

THE *PETATE* AND THE COSMIC ORDER: DISCOVERIES FROM A CLASSIC PERIOD RESIDENTIAL GRAVE IN MICHOACÁN, MEXICO

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Abstract

This article explores the symbolism of the *petate* in light of an unprecedented archaeological discovery. Excavations carried out in a Classic context in northern Michoacán revealed the impression of a *petate* marking the location of a burial. In addition, the lower section of the burial pit was covered over with andesite slabs, including one with grid-like and spiral incisions. After a brief overview of the ancient and modern uses of the *petate* and relevant archaeological evidence, I present the data that allow the testing of different hypotheses, in particular the symbolization of power through the *petate*. Contextual analysis suggests that both the woven mat and the incised slab served as thresholds, if not barriers, between the world of the living and the underworld. I propose that the *petate* was placed over the grave to serve as a regulator, ensuring that entities were properly separated and that they remained in their respective places. As such, it was an object protecting the cosmic order. I further suggest that the *petate* may have acted as a temporal gate, guaranteeing the continuous exercise of authority and argue that it was, as a finished object, endowed with power.

INTRODUCTION

The *petate*, from the Nahuatl word *petlatl*, is a woven mat made from lacustrine reed. These plants, known under the generic name of *tule* in Spanish, include a large variety of species belonging to the Cyperaceae family (Ludlow-Wiechers and Diego-Pérez 2002). In the pictographic codices from the Mesoamerican Central Highlands, the Nahuatl expression *petlatl in Icpalli* (mat-seat) designates both the woven reed throne and the locus where authority was exercised. This figure of speech, called diphrasism (a form of synecdoche), was also applied to the mats on which individuals exercising power were seated (e.g., Alcina 1995:12; Códice Mendocino 1980; Jansen 1997:91; López Austin 2003:146; Sahagún 1981). At the same time, however, these sources describe or illustrate a much broader sphere of functions, showing that the *petate* was an ordinary household item that was present in everyday life.

In the early 1970s, when there was no longer any question about the symbolization of power through the *petate*, López Austin noted, nonetheless, that the metaphorical sense of the diphrasism *petlatl in Icpalli* was applied without distinction to woven seats and simple mats (López Austin 1973). Pointing out the grid-like pattern created by the interlacing of the *tule* stems, he suggested that the *petate* embodied, above all, the earth's surface and its four parts.

This article discusses the symbolism of the *petate* in light of an unprecedented archaeological discovery. Excavations carried out in a residential Classic context in northern Michoacán revealed the impression of a *petate* marking the location of a grave. In addition, the lower section of the burial pit was covered over with slabs in andesite, including one that was incised with grid-like and spiral motifs.

After a brief overview of the ancient and modern uses of the petate, based on ethnohistorical, ethnographic, anthropological data, and relevant archaeological evidence, I present the contextual data that allow the testing of hypotheses about its symbolic meanings: the link with power and the incarnation of the four parts of the earth's surface. To address these points, this approach is based on a detailed description of the archaeological context, including the spatial distribution of its features, and a sequential chronology of the cultural and natural deposits. The contextual interpretation and the understanding of how petate remains were formed and preserved are based on an upstream intra- and supra-site geoarchaeological approach, including a micromorphological study (Solleiro et al. 2021). Several different methods were used to study the archaeological remains discussed in this article: traditional bioarchaeological tools for bone remains and the application of the Bruzek method for sexual diagnosis (Bruzek 2002); chemical analyses of floors and ceramic residues with the method developed by the Archaeological Prospecting Laboratory of the Universidad Nacional Autónoma de México (Barba and Ortiz 1992; Barba et al. 1991). Finally, the interpretations are supported by a reconstitution of the sequence of funerary gestures that could be identified in fieldwork, including the digging of the pit, the placement of the funerary deposit, and the final filling of this pit. The concept of the chaîne opératoire is used to understand the succession of the different actions and bring out their consistency with the funeral process (Duday et al. 1990; Valentin et al. 2014). This approach enables a consideration of the presence of this *petate* beyond a strictly domestic and utilitarian perspective.

Thanks to this contextual approach, I can infer that the reed mat deposit constituted the last perceptible gesture that could be recognized after filling the pit. I assume that it had a direct

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correspondence with the Burial UA 12 and was deposited intentionally with regard to the funerary process. Likewise, I assume that the *petate* had a specific role relating to the worlds of the living and the dead. The contextual analysis suggests that both the *petate* and the incised slab served as thresholds, if not barriers, between the world of the living and the underworld. I propose that the *petate* was placed over the grave to serve as a regulator, ensuring that entities were properly separated and that they remained in their respective places. As such, it was an object protecting the cosmic order. I further suggest that the *petate* may have acted as a temporal gate, guaranteeing the continuous exercise of authority. And more generally, the *petate* is brought back to the center of the debate by arguing that the object itself was endowed with power.

A PETATE OF ALL TRADES

A host of sources, whether they come from the pre-Hispanic, colonial, or modern periods, treat the *petate* as a centerpiece of the Mesoamerican political, religious, and domestic space. More than a symbol of authority, the petate appears, above all, as the quintessential attribute of the everyday, an object that is in contact with the earth's surface and accompanies individuals in the decisive stages of their lives-birth, marriage, death (e.g., Códice Magliabechiano 1996; Códice Mendocino 1980; Durán 1967; Lumholtz 1904; Motolinia 1984; Sahagún 1981)-and in their multiple ordinary activities (e.g., Aguirre et al. 1998, García 2008; Sugiura and Serra 1983). Used for sleeping and sitting, it also constitutes a defined space for daily domestic and craft tasks, such as preparing food, drying and storing foodstuffs, or making pottery. Petates could be used as interior separators of household spaces (e.g., García 2008:146; Ward 1828:vol. 2, chap. 5). Ethnographic work on the lake regions of central Mexico shows that the different varieties of tule have always been a strategic resource for the family economy (e.g., Aguirre et al. 1998; García 2008; Gibson 1964; Parsons 2006; Williams 2014a, 2014b), especially for the manufacture of *petates* and other woven reed objects, such as seats. These studies, which describe in detail the harvesting of the aquatic plant and the making of petates with tule redondo, highlight the diversity of methods and dimensions, depending on whether the resulting products were intended for common, ornamental, or religious use (Aguirre et al. 1998:209-220).

But many of these documents also describe them as an essential element of religious life. Robicsek's studies on the symbolic system of petates among the Maya show that they could be used as ceremonial objects during human sacrifices, as portrayed on Stela 11 at Piedras Negras (Robicsek 1975:22). Idols were often placed on a reed mat and could be wrapped in the same kind of mats when they were transported (see, among others, Robicsek 1975). This practice continued during the colonial period throughout the indigenous world because the petate was ubiquitous in religious spaces, where it could serve, for example, as a separation between interior areas, a table, a base for altars, or a covering for religious figures (e.g., in Cancuc at the beginning of the eighteenth century; Robicsek 1975; Viqueira 2002:211, 226). Even today, church floors are covered with petates, as seen in San Juan Chamula (Chiapas) or San Cristóbal Verapaz (Alta Verapaz, Guatemala). In the Tzeltal community at Cancuc, the saints are wrapped in petates before being transported and then deposited on other mats at the end of the processions (Pitarch 2000:136). According to Pitarch, the petates would reduce the saints' power over humans. Once they are used, moreover, they are buried at some depth, far from the inhabited

area (Pitarch 2000:136), probably because they have absorbed some of the saints' energy. Among the Nahuas of Guerrero, the *petate* also plays an important role as a ritual deposit, commonly called a *mesa* (table) in Spanish (Dehouve 2013). For Dehouve, the *petate* represents a quadrilateral cosmogram and is perceived as a sacred area. The *xochimesa* (or *xochitlammanalli*) described by Hémond (2013:7), meanwhile, is a *petate* on which ritual dishes are placed as offerings to the celestial powers in religious buildings; moreover, it is spread out along the eastern wall, oriented to the rising sun. In fact, *petates* are still used everywhere as a table to deposit offerings for the feast of the dead (Aguirre et al. 1998:223).

These selected examples show that the petate was and remains an essential part of the material necessary for religious holidays and, in particular, patron saint celebrations. Furthermore ethnohistorical and ethnographic data bring out its role in funeral ceremonies. First of all, it is used as a shroud or bedding for the deceased, even if the *petate* shroud is rarely the only container. We can cite, for example, the case of San Luis Jilotepeque (Guatemala), where the deceased is first wrapped in a white cotton shroud (mortaja) and then displayed on the *petate*. This same *petate* will be carefully sewn together with an agave needle, so as to tightly enwrap the mortaja (Maldonado 2005:466). It generally replaces a casket, but when the deceased is buried in a wooden coffin, the petate wrapped around the bundle (bulto) is still deposited (Maldonado 2005:466), which demonstrates its symbolic role in the funeral ritual beyond any functional utility. The petate was commonly used as a shroud until the mid-twentieth century within indigenous communities or for the burial of the poor; indeed, this custom was so widespread that the Spanish verb *petatearse* is popularly used to refer to a recently deceased person (Garduño 1997).

Last of all, during funeral ceremonies, the *petate* is generally perceived as a sacred space with multiple uses. It can receive the body of the deceased before its placement in the casket, as well as the offerings involved in the ceremony, the cross that will accompany the deceased to the cemetery, or the people who kneel on it to pray (Maldonado 2005).

IN SEARCH OF ARCHAEOLOGICAL PETATES

It is difficult to confirm with archaeological data all of the uses cited above, but if we set aside the numerous visual representations indirectly demonstrating the pre-Hispanic utilization of *petates* (basreliefs, wall paintings, petroglyphs, ceramic decoration, codices), we can distinguish three kinds of traces (direct, imprinted, and indirect), two likely contexts (domestic and funerary), and, in the case of the latter context, three main forms of use (container, bedding, and element of grave architecture).

The direct traces refer to clearly identifiable organic remains. In general, stable humidity and temperature conditions within dry contexts are necessary for vegetal fibers to survive over the centuries without disintegrating (Sánchez 2017:405). This condition is why the desert regions of northern Mexico are the most favorable for their conservation, although the central or southwest highland regions of Mesoamerica occasionally reveal such treasures as well (e.g., Barba de Piña Chan 1956; Kidder et al. 1946; Thomas and Campbell 2008).

The remains of reed mats are therefore found primarily in the north, especially in the states of Chihuahua, Coahuila, and Tamaulipas, and come from rock shelters. The early eighteenth-century descriptions of Juan Agustín Morfi thus give evidence that the deceased in the burials of the Comarca Lagunera in Coahuila were wrapped in finely woven *petates* (Morfi 1935:263). The burials found in Cuatro Ciénegas—in particular, those of the cave known as Cueva de la Paila—also follow this practice (González 2004). Another similar case, recently exhumed, is also worth mentioning: the funerary bundle from la Cueva de las Escondidas (Tamaulipas) is composed of the remains of a child accompanied by numerous organic remains, all of which are wrapped in a remarkably well-preserved *petate* (Dirección de medios de comunicación del INAH 2018).

While these examples show that the *petate* was used directly as a shroud, there are other traditions demonstrating that it could play a different role within the funerary sequence. In the case of Candelaria (Coahuila), the deceased were wrapped in a shroud composed of several layers of cotton cloth and held together with vegetal fibers (González 1998, 2004). The *petate* was part of the funerary furniture, but also served to receive the bundle (González 2004:378; Sánchez 2017). Analysis and restoration of the bundle from the rock shelter in Zimapán (Hidalgo), meanwhile, have shown that the deceased was enclosed in several layers of fabric strips before being wrapped in a *petate* (Gómez and Mainou 2017; Gómez et al. 2019).

In the Basin of Mexico, *petate* remains are mentioned for archaeological sites mainly dated from the Formative period. In Tlapacoya, Barba de Piña Chan (1956:109) reported that the organic residues littering the surface under the bone remains of tomb no. 2 could correspond to the remains of a *petate*, since clearly identifiable portions of a woven mat have been recovered on a nearby wooden bark. In this case, the *petate* could have been used as bedding. In Terremote-Tlaltenco, Serra Puche also recovered fragments of mats and basketry in waterlogged levels related to domestic occupation (McLung de Tapia et al. 1986:105; Serra 1988:121). These reed mats are believed to have covered the floors and walls (McLung de Tapia et al. 1986:105).

The Maya region has also provided some direct archaeological remains in funerary contexts, most of which date from the Early Classic period. At Kaminaljuyu, Kidder indicates the presence of *petate* fragments in at least three burials of Mound A (Kidder et al. 1946). These *petates* would have been used in two ways: as bedding for the body of the deceased (Burials A-II and A-III) and as a covering for the walls of the burial (A-IV). Also worth mentioning is a burial from Rio Bec (Unit 1, Room D), containing an adult in a flexed position who was still partially covered with a *petate* (Thomas and Campbell 2008:142). A final example comes from Tikal, where Burial 196 contains an individual resting in supine position on a large reed mat along with part of the funerary objects (Hellmuth 1967).

The Maya region has also provided some direct archaeological remains in household or funerary contexts, most of which date from the Classic period. Thanks to the volcanic eruption that destroyed the village of Joya de Cerén (El Salvador) in A.D. 660, exceptionally remains of petates were recovered on the roofs and floors of the houses, testifying to their central role in daily life, as a bed to sleep on or to carry out domestic activities (Sheets 2002). At Kaminaljuyu, Kidder indicates the presence of petate fragments in at least three burials of Mound A (Kidder et al. 1946). These petates would have been used in two ways, as bedding for the body of the deceased (Burials A-II and A-III) and as a covering for the walls of the burial (A-IV). Also worth mentioning is a burial from Rio Bec (Unit 1, Room D), containing an adult in a flexed position who was still partially covered with a petate (Thomas and Campbell 2008:142). A final example comes from Tikal, where Burial 196 contains an individual resting in supine position on a large reed mat along with part of the funerary objects (Hellmuth 1967).

Notwithstanding the scarcity of *petate* remains in an archaeological context, several publications record their presence through explicit indicators, such as impressions on sedimentary deposits, most often in a funerary context. In these cases, we can speak of "imprinted" traces of direct evidence.

The earliest indications are mentioned by Vaillant for the Ticomán and El Arbolillo sites, located in the Basin of Mexico and occupied during the Middle and Late Formative periods. Such discoveries in the form of imprints in the sediment seem to have been fairly common (Vaillant 1935:250). For the Ticomán site, *petate* impressions were found in the sediment covering at least eight of the burials (Vaillant 1931:317). At El Arbollilo, seven cases are singled out, but unlike what was observed at Ticomán, it is rather the bodies of the deceased that seem to have been wrapped in a mat (Vaillant 1935:168–169, 170). Unfortunately, Vaillant does not say anything about the exact nature of these remains. Were they fleeting impressions on loose sediment, resulting from the disintegration of the *petate* and destroyed during the excavation, or were they impressions permanently fixed in the sedimentary deposits?

Indeed, there are some examples of *petate* impressions that have been immobilized in solidified sediment. At Teotihuacan, for example, Linné indicates the presence of a hardened clay fragment bearing such an impression in the filling of a floor (Linné 2003: 154–155). A similar discovery was made in Burial 1 at Calakmul, where, in addition to impressions corresponding to different vegetal artifacts (e.g., ropes), small fragments of clay showed imprints of a *petate*, although their origin and function could not be determined (Schneider 2008:56).

Other archaeological sites have provided similar kind of evidence. De Lucia, for example, mentions mat prints on clay floors in Xaltocan, in the Basin of Mexico as well as on ceramic vessels (De Lucia 2021). Pollard's excavations in the Basin of Patzcuaro (Michoacán) likewise yielded this kind of vestige. In a residential context on site ER-22, two samples of hardened sediment with a smooth surface are marked by the very clear imprint of a grid-like pattern of 2 cm strips forming right angles (Adkins 2002:2, 6; Pollard 2005). The characteristics of the samples (thickness, white coating) may indicate that they came from a floor rather than a wall. At present, these pieces of evidence come closest to our context, in terms of geography, time frame, and morphology.

Alongside these vestiges, which leave no doubt about the nature of the remains, but sometimes pose problems of interpretation concerning the context of their use and the way they were employed, it is possible to draw on other means, this time indirect, for tracking down the presence of *petates* in domestic or funerary contexts. McLung de Tapia's work on paleobotanical remains at several sites in the Basin of Mexico reveals different varieties of the Cyperaceae family (e.g., McLung de Tapia and Martínez 2005). The search for phytoliths corresponding to the Cyperaceae family can also be useful for envisioning the presence of woven reed products on the site, even if it is not possible to go further, since these phytoliths can correspond to other types of manufactured products or to remnants of tule stems (reeds). Indeed, remains of tule stems are sometimes found in archaeological contexts in the Basin of Mexico, such as Terremote-Tlaltenco (Serra 1988), Zohapilco (Niederberger 1979), or Xaltocan (Brumfiel 2005). This information might indicate that these places produced basketry, including petates, but, as Parsons (2006:307) points out, these remains could just as well have been used as filling material to build artificial platforms in swampy



Figure 1. Location map of the study area. Map by the author.

areas. They could also be used to make walls or roofs for small houses, as observed in the Alto Lerma (Albores 1995).

In a different category of evidence, some stone tools can provide indirect information about the possible manufacture of basketry in archaeological contexts. At Xaltocan, tools found in Operation Z3 present morphological analogies with those described for the current production of *petates* in Michoacán (de Lucia 2021; Williams 2014a, 2014b).

Last, the methods of funerary anthropology sometimes help in suggesting the existence of a container; the deformation of certain parts of the skeleton (e.g., collarbones or foot bones) often reflect physical pressure that might be due to the narrowness of a pit or the confining of the body in a shroud (Pereira 1999). However, in the absence of more explicit indications, the findings remain limited because it is impossible to determine the nature of the shroud.

In sum, these archaeological examples attest to a variety of uses. Those found in a funerary context show that the *petate* can serve as a simple container and may also be used to enclose a first shroud composed of other materials such as cotton. It was further observed that the *petate* was frequently employed as a covering or bedding for the body of the deceased, without excluding the possibility that the body was first wrapped in another *petate*.

The impressions found in household contexts seem to confirm the use as floor coverings and interior walls of houses. However, some imprints on fragments of solidified sediment say little about the context of their use, and it would be necessary to understand the conditions in which they were produced and preserved.

THE ARCHAEOLOGICAL DATA

Regional Context

The case study presented here comes from operations carried out by the Tres Mezquites project in the Lerma Valley, situated in northern Michoacán and the extreme southwest of the Bajío, Mexico (Figure 1). Established in 2012, the project had two main objectives: (1) evaluating the archaeological potential with regard to the environmental characteristics, and (2) understanding the pre-Hispanic settlement pattern in relation to what was known of cultural developments in the Bajío and Michoacán. Several field seasons, including archaeological surveys carried out over 20 km², led to the registration of 192 sites. The chronological ordering of these sites was based primarily on ceramic typology, but also on architectural characteristics, when possible (Castañeda et al. 2020; Darras et al. 2018). To obtain more accurate chronological and cultural information, tests pits and extensive excavations were carried out at several sites, which allowed them to be dated through comparative analysis of several indicators: ceramics, chrono-stratigraphy, and absolute dating (27 radiocarbon dates were obtained from bone and charcoal samples). The results show that the valley foothills, as well as the floodplain, were densely occupied from the Terminal Formative (A.D. 100-250) to the Epiclassic (A.D. 600-900), although the Classic period is considered to have been the apogee of occupation (A.D. 250-600). The typo-morphological classification displays a predominance of residential sites, with many of the isolated dwellings in the plain and along the river. At 21 sites there are monumental platforms and structures, occasionally a ball court, which are supposed to have served a civic-ceremonial function. The spatial distribution of pre-Hispanic locations is interpreted as a dispersed rural settlement, organized around civic-ceremonial centers in a continuous and dense settlement pattern (Castañeda et al. 2020).

The Tres Mezquites works carried out in the Lerma Valley provide an ideal context for understanding interactions between the Bajío and the lacustrine regions of Michoacán during the first millennium. During the Classic period, we observed strong interactions with the lacustrine regions (Zacapu, Pátzcuaro, Cuitzeo, Querendaro) and, to a lesser degree, with the Bajío, Guanajuatense, Acámbaro, and the San Juan Valley (Queretaro). The similarities between the Classic occupations of the Lerma Valley and those of the lacustrine regions of Michoacán are so strong that we can propose they were part of the same politico-territorial network, and that their elites adhered to the Teotihuacan ideology through the consumption of prestige goods (Darras and Faugère 2018; Filini 2010; Jiménez Betts 2018).

The PA3 El Pitayo Site

Between 2015 and 2019, extensive excavations were conducted on the PA3 El Pitayo site, located in the foothills of Cerro El Arco, at 1,703 m.a.s.l. (228304/2240550). The site dominates the Lerma floodplain and is characterized by a marked topographic deformation produced by successive anthropogenic structures. The excavations carried out in the highest part of the prominence covered an area of 435 m² and revealed structures and stone platforms separated from each other by narrow passageways and surrounding a rectangular structure called UC 1-2. The platform located to the north of the UC 1-2 structure corresponds to a residential space, but the poor state of preservation of the other architectural remains does not allow us to determine their use. Fieldwork also revealed stratigraphic deposits more than 2.5 m thick, including seven occupation surfaces associated with archaeological remains. The typology of the ceramics and 12 radiocarbon dates situate the main occupation during the Classic period, between cal. A.D. 387 and 542 (95 percent phd; two-sigma ranges; calibration with the ChronoModel application; Lanos et al. 2018). However, the last level of occupation, which was entirely destroyed by recent levelling for agricultural activities, was characterized by three monumental platforms and ceramic materials dating from the Epiclassic period. Excavations of the Classic occupation levels revealed the presence of black clay sediment covering most of the sectors studied and signs of brutal destruction (Darras et al. 2017; Solleiro et al. 2021).

The PA3 El Pitayo site is one of the three most important ones identified on the Cerro El Arco foothills. It is part of a network of fairly dense habitatation sites on the southern slope and the plain (Castañeda et al. 2020). Its extent, position, and architectural features led us to consider that it must have been a center playing a civic-ceremonial role within the area studied.

The Building UC 1-2

Among the architectural features recovered, the operations brought to light a rectangular structure measuring 13×9 m, oriented



Figure 2. View of the excavated structure with location of Burial UA 12. Photograph by the author.

east-west, with an entrance corridor at the west opening onto a very large interior room (Darras et al. 2017; Figure 2). As indicated above, this single-cell edifice, measuring 110 m^2 , is contained within an elaborate architectural complex composed of platforms and buildings separated by narrow passageways. Bench seats along the outside of its west façade line the long entry corridor that becomes increasingly narrow. Indeed, the access to the interior was clearly restricted: the end of the corridor was blocked by a wall and in order to enter or leave, it was necessary to use the lateral passages along the bench seats. The edifice had a masonry foundation of about 70 cm high, topped by adobe walls. The roof would have been made of perishable materials. Both the exterior and interior walls were covered with a white coating (*tepetate*) painted with red motifs, whose fragmentary state did not permit further identification.

The excavation of this interior space revealed two successive occupation surfaces, the older averaging 10 cm thick and the most recent 20 cm thick. Both were made with white materials extracted from *tepetate*, the vernacular name referring to volcanic indurated horizons, mainly composed of pyroclastic materials and compacted or cemented (Gama-Castro et al. 2007; Zebrowski 1992).

Different indicators found on the older occupation surface, including the partial destruction of the north wall and its covering, traces of a fire, large quantities of broken ceramic vessels, and food remains, suggest that the building was destroyed by a violent event (Darras et al. 2017). The nature of these indicators and the geoarchaeological approach, which included micromorphological analysis of black clay sediment found over the occupation surface, permit the hypothesis that the destruction of the building was caused by a landslide (Solleiro et al. 2021). The seven radiocarbon dates associated with the occupation, destruction, and reconstruction of the edifice show that the successive events occurred within a very short period, some time between cal. A.D. 460 and 550 (95 percent phd; two-sigma ranges; calibration with the ChronoModel application; Lanos et al. 2018).

The occupation surface (Figure 3), which had been covered over by the collapse of the adobe walls and the black clay deposit, revealed many remains: two hearths, one of which was carefully modeled with white materials identical to those used to shape the floor and placed in the center of the room, two graves located in the northern part (UA 12 and UA 13), large quantities of semicomplete or complete ceramic (jars, bowls, censer), lithic (obsidian and andesitic artifacts, *mano*), and organic artifacts (corn cobs, beans), mainly concentrated in the southern part of the construction and the corners. An imprint of a *petate* was discovered on the northern part of this surface, which coincides perfectly with the location of Burial UA 12.

Burials Associated with Building UC 1-2

Four graves were found inside the construction, while none were found in the other areas excavated. It is in the northern section of the older occupation surface, an area somewhat apart from most of the activities, that two individuals, an adult female (UA 12) and a young child (UA 13), were buried side by side, although we cannot determine whether the burials took place at the same time. The two graves nonetheless share common features: a narrow rectangular morphology and east–west orientation, and their considerable depth. The UA 12 grave, which is the focus of this article, will be described in detail below. As for UA 13, it was characterized by a pit 96 cm long, 34 cm wide, and 81 cm deep. The pit contained



Figure 3. Plan of the rectangular structure (UC 1–2) with the surface occupation and its two burials (UA 12 and UA 13). Original drawing by the author; computer drawing by Sylvie Eliès.

the remains of a child placed against the base of the north wall, in a left lateral flexed position, with the head toward the west and facing south. Two funerary items were associated with these remains: a ceramic bowl and a shell pendant. After the catastrophe that led to the sudden covering of the floor, a temporary construction made of perishable materials was set up inside the building, pending construction work. A pit containing the remains of a newborn individual was recovered inside this provisional structure (UA 2). No funerary furniture was associated with it.

Last of all, the reconstruction effort resulted in the rapid arrangement of an identical new occupation surface where another burial (UA 7) was identified, this time in the southern part of the edifice. As in the two previous cases, it consisted of a deep pit of disproportionate dimensions relative to the funerary deposit. The pit, along an east–west axis, contained the remains of an adult placed in supine position, with the head oriented toward the west. The individual from UA 7 (probably female) was buried with pectoral adornments, mainly made of green glass (nacrite and amazonite; Robles-Camacho 2018) and shell tesserae and pearls, as well as a pyrite mirror placed under the 11th and 12th vertebrae. No ceramic vessels were recovered in this grave.

Some Remarks on the Uses and Function of Building UC 1–2

The characteristics of this unicellular building raised the question of its function and uses. The UC 1–2 structure occupied a central location with protected access within a compact and unified architectural ensemble. The remains found on the oldest interior floor relate to domestic and ritual activities alike. The main hearth shows an orange-colored induration several centimeters thick, which attests

to regular and intensive use. Chemical analysis of the residues in the floor and ceramic vessels (Pastrana et al. 2018) confirm the observations established on the basis of the archaeological remains (Darras et al. 2017): the occupation surface underwent considerable use; food was stored, prepared, and cooked in the two hearths, and consumed there (jars, cooking pots, bowls, beans, corn); and incense was burned in a censer. The analysis also revealed traces of pigment grinding, probably related to the painting of the walls (*mano* with red pigment).

The presence of adult burials in residential spaces is not often documented in west central Mesoamerica, although it is reported in Classic contexts of the Basin of Pátzcuaro (Helen Pollard, personal communication 2020), but it was common during the Formative and Classic periods in other regions of the central Highlands, such as Tetimpa (Uruñuela and Plunket 2002) and Teotihuacan (Manzanilla 2002; Manzanilla and Serrano 1999; Sempowski and Spence 1994).

According to the typology established by Pereira (2013:458), the UC 1-2 graves could be considered as "occupation burials." This author defines two patterns of deposits in Río Bec residential contexts: (1) the transitional burials that are accompanied by major transformations of the architectural spaces in which they are placed, thus marking the end of one stage and the beginning of a new one; and (2) the occupation burials that are installed in a structure already in use and that continues to be used after the mortuary deposit, without any subsequent change. The latter fits perfectly with the UC 1-2 context. Indeed, once the pits were filled again, the corresponding section of the floor was simply patched over to allow the resumption of activities there. However, in the absence of comparative elements for our area of study, it is difficult to draw more inferences, especially since the funerary contexts known for the same situation and region reflect fairly diversified practices (Pereira 1999).

The morphological features of the building, meanwhile, are close to the unicellular structures found in the Middle and Late Postclassic in the Zacapu region; these were known as the "Great House" in the *Relación de Michoacán* (1977). According to Forest's (2014) research in the site of Malpais Prieto, in some of the cases, they seem to have been elite residences, and in others, communal houses where domestic activities were carried out, as the *Relación de Michoacán* seems to indicate.

The example described here, which dates from the fifth century A.D., shows other distinctive features: it is contained within a compact, unified architectural ensemble, and it contains burials with specific attributes. All available data put together lead to the hypothesis that this structure fulfilled a specific role within the site. On the one hand, the evidence of domestic activity is strong enough to suggest it was inhabited on a daily basis. On the other, it is likely that some of the activities identified in this space correspond to domestic rituals. Because people were buried there, this living space was necessarily also a place of commemoration, where incense was burned and ancestors were fed, as has been widely observed in the Maya region (e.g., McAnany 1995:33), Teotihuacan (Manzanilla 2002), or Tetimpa (Uruñuela and Plunket 2002). These domestic rituals, related to the worship of the dead, may have involved a community role.

In short, indices converge to consider structure UC 1-2 as an elite residence where people were buried and where domestic and ritual activities were carried out. Let us now examine the characteristics of the *petate* impression recovered on its occupation floor, which was part of these activities.





Figure 4. The petate impression. (a) General view; (b) detail; (c) removal of the imprint. Photographs by the author.

The Petate Impression

Once the occupation floor was completely cleared away, the impression revealed a rectangular shape with slightly curved angles, measuring 2.1 m long by 0.6 m wide (Figure 4a). Forming a slight protuberance relative to the rest of the surface, it was perfectly oriented east–west. The fairly pronounced sinking of the surface where the impression was discovered somewhat distorted its contours.

The quality of the preservation of this trace (Figure 4b) permits a detailed description of the morphology of the mat: its grid-like pattern results from the interlacing of strips measuring 3 cm wide in a 4:4 rhythm, without visible changes in the stems (Medina-González et al. 2018). It is noteworthy that the strips are oriented perpendicularly rather than diagonally, as is the case for the majority of traditional petates. The absence of a folded and sewn border around the edges can be observed; this apparent anomaly might indicate that the original dimensions of the petate were larger, and only the area in contact with the sediment sealing the grave was preserved because of specific taphonomic processes. However, the micromorphological contextual analysis supports the idea that the absence of borders is due to a particular manufacturing technique. Recent ethnographic observations show that *petates* can be made without folded and sewn borders (Isabel Medina-González, personal communication 2019).

The preservation of the impression was possible because the catastrophe causing the accidental destruction of the structure occurred shortly after the burial of the deceased. As we will see below, the *petate* was placed on top of the mixture used to repair the floor while it was still moist, which means that the mat was intentionally cast in that compound to lock it in place. Four

conditions thus led to its preservation: (1) the fixing of the *petate* in a moist mass of white material; (2) the rapid covering of the grave shortly after the end of the burial ritual that sealed the floor and interrupted the drying of the newly repaired part; (3) the very compact deposit used to cover the grave, which acted as a water-proof barrier; and (4) the weight of the deposit, which limited lateral displacements. The catastrophe that led to the collapse of the adobe walls and the landslide thus created the conditions for the sealing and preservation of the *petate* and its impression.

The Underside of the Petate

When the *petate* imprint was removed for purposes of restoration and conservation, supervised by Isabel Medina-González and Karla Martínez López from the Escuela Nacional de Conservación, Restauración y Museografía (ENCRyM, Mexico), it became clear that its edges coincided with those of a pit and that the floor underneath was fairly thin, about 1–2 cm (Figures 5a and 5b), unlike other sectors of the building, where the white floor was thicker (Darras et al. 2016). This pit corresponded to burial UA 12.

Its excavation, carried out in 2017, revealed a deep, narrow, rectangular cavity (2.00 m long \times 0.60/0.65 m wide \times 1.60 m deep), with regular vertical walls, except for the east wall, which was a little more irregular due to the presence of earlier stone foundations (Darras et al. 2017; Figures 6a and 6b). The width and length coincided with the area taken up by the imprint, except at the western edge, where white materials used to repair the floor, as well as the imprint, spilled over by about 10 cm. The pit was filled in with a





Figure 5. Appearance of the burial pit limits when the white floor is removed. (a) General view toward the west; (b) detail revealing the original thickness of the white floor occupation on the sides and the repaired floor sealing the top of the pit. Photographs by the author.





Figure 6. Burial UA 12 being excavated. (a) Orthophoto; (b) view toward the west. Note that the burial pit has perforated several white occupation floors. Photograph by the author.

heterogeneous material of varying compactness; as indicated by a highly compact surface in the two-thirds part of the filling that attests to an interruption, this operation was carried out at two separate times.

In the lower section of the pit, this sediment rested on a covering of four andesite slabs, which, in turn, covered the remains of an adult



Figure 7. Andesite slab cover with the limits of the lower part of the burial pit. Photograph by Alejandra Castañeda.



Figure 8. Bone remains with the funerary furniture. Photograph by Alejandra Castañeda.

(Barrientos et al. 2017). The level where the slab covering was detected corresponded to the beginning of a natural deposit of black soil. Here, the walls of the pit were enlarged to 0.75 m, and a narrower pit (0.55 m on the average) was then dug in the black sediment to the level of the bedrock consisting of tepetate (Figure 7). The difference in width thus allowed the four slabs to rest at regular intervals on the parts that were not hollowed out. The underside of the slab at the level of the tibias disclosed many carvings. The skeletal remains corresponded to an individual primary deposit identified as that of an adult (Barrientos et al. 2017:46; Figure 8). The poor condition of the skeleton did not permit the determination of its age, but the morphology of the ischiatic incision and other morphological traits, such as the lower part of the coxal bone, made it possible to identify it as a female (Isaac Barrientos, personal communication 2021). The skeleton rested on the tepetate in a straight, lateral position (Grégory Pereira, personal communication 2020), with the skull placed at the west and perhaps oriented toward the south (it was quite fragmented). The upper limbs and condyles were twisted toward the south, probably because of the sinking of the body during its decomposition (Grégory Pereira, personal communication 2020). The distortion of certain skeletal remains, in particular at the level of the foot bones, might indicate that it was enclosed in a shroud at the moment it was deposited. While the overall dimensions of the pit were oversized relative to the height of the individual, the reduction of the space in the lower part and the considerable depth could have limited movements at the time of the burial, and thus interfered with the positioning of the body (Grégory Pereira, personal communication 2020).

The grave was provided with burial furnishings that included six ceramic monochrome bowls, four of which were deposited at the west end and one at the east. A large obsidian flake, a miniature bowl, and a spindle were placed on the south side of the body, with the obsidian flake at the level of the tibias. Some of these objects might have been deposited before the placement of the body in the pit and others afterward (Barrientos et al. 2017).

The Hidden Face of the Slab

The engraved slab is sub-rectangular in shape and measures 0.73 m long, 0.34 m at its widest part, and between 6 and 8 cm thick (Figures 9a and 9b). Its lateral edges are perpendicular and the ends tapered. The entire carved side is covered with a yellowish-white cortical surface (Figure 9a). This side underwent several types of modifications that can be attributed to different techniques. The first two are related to the preparation of the surface to be







(b)

Figure 9. (a) Engraved slab; (b) drawing of motifs. Photograph by the author; drawing by Sylvie Eliès.

incised. One of these consisted of rubbing a little more than half of the slab surface with a dampened tool, which produced a polished or lightly polished surface that was fairly homogeneous. The perimeter was subject to more pronounced rubbing in a straight line; this created a hollow defining a frame that stands out rather distinctly because of the difference in texture and location. The other half of the slab surface seems to have been prepared by stippling and has a rougher appearance. The third modification can be recognized by the presence of tiny round indentations scattered over the polished surface and visibly obtained by striking. The final modification, which is the most important, consists of the carving of lines of greater or lesser depth and width. These incisions represent two kinds of geometric motifs: grid-like forms that are sometimes superimposed and a spiral (Figure 9b).

- (1) The grid-like patterns are spread over the entire surface of the slab. In the roughest section, a first motif incised with long diagonal lines that are quite narrow and not very pronounced was observed. The other section includes many grid-like motifs that are superimposed in an order that is difficult to determine. The most visible pattern is formed by deep incisions along a perpendicular axis. These vary in width and depth, with one north–south line measuring 0.7 cm wide and 0.3 cm deep. The frame is incised with lines forming a diagonal grid motif. Many other grid-like incisions are scattered over the perimeter of the frame and the slab.
- (2) The spiral motif is found on the north side of the frame, which was prepared by rubbing. It was obtained through repeated, discontinuous linear incisions forming a more or less regular line that tends to be wide and deep.

The morphological diversity of the incisions implies several different tools, but also a variety of gestures and degrees of physical force. This diversity probably reflects the intervention of several hands, although the conditions (context, chronology) cannot be



Figure 10. Schematic diagram (north—south section) of the burial pit, including the different levels, as explained in the text. Drawing by the author.

determined with precision. The appearance of the incisions suggests, however, that they were all produced within a short period of time, probably for a single event.

The Sequence of Funerary Gestures

The distinctive morphological features of Burial UA 12 were immediately apparent when the pit was opened. In order to understand how the *petate* and the incised slab entered into the *chaîne opératoire*, it is necessary to consider the sequence of gestures we were able to reconstitute for the preparation of the pit, the burial, and the filling of the grave (Figure 10).

- (1) The orientation of the pit along an east-west axis.
- (2) The piercing of the occupation surface and digging of a very deep, narrow, rectangular pit with vertical sides. The pit perforates several earlier occupation surfaces, all of which were treated with a white material. The southern side is aligned along a constructed east–west axis.
- (3) The digging of a narrower pit from the layer of black sediment corresponding to a natural deposit over the bedrock.
- (4) The depositing of the body, perhaps within a wrapping, placing the head to the west. The lateral reclining position could be the result of the contortions due to the narrowness and depth of the pit.
- (5) The distribution of certain burial furnishings around the body. A large obsidian flake was placed at the tibia level and a spindle at the pelvis, both on the south side. A miniature ceramic was also placed at the level of the rib cage on the south side.

- (6) The placing of a ceramic bowl at the level of the pelvis on the north side.
- (7) The filling the pit to the level of the enlargement (approximately 30 centimenters).
- (8) The enlarging of the walls to facilitate the arrangement of four slabs at regular intervals, with the extremities resting on the black sediment.
- (9) The placing of the incised slab at the level of the tibias, with the carved face down.
- (10) The possible depositing of other burial furnishings at the edges of the pit (the ceramic object may have been placed before the placing of the body because it lies outside the lowermost section of the pit, on the black sediment).
- (11) The filling of the pit in at least two steps, with marked packing in the last third in order to create a compressed surface. It is unknown if the filling was disturbed for practical reasons (to pack the filler) or if it was accompanied by gestures and deposits that can no longer be detected.
- (12) The local restoration of the white floor, with the superposition of several thin layers of white material for a total thickness of roughly 2–3 centimeters.
- (13) The depositing of a reed mat corresponding to the dimensions of the pit along a north–south axis. This *petate* was placed on the white mixture while it was still moist.
- (14) The pressing and fixing of the mat in the white mixture.

The collapse of the adobe walls and the landslide subsequently created the conditions for the sealing and preservation of the *petate* and its impression.

The reconstruction of the sequence of gestures for the preparation of the pit, the deposit of the funerary items, and the filling and sealing, shows that the positioning of the engraved stone and the reed mat were planned beforehand and corresponded to a clear intention. These features lead us to rule out a uniquely commonplace purpose in favor of a use with symbolic dimensions. It is therefore appropriate to examine the meaning behind this intention by recalling the symbolism of the motifs formed by the interlacing of the *tule* stem.

THE TULE, THE PETATE AND THE GRID-LIKE MOTIF

In her 1985 study, Heyden describes the mechanisms that metamorphosed the tule, an ordinary aquatic plant used for a variety of craft and medicinal purposes, into a sacred plant that was "the very essence of the supreme god, of life and death," symbolizing power and earthly paradise (Heyden 1985:140, 141-153). According to Sahagún, the name Tollan ("place of the tules") designated a site of fertility and abundance, and even the divine site of the Creation, where the *petlatl* and *icpalli* personified the supreme god Tezcatlipoca (Olivier 1997; Sahagún 1981:vol. 1, bk. III, chap. II, pp. 308-309). For some researchers today, Tollan represents the origin of all peoples and designates the major urban centers concentrating power (Davies 1977, cited in López Luján and López Austin 2007; Heyden 1985:144). For others, it is an abstract concept situated within the imaginary of the afterlife (López Luján and López Austin 2007). But regardless of the interpretations of Tollan, textual and iconographic sources agree on the association of the tule and the petate (as mat or seat) in the exercise of divine and earthly power (e.g., the Popol Na of Copan, Honduras; Fash et al. 1992). As for the grid-like pattern formed by the interlacing (entretejido, reticulado) of the tule stems, it is one of the most widespread motifs in Mesoamerica, from the Early Preclassic and in most material production, including ceramics, fabrics, architecture, bas-reliefs, sculptures, wall frescoes, and codices, among other things.

The association of these motifs with the generic plant is frequent in the codices, especially in glyphs representing Tollan (e.g., Historia Tolteca-Chichimeca 1976:Plate 16v). Moreover, the gridlike motif is most often interpreted at the schematized representation of the serpent's undulating movement, which can also take other stylized and sometimes emblematic forms, such as the spiral or the greca escalonada (Greek stepped motif; Carot 2001; Escoto 2009). From the Preclassic on, the serpent appears as a key element of the Mesoamerican cosmovision, where it serves as a theriomorphic symbol. Representations of the serpent are frequent, whether realistic, stylized, or abstract, and the intention here is not to discuss its different meanings because its polysemic character is closely tied to the contexts of its appearance and associations. Depending on its attributes, the serpent can symbolize the celestial or earthly worlds, but also the underworld. It is recognized that it incarnates regeneration and rebirth and that it is often associated with aquatic and subterranean elements (Miller and Taube 1993), and contributes to the life cycle involving the vertical circulation of water between the underground world, the earth and the sky (de la Garza 1984:151-152). As a cold-blooded animal living part of the time in the bowels of the earth, the serpent belongs to the bestiary symbolizing the underworld, which is itself cold, dark, female, and aquatic (e.g., López Austin 1973).

But the serpent is also associated with the earth's surface (e.g., Freidel et al. 1993; López Austin 1973; Luckert 2001; Schele et al. 1986). Its slithering movements place its entire body in contact with that surface. Moreover, the grid-like or meander patterns ornamenting the foundations and facades of buildings, like those of Mitla or Tajín, might be a personification of the "mountainserpent" diphrasism and are sometimes interpreted as a metaphor for the earth's surface (Luckert 2001; McDonald and Stross 2012). In the Maya region, the serpent's jaws placed at the entrance of certain buildings have been taken to represent the threshold between the world of the living and the watery underworld (McDonald and Stross 2012). The connection between the grid-like motif and the earth's surface, meanwhile, is suggested by López Austin (1973) in a remarkable demonstration, developing a hypothesis advanced by his colleague Pohorilenko-namely, that the woven pattern of the petate would symbolize multiple cross-shaped motifs. López Austin recalls that the god Nappatecuhtli, "the lord of the four quarters of the earth's surface," was depicted with a four-petal shield and was the protector of the craftspeople, weaving the grid-like motifs appearing on their reed mats. In his view, the connection between Nappatecuhtli and the entire surface of the earth divided into four parts would be perfectly illustrated in the association of cross and grid motifs evoking an abstract schematization of the serpent's movement.

These examples serve to demonstrate the existence of a close relationship between the grid-like motif, the cross, and the serpent as a polysemic symbol, crystallizing the interaction between subterranean, terrestrial, and celestial worlds. In the remarks that follow, we consider these different interpretations in light of our archaeological data.

THE *PETATE* AS A SYMBOL OF THE DECEASED'S AUTHORITY?

The characteristics of the graves found in the building raise the question of the social status of their occupants. To recapitulate: a body of evidence (the location and morphology of the burial, the construction quality, the nature of the furnishings) seems to indicate that the woman buried in UA 12 enjoyed a particular status, during her lifetime and after her death. Alongside these material indicators of status, the *petate* quite obviously adds a strong symbolic message, perhaps related to the exercise of power.

The *petate* from UA 12 covered the exact dimensions of the burial and was intended to be visible to the living. Did its presence mark the burial place of a powerful woman so that she would be remembered as an ancestor? While it is tempting to associate the idea of the ancestor with that of the site's founder, the data do not permit such a hypothesis because the structure where UA 12 is located is not the earliest within the occupation sequence, and the explorations did not provide an overall vision of its history. It is unknown whether there are other graves associated with earlier constructions or whether there were links between them. However, in addition to the child's burial nearby, we know that there are two other, slightly later burials, including one deliberately placed elsewhere in the structure, probably to avoid interfering with UA 12 and UA 13.

Ancestor veneration has been extensively studied in Mesoamerica, especially in the Maya world, where individuals are frequently buried under the floors of their houses (e.g., Goudiaby 2018; Hageman 2016; McAnany 1995). McAnany's work demonstrates how ancestor veneration structured all sectors of Maya society and that the Maya maintained proximity to their dead in order to recall their genealogy by ensuring physical continuity in residential spaces (McAnany 1995:8). Through this physical connection and through oral memory and domestic rituals, descendants could maintain the link with the past, and thus legitimize their claims, particularly over land and local resources, according to the principle of first occupancy (McAnany 1995:96).

In this case study, the idea of a founding ancestral tradition is thus difficult to demonstrate, especially since there is no work on the subject for this region of Mesoamerica. Nothing precludes the idea of an "ancestralization" independent of the deceased woman's position within the genealogy of the site. Indeed, this hypothesis can be considered in the context of Goudiaby's research in the Maya low-lands. In his view, ancestor status depends on three criteria: (1) the family tie; (2) the deceased's ability to take action; and (3) the permanence of his or her memory (Goudiaby 2018:163–164).

- (1) Concerning the family tie, it is clear that the four graves had a direct connection with the edifice and thus contributed to the site's genealogy. It is also likely that a family tie existed between the different individuals.
- (2) Following traditional interpretations, we can attempt to associate the petate with the exercise of power, but it is also necessary to raise the question of the deceased's ability to take action in the world of the living. Could this object serve to mark a locus of the active power she exercised? Possibly through intermediaries from the world of the living? If we accept Goudiaby's premise, the *petate*'s presence on the burial would thus recall the occupant's status and her ability to intervene among the living. But in this case, what would distinguish the status of UA 12 from that of the other two graves, which also received special treatment and occupied a specific location? Theoretically, the petate should suffice to distinguish UA 12 from the others. But it must be remembered that the mechanism permitting the preservation of the impression was exceptional, and if it is possible to suggest that UA 13 did not benefit from a similar covering, since its traces would probably have survived because of the same rapid sealing process; this is not true for UA 7, which is slightly later. This third grave might have been closed by the same kind of woven mat whose trace has been lost. Moreover, if we assume that the *petate* marked a locus of power, it reinforces our hypothesis that the building fulfilled a special function for the inhabitants of the site, regardless of whether it was residential.

(3) As for Goudiaby's third criterion, the fact that the *petate* was pressed directly into the wet surface to anchor it permanently corresponds to a clear intention to indicate the grave's location to the building's occupants. It is thus legitimate to deduce that the *petate* would have served as a reminder, sustaining the collective memory.

Goudiaby's proposed criteria therefore seem to have been sufficiently met to permit the deduction that UA 12 reflects a desire for ancestralization. A final argument in support of this hypothesis would be the choice to deposit the deceased in the black soil and on top of the bedrock, both of which constituted the ground where the site's first occupants had settled. Burying this person under the very first occupation would then indicate the desire to place her at the origins, as a founding ancestor after the fact. Such an intention would thus be consistent with the principle of first occupancy described by McAnany (1995:96).

We shall now describe a slightly different, but not antithetical, scenario, which is suggested by the symbolism of the grid-like pattern.

THE PETATE AND THE COSMIC ORDER

Burial UA 12 reveals at least two instances of grid-like motifs corresponding to the two different levels of covering of the pit. The first level consists of the slabs, which were arranged just after the placement of the body and its accompanying artifacts (Figures 10 and 11). The installation of this partial covering reveals a specific intention: to create a physical boundary, a limit between the lower part of the pit and the filling above. This is the level where the first visible grid motifs appear. The multiple criss-crossed lines and the spiral are found on the lower face of the slab and thus rest against the tibias of the deceased. The most pronounced motif, which has the deepest incisions and is inscribed within a frame, forms a grid of perpendicular lines aligned with the cardinal points. The spiral motif is placed to the north of these criss-crossed lines, while a large flake of black obsidian lies opposite, to the south of the deceased's tibias, so that these two elements frame the gridlike motifs.

The second level corresponds to the ground surface once the pit was sealed. As already indicated, we can see the actual placement of a *petate* on the floor once it was repaired, in alignment with the cardinal points that also correspond to the corners of the grave.

How are we to interpret this spatial arrangement from the standpoint of the grid-like motif? I suggest, first of all, that the criss-



Figure II. Montage showing the incised motifs in transparency on the tibias and obsidian flake. Photograph by Alejandra Castañeda; montage by the author.



Figure 12. The obsidian flake. Photograph by Alejandra Castañeda.

crossed lines of the incised slab embody a *petate* and that the spiral is the schematic representation of an ophidian. Both the impression and the carving depict a woven mat aligned with the cardinal points and evoke multiple cross-shaped motifs. It is possible that these motifs correspond to a metaphor of the ophidians' undulations and thus echo the clearer symbolism of the spiral. In all three cases, these are schematized representations of the snake's movement.

We know, moreover, that obsidian, like the serpentine form, can be associated with the underworld (Recinos 1950) because it comes from the entrails of the earth (Darras 2014), and because of its black color and smooth, cold appearance (Graulich 1982). The placing of a large black fragment in the grave is therefore not insignificant and gives rise to several observations (Figure 12). First of all, the Lerma floodplain where site PA3 is situated lies some 30 km from the vast obsidian deposits of Zináparo-Varal and Pénjamo. One of the surprises of the Tres Mezquites project was the discovery of the particularly small amounts of obsidian used by the pre-Hispanic populations in the region, not to mention the limited quantities of debris and tools, which suggested that obsidian was perhaps not an easily accessible resource. In light of this, the dimensions of the flake deposited in UA 12 (7.5 cm × 5.5 cm × 1 cm) are exceptional, making it by far the largest specimen found in the course of the project. Its alignment with the grid-like motifs is certainly deliberate because it contributes to the overall composition formed by these patterns and the spiral (Figure 11). It is thus argued that it is a unique object fulfilling a specific function.

Given its oval, fairly flat shape, is it possible to go a step further and imagine that it is an obsidian mirror associated with divination? This is a risky question to answer and it is suggested, more cautiously, that this obsidian fragment, like the serpentine motif, is present as a symbol of the underworld.

The grid-like motif appearing on two levels constitute clear physical limits: the covering of the slab is a first level intended to be covered over, with its petroglyphs facing downward—in other words, toward the deceased and the bedrock (the *tepetate*)—while the white ground surface and its *petate* were intended to be shown.

How should we interpret these features in the context of the grave and, more broadly, the edifice where it is found? As we have seen, the building served for intense domestic and ritual activities. It was a place of comings and goings, a living environment. As indicated above, the *petate* would seem to have been a marker designating the location of the grave, which had been introduced without any transformations of the living area. We have also seen that all the graves within the building were very deep—in this case, 1.6 m. I propose two hypotheses to explain such depth: (1) the intention to reach the bedrock, which was at the origin of the site's occupation (or quite simply the origin); and (2) concerns for hygiene: since the installation of the graves was not followed by major reconstruction works permitting them to be tightly sealed, it was necessary to deposit the deceased far below the surface where the building's occupants pursued their normal activities. This physical distance was perhaps a necessary condition for tolerating the dead.

Whatever the case, one thing is clear, the exceptional depth of UA 12 and the covering made of slabs served to delimit the different spaces: it was necessary to confine the deceased in her own world. It is further suggested that the two grid-like motifs, and perhaps the spiral, reinforced this effort, acting at once as threshold and boundary between the earth's surface, marked by the four cardinal points and the underworld. The reminder provided by the two levels where the grid patterns appear (the slabs and the white floor surface) gives rise to two observations: first of all, that it was crucial to notify the deceased of her new place, and second, that this notification was necessary because the deceased was likely to come back to the world of the living. And in this context, we might ask whether the placing of the carved slab over her tibias and the presence of the spiral and the obsidian fragment were related to the idea of keeping her in the underworld.

The two grid-like motifs can therefore be interpreted as the personification of the earth's surface and its four parts, as López Austin (1973) has proposed. In other words, the *petate* would not have been a symbol of the deceased's authority, but rather, would have had the power to restrain her ability to act. It is in fact the *petate* itself, as a finished object, that exerts power, at once through the plant used to make it, the criss-crossed motifs created by the interlacing of the stems, and its quadrilateral shape.

As Dehouve suggests in the case of Tlalpan rituals, the *petate* is a sacred space that can be seen as a cosmogram (Dehouve 2013). In our context, it is placed above the grave and thus seals the underground world, the world below, both physically and symbolically. As a protector of the cosmic order, the *petate* is a regulator guaranteeing that things remain in their rightful places. By separating the worlds, it thus protects the living from the deceased's ability to act.

CONCLUSION

The exceptional circumstances leading to the preservation of this impression, along with the features of the grave, provide an extraordinary opportunity for discussing the role of the *petate* in mortuary practices and, on a broader scale, within Mesoamerican cosmovision. Furthermore, the contextual analysis and comprehension of the sequence of funerary gestures based on the concept of the *chaîne opératoire* has made it possible to establish spatial and functional connections between the different features of UC 1–2 and Burial UA 12, and to give the *petate* a symbolic meaning surpassing a strictly material and utilitarian use. Should we therefore say that the *petate* symbolizes the rulers' authority, or does it represent the earth's surface and its four parts? In fact, the foregoing analyses demonstrate that its attributes are multiple and intertwined.

The petate from UA 12-and its carved (re)incarnation-contribute to the cosmic order by keeping things in their place. It acts, first of all, as part of the sequence of elements marking spatial discontinuities to order the temporalities: the bedrock, the black soil, the funerary deposit, the incised serpentine volute and petate motifs, the slab covering, the two levels of filling, the white occupation surface, and the *petate* made of *tule* (Figure 10). The active powers of the culminating element-the petate-complete the overall device and reinforce it. In this sense, it works as a veritable interface, with its lower side meant for the deceased and its visible side, which personifies the earth's surface, addressed to the living. This interface function thus allows the *petate* to serve as a closed gate between different space-time continua, in order to control interactions between the world of the living and that of the ancestors. It seals the grave, but also makes the location visible, and as such, can serve as a support for the collective memory.

It then becomes plausible that the *petate* constituted a sanctified space, possibly to be avoided or, on the contrary, to be occupied in certain circumstances (funeral rituals, for example, but perhaps also to invest the person seated on it with an authority conferred at once by the *petate* itself and the ancestralized deceased to whom it granted symbolic access). In other words, the *petate* may have combined two powers: that of regulator, separating the worlds as an incarnation of the earth's surface and its four parts, and that of temporal gate, guaranteeing the continuous exercise of authority. In any event, the elements assembled around the deceased demonstrate that she was probably a powerful woman whose potential intervention in the world of the living merited being channeled, if not contained or even neutralized.

We can go even further, however, by expanding the traditional interpretation that makes the *petate* a symbol of rulers' authority as the "seat" of their power. As we have seen, it possessed its own powers, which rulers could capture to assert their authority. And indeed, these powers allow us to suggest that the *petate* served to give order to both the most ordinary activities of daily life and the most important moments of the lives of individuals and those who organized the community's destiny.

RESUMEN

El petate, del término náhuatl "petlatl", es una estera de cestería hecha de plantas lacustres que se conocen con el término genérico de tule y abarcan una amplia variedad de especies pertenecientes a la familia de las ciperáceas. En los códices mesoamericanos del centro de México, el difrasismo náhuatl "petlatl in Icpalli" (estera-silla) se refiere al trono y al lugar donde se ejercía la autoridad. Esta sinécdota también se aplica a las esteras sencillas en las que se sientan las personas ejerciendo un poder. Al mismo tiempo, estas fuentes gráficas y etnohistóricas describen o ilustran una esfera de uso mucho más amplia, mostrando que el petate era un objeto ordinario, parte del mobiliario doméstico que acompañaba la vida de todos los individuos.

El objetivo de este artículo es discutir el simbolismo del petate a la luz de un descubrimiento arqueológico inédito. Las excavaciones realizadas en un contexto del clásico en el norte de Michoacán han evidenciado una impronta de petate que marcaba la ubicación de un entierro. La fosa, muy profunda, presentaba en su parte inferior una tapa de lajas cubriendo los restos humanos, una de las cuales estaba grabada con motivos reticulados y en espiral.

Tras un repaso de los usos antiguos y modernos del petate, basado en datos etnohistóricos, etnográficos y antropológicos, así como en evidencias arqueológicas relevantes, presentamos el estudio de caso que permite discutir las hipótesis sobre el significado simbólico del petate: la simbolización del poder por el petate y el de la encarnación de las cuatro partes de la superficie terrestre. Para abordar estos puntos, el enfoque del artículo se basa en una descripción escrupulosa del contexto arqueológico, teniendo en cuenta la distribución espacial de todos sus hallazgos, así como en un acertado análisis cronoestratigráfico para comprender la sucesión de los depósitos culturales y/o naturales. La interpretación contextual y la comprensión de cómo se formaron y conservaron los restos de petate se basaron en un enfoque geoarqueológico intra- y suprasitio, que incluyó análisis micromorfológicos de los sedimentos (Medina et al. 2018; Solleiro et al. 2021). Los vestigios arqueológicos discutidos en este artículo fueron estudiados siguiendo diferentes enfoques: las herramientas bioarqueológicas tradicionales para los restos óseos y la aplicación del método Bruzek para el diagnóstico sexual (Bruzek 2002); y análisis químicos de pisos y de residuos en cerámicas con el método desarrollado por el Laboratorio de Prospección Arqueológica de la Universidad Nacional Autónoma de México (Barba y Ortiz 1992; Barba et al. 1991). Finalmente, este estudio se basa en una reconstitución de la secuencia de gestos funerarios que se pudieron reconocer en campo,

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References

- Adkins, Cynthia
- 2002 Analysis of Microbotanical Remains from Site ER-22 Located on Lake Pátzcuaro, Michoacán, Mexico, Excavated June 2001. Unpublished manuscript on file, Department of Anthropology, Michigan State University, East Lansing.

Aguirre Anaya, Alberto, Magdalena García Sánchez, and Yoko Sugiura Yamamoto

- 1998 Etnoarqueología del modo de subsistencia lacustre en la cuenca del Alto Lerma. In La Casa, la pesca y la recolección: Etnoarqueología del modo de subsistencia lacustre en las ciénegas del Alto Lerma, edited by Yoko Sugiura Yamamoto, pp. 89-231. Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México, Mexico City.
- Albores, Beatriz
- 1995 Tules y sirenas: El impacto ecológico y cultural de la industrialización en el Alto Lerma. El Colegio Mexiquense y Secretaría de Ecología, Gobierno del Estado de México, Toluca. Alcina Franch, José

1995 Lenguaje metafórico e iconografía en el arte mexica. Anales del Instituto de Investigaciones Estéticas 66:7-44.

Barba de Piña Chan, Beatriz

1956 Tlapacoya: Un sitio preclásico de transición. Acta Anthropologica, Series 2, Vol. 1, No. 1. Escuela Nacional de Antropología e Historia, Mexico City.

Barba Pingarrón, Luis, and Agustín Ortiz Butrón

- 1992 Análisis químico de pisos de ocupación: Un caso etnográfico en Tlaxcala, México. Latin American Antiquity 3:63-82.
- Barba Pingarrón, Luis, Roberto Rodríguez Suárez, and José Luis Córdova Frunz
 - 1991 Manual de técnicas microquímicas de campo para la arqueología. Cuadernos de Investigación. Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México, Mexico City.
- Barrientos, Isaac, Véronique Darras, Alejandra Castañeda, and Marion Glère 2017 Descripción de los entierros (UA 7, UA 12, UA 13). In Proyecto Tres Mezquites: Informe técnico sobre los trabajos de campo realizados
 - en 2017 en la región de Tres Mezquites, Michoacán, edited by Véronique Darras, pp. 39-50. Unpublished report on file, Instituto

incluyendo la excavación de la fosa, la colocación del depósito funerario y el relleno final de esta fosa. Utilizamos el concepto de chaîne opératoire para comprender la sucesión de las diferentes acciones y para destacar su coherencia en el proceso funerario (Duday et al. 1990; Valentin et al. 2014). Es este tipo de enfoque el que nos permite discutir la presencia del petate más allá de una perspectiva estrictamente doméstica y utilitaria.

Este análisis contextual lleva a proponer que el depósito de petate constituyó el último gesto que pudimos reconocer tras el relleno de la fosa. Proponemos que tuvo un vínculo directo con la sepultura UA 12 y que se depositó intencionalmente en relación con el proceso funerario. También proponemos que el petate cumplía una función específica relacionada con el mundo de los vivos y el de los muertos. El análisis contextual sugiere que tanto el petate como la laja incisa sirvieron de umbrales, si no de barreras, entre el mundo de los vivos y el inframundo. Proponemos que el petate, como garante del orden cósmico, se colocó sobre la tumba para actuar como regulador, asegurando que las cosas estuvieran debidamente separadas y que permanecieran en sus respectivos lugares. También sugerimos que el petate puede haber actuado como una puerta temporal que garantiza la continuidad del ejercicio de la autoridad. Ponemos el petate en el centro del debate al argumentar que el propio objeto estaba dotado de poder.

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Nacional de Antropología, Centro de Estudios Mexicanos y Centroamericanos, Mexico City.

Brumfiel, Elizabeth M. (editor)

2005 La producción local y el poder en el Xaltocan posclásico / Production and Power at Postclassic Xaltocan. Instituto Nacional de Antropología e Historia, Mexico City, and University of Pittsburgh, Pittsburgh.

Bruzek, Jaroslav

2002 A Method for Visual Determination of Sex, Using the Human Hip Bone. American Journal of Physical Anthropology 117:157-168.

Carot. Patricia

2001 Le site de Loma Alta, Lac de Zacapu, Michoacán, Mexique. Paris Monographs in American Archaeology 9, BAR International Series 920 Archaeopress Oxford

Castañeda, Alejandra, Véronique Darras, and Laure Déodat

2020 Assessing the Prehispanic Settlement of the Lerma Valley during the First Millenium: Survey in the Floodplain of Tres Mezquites, Michoacán. Journal of Anthropological Archaeology 58:101168.

Códice Mendocino

1980 [1541–1542] Códice Mendocino y la economía de Tenochtitlán, Vol. 3. Edited by Francisco del Paso y Troncoso. Innovación, Mexico City. Códice Magliabechiano

1996 Códice Magliabechiano: Libro de la vida. Edited by Ferdinand Anders, Maarten Jansen, and Luis Reyes García. Fondo de Cultura Económica, Mexico City, and Akademische Druck -und Verlagsanstalt, Graz.

Darras, Véronique

- 2014 Ethnohistorical Evidence for Obsidian's Ritual and Symbolic Uses among the Postclassic Tarascans. In Obsidian Reflections: Symbolic Dimensions of Obsidian in Mesoamerica, edited by Marc N. Levine and David M. Carballo, pp. 45-74. University Press of Colorado, Boulder. Darras, Véronique (editor)
- 2016 Proyecto Tres Mezquites: Informe técnico sobre los trabajos de campo realizados en 2016 en la región de Tres Mezquites, Michoacán. Instituto Nacional de Antropología, Centro de Estudios Mexicanos y Centroamericanos, Mexico City.
- 2017 Proyecto Tres Mezquites: Informe técnico sobre los trabajos de

campo realizados en 2017 en la región de Tres Mezquites, Michoacán. Unpublished report on file, Instituto Nacional de Antropología, Centro de Estudios Mexicanos y Centroamericanos, Mexico City.

- Darras, Véronique, Alejandra Castañeda, and Laure Déodat
- 2018 Un reto metodológico: entender la dinámica poblacional en la llanura aluvial del Lerma a través del caso de Tres Mezquites, Michoacán. Paper presented at the International Conference, Movilidades, territorios y cambios sociopolíticos, Museo Nacional de Antropología, Mexico City.

Darras, Véronique, and Brigitte Faugère-Kalfon

- 2018 Sociopolitical and Cultural Renewals during Late and Terminal in the Lerma's Valley: The Post-Chupícuaro Developments. Paper presented at the 83rd Annual Meetings of the Society for American Archaeology, Washington, DC.
- Davies, Nigel
 - 1977 *The Toltecs: Until the Fall of Tula.* University of Oklahoma Press, Norman.

- 2007 La ofrenda sacrificial entre los tlapanecos de Guerrero. Centro de Estudios Mexicanos y Centroamericanos, Universidad Autónoma de Guerrero, Plaza y Valdés, Mexico City.
- 2013 Les métaphores comestibles dans les rituels mexicains. Amérique Latine: Histoire et Mémoire. Les Cahiers ALHIM 25, doi:10.4000/ alhim.4675
- de la Garza, Mercedes
 - 1984 El universo sagrado de la serpiente entre los mayas. Instituto de Investigaciones Filológicas, Centro de Estudios Mayas, Universidad Nacional Autónoma de México, Mexico City.
- De Lucia, Kristin
- 2021 Household Lake Exploitation and Aquatic Lifeways in Postclassic Xaltocan, Mexico. *Journal of Anthropological Archaeology* 62: 101273.
- Dirección de Medios de Comunicación del INAH
- 2018 En la cueva La Escondida descubren momia de niño acompañada de plantas cultivables como ofrenda. *Boletín* 244, 29 de julio. Instituto Nacional de Antropología e Historia and Secretaría de Cultura, Mexico City. Electronic document, www.inah.gob.mx/attachments/article/ 7387/2018_244.pdf, accessed May 30, 2020.
- Duday, Henri, Patrice Courtaud, Eric Crubézy, Pascal Sellier, and

Anne-Marie Tillier

- 1990 L'Anthropologie "de terrain": Reconnaissance et interprétation des gestes funéraires. *Bulletins et Mémoires de la Société d'Anthropologie de Paris* 2–4:29–49.
- Durán, Fray Diego de
- 1967 Historia de las Indias de Nueva España y de las Islas de la Tierra Firme. Edited by Ana María Garibay Kintana. Editorial Porrúa, Mexico City.
- Escoto Cortés, Norma
- 2009 Los símbolos teriomórficos en el arte de Mesoamérica: Mayas, olmecas y teotihuacanos. Unpublished Ph.D. dissertation, Departamento de Pintura, Universidad de Sevilla, Sevilla.

Fash, Barbara, William L. Fash, Sheree Lane, Rudy Larios, Linda Schele, Jeffrey Stomper, and David Stuart

- 1992 Investigations of a Classic Maya Council House at Copan, Honduras. *Journal of Field Archaeology* 19:419–442.
- Filini, Agapi
- 2010 El sistema-mundo teotihuacano y la Cuenca de Cuitzeo, Michoacán. Colegio de Michoacán, Zamora.
- Forest, Marion
- 2014 L'organisation sociospatiale des agglomérations urbaines du Malpais de Zacapu, Michoacán, Mexique (1250–1450 après J.C.). Unpublished Ph.D. dissertation, UFR Histoire de l'Art et d'Archéologie, Université Paris 1 Panthéon-Sorbonne, Paris.
- Freidel, David A., Linda Schele, and Joy Parker
- 1993 Maya Cosmos: Three Thousand Years on the Shaman's Path. 1st ed. William Morrow and Co., New York.

Gama-Castro, Jorge, Elizabeth Solleiro-Rebolledo, David Flores-Román,

- Sergey Sedov, Héctor Cabadas-Báez, and Jaime Díaz-Ortega
- 2007 Los tepetates y su dinámica sobre la degradación y el riesgo ambiental: El caso del Glacis de Buenavista, Morelos. *Boletín de la Sociedad Geológica Mexicana* 59:133–145.

García Sánchez, Magdalena

2008 Petates, peces y patos: Pervivencia cultural y comercio entre México y Toluca. Colegio de Michoacán, Zamora.

- Garduño, Blanca
- 1997 Petatearse es la gran cosa. *Artes de México* 38:56–60. Gibson, Charles
 - 1964 The Aztecs under Spanish Rule: A History of the Indians of the Valley of Mexico 1519–1810. Stanford University Press, Stanford.

Gómez González, Judith, and Luisa Mainou

2017 Esterilla funeraria. El petate hñähñü. *Estudios sobre conservación, restauración y museología* 4:88–100.

Gómez González, Judith, Luisa Mainou, Ariana Aguilar Romero, Galia

González Hernández, Laura E. Beramendi Orosco, Luisa Straulino Mainou, and Luis Francisco López Ortiz

2019 Arqueometría aplicada a la conservación de textiles arqueológicos de fibras celulósicas: Petate y mortaja de un fardo mortuorio de Zimapán, Hidalgo. *Boletín de la Sociedad Geológica Mexicana* 72: 429–444.

- 1998 La cueva de la Candelaria. Arqueología Mexicana 30:62-64.
- 2004 La cultura del desierto y una de sus tradiciones simbólicas: El ritual mortuorio. In *Desierto y fronteras: El norte de México y otros contextos culturales*, edited by Hernán Salas Quintanal and Rafael Pérez-Taylor, pp. 367–386. Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México, Mexico City.

Goudiaby, Hemmamuthé

- 2018 La Mémoire des morts: Pratiques funéraires et phases de construction en contexte résidentiel dans les Basses Terres mayas classiques (250–950 apr. J.-C.). Unpublished Ph.D. dissertation, UFR Histoire de l'Art et d'Archéologie, Université Paris 1 Panthéon-Sorbonne, Paris.
- Graulich, Michel
 - 1982 Les Mises à mort doubles dans les rites sacrificiels. *Journal de la Société des Américanistes* 68:49–56.

Hageman, Jon B.

- 2016 Where the Ancestors Live: Shrines and Their Meaning among the Classic Maya. In *The Archaeology of Ancestors: Death, Memory, and Veneration*, edited by Erica Hill and Jon B. Hageman, pp. 213–248. University Press of Florida, Gainesville.
- Hellmuth, Nicholas Matthew
 - 1967 Structure 5D-73, Burial 196, Tikal, Peten, Guatemala. Preliminary report submitted to the Department of Anthropology, Harvard College. Foundation for Latin American Anthropological Research, Winter Park.

Hémond, Aline

- 2013 Métaphores temporelles et offrandes alimentaires: Pratiques d'élaboration du sens rituel. *Amérique Latine Histoire et Mémoire. Les Cahiers ALHIM 25*, doi:10.4000/alhim.4547.
- Heyden, Doris
 - 1985 *Mitología y simbolismo de la flora en el México prehispánico.* Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México, Mexico City.
- Historia Tolteca-Chichimeca
 - 1976 [1547–1560] *Historia Tolteca-Chichimeca*. Edited by Paul Kirchhoff, Lina Odena Güemes, and Luis García Reyes. Instituto Nacional de Antropología e Historia, Mexico City.

Jansen, Maarten

- 1997 Simbología de poder en el México antiguo. *Anales del Museo de América* 5:73–101.
- Jiménez Betts, Peter
 - 2018 Orienting West Mexico: The Mesoamerican World System 200–1200 CE. Unpublished Ph.D. dissertation, Department of Historical Studies, University of Gothenburg, Gothenburg.

Kidder, Alfred Vincent, Jesse David Jennings, and Edwin M. Shook

- 1946 *Excavations at Kaminaljuyu, Guatemala*. Pennsylvania State University Press, University Park.
- Lanos, Philippe, Annick Chauvin, Véronique Darras, and Grégory Pereira 2018 Del preclásico al posclásico tardío en el centro-norte de Michoacán: Nuevos datos de fechas por ¹⁴C y arqueomagnetismo. Paper presented at the International Conference, Movilidades, territorios y cambios sociopolíticos, Museo Nacional de Antropología, Mexico City. Linné. Sigvald

Linne, Sigvaid

2003 [1942] Archaeological Researches at Teotihuacán, Mexico. Preface by Staffan Brunius, introduction by George L. Cowgill. University of Alabama Press, Tuscaloosa.

López Austin, Alfredo

1973 La cruz y el petate en la simbología mesoamericana y la relación

82

Dehouve, Danièle

González Arratia, Leticia

entre un dios paterno y el oficio de un pueblo. *Notas Antropológicas* 1(2):7–9.

- 2003 Difrasismos, cosmovisión e iconografía. *Revista Española de Antropología Americana*, Extra 1:143–160.
- López Luján, Leonardo, and Alfredo López Austin
- 2007 Los mexicas en Tula y Tula en México-Tenochtitlán. *Estudios de Cultura Nahuatl* 38:33–83.
- Luckert, Karl W.

2001 Serpent and Snakes. Oxford Encyclopedia of Mesoamerican Cultures. Oxford University Press, Oxford.

- Ludlow-Wiechers, Beatriz, and Nelly Diego-Pérez
- 2002 Utilidad e importancia histórica y cultural de las Cyperaceae. *Etnobiología* 2:90–102.
- Lumholtz, Carl
- 1904 *El México desconocido*, Vol. 1. Instituto Nacional Indigenista, Mexico City.
- Maldonado Cano, Daniela
 - 2005 En el umbral: Tanapraxis contemporánea. In Antropología de la eternidad: La muerte en la cultura maya, edited by André Ciudad Ruiz, Mario Humberto Ruz, and María Josefa Ponce de León, pp. 457–472. Publicaciones de la S.E.E.M. 7. Sociedad Española de Estudios Mayas, Barcelona, and Centro de Estudios Mayas, Instituto de Investigaciones Filosóficas, Universidad Nacional Autónoma de México, Mexico City.
- Manzanilla, Linda
- 2002 Houses and Ancestors, Altars and Relics: Mortuary Patterns at Teotihuacan, Central Mexico. In *The Space and Place of Death*, edited by Helaine Silverman and David B. Small, pp. 55–66. Archaeological Papers of the American Anthropological Association 11. American Anthropological Association, Arlington.
- Manzanilla, Linda, and Carlos Serrano
- 1999 Prácticas funerarias en la Ciudad de los Dioses: Los entierros humanos de la antigua Teotihuacán. Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México, Mexico City. McAnany, Patricia A.
- 1995 Living with the Ancestors: Kinship and Kingship in Ancient Maya Society. University of Texas Press, Austin.

McDonald, J. Andrew, and Brian Stross

- 2012 Water Lily and Cosmic Serpent: Equivalent Conduits of the Maya Spirit Realm. *Journal of Ethnobiology* 32:74–107.
- McLung de Tapia, Emily, and Diana Martínez Iryzar
- 2005 Evidencia paleobotánica de Xaltocan, posclásico. In *La producción local y el poder en el Xaltocan posclásico*, edited by Elizabeth Brumfiel, pp. 208–233. Instituto Nacional de Antropología e Historia, Mexico City, and University of Pittsburgh, Pittsburgh.

McLung de Tapia, Emily, Mari Carmen Serra Puche, and Amie Ellen Limón Dyer

- 1986 Formative Lacustrine Adaptation: Botanical Remains from Terremote-Tlaltenco, D.F., México. *Journal of Field Archaeology* 13: 99–113.
- Medina-González, Isabel, Manuel Espinoza-Pesqueira, and Aurora
- Montufar
 - 2018 Impronta de petate en piso de tepetate, Tres Mezquites, Michoacán (STCAE, ENCRYM-INAH). In Proyecto Tres Mezquites: Informe técnico sobre los trabajos de campo realizados en 2018 en la región de Tres Mezquites, Michoacán, edited by Véronique Darras, Annex 1. Unpublished report on file, Instituto Nacional de Antropología, Centro de Estudios Mexicanos y Centroamericanos, Mexico City.
- Miller, Mary Ellen, and Karl Taube
- 1993 The Gods and Symbols of Ancient Mexico and the Maya. An Illustrated Dictionary of Mesoamerican Religion. Thames and Hudson, London.
- Morfi, Fray Juan Agustín
- 1935 Viaje de Indios y diario del Nuevo México: Noticia bibliográfica y acotaciones por Vito Alessio Robles. Sociedad Bibliófilos Mexicanos, Mexico City.
- Motolinia, Fray Toribio de Benavente
- 1984 *Historia de los Indios de la Nueva España*. Editorial Porrúa, Mexico City.

Niederberger, Christine

1979 Early Sedentary Economy in the Basin of Mexico. *Science* 203(4376):131–142.

Olivier, Guilhem

- 1997 Moqueries et métamorphoses d'un dieu aztèque: Tezcatlipoca le "Seigneur du miroir fumant." Mémoires de l'Institut d'Ethnologie 33. Institut d'Ethnologie, Musée de l'homme, Paris.
- Parsons, Jeffrey R.
- 2006 The Last Pescadores of Chimalhuacán, Mexico: An Archaeological Ethnography. Anthropological Papers 96. Museum of Anthropology, University of Michigan, Ann Arbor.

Pastrana, Jorge, Luis Barba, and Agustín Ortiz

2018 Estudio químico de la estructura UC2_UT23 del sitio PA3, Tres Mezquites. In Proyecto Tres Mezquites: Informe técnico sobre los trabajos de campo realizados en 2017 en la región de Tres Mezquites, Michoacán, edited by Véronique Darras, pp. 156–163. Unpublished report on file, Instituto Nacional de Antropología, Centro de Estudios Mexicanos y Centroamericanos, Mexico City.

Pereira, Grégory

- 1999 Potrero de Guadalupe: Anthropologie funéraire d'une communauté pré-tarasque du Nord du Michoacan, Mexique. Paris Monographs in American Archaeology 5. BAR International Series 816. British Archaeological Reports, Oxford.
- 2013 Ash, Dirt, and Rock: Burial Practices at Río Bec. Ancient Mesoamerica 24:449–468.
- Pitarch, Pedro
- 2000 Conjeturas sobre la identidad de los santos tzeltales. *Journal de la Société des Américanistes* 86:129–148.

Pollard, Helen P.

2005 Michoacán en el mundo mesoamericano prehispánico: Erongarícuaro y los estados teotihuacanos y tarasco. In *En antiguo occidente de México: Nuevas perspectivas sobre el pasado prehispánico*, edited by Eduardo Williams, Phil C. Weigand, L. López Mestas, and David C. Grove, pp. 283–303. El Colegio de Michoacán, Zamora.

Recinos, Adrián (editor and translator)

- 1950 Memorial de Solóla. Anales de los Cakchiqueles. Título de los Señores de Totonicapán. Fondo de Cultura Económica, Mexico City.
- Relación de Michoacán
 - 1977 [1574] *Relación de las ceremonias y población y gobierno de los Indios de la provincia de Michoacán.* Transcription by José Tudela. Balsas Editores, Morelia.
- Robicsek, Michael D.
 - 1975 A Study in Maya Art and History: The Mat Symbol. 1st ed. Museum of the American Indian, Heye Foundation, New York.

Robles-Camacho, Jasinto

2018 Cuantificación de lapidaria de prestigio de la Tumba UA7 (Fase Loma Alta III: 350–550 d.C.). Informe de análisis, Archivos del proyecto arqueológico de Tres Mezquites. Centro de Estudios Mexicanos y Centroamericanos, Mexico City.

Sahagún, Fray Bernardino de

1981 *Historia general de las cosas de Nueva España*, Vol.1. Edited by Ángel M. Garibay. Editorial Porrúa, Mexico City.

Sánchez Valenzuela, Martha

2017 La conservación de dos fardos funerarios provenientes de contextos arqueológicos: El caso de la cueva del Laro, Ocozocoautla, Chiapas y la cueva de la Calendaría, Torreón, Coahuila, México. In *Precolumbian Textile Conference VII / Jornadas de Textiles Precolombinos VII*, edited by Lena Bjerregaard and Ann Peters, pp. 405–414. University of Nebraska and Zea Books, Lincoln.

Schele, Linda, Mary Ellen Miller, and Justin Kerr

1986 The Blood of Kings: Dynasty and Ritual in Maya Art. Kimbell Art Museum, Fort Worth.

Schneider, Renata

2008 Fardo funerario de la tumba 1 de Calakmul: Conservación, restauración y montaje. Instituto Nacional de Antropología e Historia, Mexico City.

Sheets, Payson (editor)

2002 Before the Volcano Erupted: The Ancient Cerén Village in Central America. University of Texas Press, Austin.

Sempowski, Martha L., and Michael W. Spence

1994 Mortuary Practices and Skeletal Remains at Teotihuacan. Urbanization at Teotihuaca. 3. University of Utah Press, Salt Lake City. Serra Puche, Mari Carmen

1988 Los recursos lacustres de la Cuenca de México durante el formativo. Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México, Mexico City. Solleiro-Rebolledo, Elizabeth, Véronique Darras, Sergey Sedov, Daniela Vargas-Rodríguez, and Thania García-Zeferino

2021 Black Clayey Soil (Vertisol) in the Lerma Valley, Michoacán, North-Central Mexico: A Hint to the Environmental and Cultural Changes during the Late Classic Period? Unpublished report on file, Proyecto Tres Mezquites, Centro de Estudios Mexicanos y Centroamericanos, Mexico City.

Sugiura Yamamoto, Yoko, and Mari Carmen Serra Puche

1983 Notas sobre el modo de subsistencia lacustre: La laguna de Santa Cruz Atizapán, Estado de México. Anales de Antropología 20:9–26. Thomas, Prentice M., and L. Janice Campbell

2008 Excavations at Río Bec Group B, Structure 6N-1, Campeche, Mexico. Estudios de Cultura Maya 31:123–148.

Uruñuela, Gabriela, and Patricia Plunket

2002 Lineages and Ancestors: The Formative Mortuary Assemblages of Tetimpa, Puebla. In *Domestic Ritual in Ancient Mesoamerica*, edited by Patricia Plunket, pp. 20–30. Monograph 46. The Cotsen Institute of Archaeology, University of California, Los Angeles.

Vaillant, George C.

1931 *Excavations at Ticoman*. Anthropological Papers of the American Museum of Natural History 32, No. 2. American Museum of Natural History, New York.

1935 *Excavations at El Arbolillo*. Anthropological Papers of the American Museum of Natural History 35, No. 2. American Museum of Natural History, New York.

Valentin, Frédérique, Isabelle Rivoal, Corinne Thevenet, and Pascal Sellier (editors)

2014 La chaîne opératoire funéraire: Ethnologie et archéologie de la mort. Travaux de la Maison René-Ginouvès 18. Editions de Boccard, Paris.

Viqueira, Juan Pedro

2002 ¿Qué había detrás del petate de la ermita de Cancuc? In *Encrucijadas chiapanecas*, pp. 201–258. El Colegio de México, Mexico City. Ward, Henry George

1828 *Mexico in 1827.* 2 vols. Henry Colburn, London.

Williams, Eduardo

- 2014a La gente del agua: Etnoarqueología del modo de vida lacustre en Michoacán. El Colegio de Michoacán, Zamora.
- 2014b Reconstructing an Ancient Aquatic Lifeway in the Lake Cuitzeo Basin, Michoacan, Mexico. *Ancient Mesoamerica* 25: 49–67.

Zebrowski, Claude

1992 Los suelos volcánicos endurecidos en América Latina. TERRA 10: 15–23.