of a plaza and a tripartite structure on the eastern side.

Instrumental Neutron Activation Analysis (INAA) INAA is a scientific analytical technique for multi-element identification of major, minor, and trace elements in samples. In archaeology, INAA is mostly applied to samples of pottery and lithics to assist with identifying the location of production.

Lidar (light detection and ranging) A form of laser scanning that uses light sensors to measure the distance between the sensor (often on an aircraft) and the ground surface. Lidar provides the ability to record buildings or monuments in extreme detail by eliminating tree-cover.

Mazatán A region on the Pacific coast of Mesoamerica, located in the southern part of the modern Mexican state of Chiapas.

Mokaya The first archaeological culture to use pottery along the Pacific coast of modern-day Chiapas, Mexico. The Mokaya culture dates primarily to the Early Formative.

Settlement hierarchy A term that describes arrangements of settlements on a landscape into a hierarchy based upon their size, population, and/or social rank. The presence of at least three tiers in the hierarchy (e.g., primate center, regional center, farming village) marks a complex society.

Talud-Tablero An architectural style used in temples, pyramids, and platforms in ancient Mesoamerica. A steeply sloping wall (*talud*) is surmounted by a table-like, right-angled panel with an inset (*tablero*). A *tablero* normally sits between two *taluds*. The style was used primarily at Teotihuacan in the Classic period, but first appears in the Late Formative in central Mexico.

Tecomate Derived from the Nahuatl word “tecomatl”, *tecomate* is a Spanish term for gourd-shaped vessels common in Early and Middle Formative pottery assemblages.

Volador A ceremony described in contact and Colonial era ethnohistoric documents, which is still performed by indigenous groups in Mexico, especially the Totonac of Veracruz. During the ceremony, *voladores* (“flying men” in Spanish) climb a tall wooden pole 18–40 m in height. The *voladores*, secured by long ropes tied on their legs, then hang from the pole as it spins. The ceremony is associated with fertility and rebirth.

Zea mays The species of plant known as maize or corn that was the staple crop of ancient Mesoamerica, and remains an important source of food and fuel for modern societies around the world.

Abstract

Mesoamerica’s Formative period was one of the most critical transitions in social, political, and economic dynamics in the region. Over the course of ~2000 years, communities settled on the landscape, committed to agriculture, adopted pottery technology, and started building monumental constructions. By the end of this era, most people lived in highly stratified state-level societies, and cities dominated the social and political landscape. This review traces the emergence of Formative cultural traits and social structures to appreciate how this important period set the stage for the rise of later Classic and Postclassic societies across Mesoamerica.

Introduction

The Mesoamerican Formative spanned over two millennia and witnessed dynamic transformations in social, political, and economic institutions. Beginning around 2000–1800 BC, small agricultural communities that engaged in household craft production and long-distance trade were scattered throughout most of Mesoamerica. Over the next 1500 years, the spread of shared ideological expressions of power at both local and regional scales provides evidence for the development of inequality. By the end of the Formative, most Mesoamerican societies shared these traits, with large populations living in stratified state-level societies centered upon cities governed by a royal class.

Taking regional variation into account, this review traces patterns in the emergence of early Mesoamerican lifeways in seven primary regions where Formative data are most widely available: the Gulf Coast lowlands, the Pacific Coast and southern highlands of Chiapas and Guatemala, the Central Mexican highlands, Oaxaca, Guerrero, West Mexico, and the Maya lowlands (Fig. 1). A lack of systematic Formative period studies meant that we knew very little about the foundations of Mesoamerican civilizations in some regions until the past 30 years. More recent research provides information about the appearance of a distinctive set of cultural traits (e.g., social inequality, specialized craft production, urbanism, kingship, writing) during the Formative that set the stage for the rise of later Mesoamerican societies (Table 1).

Overview

Archaic Antecedents and the Initial Formative

The roots of Mesoamerican village life date to the Archaic (8000–2000 BC) and Initial Formative (2000–1400 BC) periods. Several major revolutions took place during this ~7000-year interval that defined Mesoamerica as a culture area, including the domestication of a suite of staple crops (e.g., maize, beans, squash, chile peppers), adoption of pottery technology, and establishment of permanent sedentary villages. The Archaic was a transition from mobile hunting, gathering, and fishing lifestyles to an economy focused on cultivated foods. Ancient DNA (aDNA) analyses estimate that maize (*Zea mays*) domestication began ~9000 years ago in Balsas River Valley of the modern Mexican state of Guerrero in southwestern Mexico. The earliest maize cobs were recovered from dry rockshelter sites in the Oaxaca highland and the Tehuacán Valley of the Central Mexican highlands. Dating to ~4000 BC, genomes of these samples suggest only partial domestication. Fully domesticated cobs appear in Mesoamerica after ~2500 BC (Kistler et al., 2020), corresponding with new aDNA data suggesting south-to-north migration of humans (along with domesticated maize) from South America into the Yucatán Peninsula (Kennett et al., 2022). Though direct evidence for maize consumption is limited, isotopic paleodietary studies of human burials from Oaxaca, the Pacific Coast, and the Maya lowlands suggest maize contributed over half of the total dietary protein for most Mesoamericans by 2000 BC.

Pottery technology marks the start of the Formative period. It first appeared between 2000–1700 BC along the Pacific Coast of Chiapas and Guatemala, the highland valleys of central Mexico and Oaxaca, the Gulf Coast lowlands, and Honduras (Clark and

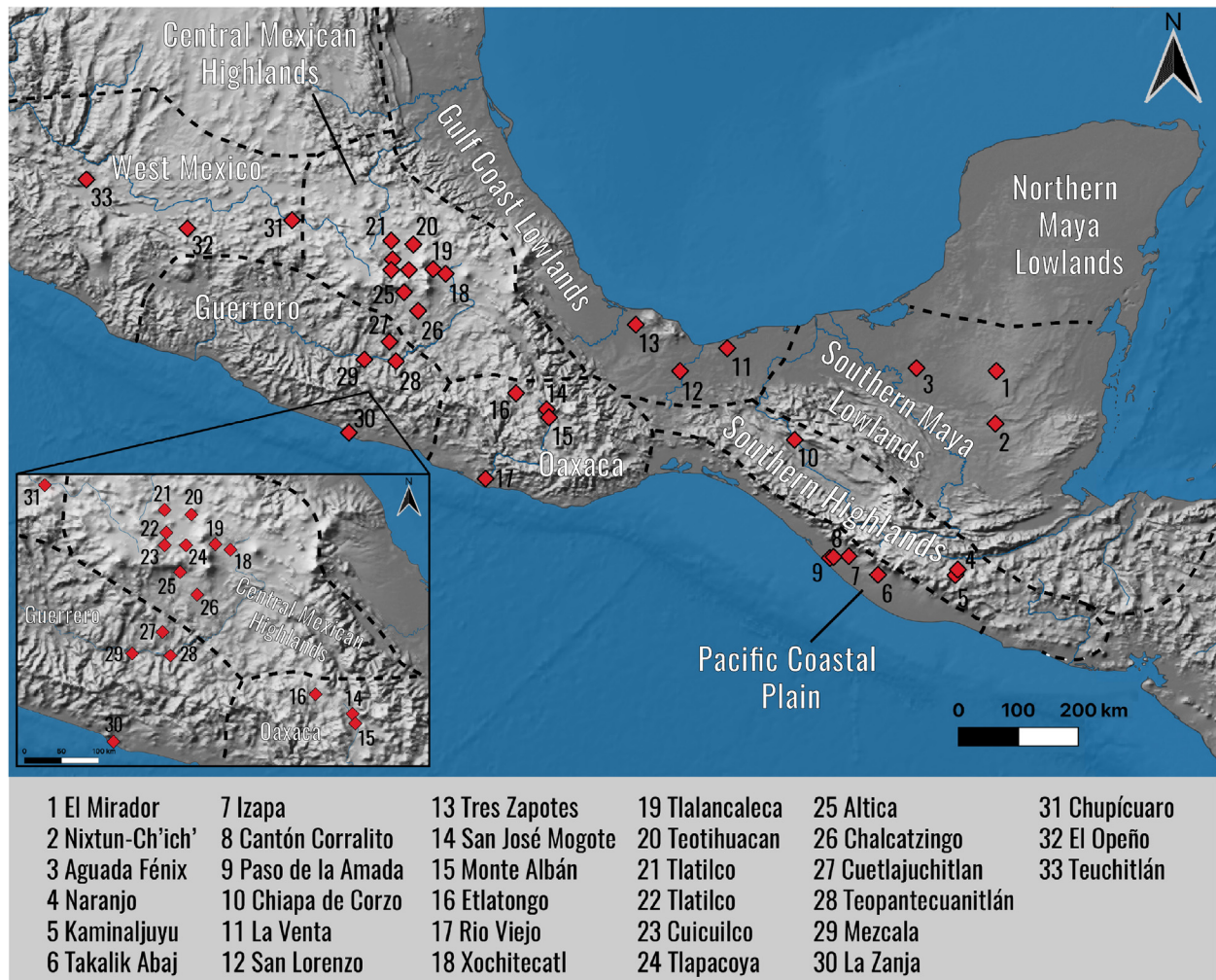


Fig. 1 Map of Mesoamerica showing major regions and sites mentioned in text.

Table 1 General chronological divisions for the Formative period.

Time period	Years BC/AD
Archaic	8000–2000 BC
Initial formative	2000–1400/1200 BC
Early formative	1400/1200–900/800 BC
Middle formative	900–300 BC
Late formative	300 BC–AD 100/300
Classic	AD 100/300–900/1000

Date ranges that vary by region and/or site are noted in the text. All dates are listed in AD/BC.

Gosser, 1995). Pottery appears last in the Maya lowlands, between 1200 and 900 BC. Though differences in the form and amount of decoration on early pottery varies by location, indicating that the function of vessels also varied, early assemblages are dominated by globular jars and the iconic gourd-shaped *tecomates* (Fig. 2). After 1600 BC, widespread use of ceramic designs and long-distance exchange of obsidian, shell, and greenstone indicate increasingly intensive interactions among the different regions in both highland and tropical lowland zones of Mesoamerica.

Gulf Coast Lowlands

The Gulf lowlands of Veracruz and Tabasco, Mexico, are characterized by broad coastal plains punctuated by the low relief of the basaltic Tuxtla Mountains. During Postclassic times, the Aztec called this region *Olman* (“Land of Rubber”), from which modern



Fig. 2 Artistic reconstruction of Early Formative Barra pottery from the Soconusco. Redrawn from [Blake et al. \(1995, Fig. 5\)](#). Illustration by Claire Ebert.

scholars have adopted the name Olmec. The term “Olmec” also refers to a distinctive art style that also spread both within and outside of the Gulf Coast heartland ([Clark and Pye, 2000](#)). Pottery incised with symbolically significant motifs, hollow anthropomorphic figurines, and stone sculpture in both human and animal forms define the Olmec style.

The primacy of Olmec style during the Early Formative sparked one of the most polarizing debates in Mesoamerican archaeology, often referred to as the “Olmec Problem”, which reflected opposing paradigms for the development of complexity. For some, the Gulf Coast Olmec were the precocious “mother culture,” different from other contemporary Mesoamerican groups in kind rather than degree. They argued that the San Lorenzo Olmec developed a unique set of traits including monumental stone sculpture, a cosmologically significant site layout, and a sophisticated iconographic system that were imported from other regions of Mesoamerica (see [Neff, 2011](#)). Archaeologists advocating the primacy of the San Lorenzo Olmec attributed the Early Formative spread of Olmec style to an unbalanced exchange of items (notably highly decorated pottery) and ideas from the Gulf Coast to neighboring regions (e.g., [Blomster et al., 2005](#)). There has been considerable disagreement over the degree of influence of the Olmec in Early Formative complexity, however, as well as the mechanisms behind the spread of Olmec style. Where data are most abundant, other archaeologists argued that contemporaneous Mesoamerican communities experienced growth, based on the presence of large, nucleated villages, similarities in religious architecture, and sophisticated local crafting traditions. This was suggested to reflect mutual relationships between San Lorenzo and smaller, less stratified groups elsewhere in Mesoamerica (e.g., [Flannery and Marcus, 2000](#)).

Regardless of debates, San Lorenzo was the largest and most socially differentiated polity in Early Formative Mesoamerica. During the Initial Formative, the site was the paramount center in a multi-tiered settlement hierarchy ([Pool, 2007](#)). Located on a modified plateau 50 m above seasonally inundated wetlands, San Lorenzo was surrounded by peripheral residences and seasonal base camps on *islotas*, or small, constructed mounds. These households were strategically placed to exploit the rich aquatic resources that supported a diversified subsistence strategy ([Cyphers, 2018](#)). San Lorenzo reached its apogee after 1200 BC, when the site spread over 800 ha. The site’s leaders built grandiose palaces, including the Red Palace, so called because of the red earthen floors that lined the structure’s many rooms. The building’s unique architectural elements also included stone columns, a winding stone drain, and a stone monument workshop ([Cyphers, 2018](#)). The enormous size of some monuments in the Red Palace suggest that elites mobilized labor from the surrounding populations for their construction.

The exact mechanisms that underwrote power at San Lorenzo remain unclear. Riverine transportation networks may have been important for moving massive basalt blocks >25 metric tons, which were then carved into colossal heads, thrones, and life-sized anthropomorphic figures ([Cyphers, 2018](#)). A total of 10 colossal heads, enormous basalt sculptures which are thought to represent portraits of leaders, have been recorded at San Lorenzo ([Fig. 3](#)). Others suggest control of exotic resources like greenstone, magnetite, and obsidian supported San Lorenzo’s growth. Evidence for increasingly formalized ceremonialism has been found at the nearby sites of El Azuzul and El Manati, which may have also provided a source of elite power. In general, however, by the time San Lorenzo emerged as a highly stratified polity, control over economy and ideology were the principal underpinnings of elite authority in the Gulf lowlands ([Pool, 2007](#)).

San Lorenzo suffered considerable population decline between 1000 and 800 BC. While that site waned, La Venta grew into the most important Middle Formative center of the Gulf lowlands. La Venta’s civic-ceremonial zone is notable for both its size and formal arrangement of six distinct architectural complexes, with a massive pyramid dominating the site’s northern end ([Pool, 2007](#)). This layout, with large pyramids in the north and a central precinct called an E-Group (consisting of a western square or conical building and an eastern elongated platform), spread to other parts of Mesoamerica, notably the Maya lowlands ([Inomata et al., 2020](#)). La Venta also possessed the best-known corpus of monumental constructions and stone sculpture from the Gulf lowlands. Carved monuments include altars, thrones, stelae, colossal heads, and formally constructed tombs ([Pool, 2007](#)). The most elaborate of the latter category is a roofed tomb made from natural basalt columns ([Fig. 4](#)). It contained the bundled remains

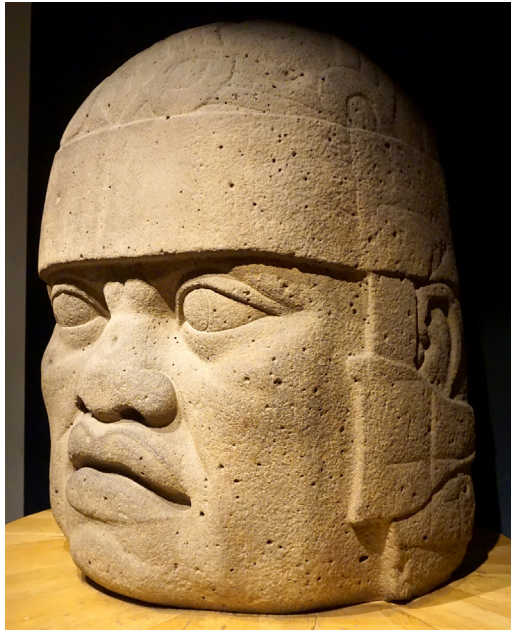


Fig. 3 Photograph of Olmec colossal head from San Lorenzo (Veracruz), National Museum of Anthropology, Mexico City. Photograph by Claire Ebert.



Fig. 4 Reconstruction of La Venta basalt column tomb, National Museum of Anthropology, Mexico City. Photograph by Claire Ebert.

of two to three children along with an abundance of grave goods including carved jade, a hematite mirror, obsidian disks, and six stingray spines. Elaborate offerings of ceramic vessels, polished iron ore mirrors, greenstone celts and axes, and buried “jaguar mask” mosaics have also been documented at La Venta.

Intensive inter-regional interaction with the Gulf lowlands diminished by 400 BC as many other large, centralized polities emerged in the Basin of Mexico, the Valley of Oaxaca, and the Maya lowlands. Although sites in the eastern Gulf lowlands declined, the Epi-Olmec period (or Late and Terminal Formative; 400 BC–AD 300) saw a cultural florescence of the western Gulf Lowlands region. Tres Zapotes became the most important center, boasting over 40 stone monuments in both Olmec and Izapan styles. Other important advancements during the Epi-Olmec period include the first appearance of writing in the Gulf lowlands and the first long count calendar dates (Pool, 2007). Despite these developments, after AD 300 the region never regained the population densities known during the Formative period.

The Pacific Coast and Southern Highlands

Some of the most detailed archaeological data for early villages comes from the Pacific Coast and the southern highlands of Chiapas, Mexico and Guatemala. Early pottery-using villages appeared along the Pacific coastal plain in the Mazatán region ~1900–1600 BC as part of the Mokaya tradition (Blake et al., 1995). The earliest ceramic assemblage (Barra complex) is dominated by highly decorated vessels (incised, painted, and carved) including *tecomates*. The subsequent Locona (1700–1500 BC) and Ocos (1500–1400 BC) ceramic complexes are defined by a wider range of forms, including deep bowls, as well as plates, dishes, and wide, open bowls (Clark and Gosser, 1995), similar to contemporary styles in the Gulf Coast (Ojochi pottery).

Social differentiation is evident in Early Formative villages of the Pacific coastal plain. At the site of Paso de la Amada, for example, one of the largest mounds, Mound 6, may represent a series of superimposed elite residences (Lesure, 2021). Paso de la Amada also possesses one of the earliest known ballcourts in Mesoamerica, which would later be linked with Mesoamerican creation narratives. Restricted access to some prestige items, like finely decorated pottery, by self-interested “aggrandizers” living at Paso de la Amada is also interpreted as evidence for inequality (Clark and Blake, 1994). By 1400–1300 BC (Cherla phase), a pattern of political cycling becomes evident with the periodic rise and fall of elite centers in the Mazatán region. Cantón Corralito, which has been linked to San Lorenzo by similarities in geochemical composition of pottery and decorative motifs, became the dominant center of the Pacific coastal plain.

The focus of social and economic power shifted southwards in the Middle Formative, where new political centers emerged, populations expanded, and a regional settlement hierarchy developed. Interaction between sites in this region is reflected by shared sculptural styles (Guernsey, 2012). While most local centers erected a handful of carved monuments, over 300 sculptures stylistically dating to the Middle Formative are present at Takalik Abaj. Stone sculptures include plain stela, zoomorphic figures, and depictions of rulers or other high-status individuals denoted by hieroglyphic name tags. Highly distinctive “potbelly” sculpture reminiscent of the portraiture of the Olmec colossal heads is also typical for the site. Middle Formative populations also expanded across the Guatemalan highlands. Naranjo, in the Valley of Guatemala, was the most significant center prior to the rise of Kaminaljuyu in the Late Formative (Arroyo, 2018). Naranjo was composed of several low mounds arranged around a central plaza, with the largest structure standing at 7 m tall. The site is also known for its 35 plain stone monuments, the largest number of any highland site, suggesting that it was a regional pilgrimage center. Naranjo experienced decline and abandonment beginning ~400 BC, coincident with the Late Formative rise of Kaminaljuyu.

The region reached a demographic and cultural highpoint in the Late Formative. Massive urban centers flourished, and their growth reflects a broader trend toward regional political centralization across Mesoamerica (Guernsey and Love, 2020). Large cities including Kaminaljuyu, Izapa, and Chiapa de Corzo shared architectural and artistic styles, and were also connected through exchange networks. Izapa was the largest Late Formative center on the Pacific coastal plain and held sway over a 450 km² hinterland zone (Rosenswig, 2019). Its sophisticated artistic tradition is represented by over 250 carved stone sculptures, including stelae and frog-shaped altars. Kaminaljuyu was the largest Late Formative highland site and played a precocious role in both highland and Pacific coastal sociopolitics, especially since it was strategically located to control obsidian from the El Chayal source located 22 km to the east. Salvage excavations recovered substantial evidence for exponential population growth between 700–400 BC (Arroyo, 2020). At this time, the site’s largest temple (~21 m tall) was associated with at least two Formative tombs and other ceremonial deposits. Animals also played an integral role in ceremonial activity. Dog, deer, birds, and freshwater and marine fish remains are present in burials and feasting deposits. Stable isotope analyses of faunal bones, as well as human remains, also suggest movement of animals and people to the site from long distances for political or ritual events (Sharpe et al., 2021). The florescence of urban centers in the southern Pacific zone ended abruptly around AD 200. This decline is mirrored in the southern Maya lowlands, associated with extreme drought conditions both in the highlands and lowland zones (Guernsey and Love, 2020).

Central Mexican Highlands

As early as the Initial and Early Formative, Central Mexico was a cultural crossroads that linked western Mexico with Mesoamerican regions to the east. Tlatilco provides an example of these Early Formative inter-regional connections. More than 450 burials were documented at Tlatilco, some of which contained decorated vessels with stylistic similarities to the west Mexican Capacha and Gulf Coast pottery. Olmec-style effigy vessels and hollow white-ware baby figurines were common grave goods, likely associated with individuals of elevated status. Tlatilco also possess a distinctive local style of figurines characterized by curvaceous females with elaborate hair styles and jewelry, sometimes holding infants or small animals (Fig. 5). Inhabitants at the site of Tlapacoya also used Olmec style pottery, some of which may have been produced at the Olmec center of San Lorenzo as suggested by INAA (Blomster et al., 2005), though others were produced locally. While Tlapacoya lacks the extensive burial assemblage of Tlatilco, the presence of exotic imports at the site highlights the diversity of cultural influences experienced by the Central Mexican highlands during the Early Formative (Niederberger, 1976).

By the Middle Formative, key sites emerged in the Central Mexican highlands as small regional centers. Chalcatzingo (Morelos) grew to a population of 500–1000 between 700 and 500 BC (Grove, 1987). Chalcatzingo’s public architecture was dominated by broad terraces that supported sunken patios, elite residences, and monumental platforms containing higher status burials. Stylistic elements of Chalcatzingo’s stone monuments are local variations of motifs from the Gulf Coast site of La Venta connecting power, ritual, and sacred spaces, such as the “El Rey” Monument (Monument 1), which depicts a lavishly dressed leader seated on a throne inside a cave (Guernsey, 2012) (Fig. 6). Households also engaged in craft production, and Chalcatzingo provides the earliest direct



Fig. 5 Photographs of figurines from Early Formative Tlatilco. From left to right: pregnant female (Accession #756:198), female with rattle legs (Accession #613:1981), double-headed female (Accession #676:1981), and individual with a dog (Accession #57:1980). Photographs by Catharina Santasilia; Gift of Morton D. May, courtesy the Saint Louis Art Museum.



Fig. 6 Photograph of Monument 1, Chalcatzingo (“El Rey”), National Museum of Anthropology, Mexico City. Photograph by Claire Ebert.

evidence of an obsidian core-blade workshop in Mesoamerica. In the Basin of Mexico, populations grew nearly fourfold from six thousand to an estimated 20 thousand inhabitants during the Middle Formative (Sanders et al., 1979). The Puebla and Tlaxcala valleys, on the other hand, only experienced initial settlement after 1000 BC, possibly related to the expansion of communities after the infilling of prime agricultural land in the Basin of Mexico and Morelos.

The Late Formative in Central Mexico is characterized by accelerated population growth, clear evidence for inequality, and several waves of urbanism. The first wave saw the rise of Cuicuilco in the Basin of Mexico. With a population of over 20 thousand people in an area as large as 5 km², this site developed a unique architectural tradition represented by circular public platforms, which reflect a strong ritual focus on volcanoes (Plunket and Uruñuela, 2012). Ironically, Cuicuilco met its end when the site was entombed by thick layers of ash (>10 m) after a volcanic explosion of Xitle cinder cone between AD 245 and 315. The Late and Terminal Formative also ushered in the rise of several urban centers in the Puebla-Tlaxcala region. The nucleated hilltop site of Xochitecatl administered a settlement zone of at least 5 km². The site’s epicenter included Formative circular and pyramidal buildings, many of which were superimposed by later Classic period components (Serra Puche, 2012). Tlalancalca was characterized by at least eight large plazas and is noted for its uncarved megalithic stelae made from natural stone outcrops. The site also provides an early example of *tahud-tablero* architecture, characteristic of later Classic architecture at Teotihuacan (Plunket and Uruñuela, 2012).

A second wave of urbanism ushered in the extreme social and political transformation of the Terminal Formative in the Central Mexican highlands. Rural populations contracted around Teotihuacan between 100 BC and AD 100, possibly in response to volcanic eruptions (Sugiyama, 2022). Shortly thereafter, the site’s massive architectural projects were underway, including the construction of a processional road flanked by some of Mesoamerica’s largest temples, reflecting a shift toward state-level organization. Early phases of both the Pyramid of the Moon and Pyramid of the Sun date to the Terminal Formative. Initially used for public ritual activities, these two buildings and subsequent construction efforts created a planned city that reflected the cosmos

and power of the site's leaders (Sugiyama, 2022). By the beginning of the Early Classic period, Teotihuacan had become the largest city in Mesoamerica, and indeed, one of the largest in the world.

Oaxaca

Home to the well know Postclassic Mixtec and Zapotec societies, Oaxaca is an environmentally diverse region of alluvial river valleys flanked by piedmont zones, with high mountains ringing their edges. Formative sites appeared in Oaxaca ~1900–1400 BC, and initial settlement is best understood at the site of San José Mogote (Marcus and Flannery, 1996). San José Mogote consisted of 15–30 houses with a central stuccoed building that possibly served as a “men’s house” (Flannery and Marcus, 2005). The structure may have provided a place for prominent community members to plan raids or hunts and carry out rituals. Household excavations recovered exotic imports like obsidian from the Central Highlands of Mexico, marine shell from the Pacific Coast, and ceramics from more distant locations such as the Gulf Coast. Between 1150 and 850 BC, over 40 villages dotted the Valley of Oaxaca. While most were relatively small, San José Mogote was the largest and grew to a population of around 1000 individuals spread across 70 ha. The next largest village, Tierras Largas, was a 10th the size, suggesting that San José Mogote was the paramount center in a multi-tiered settlement hierarchy.

The Mixteca of western Oaxaca is subdivided into Alta, Baja, and Costa zones by altitude (highest to lowest). Etlatongo was the primary Formative center of the Mixteca Alta (>2000 m above sea level) and provides an example of the earliest ballcourt from Mesoamerica’s highlands dating to ~1370 BC (Blomster and Salazar Chávez, 2020). In the Mixteca de la Costa (<1000 m above sea level), a 5 m pyramidal mound and burials appear at the site of La Consentida (Hepp, 2019). Coastal populations relied on imported obsidian from the Pico de Orizaba source (>50%), in combination with smaller quantities from five other sources in central Mexico. The Mixteca Baja (1000–2000 m above sea level) is less well known, though limited survey has documented small Middle Formative villages in the area by at least 500 BC (Joyce, 2013).

Conflict and warfare have been pinpointed as prime movers in the development of large urban centers in the Valley of Oaxaca and the Mixteca and the rise of the Monte Albán state in the Late Formative (Marcus and Flannery, 1996). Evidence for increasing competition comes from shifts in settlement patterns, direct evidence of attacks at chiefly centers, and new iconography depicting sacrificed captives. In the Valley of Oaxaca, settlements moved to defensive locations and were fortified by stone walls, such as Monte Albán, which was strategically positioned on a series of mountaintops at the convergence of the three arms of the Valley of Oaxaca. While many local villages shrank or were completely abandoned by 100 BC, the population of Monte Albán soared to over 15 thousand. Themes of violence are also present in artwork. Over 300 carved stone slabs show figures in relief known as *Danzantes* (Fig. 7), which likely represent sacrificed individuals, most probably captives of war. By the Terminal Formative, Monte Albán’s rulers may have controlled an area extending over 20 thousand km² (Marcus and Flannery, 1996). Other large centers emerged in the Mixteca in the Late and Terminal Formative, and threat from Monte Albán may have provided incentive for Mixteca communities to consolidate into defensible hilltop cities. Coastal populations concentrated at the 225 ha civic-ceremonial center of Río Viejo, where communal building projects rather than conflict may have been important in the political dynamics of Terminal Formative (Joyce, 2013).

Guerrero

Despite sporadic finds in Guerrero throughout the early 20th century, the region remained relatively unexplored archaeologically until the late 1980s. Recent research about Guerrero’s Formative period suggests that the region provided a natural exchange route that linked coastal zones to the central Mexican highlands and the Valley of Oaxaca. For example, geochemical sourcing of obsidian artifacts imported to the small coastal fishing-farming village of La Zanja documents long-distance exchange of finished blades from



Fig. 7 Photograph of *Danzantes* at Monte Albán. Photograph by Dan Confran, CC-BY-SA-3.0.

Central Mexico as early as Early Formative (Ebert et al., 2015). Guerrero also played a precocious role in the expression of Olmec style during the Early and Middle Formative, suggesting ties with ideologies emerging from the Gulf Coast lowlands.

Formative occupation in Guerrero is best documented at the monumental center of Teopantecuanitlán (Paradis, 2012). Settled as early as 1400 BC, the site reached its apogee between 1000 and 800 BC. It consisted of several residential courtyards and a formal ritual precinct spread over 160 ha. An important feature in the site's Formative period economy included the procurement of marine shell and obsidian used to produce personal adornments. The ceremonial precinct at Teopantecuanitlán centered on a sunken patio surrounded by rooms and platforms, as well as a miniature ballcourt associated with one of the oldest examples of a sweat bath in Mesoamerica (Paradis, 2012). Monumental stone monoliths carved in Olmec style that depict snarling felines were placed throughout the sunken patio so that during the spring equinox they cast shadows through the center of the plaza (Fig. 8). Other instances of Olmec style art in Guerrero include cave paintings and hollow, white-slipped baby figurines from Teopantecuanitlán and several other sites.

As in other parts of Mesoamerica, Guerrero witnessed increased regionalism in the Late Formative (500–200 BC), and demographic growth led to growing social complexity and urbanization. These processes have been best documented in the Mezcala region, in the interior of Guerrero, where urban complexes included temple mounds, ballcourts, and high-status residential groups (Reyna Robles, 2020). Lower status households, agricultural terraces, and workshops were situated along alluvial terraces around these urban centers. By the Terminal Formative, small cities appeared in northern Guerrero. The site of Cuétlajuchitlan was built on a grid system oriented to the cardinal directions, and also featured the sunken plaza tradition of Middle Formative Teopantecuanitlán. Pottery recovered from Cuétlajuchitlan was primarily produced by local crafts people, though inter-regional interaction is evidenced by the presence of Oaxaca gray ware pottery and fine ware pottery from Puebla, Morelos, and the Basin of Mexico. Cuétlajuchitlan may have been an important trading center for other items, including shell from the Pacific Coast of Guerrero and green obsidian from the Pachuca source near Teotihuacan.

West Mexico

Despite its vast expanse, less has been published about the Formative of West Mexico compared to other regions. West Mexico is located on the northern frontier of Mesoamerica and is best known for its shaft tomb burial tradition that spread across the region during the Middle to Late Formative (Mountjoy, 2012). Shaft tombs typically consist of either single or multiple burial chambers connected to the ground surface by a vertical shaft (Fig. 9). Early antecedents of shaft tombs have been identified at El Opeño (Michoacan), an Early-to-Middle Formative funerary complex with over 100 elaborate subterranean graves (Oliveros Morales, 2004). As the oldest formal tombs in Mesoamerica, dating to approximately 1500 BC, these features likely functioned as family

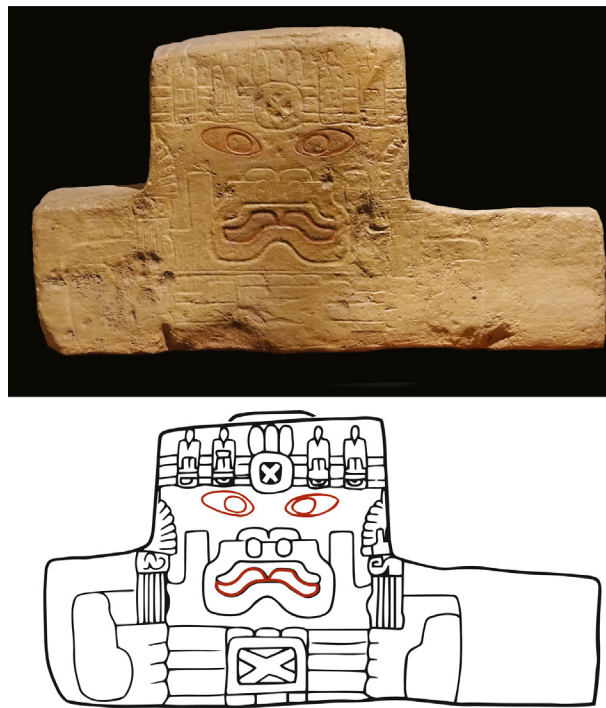


Fig. 8 Top: Photograph of Teopantecuanitlán Monolith 4, National Museum of Anthropology, Mexico City. Bottom: Illustration of Monolith 4. Photograph and illustration by Claire Ebert.

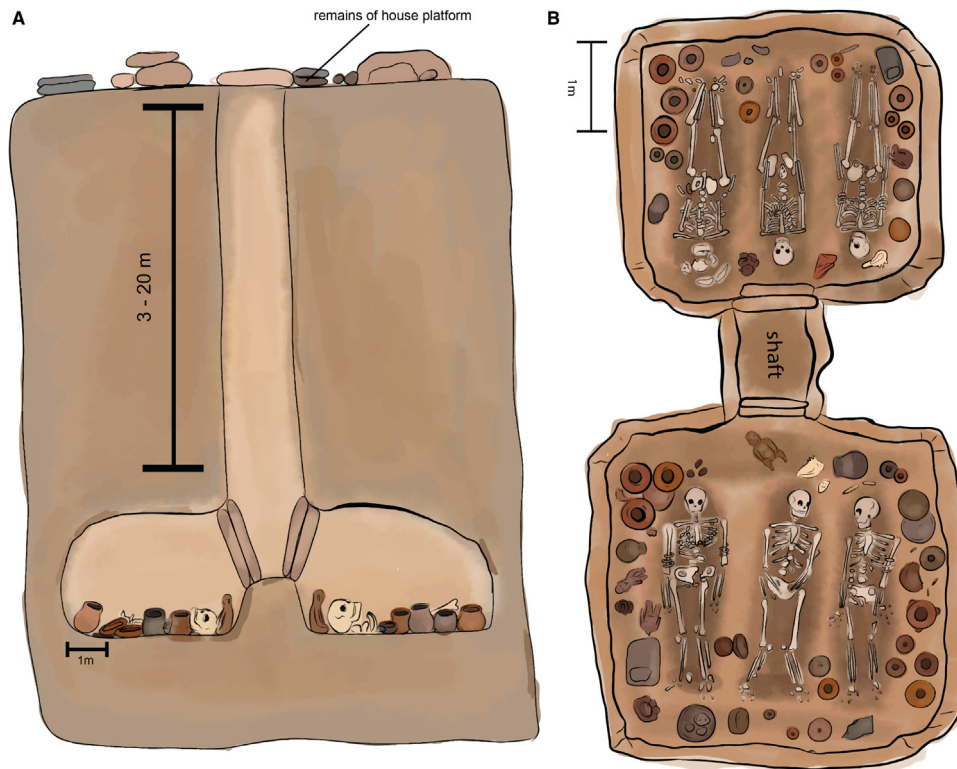


Fig. 9 Artistic reconstruction of West Mexican shaft tombs. Illustration by Jia Tucker.

crypts, which were reentered to place multiple burials over time. Pottery from El Opeño is associated with the Capacha ceramic complex, characterized by distinctive triple stirrup-spout vessels resembling South American styles.

Shaft tombs became more elaborate and monumental in scale in the Late Formative. Examples from sites in the modern Mexican states of Jalisco, Colima, Nayarit, and Guanajuato usually contained abundant grave goods (Mountjoy, 2012). Common burial items included decorated vessels and hollow anthropomorphic figures adorned with geometric polychrome (black and red over cream) designs. The best known figurines are those of the Chupícuaro (Guanajuato) tradition, distinguished by a preponderance of female forms with coffee-bean shaped eyes, and wearing ornate headdresses and choker necklaces. A distinctive tradition of secondary bundled burials has also been documented in the Mascota Valley (Jalisco), associated with the curation of bodies prior to burial.

Other evidence for emerging inequality in Late Formative West Mexico includes the immense circular structures of the Teuchitlán tradition, averaging 30 m in diameter. Constructed as early as 300 BC, these public buildings, which consist of either round platforms or mounds arranged in concentric circular patterns, may symbolize the *axis mundi* (Beekman, 2003). Ballcourts also become more common, demonstrating connections between West Mexico and other parts of Mesoamerica. The public events celebrated by Late Formative Teuchitlán communities are depicted in miniature on ceramic models. Many show individuals partaking in food, drink, dance, and other activities such as the *volador* ceremony, still practiced in circumscribed locations of West Mexico today.

Maya Lowlands

Compared to other regions of Mesoamerica, the inhabitants of the Maya lowlands settled in small, egalitarian farming villages and began making pottery relatively late (~1200–1000 BC). Distinctive local ceramic complexes in the Petén and Pasión regions of Guatemala, northern and western Belize, and northern Yucatán are associated with initial settlements in these small communities. The circulation of non-local goods, such as obsidian blades from highland Guatemala and marine shell from the Caribbean coast, integrated these regions into broader Mesoamerican economic networks.

Ceremonial buildings were first constructed at the beginning of the Middle Formative (~1000–900 BC). In Tabasco, Mexico, these include enormous artificial plateaus and rectangular platforms flanked by low mounds (Inomata et al., 2020). The site of Aguada Fénix, which was recently discovered with the aid of lidar (light detection and ranging) remote sensing data, provides the largest example. It is also one of the largest constructions in Formative Mesoamerica, with an enormous platform volume of ~3.2–4.3 million m³. In Petén, Guatemala, the site of Nixtun-Ch'ich' was constructed using a grid system, suggesting that as early as 500 BC the lowland Maya engaged in urban planning (Pugh and Rice, 2017). Unlike the Olmec center of San Lorenzo, which was also built on a large artificial plateau, there is little evidence for social inequality at these early centers.

The construction of elaborate temple pyramids, ballcourts, and large public plazas spread across the Maya lowlands through the Middle Formative. One of the most common types of monumental constructions in the southern Maya lowlands was the E-Group assemblage, which served as a communal ceremonial space and was sometimes used for astronomical observations (Doyle, 2017) (Fig. 10). Dedicatory caches containing greenstone celts, pottery, ceramic figurines, and other objects were often placed along the central axis of E-Group plazas. Though there are some examples of E-Groups in the northern lowlands, ballcourts were more common forums for community gatherings in the Middle Formative. By the Late Formative, ballcourts became common at most Maya centers, though they were often enlarged and elaborated compared to the Middle Formative.

Emerging evidence for extreme monumentality, urban growth, and divine kingship suggests the lowland Maya were one of the most complex Late Formative societies in Mesoamerica. Beginning around 300 BC, large populations began aggregating in cities where temple-pyramids dominated public plazas. Population growth depended in part upon the expansion of agriculture into marshy *bajos* (seasonally inundated swamps) and the construction of water-storage facilities, which may have been controlled by elites, in areas without year-round water supplies. Some of the largest Late Formative cities emerged in the Mirador Basin of northern Guatemala. The site of El Mirador was the center of a network of causeways that connected the site to other large centers including Nakbe located 12 km to the southeast (Estrada-Belli, 2011). The epicenter of El Mirador was dotted with massive temple complexes, and its central triadic temple reached 73 m in height. Polychrome stucco masks and friezes adorning the central stairways of this building, and other similar temples across the lowlands, are linked to the Maize God who was a central figure in the ideology of Classic Maya kingship. Direct evidence for rulership comes from the earliest excavated elite Maya tombs and the first hieroglyphic inscriptions. A Late Formative burial at Tikal, attributed to the founder of the site's royal dynasty, contained a wealth of grave goods including a mask inlaid with greenstone and marine shell. Kings are also depicted in the oldest preserved Maya murals (400–200 AD) at San Bartolo, along with deities and flora and fauna. Writing on San Bartolo's colorfully painted walls, though not fully deciphered by epigraphers, includes the sign for *ajaw*, which translates to "ruler" in Yucatec Maya (Saturno et al., 2006).

Paleoclimate research indicates that the expansion and contraction of the Formative Maya society was influenced in part by environmental factors. Lake sediment and speleothem paleoclimate records document drying trends between 200–1 BC, as well as a more acute, multi-century drought after AD 160 (Kennett et al., 2012). The timing of extreme drought is concurrent with the abandonment of some major centers in the Petén, including Nakbe and El Mirador, where perennial surface water is scarce. Responses to severe drought, however, appear variable, with centers in both the northern and southern lowlands with access to reliable surface water demonstrating continual growth (Ebert et al., 2017).

Key Issues

The Formative period of Mesoamerica is significant because it represents an essential shift in social, economic, and political dynamics. The Initial Formative was marked by localized sedentism and the introduction of pottery technology, two prerequisites for the expansion of later Mesoamerican civilizations. Archaeologists have traditionally thought that these developments were gradual, but understanding their timing is challenging since Initial and Early Formative deposits are often deeply buried beneath larger Classic period architecture. Research in the last 15 years has focused on deep vertical excavations to obtain AMS radiocarbon dates for the first settled villages, especially along the Pacific Coast, in the highlands of Central Mexico, and the Maya lowlands

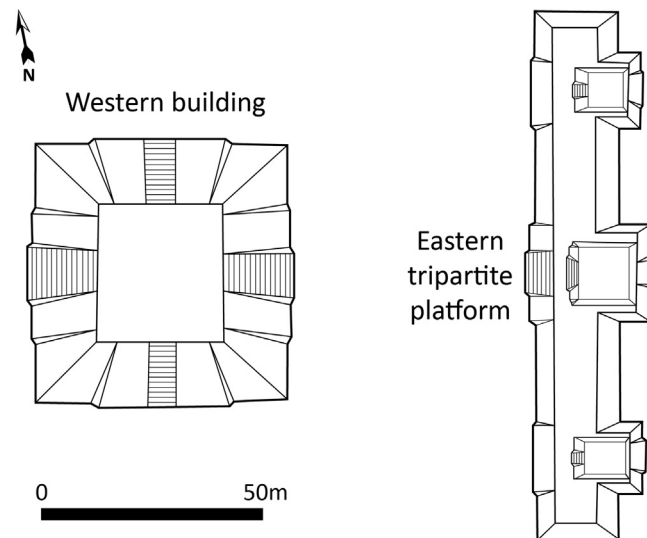


Fig. 10 Illustration of Mundo Perdido E-Group from Tikal, Guatemala. Redrawn from Doyle (2017, Fig. 4.5).

(e.g., Ebert et al., 2017; Rosenswig, 2019; Inomata et al., 2020; Lesure, 2021). An uneven coverage of dates, however, means that in some regions (e.g., Guerrero, West Mexico) the tempo of settlement and subsistence shifts from Archaic foraging to committed Formative farming remains unclear. Current data indicate a diversity of adaptations to local ecologies and differential expansion of social and political systems. Smaller settlements with a strong commitment to agriculture characterize the temperate highlands of western Mesoamerica. Larger communities of considerable size and complexity were present in tropical lowland and coastal zones, supported by both wild resources and domesticates. While pottery served primarily utilitarian functions in early highland assemblages, decorated and fine ware vessels were likely used for competitive social displays in the Mazatán zone of the Pacific coastal plain. Public architecture at the primary center Paso de la Amada likely provided a venue to aggregate for feasts and rituals used for community integration and to reinforce political ranking (Clark and Blake, 1994).

Larger, precocious centers appeared across Mesoamerica during the Early Formative. Multi-tiered settlement systems expanded in the Gulf lowlands around sites like San Lorenzo and along the Pacific Coast, suggesting that social roles had become differentiated within and between communities. A shared cosmology linked to political leadership was also communicated through the spread of Olmec style. At San Lorenzo itself, colossal heads were sculpted to represent portraits of rulers who lived in the site's Red Palace (Cyphers, 2018). Olmec style motifs on pottery and other portable objects have been documented as far as western Mesoamerica, though many objects, such as figurines from Tlatilco and Tlapacoya in central Mexico, were locally made. Local forms of monumental expression also emerged outside the Olmec heartland, including the carved monolithic sculptures in central Mexico and Guerrero.

The antiquated "Olmec problem" debate described the Early Formative emergence of a pan-Mesoamerican ideological system synonymous with "civilization" by juxtaposing the dominance of the Olmec "mother culture" over groups perceived as less complex contemporaneous "sister cultures". More recently, however, archaeologists of Formative Mesoamerica have adopted more nuanced models to address the origins of inequality and complexity. A key observation based on recent excavations, radiocarbon dating, and pottery and obsidian analyses is that interaction occurred at differing local and regional scales. Three broad interaction spheres developed (see Hepp, 2019). Shared styles of Red-on-Buff pottery defined the western Mesoamerican sphere (i.e., west of the Isthmus of Tehuantepec), which also procured obsidian from Central Mexican sources (e.g., Ebert et al., 2015). The second sphere encompassed the spatial distribution of the distinctive Locona/Ojochi pottery (Clark and Gosser, 1995) found along the Pacific Coastal plain and in the Gulf Coast, respectively. Obsidian trade suggests long distance trade relationships with adjacent areas of Guatemala and highland Mexico. The third centered on southern Mesoamerica, a region which was reliant on obsidian from highland Guatemala. While economic networks operated within each sphere, the wide distribution of Olmec style artifacts suggests that connections were also made between them.

Increasingly complex social and political systems characterized the Middle Formative. Expressions of complexity, however, vary between regions. Monumental ceremonial constructions that required substantial organization of labor and resources suggest growing links between political and ritual power. Examples include soaring temple-pyramids at sites like La Venta (Pool, 2007), where formally constructed tombs with abundance of non-local grave goods point to a ruling class. In contrast, some archaeologists suggest communal construction projects for other types of ceremonial complexes, such as the immense rectangular platforms like at Aguada Fénix (Inomata et al., 2020) and the more modest E-Group assemblages of the Maya lowlands, with little input from coercive elites. In western Mesoamerica, artwork and mortuary practices suggest that institutions of hereditary inequality were in place by the Middle Formative. Stone sculpture depicting elaborately garbed elites on thrones and supernatural forces, such as the "El Rey" Monument from Chalcatzingo, further reinforce connection between ritual and power. Direct evidence for individual inequality comes from special burial treatment for higher status groups. The West Mexican shaft tomb tradition also implies differential burial practices for high-status families. Emergent elites in this part of Mesoamerica were also supported by inter-regional trade of commodities including pottery, obsidian, and marine shell.

The Late and Terminal Formative witnessed some of the most dramatic cultural developments (and declines) in ancient Mesoamerica. Populations exploded and centralized cities, the capitals of emergent states that would dominate the Classic Mesoamerican political landscape, expanded across most regions. In the highlands, populations contracted to the hilltop center of Monte Albán in the face of local conflict, which is also reflected in the site's artwork. The planned center of Teotihuacan also attracted groups from as far as Oaxaca and the Maya lowlands. The city's growth was spurred not only by new economic opportunities, but also by population movement from the Basin of Mexico after a series of volcanic eruptions. In the lowlands, the first Maya cities also appear at Nakbe and El Mirador. The triadic temple complexes of El Mirador were likely commissioned by the site's first kings. The Classic Maya traditions of writing and carved stone stelae that glorified these rulers and connected them to the cosmos were also firmly established during the Late Formative. A key question that remains, however, is about the role of climate change in social, political, and economic shifts at the end of the Formative (e.g., Ebert et al., 2017; Guernsey and Love, 2020; Kennett et al., 2012). While the total disintegration of some centers has been linked with drought (e.g., in the Maya lowlands and Guatemalan highlands), many other cities experienced continual growth and continued to flourish for over six to seven centuries (e.g., Teotihuacan).

Summary and Future Directions

Spanning over 2000 years and an area of over 900 thousand square kilometers, the archaeological data for Mesoamerica's Formative period are difficult to synthesize. In some regions, our information about the Formative is limited, in part because early contexts are often deeply buried. In some areas modern urban expansion and looting also threatens many sites. Over a century of research,

however, has revealed that this era dramatically transformed Mesoamerican lifeways, setting the stage for the rise of later Classic and Postclassic societies. Formative societies created the first complex political systems, grounded in shared ideas about ideology and leadership, and developed the first monumental architecture and art that signaled social differences within and between communities. The diversity of these characteristics, however, reveals the dynamism of Formative societies, which interacted across regions to form trade networks and exchange systems.

Current archaeological research on the Formative is revising our understanding of early Mesoamerican lifeways and the emergence of complex societies in the past. The advent of lidar remote sensing technologies in the past 10 years has allowed archaeologists to document hundreds of new sites with monumental constructions across Mesoamerica, most of which were previously “invisible” due to dense vegetation cover. Another advancement includes the widespread adoption of AMS radiocarbon dating. While chronological assignments had primarily relied on stylistic comparisons of pottery and artwork, systematic efforts to produce more precise dates are allowing archaeologists to track the timing and tempo of major Formative period developments. These include the origins of settled village life and the construction of monumental buildings. Innovations in aDNA studies have only just started to uncover population dynamics, including how people moved across the landscape and interacted with each other and the plants and animals around them. Finally, collaboration between archaeologists and paleoclimate scientists is revising understandings of the links between environmental and cultural changes. Future research in Formative Mesoamerican archaeology should continue to apply these types of cutting-edge scientific methods to reveal the origins, complexity, and evolution of this important ancient world region.

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