# IN THE REALM OF MAIZE GOD

## THE WORLD OF ANCIENT MAYAN AND MESOAMERICAN FARMERS

edited by Milan Kováč & Jakub Špoták

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*&*

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Chronos
Bratislava 2022

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**edited by Milan Kováč & Jakub Špoták**



This publication was supported by the Slovak Research and Development Agency under the contract APVV-17-0648 and by the Scientific Grant Agency under the contract 1/855/21.

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John F. Chuchiak IV.

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**Published by:**
**Chronos in cooperation with the Center of Mesoamerican Studies, Comenius University in Bratislava**

**Typesetting and Cover Design:** Jakub Špoták

**ISBN:** 978-80-89027-63-7

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# ARCHAEOLOGY

# ANCIENT MAYA AGRICULTURAL PATTERNS IN UAXACTUN

Milan Kováč [1]

**Canal system at El Resumidero Guamil**

Verifying the canal system indicated in the bajo of the Chival site (N 17.25.248'; W 089.38.921'; 166 m.a.s.l.) was quite complicated, due to the type of soil (mud) found in the local bajo and its topographic conditions. The soil of the pluvial sediments presents a very black color, does not contain stones or pebbles, is chewy and humid, since it receives a lot of water from the mountains on the west side. There are several currents that modify the surface of the land, in addition to those that arrive to this area from other parts of the mountain range (from the south and the north) that surround this place. The results of the water show that it comes not only from the western mountain range, but also from the part of a large bajo located on the eastern side. The surface of the area is marked by a great variety of natural contemporary channels, with a depth of about 0.3 m and width from 0.5 m to 1 m. This network of channels does not offer any observable symmetry, it connects the surface channels with each other in a chaotic way, by various bends and detours. The slope of the zone paradoxically does not reach from the lower part of the mountains to the lower east, but the other way around, the boundary of the Chival mountain range (at the bottom of the mountain) is the lowest of all and the level rises on the east side towards the lower plain which is more open. This causes the entire area to receive pluvial currents with sediment from both the eastern bajo and the western serrania. Small elevations on

1 Comenius University in Bratislava.

the north and south sides finally help to create a “plate” into which water flows from all sides.


**Figure 1:** Alluvial quadrants (green color) close to H, F and E groups.

Thus, the amount of water is much higher than in any other surrounding area. The water accumulates exactly at the foot of the mountain, where there are "resumideros" - natural rocky holes that allow to drain the whole area and connect it with subway rivers. The local vegetation is generally lower than outside the bajo, especially the trees. Floods affect some species, on the contrary, others grow very well or only there, such as the "tinto" tree with a very durable wood, a typical species of the local bajo. Other species that characterize the region of our research are: "escobo negro", "zapotillo" (Manilkara zapota), "jobo" Spondias mombin, "sarsa hueca", "botan", "bayal", "pacaya"Chamaedorea elegans and "chechen blanco" (Cameraria latifolia) (all in local nomenclature).

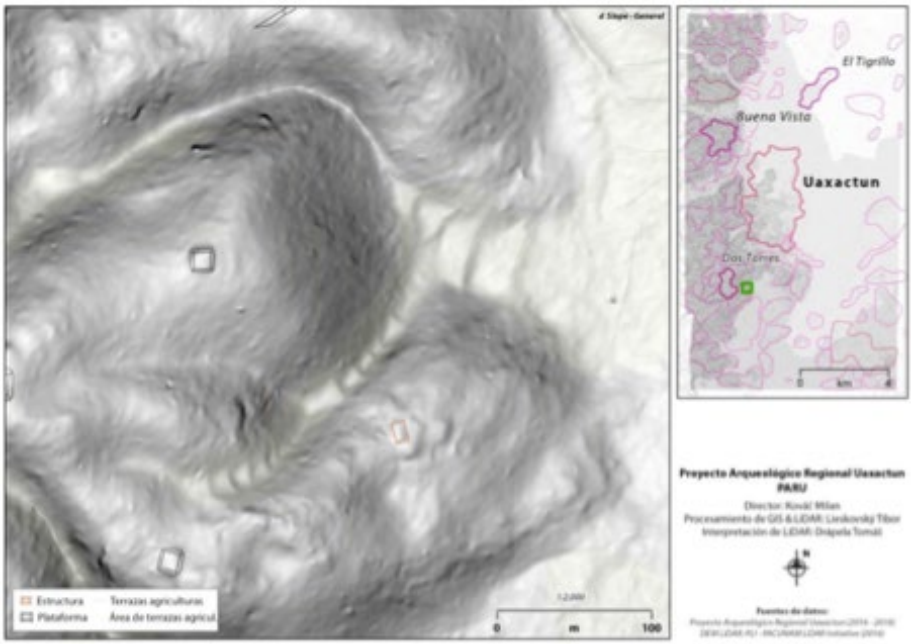


**Figure 2:** Terraced fields (Canon de las piscinas).

The area is known as "Resumidero guamil", which means, the "resumidero" (hole where water drains) from "guamil" (word of Nahuatl origin) which literally means "the cornfield already abandoned and covered by secondary vegetation". According to informants, this area was cultivated in previous

decades by people from Uaxactun and because a cornfield of the traditional fertilization system (ash) does not produce more than 2 to 3 years, then it was abandoned and "guamil" grew, which in reality is manifested by a very dense and low type of vegetation. Currently there are very few productive milpas in the entire area, of which we were able to confirm only one, it seems that the guamil itself does not allow any more. According to informants, the corn ears that grew in the milpas of Resumidero guamil were 25% larger than in other places - due to the richness of nutrients in the soil from rain sediments. Geometric lines indicated in this area by LiDAR correspond to the agricultural importance of the area and to the topographic and pedological conditions. The large channel with its lateral channel system was investigated from the excavations described in Chapter 10. The main canal was approximately 7.5 m wide and the side channels were 1.5 m wide. The space between the side channels (presumably agricultural fields) was relatively narrow at 14.5 m, but very long. In total 70 side channels were identified, 35 to the south and 35 to the north connecting to the main channel at a 90 degree angle.

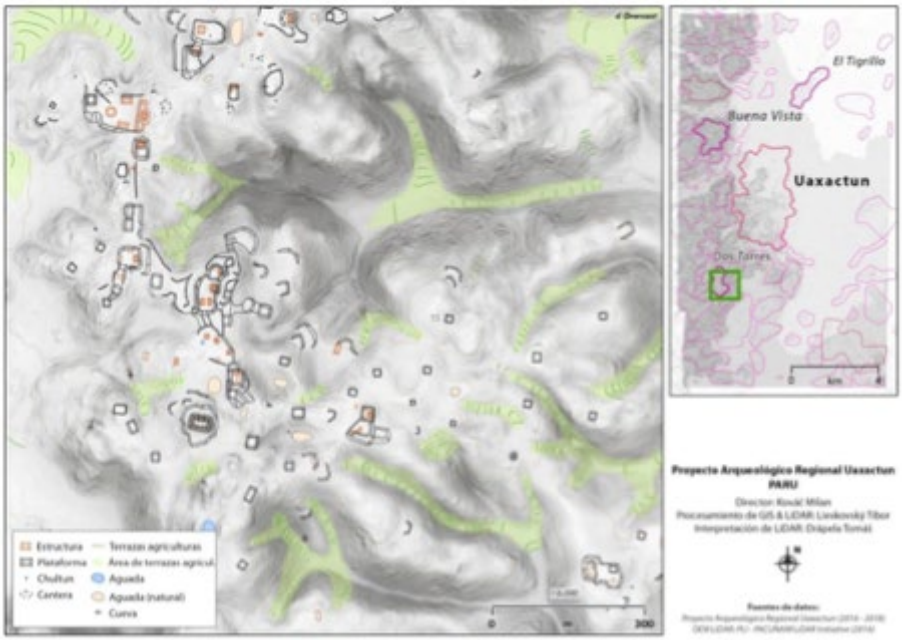


**Figure 3:** Terraced fields (Dos Torres).

Of these 70 lateral channels LiDAR was able to identify 31 (the rest were reconstructed according to the remnants of the channels that fit into the overall symmetry of the system). Thus, we can say that the length of the whole system was 560 m, with a width at the shortest part, around 300 m, and at the widest part around 700 m. All the canals of the Resumidero Guamil represent practically a network of 18 km of canals in a relatively small area. The agricultural area between the canals formed 68 fields, each covering an average of about 3,625 m2 , together 246,500 m2 .

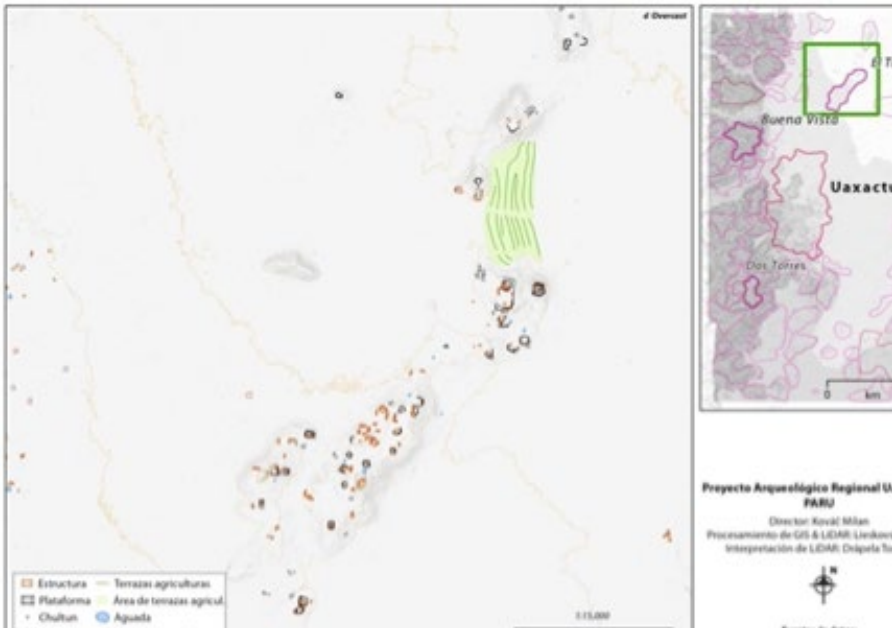


**Figure 4:** Island inter-channel agriculture (El Tigrillo)

Thus, calculating 700 m2 of the field served for the sustenance of one person (the calculation is a result of agricultural production research among contemporary Uaxactun peasants who sow, cultivate and harvest their milpas in a traditional way), therefore, the system could cover the nutritional needs of 352 people. This number corresponds well with the estimate of occupation of the Buena Vista/Chival site to which the Resumidero guamil system belonged. In the case of considering a much higher production, according to the fertility of the land, (25% more than the average in the region), its productivity would

reach up to 440 people. This would allow the overproduction to offer to the Uaxactún market. The most important part of the investigation in this area was the identification of the drainage system. Although the old system no longer exists, due to natural conditions, natural canals were created which, without any benefit, still collect water, transporting it to the natural drain that still fulfills its function. We identified 6 different streams (A,B,C,D,E,F), all of them end up in the holes of the same drain.

**Drainage system at the site of El Tigrillo**

The site of El Tigrillo is located 4 km northeast of Uaxactun, on an island - that is, a small elevation surrounded by the bajo. Despite the lack of archaeological excavations at this site, based on the type of architecture and its state of preservation in an open space, we can deduce that it is a Late Classic site. LiDAR images revealed the existence of terraces, their parallel lines indicated that they must be remains of human activity. The first runs showed an area very different from what was expected according to LiDAR. The slope of the hill of the island is very slight, almost not visible (the area is presented as flat), putting in doubt the existence of terraces, as well as the absence of any feature identifiable with this type of expectation. The whole area was found to be full of natural channels that, without any order, collected water from the hill and gradually drained it to the lowlands. Thus we understood that the features visible in LiDAR that were very long and parallel with contour lines of the hill, represent a type of drainage channels, not terraces. However, measuring the distances between them revealed that the images show us only some of the channels, which preserved their complete line, while several, with the same orientation, are fragmented and their identification is confused between several contemporary natural channels, which join the fragments in a chaotic way.

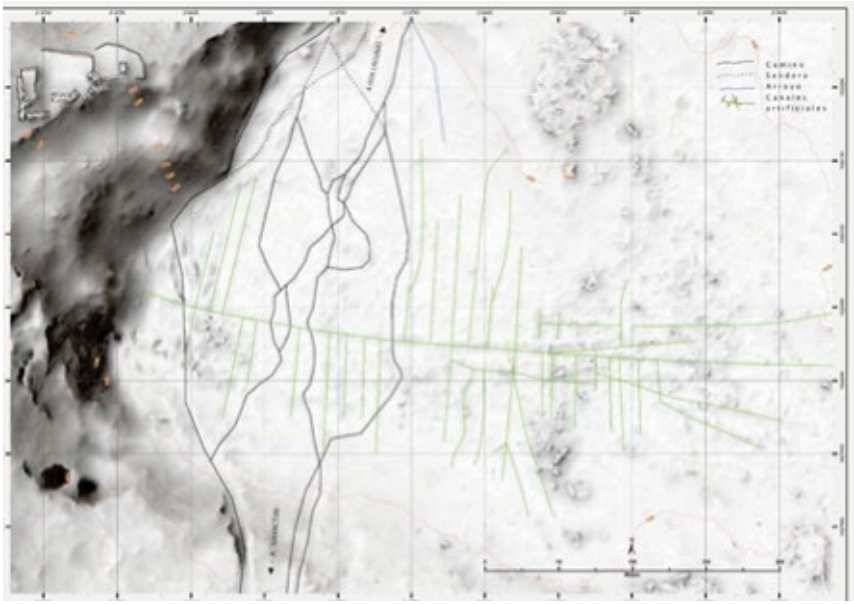

**Figure 5:** Alluvial cone with artificial drainage (El Resumidero Guamil).

After a cleaning accompanied by the identification of LiDAR features by GPS and their comparison with the reality in the field, we concluded that originally in the area there were small artificially made channels with a distance of 3 m from each other and thus covered the entire eastern part of the island that gradually sloped towards the open bajo to the east. Subsequent excavations based on this hypothesis confirmed the existence of these small channels, with dimensions of 0.6 m deep and 0.8 m wide (from the accumulated sediments it is possible that they originally measured less than 0.4 m by 0.6 m). Their preserved lines clearly form a symmetry and maintain the same distance, although most of them are not recognizable along their entire length but in different parts. If our reconstruction is correct, the area approximately 400 m long and 200 m wide, i.e. 80,000 m2 , was covered by 67 canals 400 m long, a network of almost 27 km of canals. The fields were extremely narrow and long, (about 3 x 400 m each) and their productive area extended to 69,280 m2 . According to our estimate, this area of fields could have supported around 100 people all year round, which could well correspond to the small occupation of El Tigrillo. The presence of the canal

network can be explained by the lack of major flooding at this elevation and by the presence of limestone soil in the canal sediments, which allowed archaeologically distinguishing the canal bodies from the additional sediments, without the presence of stones or other more stable elements. We propose that the canals of El Tigrillo had two functions: 1) To drain the rainwater to the horizontal and parallel canals within the entire contour of this curve that together with its extremities had an inverted U shape, which allowed draining the water from each level directly to the already flooded bajo. 2) Collect the compost from the rain sediments that were deposited at the bottom of the channels and that periodically could be cleaned, so that all the deposited compost would be relocated on the field and thus keep it permanently fertile.

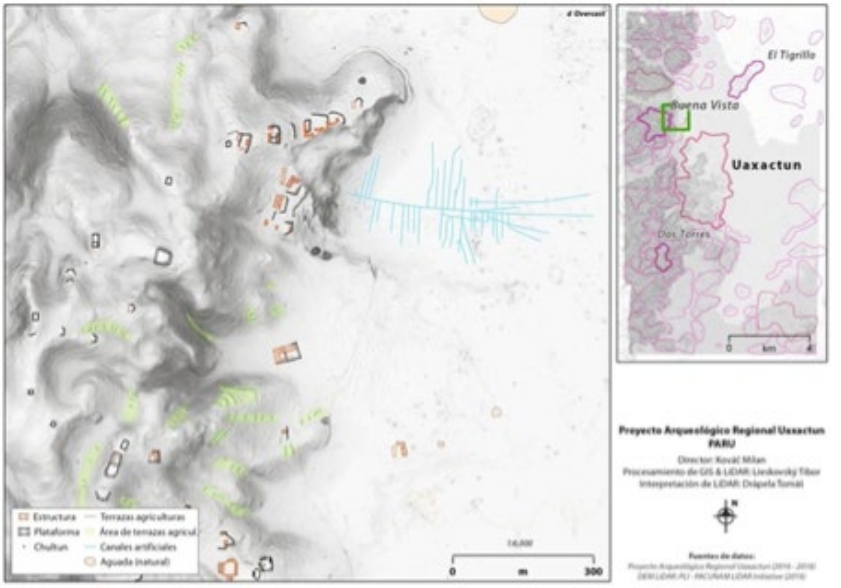


**Figure 6:** Combination of Alluvial cone with artificial drainage and Terraced agriculture (El Chival).

### Agricultural terraces at Dos Torres site

The terraces at Dos Torres represent the only traces of agriculture discovered before the use of LiDAR. But only the context shown by the LiDAR images

made it possible to identify their function. The number of terraces is so high that finding out their system by a terrestrial traverse would bring several difficulties. The area (N 17.21.389', W 089.39.021', 268 m.a.s.l.) is covered by local forest vegetation, mostly by: escobo blanco, ramón, botan, zapotillo, manax, malerio colorado, silion, jobo (all in local nomenclature) and others. The sediments that were deposited on a massive scale from the peaks to the lowlands caused that the only identifiable terraces by terrestrial route were found in the highest parts of the hills and mountain ranges. Moving down the level, they are always identified less and less, until at the foot of the mountains they are practically lost, although LiDAR imagery still indicates appropriate features - they are not observable by ground traverse. In the higher parts there are very well preserved terraces that changed very little from their original form. One of these was excavated, but to find out if it is really a characteristic object for the region, we made several walks around it. The result indicates that the construction is always the same although in reality the floor area of the terraces varies, especially in its length which can be from 8 to 100 m., but there are almost no intermediate ones, for this reason it could be divided into short sections (8-20 m). These small terraces have helped to lower the level of the slope to a more modifiable area, where a long terrace was created. These follow one after the other and appear in very steep parts. Most of the terraces are found over narrow canyons with a width covering the whole canyon, which would be mostly between 15 m to 25 m.

In the appropriate parts the terrain was modified on a much larger scale and long terraces (50-100 m) were formed. Often one can observe in a canyon from above, e.g. 5-10 short terraces, then one long one, others with a couple of short ones and another long one, etc. On top of the hills, almost only short terraces were created, while in the more open parts, from the middle of the hills, the long and short terraces are already rotated. In the main canyon of Dos Torres, where the excavations were carried out, about 30 observable terraces were counted, although in the same area the LiDAR images indicated only 18. Of the 30 terraces only 4 could be classified as long terraces and 26 as short terraces. Contradictorily in the upper parts of the mountain range, we found by footpath more than 1/3 of all identified features, which were not recorded by LiDAR but in the lower part we could not confirm even one recorded by LiDAR. This situation can be explained by the large sediments

that for centuries covered parts of the hills, which only with a bird's eye view (on a long scale) are still visible. On the contrary, on the heights, the remains of the terraces are formed only by a couple of stones without any continuous line, which LiDAR could not capture. But the shape, position and structure of the stones identified by footpath, indicate that these were the remains of the terraces. Sometimes the absence of stones is complete, however, in places where for example the inclination indicates the existence of a terrace, a straight line appears formed by ramón trees that always grow in places of high concentration of limestone and that can also serve as a preliminary indicator (investigated on several occasions archaeologically) of the ruins of terraces, especially if they are in comparable line with the others and if those that are visible are marked by the ramones in the same way.

We can propose that at the agricultural level the short terraces did not have the same role as the long terraces (the main ones). While the long ones (around 1200 m2 ) were able to produce maize, the short ones (around 300 m2 ) were more appropriate for sweet potato, macal, ayote, yucca and pineapple (according to local farmers who evaluated the soil type). Yes, it is possible that the investigated canyon could be divided in this way, we would have an average of 7800 m2 of vegetables and 4800 m2 of maize. However, this refers only to the mere body of the canyon and the terraces encountered per footpath. The LiDAR images indicate the existence of much larger terraces located below the canyon exit, which unfortunately could not be rectified. We should consider that these data do not only refer to the LiDAR images, but also because they correspond well with the topography, the physical properties of the local soil and the agricultural logic. In this case we should add 12 terraces 214 from the mouth of the canyon, which are on average 50 m wide and 30 m long, these look ideal for corn production and cover a total of 18,000 m2 . Thus, the productivity of a highland canyon, with the adjacent canyon mouth land, could reach 30,600 m2 of which 22,800 m2 served for maize and 7,800 m2 for vegetables that formed an important part of the population's sustenance. The Dos Torres site probably had 7 canyons with related terraces, which would result in a total of 214,200 m2 of cultivated land in its vicinity. That would support a population of about 300 people, which still does not reach the total population of Dos Torres, which according to the remains of house platforms and buildings preserved

throughout its width, should be at least a thousand inhabitants, therefore more than triple the productive area would be needed. On the north side of the site there are plains between the mountains very suitable for agricultural fields and also below the canyons there are areas that perhaps should be taken into account. But this report is not intended to investigate the entire agricultural system in the area, but rather the results of the traverses related to features identified by LiDAR.

The result in Dos Torres indicates that it is possible to identify three types of terraces in the canyons, short, long and at their mouths - wide. They had the same type of construction although their functions depended on their vertical position (level), distance from the nucleus of the population and the delimited field area. The short ones are closer to the houses built on the platforms on the top of the mountains and could have functioned for growing vegetables or fruit trees. The long and wide ones, a little farther away from the core of the population, served with high probability for the main crop - corn. What is most striking, then, is the question of how they were able to maintain this type of agriculture, which shows all the traits of intensive agriculture. We propose that in this system there was no change of agricultural fields and so they had to be fertilized in some way periodically. We have archaeological evidence that already in the Late Preclassic the area of terraces were burned seasonally, with the objective of fertilizing the land by the ash. But we do not believe that the terraces were abandoned at some point like the modern milpas - in this case, the number of inhabitants would drop dramatically and the evidence of occupation would no longer correspond. We are dealing with a system that functioned in a very different way from the contemporary form, because the terraces were located mostly in the canyons. We can deduce that the intensive system of canyon agriculture or encaños, if we use the local and perhaps more appropriate word, had a simple but very effective base. In a relatively small area of field located down large slopes on both sides of an encaño, all the fertilizers came naturally washed off the slopes by the water that fell during the rains. The terraces maintained a vertical 90 degree angle from one construction to another, the ground level remained horizontal, the water did not run off, but allowed all the fertilizer to stay in the same area where it arrived along with the water from the related slopes. To have

a more concrete idea, we could imagine that a contemporary agricultural field with an area of 100 m2 had its own manure of the same area 100 m2 .

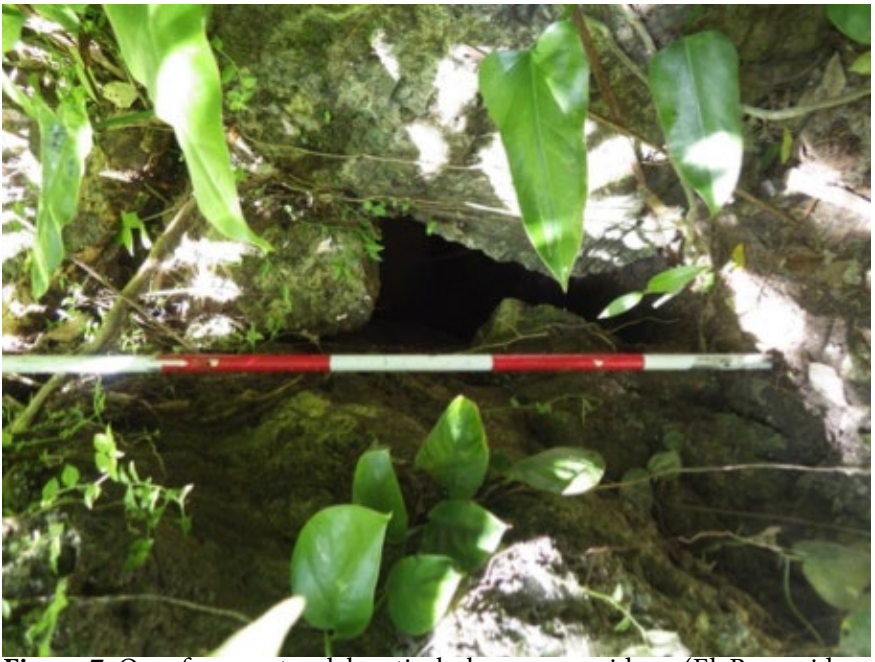

**Figure 7:** One from natural karstic hole or resumidero (El Resumidero Guamil).

Although they would be fortified by the ash, the fertilizers are used up in a period of 2-3 years and then the place has to be changed. In the system of terraces of encaños, the field of 100m2 had a fertilizer of 800-1200 m2 or more from the slopes and the tops of the hills, in addition it is about dynamic fertilizers, which naturally decompose from the remains of the vegetation and by the rains periodically arrive dissolved to the field, which allows a permanent productivity. According to the soil samples of the pre-Hispanic terraces, it seems that the system was more sensitive, with the presence of phosphorus of organic origin, but the same system could also count on the natural fall of phosphorus from the sky, because in a sufficiently wide area it can be a significant source. The phosphorus was concentrated in the soil of the slopes and periodically could arrive with the water in alluvium and thus reinforce the organic fertilizer.

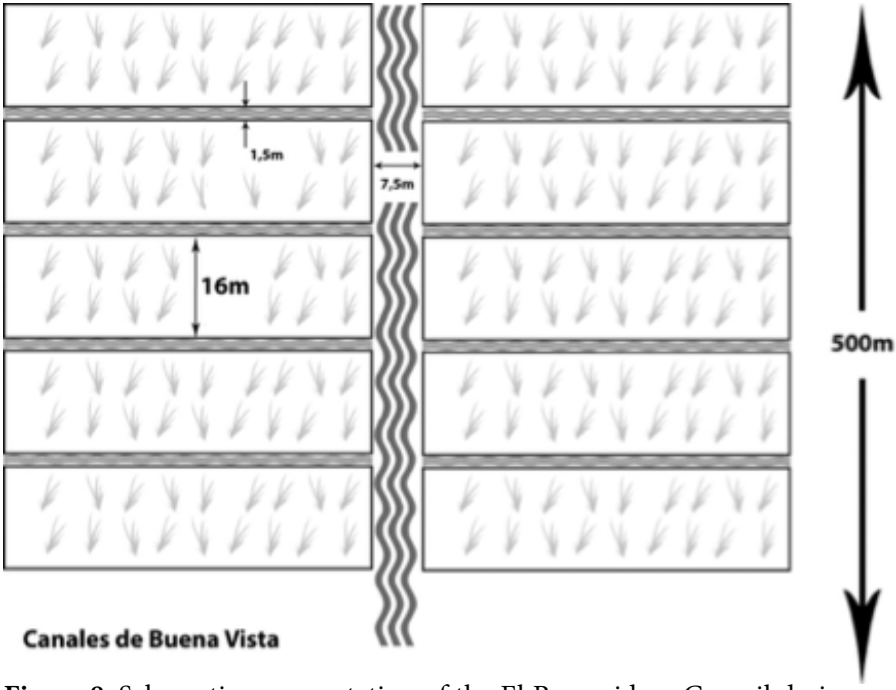


**Figure 8:** Schematic representation of the El Resumidero Guamil drainage system and the fields under El Chival (Buena Vista) site.

**Urban agriculture - field drainages at Uaxactún**

Apart from the systems of island channels and lowland channels, both in a complex system, the LiDAR images also showed some isolated inverted U-shaped lines. These lines have a considerable length of 150 to 500 m, always maintaining a geometrical shape where the main line is at the foot of some elevation and its shoulders are directed towards the bajo. We can expect that the horizontal line, below the foot of the serrania, functioned as a protection for the water flowing from the hills and its vertical shoulders carried the water further down to the bajo to drainage channels now very little visible. The pedestrian walkover could not confirm any of the LiDAR images because everything below the hills is covered by massive sediments and we can assume that geometric features are visible only on a large scale, however the context was investigated. Protective drainages are found near population cores (which in this case were found in a few small hills in Groups H North, H South, F North, F South and Group E of Uaxactún) and all are linked to a Late Preclassic period population. The survey showed that the slopes of the

hills are very steep and cause all the water running down very fast and have the potential to flood and uproot any crops below them. Currently you find a very wet and unsuitable lowland for agriculture, full of hostile vegetation and denser than around. But exactly these protective drainages were able to turn the whole low, between the hills of the said groups in a very fertile land. Thus, in an indirect way we can confirm that the protective drainage line between the hills of both groups H and F, could have created an extended agricultural zone of at least 10,000 m2 (area protected with the horizontal channel line and its vertical sides).

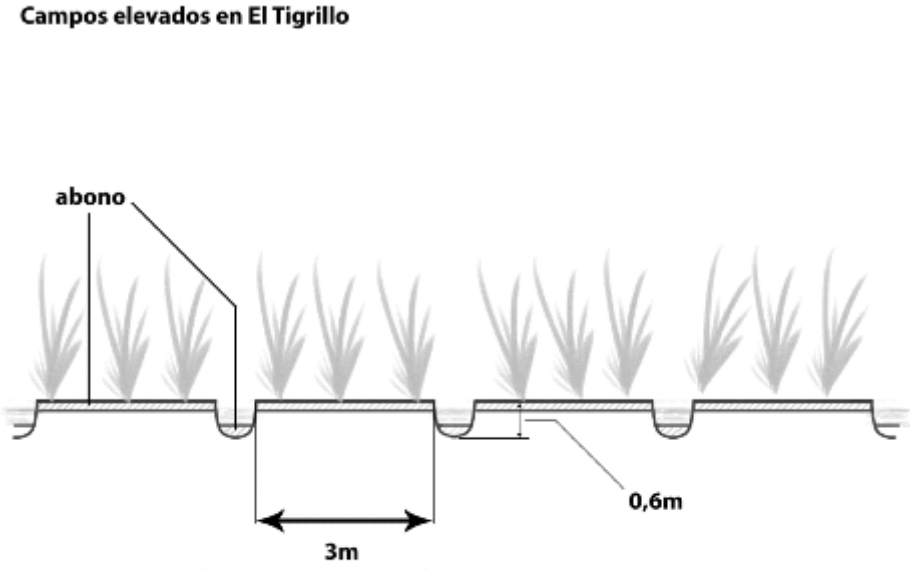


**Figure 9:** Raised fields in the frame of Island inter-channel agriculture at El Tigrillo.

On the other hand, the protective drainage of the hills between groups H and E created another 30,000 m2 in the same way. In reality, the latter could have created a much larger agricultural area, but the evidence allows us to count only the land between the protective drainages, not counting the area adjacent to the east direction, which could have been secondarily protected. It is clear that the number of people who could have been fed thanks to the

production of this soil (according to the lines preserved and captured by LiDAR indicate at least 60 people), does not correspond to the population of groups H, F and E and we should count other parts of the bajo where the evidence has been erased due to periodic flooding for several centuries. Within the lines of the protective drains between groups H and F is another inverted U-shaped channel representing the same pattern on a much smaller scale. The only possible interpretation would be that this feature does not come from the same period, but from a later one (perhaps from the Classic period when these groups were already abandoned, leaving a very limited population), when the ancient system no longer functioned and was covered by sediments. Thus, we see how the floods modified the place and were an object of a permanent struggle until they eliminated its fertility completely.

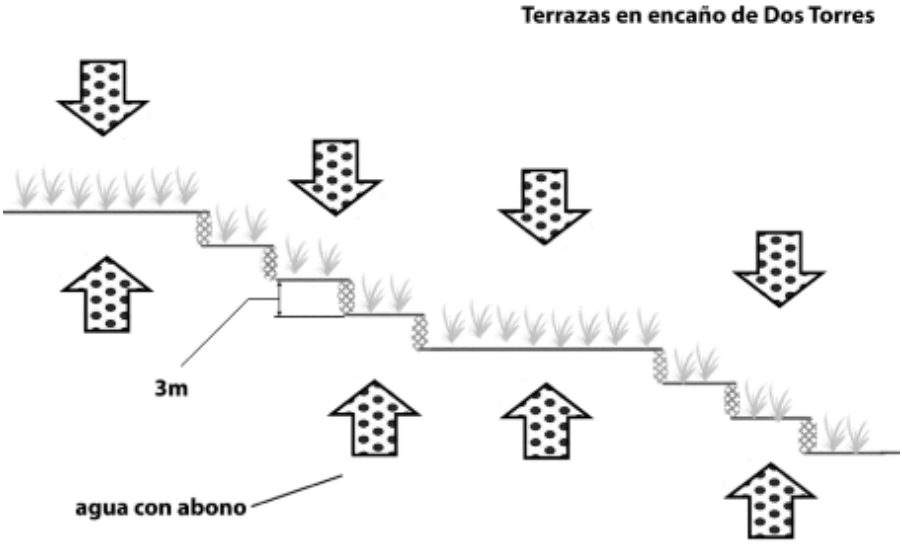


**Figure 10:** Profile of the terraced field scheme in the canyon at Dos Torres with directions for fertilizer collection.

### *Observation in Cañón de las piscinas*

The Cañón de las piscinas (the main canyon of the LiDAR excavations and terrace verifications (N 17.21.389', W 089.39.021', 268 m.a.s.l.), represents the main access to the Dos Torres site. It was also one of the objectives of this

survey to verify the agricultural terraces, already described in the previous chapter. What must be added is an unexpected finding in the lower part of the canyon. During the tour of August 7, 2017, practically at the limit of its mouth, on the east side, the remains of a stone house, originally about 5 m long, were found. It is in an elevated place, on a platform, what is surprising is that the LiDAR system did not identify it, although its visibility is good and it presents all the architectural features. As for its function, it is necessary to take into account that it is very isolated and much smaller than the size of a "standard" house, therefore, based on its strategic position that controls the entrance to the canyon, it is possible that its function was defensive or access control.

***Observation in Cañón de don Chico***

**Figure 11:** Rest of one of terraces still visible (Dos Torres).

A similar situation appeared during the tour on August 23, 2017, in Cañón de don Chico. This canyon is located in the western highlands of Uaxactún and north of Dos Torres (N 17.21.722'; W 089.39.859'; 288 m.a.s.l.). Its owner is known as don Chico and his milpa located in that canyon became famous for its crops of cacao and other extraordinary species that not even a person from Uaxactun can cultivate in his own milpa, because as they say, don Chico's milpa has certain qualities incomparable with the others. Especially there grows, in the only place in the region, cacao trees that according to the owner come from the trees that he found in the same milpa some 40-50 years ago as descendants that grew there according to wit-

nesses before the arrival of the contemporary population of Uaxactun. Apart from cacao trees, the soil allows other exceptional crops. In local nomenclature this sector produces: nance, pataste, nispero, jocote, zapote, mamey de castilla, tamarind, paterna and others.

**Figure 12:** The upper part of the terrace exposed by excavation.

Leaving his milpa, in an open space that can be determined as the limit of the area with the special soil, we found remains of architecture not captured by the LiDAR images. It is a 3 m high mound that was originally a small pyramid, along with the remains of 1-2 regular stone houses. The structures are isolated and have no link with any urban plan around them, and there is no record of any occupation in the vicinity. Therefore, perhaps it is a patio with owners or those in charge of controlling access to the canyon, with the precious cacao trees.

**Discussion**

It is uncertain whether the cacao trees in Canon de don Chico are descendants of the cacao trees of Classic times. This would assume little plausible vegetation continuity of about 1200 years. Rather, it has been suggested that they may have been remnants of plantings left by the Lacandons who lived and gardened throughout the Petén only a few centuries earlier (Palka 2005). However, several facts speak against this notion. Despite a hundred years of excavations, the absence of evidence of intensive settlement of Uaxactun by Lacandons (in contrast to Tikal, for example). Furthermore, the considerable

remoteness (about 8 km) and hiddenness of this garden from the ruins of the city itself, where the Lacandons used to stay. Moreover, finding a special and unique place where cacao plants thrive requires long-accumulated agricultural knowledge, ample time for local trial and error, and deep experience with the soils. Nomadic, short-term settlement by Lacandons is unlikely to achieve this. Thus, if we count up to the descendants of Classic times, however, a gap of 1200 years may not sound so unlikely if we calculate that the cacao tree lives to be about 100 years old (Sharpe 2017). This would imply a continuity of only 12 generations of trees in an extremely suitable soil and microclimatic environment, where, as the owner of don Chico assured me over decades of his observation, these trees reproduce unaided.

## Slope agriculture

Slope agriculture can be divided into upland (terraced) and island agriculture around Uaxactun.

### *Terraced agriculture*

Terraced agriculture is interesting in several aspects. The first is that it does not occur everywhere where mountain settlements existed and natural conditions would have allowed it. It is evident that some mountain communities preferred lowland (foothill) agriculture and descended to the lowlands to tend their fields. This can be explained by the territorial arrangement, which may not have allowed all communities access to the most easily obtainable land. On the other hand, there are perhaps factors that may not be fully known to us, such as chronology, since not all agricultural techniques developed in parallel as they appear in the archaeological record, and we still have most of the data obtained mainly through LiDAR with limited chronological sensitivity. Then there is the density of settlement, as terraced farming required extra construction effort. In the case of the Dos Torres settlement, more stone was moved, worked and built on the agricultural terraces than on all the settlement terraces and dwellings combined. Not all communities had the human resources to undertake such an enormous construction feat. Finally, topography is also a factor here, for although many of the canyons appear similar, even a small difference in width or gradient could make such a project ineffective. For example, the Sunsal area, which has almost the same main access canyon as Dos Torres but no agricultural terraces, although it

has a massive mountain population, has its canyon too narrow and steep, which would result in only very narrow and short fields, disproportionate to the effort involved. But where conditions were right for it, and this applies not only to the canyons themselves but also to the broad terraces below their mouths, it was an extremely efficient technique of intensive farming.

On the basis of archaeological excavations, we have found that the foundations of the system date back to the Late Preclassic period, when the area was densely populated and the system was widely used. Later, however, it was continually restored and exploited by later populations for centuries. Of the finds in this system, apart from the ingenious construction, mention should be made of the ash residues in the various layers, which suggest that the terraced fields were fertilized by burning. This, however, was only a supporting fertilization. The basis of the system was that the canyon has slopes many times longer than the lower surface of the field. From these slopes the rains periodically stripped the top humus layer full of freshly swept organic material. In other words, water with fertiliser runs down the slopes and settles on the terrace because it is artificially levelled to a horizontal position, so that the natural downward flow of these nutrients with the water was interrupted there. It is likely that during heavy rains the water flowed off the terrace, but the heavier material it carried was deposited there. Part of this nutrient-laden material was the natural atmospheric deposition of phosphorus, which both seeped into the top of the fertile layer of the terrace and was also supplied annually by

**Figure 95:** The visible stones indicate the width of the terrace stone step, which was 3 m thick.

the burning of dry corn stalks along with shrubs and trees cut on the adjacent slopes. However, their regular burning in April, as we see today on the milpa, supplied nutrients to the soil only in a supplementary way. They were only a periodic complementary element to the system (mainly potassium and calcium), as the main nutrients were delivered to the field with each rain from the surrounding steep slopes. This ensured a terraced field as an important element of intensive agriculture, since the field could be planted without interruption for generations, even with a nutrient-intensive crop such as maize.

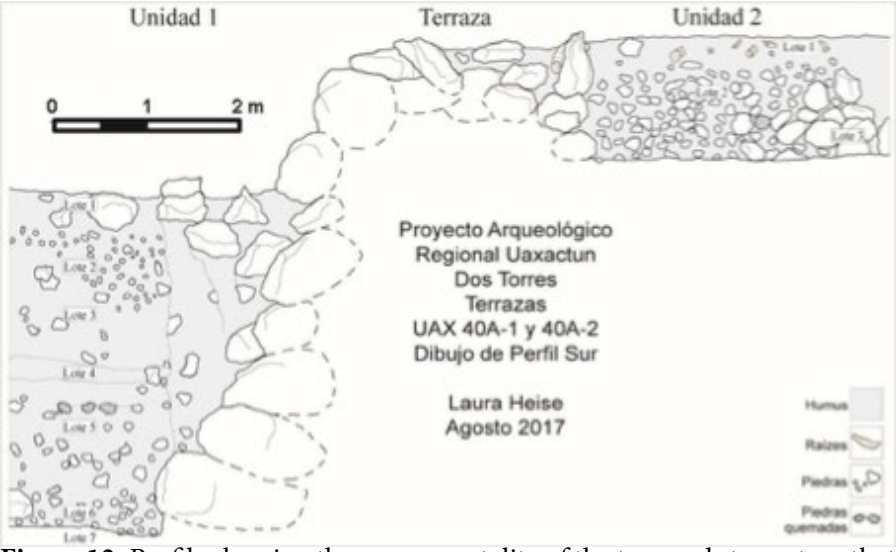


**Figure 13:** Profile showing the monumentality of the terraced stone steps that leveled the fields.

### *Island agriculture*

In local topography, an island (isla) is an outcrop in the plain that is not regularly flooded and thus, so to speak, rises out of the marshes. These elevations can be counted from a few metres to several tens of metres from the level of the marsh. They are usually small, surrounded by a 'bajo' of the order of many kilometres around, and are spatially confined to small outcrops that have been used for settlement and agriculture. A well-studied example is the El Tigrillo site, north of Uaxactun, where LiDAR has discovered a regular network of channels that we have verified and more precisely defined by

excavation. This turned out to be land in the immediate vicinity of the settlement, as there were buildings on the very top, but the slopes of the "isla" were covered with a layer of ingenious channels. It is somewhat reminiscent of the small canals we see today on the mountain slopes of Guatemala, for example around Quetzaltenango. It is possible that, as there (for example at Zunil), they were primarily intended as gardens. And although the soil around Uaxactun is not nearly as fertile (volcanic), the basic principle is similar. First and foremost, take advantage of the hillside and avoid destroying crops by waterlogging in the valley where water accumulates. Secondly, to prevent heavy rain from carrying away and washing away rooted plants, the network of channels drains the water along the contour rather than downhill where it would gather dangerous force. Thirdly, the channels act as fertiliser collectors from the hillside. Although they often become clogged (precisely because they flow along the contour, the gradient is low and what water they carry is deposited in the channels), this is also the intention, because their regular maintenance was actually fertilisation - dumping sediment on the raised fields framed by channels from below and above along their entire length. The field had to be narrow so that the entire area could be reached by the sediment thrown in from both sides. The LiDAR and archaeological evidence from this type of island farming at El Tigrillo fits this perfectly.

**Alluvial foothill agriculture**

The second major type is alluvial foothill agriculture. This can be divided into three subtypes.

***Alluvial quadrant***

Alluvial quadrant. This system appears to have been used mainly in the immediate vicinity of urban development, but possibly elsewhere. We have it well documented in the vicinity of architectural groups H, F, and E, which stand on smaller but steep foothill elevations. They slope down into the 'bajo' where massive amounts of water flow down their slopes during rains. While above we have described this type of system as amo-protective, i.e., that it protects agricultural land against the influx of water from the hills, there is a second possible view of its function. Namely, that the usable area

is more akin to systems that primarily collect fertile humus on the surface of the field and secondarily drain it. In such a case, it should be emphasised that the running water brings with it all the smouldering leaves and natural humus from the long slopes of the hills on which the human settlements stand. This material runs down the slopes into the flat valley where it would naturally disperse. However, we identified geometrically profiled channels in the shape of various semi-enclosed quadrants. These encircle the water and fertilizers in a certain way, forcing them to settle in a quadrant-defined area, with no possibility of dispersal. Excess water is channelled away and the fertiliser settles in the defined quadrant. The effect would then be similar to terraced farming, eliminating excessive water retention because the soil is drained, while ensuring that nutrients from the slopes are deposited on the defined area. The result is agriculturally sustainable soil.

### *Alluvial cone with natural drainage*

Typical agricultural features around Uaxactun are alluvial cones with natural drainage. The milpa of Don Chico is a typical example, but there are dozens of similar milpas in the area. Their basic principle is that they are located in the valleys between the mountainsides. These valleys would be flooded by the amount of water from the mountains and turned into a swamp, which is what happens to a large extent with most of the rainwater that flows from the entire western karst mountain range towards the eastern waterlogged plain. However, these small valleys benefit precisely from the fact that they are located in a karstic massif full of rock holes called 'resumideros', many of which go deep enough to form a connection with underground streams sunk deep below the limestone bedrock. These then serve as underground rivers that ebb and flow into the Caribbean Sea. Alluvial cones with natural drainage are usually not large. They are full of extremely fertile, regularly flushed soil with nutrients from the surrounding hillsides. The disadvantage of waterlogging is eliminated by the natural rock drains that lead underground and drain these alluvial cones.

Because they are not artificially modified, certain areas in the vicinity may remain flooded and unsuitable for agriculture, but the alluvial cone itself, if it has the correct, gentle gradient, is suitable for abundant and intensive agriculture for at least one or more families. Although there is no noticeable

artificial intervention in these areas, it would be unnecessary and must be regarded as an important part of the original system. The present inhabitants of Uaxactun use them with relish, and their effectiveness must surely have been known and exploited from the earliest times.

**Figure 14:** Flowering cacao tree on Don Chico's contemporary milpa, which is an example of the Aalluvial cone with natural drainage.

### *Alluvial cone with artificial drainage*

In the case of Alluvial cone with artificial drainage it is a similar system to the previous one, but on a much larger scale. While the natural drainage cone is mostly a valley between the hills of the mountains, the artificial drainage cones are found between the folds beneath the slopes of the western karst massif and the marshes to the east. The principle is very similar to the previous one, except that it works with a much larger mass of water and nutrients. These are collected from all over the mountains and flow down into the lowlands. The latter has a certain slope which culminates in the folds of the foothills. There, extremely valuable nutrients are deposited over a large area, not only from the slopes directly above the site, but from the entire length of the western mountain range, which corresponds to the slope of the plain into the alluvial cone. This can be several kilometres. The site of fertile nutrient deposition is thus both close to the base of the mountains and at the same time the lowest point (funnel) in the surrounding plain. The essential factor is that, as in the first case, at the bottom of the funnel there must be karstic openings forming a 'resumidero', geologically linked to the base of the mountain, where there are caves or holes in the rocks where the water disappears and flows into the underground stream. In order to reduce the inundation of such large areas, they used to be artificially interwoven with a network of drainage channels. A typical example is El Resumidero Guamil. There were up to 18 km of canals. All arranged as transverse (90 degree) lateral channels leading to a main channel which slopes down to the aforementioned 'resumidero'. This is an absolutely perfect system, since it is capable of providing almost 70 000 m2 of farmland with a high and continuous yield in this one case alone (and there must have been dozens of them along the mountain slopes).

### Deeply drained wetland fields or the question of the use of "bajo"

The agricultural use of the "bajo" itself, i.e. the extensive eastern wetlands, which have been regularly flooded since May and have maintained water practically all year round except during the dry season (March-April), remains an open question. The soil here is very dense, clayey to rubbery, i.e. it does not seep, but holds the water on the surface, where it is collected both directly by rain and by permanent inflow from the temporary rivulets which drain the entire western mountain karst massif into this particular lowland. It would be difficult to think of a less favourable environment for

agriculture. Nevertheless, we find some indication of remnant channels even in these areas, which are further away from inhabited upland areas as well as from the mountains. However, LiDAR can also be a deceptive aid in this case because, on the one hand, it records the current naturally occurring network of channels that respects the gradients of the superfice and creates a network of narrow stream channels. However, these are recent, and with so much flooding and sediment transport over the last thousand years or more, it is unlikely that the remains of drainage channels would be preserved in such an environment (completely devoid of stone and with permanently and periodically removed clay). The second illusion is caused by the soil type we call "vertisol". These heavy soils tend to form geometrically acting very long vertical lines with remarkable regularity. It is this that can give the impression that it is the work of human hands. In spite of all these reservations, we cannot rule out farming directly in the wetland, especially because of some clues on the LiDAR image that may not fall under the above reservations. However, there is also a very important argument to be made about the amount of land needed to feed a large population like Uaxactun, where the techniques and territories listed above are still insufficient to fully supply it. We must consider, however, that access to such fields was poor, the threat of drainage canal blockages was permanent, and the fields had to meet considerably more demanding conditions than those near the high ground. In the first place, nutrient supply was not as robust because it was not immediate and spread and deposited over a very wide area. It lacks the factor of concentration of fertilizers that was excellently achievable with previous techniques. The second limitation was the connection to the "re-sumidero" or underground connection to the river through a cave or rock hole. However, such formations are not to be found on the wide plains of the marshes, so the only way was to provide complex and many kilometres long canal connections, which had to lead to the same 'resumideros' at the foot of the mountains, around which, however, intensively cultivated alluvial cones already existed. This system of deeply drained wetland fields, although we have no real confirmation of it, can be assumed. It was, however, the most elaborate and vulnerable of all. The blockage of a channel over such wide areas in the midst of marshland could have caused very rapid destruction of crops without time for farmers to react. Nevertheless, it is certain that with good planning and a high degree of social integration, even these long and

remote drainage systems in the country could have worked and provided sufficient efficiency (DeLand Pohl 1990).

**Figure 15:** Ripening fruits of cacao on Don Chico's contemporary milpa.

**Crops grown**

To date, we have not been able to find remains of cultivated crops (although we do have evidence (charred stones, for example) of the natural occurrence of the Nance tree prior to Maya settlement). Thus, cultivated crops can only be inferred indirectly by three factors - the types of soils and fields we have identified, typical crops of pre-Columbian Maya agriculture known from other sources, and comparison with the current cultivation of traditional crops by the contemporary native Uaxactun population, which uses the same soils and conditions for very similar purposes. Based on these factors, we can assume ancient crops cultivation at Uaxactun:

Horticulture:

- avocado, cacao, nance, anona, papaya, pineapple, ramon, zapote mamey, sunza (Lycania platipus), pepper (pimenta dioica)

Main field crops:

- maize, pumpkin (various varieties), beans, camote, macal, yuca, cotton, pita floja

Complementary garden crops:

- chili pepper, tobacco, chaya, tomato, chayote, achiote (bixa orellana)

Of these crops, several species can now be found growing wild in the environment around the city ruins: cacao, nance, ramon, zapote mamey, sunza, pita floja. There must have been many more species originally cultivated, but not all have been revived by the current rural population because their agriculture is extensive and much less efficient. Introduced species are of course not included here.

**Environmental vulnerability of the Uaxactun farming system**

The agricultural system in Uaxactuna was vulnerable to both possible weather fluctuations, drought and heavy and prolonged rainfall. Because Uaxactun had no permanent source of water and was dependent on the regularity of rainfall, even the existing water reservoirs served the current needs of the population rather than agriculture, since distribution of water from them to the fields was not possible at all due to its limited quantity and technical

parameters. Therefore, a prolonged interruption of regular rainfall would be a disaster for the population.

Drainage systems in the marshy lowlands, such as the one we identified and excavated near Chival (El Resumidero Guamil), were apparently able to respond to the population explosion in the second half of the Classic period and to increase the capacity for intensive agriculture. However, they were unable to respond to drought. On the contrary, the land where the new, drained areas were located has the character of the aforementioned vertisols. These are clayey, very compact soils which harden to stone in the event of drought and form deep cracks through which drought penetrates even more deeply. It is then even more dramatically affected by crop failure than the soil at higher altitudes.

The deforestation of higher ground, which is also documented for the end of the Classic period as a result of the population explosion, must have had a side effect in addition to the loss of shade, forests, animals and timber for building and lime production. The loss of root systems caused soil erosion, which reached the lowlands in huge quantities and clogged drainage channels. This degraded the soil originally acquired for agriculture and made it necessary to make a huge organised effort to continually clear hundreds of kilometres of canals. This effect occurred precisely during heavy rains, which threatened the fragile system as seriously as long droughts.

The most significant threat to the system, however, was the lack of maintenance. The system was primarily a drainage system; we found no canal system that could be described as irrigation. All indications are that it was primarily drainage and the collection and layering of fertile humus. This is generally what the Uaxactun agricultural systems were designed to do. However, they required an enormous and organised deployment of manpower. If the 'bajo' was also used (and the numbers say it must have been), it involved hundreds of kilometres of drainage canals that had to carry water to the karstic 'resumideros' for ten months of the year. Protracted wars or political decentralisation, with the resultant inability to organise the deployment of large numbers of people along the entire length of the interconnected canals, were sufficient and these were quickly swept away. The consequence of silting was immediate flooding of fields and crop failure. The complexity of the system made it impossible for a smaller group, however agile, to revive such a system. It had to switch to extensive agriculture coupled with burn-

ing. Its demands on area are enormous and could only feed a fraction of the original population. Somewhere in the combination of these problems we should look for the beginning of the end of Uaxactun Classic agriculture and with it the fall of this city.

**Conclusions**

Thanks to the confluence of several research methods, firstly LiDAR imaging, then archaeological excavation of all identified variants of farming techniques, soil analysis, GIS data processing as well as comparative research on contemporary traditional agriculture of communities in an identical area, we have been able to identify a plausible picture of pre-Columbian agriculture in Uaxactuna. This picture does not emphasize chronology much, as several essential elements were used conservatively throughout the history of the town, according to the excavations. Its population also did not grow geometrically but in leaps and bounds, alternating with declines (for example, it was very low at the beginning of the Early Classic period), but it had its peak in the Late Preclassic period (specifically around 100 BCE and 100 CE) and the Late Classic period (specifically between 700-800 CE). It is to these population peaks that our data refer. They also show the high diversity and sophistication of intensive agricultural techniques. They were able to take advantage of a very problematic natural environment and artificially transform it on a large scale so as to be able to produce a continuous crop several times a year without the need to change location. Later Maya agricultural techniques known from colonial times were misapplied backwards in time. It turns out that the ancestors of today's Maya not only had very sophisticated mathematics, astronomers, writing, or building, but also farming. The present-day indigenous inhabitants of Uaxactun farming the same areas are nowhere near this efficiency. We recognized that the most efficient techniques were developed either on the mountainside or just below the base of the mountains. The basis of intensive farming was excess water drained by various methods and, above all, fertiliser in the form of alluvial humus transported to the soil surface. The systems of natural fertilizer supply and simultaneous water drainage were extremely sophisticated; we have identified six of them, divided into two groups. Within upland agriculture, these are: terrace farming on slopes, terrace farming in canyons, and island inter-channel farming. Within alluvial foothill agriculture, these are: alluvial quadrant, alluvial cone with natural

drainage and alluvial cone with artificial drainage. Three of these: island inter-channel agriculture, the alluvial quadrant and the alluvial cone with artificial drainage required periodic channel cleaning, with their sediments being piled on raised fields of varying nature. It was these types of fields that were the largest in area and bore a major role in providing food security for the population. We can also speak of a seventh type of intensive farming, namely deeply drained wetland fields. Their drainage systems were very long and convoluted, extremely vulnerable to blockages. However, fertiliser was probably also extracted from the deposits in the channels and placed in adjacent fields. Thereafter, four of the seven types of farming techniques provided a steady supply of major field crops to the table. At the same time, these were the most vulnerable. No stone was found in the lowlands and therefore the channels were formed only from clay, which was modified by water, and other washed clay clogged the channels. They therefore required the most coordinated human labour on a massive scale. Its eventual absence meant that the fields were waterlogged and degraded. If the system worked properly, however, it provides satisfactory answers to both the extent and variety of the crops anticipated and their quantity relative to the projected population in the most populous periods of Uaxactun's history.

REFERENCES

Beach, T., Luzzadder-Beach, S., Cook, D., Dunning, N.,, Kennet, D., Krause, S., Terry, R., Trein, D., Valdez, F.,

2015 Ancient Maya impacts on the Earth's surface: An Early Anthropocene analog?", Quaternary Science Reviews, vol. 124, 1 –30, 2015.

DeLand Pohl, Mary

1990 Ancient Maya Wetland Agriculture. Routledge, London and New York.

Dlapa, Pavel, Kováč, Milan, Adámek, Jakub

2019 Análisis de muestras de tierra agrícola de Uaxactun. In Kováč, M. Ventura, S. García, M. (eds.) Nuevas Excavaciones en Uaxactun IX. CMS-Chronos, Bratislava, pp. 230-235.

Harteming, A. E.

2005 Nutrient Stock, Nutrient Cycling, and Soil Changes in Cocoa Ecosystems: a Review", Advances in Agronomy, 248 vol 86, 227 –253.

Heise, Laura, Kováč, Milan

2019 Excavaciones de agricultura: Terrazas de Dos Torres. In Kováč, M. Ventura, S. García, M. (eds.) Nuevas Excavaciones en Uaxactun IX. CMS-Chronos, Bratislava, pp. 131-149.

Kováč, Milan

2019 Verificaciones de los rasgos agrícolas identificados por LiDAR. In Kováč, M. Ventura, S. García, M. (eds.) Nuevas Excavaciones en Uaxactun IX. CMS-Chronos, Bratislava, pp. 205-219.

Palka, Joel W.

2005 Unconquered Lacandon Maya. Ethnohistory and Archaeology of Indigenous Culture Change. University Press of Florida.

Paoletti, R., Poli, A., Conti, A., Visioli, F.,

2012 Chocolate and Health, Springer-Verlag Italia.

Pohl, Mary

1985 Prehistoric Lowland Maya Environment and Subsistence Economy. Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol 77.

Sharpe, Kimberley

2017 The Life Cycle of Cocoa Bean Plant. https://www.gardenguides.com/108607-life-cycle-cocoa-bean-plant.html

# AGRICULTURE IN KAMINALJUYU : A REVIEW FROM ITS HYDRAULIC CONTROL AND POTTERY

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Kaminaljuyu is located in the central plateau of the valley of Guatemala, in what is today the southwestern part of Guatemala City, at an elevation of 1499 m MSL (Gall 2000: 245). This valley is formed by a depression of tectonic origin or graben, delimited by the geological faults of Mixco to the west and Pinula to the east. The difference in altitude between the raised blocks of soil and the depression where the valley is located is 500 m (Pérez 2009: 72).

It is known that the Valley of Guatemala was subjected in remote times to intense volcanic activity, which resulted in the formation of volcanic ash soils, often conducive to the formation of lakes (De León and Alonzo 1996; Pérez 2009). Due to this geological conformation, the main environmental factor in ancient Kaminaljuyu during the Preclassic period was undoubtedly Lake Miraflores. It was approximately 1 kilometer long and 550 meters wide (Valdés 2006: 72), constituting an aquatic food source that complemented the agricultural activity in the city.

From its origins, Kaminaljuyu settled around Lake Miraflores, taking advantage not only of the water resource, but also of the food and raw materials

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it provided. There is evidence that during the Middle and Late Preclassic periods in the south of the city there was an extensive and intensive agricultural system, supported by large hydraulic canals that exploited the lake (Popenoe de Hatch 1997; Barrientos 1997; 2000).

However, due to the urban growth of Guatemala City, what is known about the site is fragmented and incomplete, since most of the research conducted has been in the archaeological rescue mode (Valdés 1995; Popenoe de Hatch 1997; Ponciano 2000; Ivic and Alvarado 2004; Flores 2005; Valdés, Herrera, Valladares, Tobar and Méndez, 2006; Valle 2007; Padilla 2011; Martínez 2013). The study of water systems at Kaminaljuyu has focused on their use in large-scale agriculture in the southern part of the site (Popenoe de Hatch 1997; Valdés 1997; Barrientos 1997; 2000) and little importance has been given to these features found elsewhere in the city.

**On hydraulic societies**

One of the first theorists to address the subject of societies based on hydraulics was Karl Wittfogel in his work "Oriental Despotism: A Comparative Study of Total Power", published in 1957. In this work, starting from Marx's theory of the Asian Mode of Production, the author makes an analysis of Oriental despotism, which emphasizes the main role of irrigation works that the bureaucratic structures of a state needed to maintain themselves and the impact these had on society. In his view, several Asian societies depended on large-scale irrigation works; to achieve this, the state had to organize the population into forced labor (Wittfogel 1957).

These works would have required a large and complex bureaucratic system supported by literate officials. This structure would also have oppressed civil society and any other force capable of mobilizing against the state. Such an organization would inevitably have been despotic, powerful, stable and wealthy (Wittfogel 1957). Although in this position water management is directly related to communal labor and bureaucratic organization, it is a bit extreme. Even so, it is undeniable that in the Maya area water is the only independent variable on which economic development depends (Scarborough, Becher, Baker, Harris and Valdez Jr. 1995: 98).

Much has been said about hydraulic systems in the Lowlands (Scarborough et. al. 1995; Scarborough 1998; Fialko 2000; Rice 1997; Alvarado 2011), where water supply was more difficult and seasonal rains had to be maximized, creating systems for catchment, drainage, canalization and storage of the liquid.

When talking about water management, it is tempting to focus on the irrigation of agricultural fields as the engine of social complexity; although this model is perfectly valid for settlements where water is scarce (Paredes, Cossich, Belches, Kaplan and Valdés 2005) as in the Lowlands, it is less useful for understanding the socio-political nature of sites surrounded by rivers, springs and lakes. Karla Davis-Salazar (2003: 275) points out in the case of Copán for the Late Classic the possibility that the lagoons located in the urban residential sectors of the site could have been conceptualized, used and maintained by the inhabitants of the domestic groups as communal resources with ancestral ties.

For the Preclassic period, hydraulic elements (drains and open canals) have been reported in other sites of the Maya Area, such as in Chocola. Water management in this case was carried out either to avoid its excess or to redirect it for practical purposes (Paredes et. al. 2005); also in Tak'alik A'baj there are reported canals whose purpose was the evacuation and supply of water (Marroquín 2007). Near this site, in Izapa, in the modern Mexican state of Chiapas, it is mentioned the finding of drains with slabs (Gómez Rueda 1995), similar to those of Tak'alik Ab'aj. In Kaminaljuyu, the most important hydraulic canals and the ones most written about (Popenoe de Hatch 1997; Barrientos 1997; 2000) are located south of the site, starting from Lake Miraflores and used for the irrigation of extensive crops. However, there is also evidence of these elements in the southern area of the El Naranjo lagoon (Jacobo 1992).

**Description of Kaminaljuyu**

The modern name Kaminaljuyu was given by Antonio Villacorta in 1936. This word is a geonymy in K'iche' language that means "Hill of the dead" (Kidder, Jennings and Shook 1946: 7). However, Gutiérrez Mendoza (1989: 9) mentions that it is also found in Kaqchikel language, with identical translation. Before the destruction of the site, Kaminaljuyu had more than 200 mounds distributed in an approximate area of 5 km2 (Popenoe de Hatch

1997: 3). Currently, most of the ancient city is under Guatemala City, however, some mounds are still visible within the perimeter of the city. The size of the structures varied considerably, from small elevations barely visible above ground level, up to 20 meters high the largest ones (Del Águila 2009).

Of unknown original length due to several mutilations suffered throughout its history and running in an east-west direction, southeast of Guatemala City is the *Montículo de la Culebra*. This mound consists of an ancient elevation of mud that in some points reaches a height of up to 12 m and currently measures 4100 m in length along its entire length, dated in its origins to the Preclassic period and was reused in Spanish colonial times as a support within the outline of the Pinula Aqueduct (Navarrete and Luján 1986). It can be said that it is one of the longest ancient monumental works in Mesoamerica (Valle 2007: 1033). As a result of the multiple rescue and salvage investigations that have been carried out in the area of the mound, several functions can be attributed to it, among them: to serve as a defensive wall, a place for public ceremonial events, a hydraulic channel or water retention, and a land boundary, among others (Martínez Paiz 2004).

Beginning in the 1940s, most of Kaminaljuyu, despite its importance, began to disappear due to the growth of the city. However, some governmental measures were taken by the Institute of Anthropology and History (IDAEH, by its Spanish acronym), delimiting a protection zone covering part of the mounds of Group C-II (Schávelzon and Rivera 1984: 7). This area was designated as Kaminaljuyu Park in the 1970s. Two large groups of mounds, known as *La Acrópolis* and *La Palangana*, are located here (Ivic de Monterroso and Alvarado 2004). These constructions were safeguarded because they are considered the main area of the site.

**Kaminaljuyu during the Preclassic period**

Based on the information so far recovered, it is known that the Kaminaljuyu area has been occupied since the Early Preclassic ((Table 1)), during the Arévalo phase (1100-1000 B.C.). It is not yet known where the first inhabitants of the valley came from, but it is known that they settled around Lake Miraflores (Valdés 1997; De León and Alonzo 1996). Later, during the Las Charcas (1000-700 B.C.), Majadas (700-650 B.C.) and Providencia (650-400 B.C.) phases of the Middle Preclassic, there is evidence of population expan-

sion mainly on the shores of Lake Miraflores (Valdés 1997). Occupation in this period, especially from 800 to 300 BC, had only been documented in certain places, especially on the northern and eastern shores of the ancient lake (Ponciano and Foncea 2006: 48), however, the Kaminaljuyu/San Jorge (Popenoe de Hatch 1997) and Miraflores II (Valdés and Popenoe de Hatch 1995) projects provided new data concerning the southern end of the lake.

**Table 1:** Chronology of Kaminaljuyu. The main phases mentioned in this research are highlighted (Taken from Hatch 1997).

| Periodo | | Año | Fase |
|---|---|---|---|
| Postclásico | Tardío | 1500<br>1400<br>1300<br>1200 | Chinautla |
| | Temprano | 1100<br>1000 | Ayampuc |
| Clásico | Tardío | 900<br>800<br>700 | Pamplona<br>Amatle |
| | Temprano | 600<br>500<br>400 | Esperanza<br>Aurora |
| Preclásico | Terminal | 300<br>200 | Santa Clara |
| | Tardío | 100<br>d.C.<br>0<br>a.C.<br>100 | Arenal<br>Verbena |
| | Medio | 200<br>300<br>400<br>500<br>600 | Providencia<br>Majadas<br>Las Charcas |
| | Temprano | 700<br>800<br>900<br>1000<br>1100 | Arévalo |

It is especially important to note that in the Providencia phase (650-400 B.C.) is when the socio-political organization became much more complex,

initiating the management of the population by a ruling group that planned and began the construction of a vast system of hydraulic canals (Popenoe de Hatch 1997; Valdés 1997; Valdés and Popenoe de Hatch 1996). It was at this time that the Miraflores canal was built carved in a natural clay strata, locally known as *talpetate*. This is the oldest canal known at the site so far, associated with the management of cultivation areas in the southern part of Kaminaljuyu (Barrientos 1997; Valdés 1997).

The Late Preclassic, divided into the Verbena (400-200 B.C.) and Arenal (200 B.C.-A.D. 100) phases, is the period of greatest sociopolitical apogee at the site. It was during the Verbena phase that the Miraflores canal was no longer used and the San Jorge and Mirador canals were built. The San Jorge canal, almost 12 m wide, became practically an artificial river that flowed southward (Barrientos 1997), irrigating the agricultural fields through smaller canals. Evidence of *comales* and hearths, which are associated with communal kitchens, have been discovered by the San Jorge and Miraflores projects, in areas near the canals (Valdés 1997; Gutiérrez Mendoza 1989). It is assumed that groups of women were preparing food in abundant quantities for the peasants doing agricultural work in the vicinity. The apogee that the city experienced during the Preclassic seems to have been interrupted when Lake Miraflores dried up during the Arenal phase (200 BC-100 AD) around 100 to 200 AD (Valdés et. al. 2006; Popenoe de Hatch, Ponciano, Barrientos, Brenner and Ortloff 2002: 103; Arroyo 2013a: 182) when the site had a high demographic density (Velásquez 2006). Apparently at this time, part of the inhabitants of Kaminaljuyu moved to the Northern Highlands, reflected in the increase of the population in sites such as Sajcabaja and Canilla, both in the department of Quiché. The settlers who did not move continued to produce cultural manifestations in ceramics and rituals at the site in syncretism with settlers from the Altiplano and South Coast during the Aurora phase (200-400 A.D.) (Velásquez 2006; Popenoe de Hatch 2005).

The situation in Kaminaljuyu varies from a great apogee during the Arenal phase (200 BC-100 AD) of the Preclassic, showing a demographic and construction activity decline to a transition moment in Aurora (200-400 AD) of the Classic, in a period of time that can be considered Terminal Preclassic, rather than Early Classic (Velásquez 2006). It is during the Santa Clara phase (100-200 A.D.), that an intrusive population, identified as a group of Solano tradition that expanded into the Central Highlands of Guatemala from the

Northwestern Highlands took control of the city abruptly and without violence, taking advantage of the instability caused by the drying of the lake and the San Jorge and Miraflores canals (Popenoe de Hatch 2005).

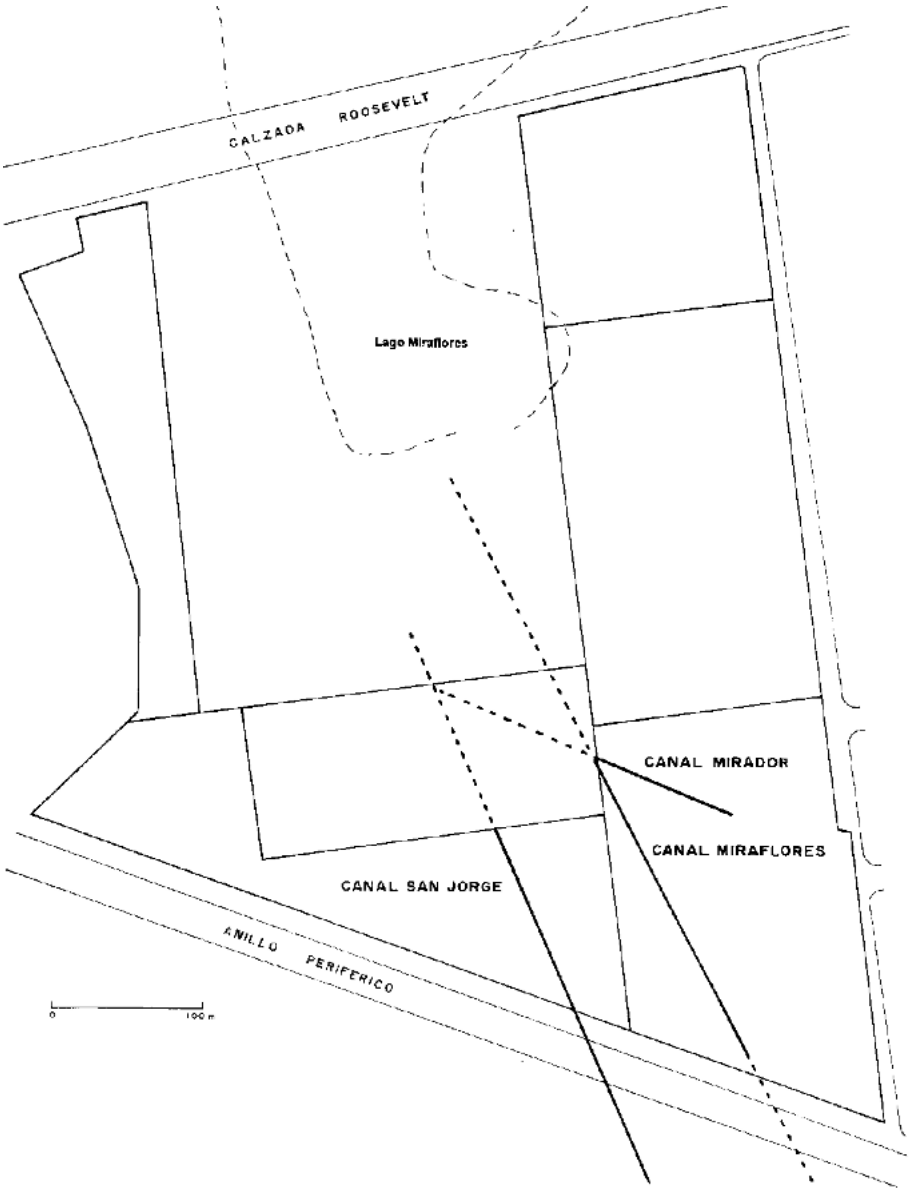


**Figure 16:** Location of the Miraflores, San Jorge and Mirador canals to the south of the site (Taken from Barrientos 1997).

**Hydraulic management in Kaminaljuyu during the Preclassic period.**

Based on the San Jorge (Popenoe de Hatch 1997) and Miraflores (Valdés 1997) projects, where the three largest canals to the south of the site were found, there is evidence that in Kaminaljuyu there was a complex hydraulic management aimed at obtaining the best levels of agricultural production ((Figure 16)). These canals, named Miraflores, San Jorge and Mirador, developed gradually according to the growth and needs of the population settled in the city around Lake Miraflores. These do not correspond to a single stage ((Table 2)), but are examples of water management from the Middle Preclassic to the Early Classic.

**Table 2:** Phases of construction and closure of the hydraulic canals south of the city (from Barrientos, 1997).

| Canal | Construcción | Cierre |
|---|---|---|
| Mirador | Verbena?/Arenal? | Aurora?/Amatle? |
| San Jorge | Verbena | Arenal/Santa Clara |
| Miraflores | Providencia? | Verbena |

The area of the Guatemala Valley where Kaminaljuyu was settled has a high agricultural potential due to its fertile soils (Martínez 2013: 214). This, together with the availability of water provided by Lake Miraflores, allowed the settlement of a large group of inhabitants, whose subsistence base was mainly agriculture. The slope of the land south of the lake suggests that it was prone to flooding, which allowed the crops in this area to receive water in this way. This was the case until the Providencia phase (650-400 B.C.), when an irrigation system began to be used, which led to an increase in production (Barrientos 1997: 53).

**Miraflores Canal**

It began directly on the shore of the ancient lake, excavated in the talpetate and sand stratum, possibly during the Providence Phase (650-400 B.C.). It was oriented north-south, with an approximate direction of 9° northeast. It ran parallel to the western limit of a large platform that supported several structures, called Plaza Mirador (Barrientos 1997: 24). It is estimated that it

was between 500 and 1000 m long. Its northern end presented a more defined direction and was deeper (between 5.8 and 3.60 m), than wide (between 3 to 4 m), with its sides cut in slope, presenting a triangular channel section ((Figure 17)); however, as it runs towards the south, its width increases (between 4 to 7.8 m), while its depth decreases (between 3.45 and 0.40 m) and presents a "U" shaped section (Barrientos 1997), known in hydraulics as shallow ditch.

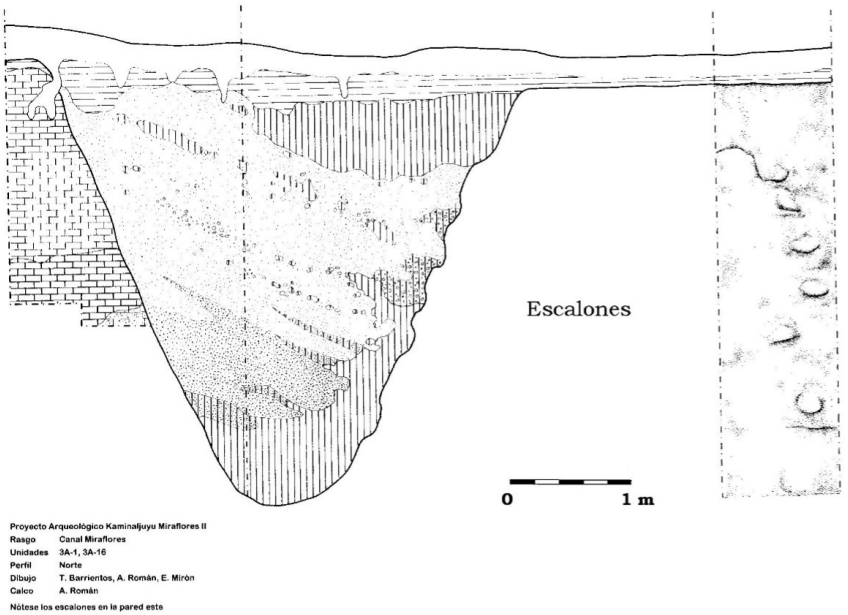


**Figure 17:** Section drawing of an operation in the northern section of the Miraflores canal. Note the layers of fill in its interior. Right: steps on the east side. (Taken from Barrientos 1997).

When it was no longer used, it was intentionally refilled during the Verbena Phase (400-200 B.C.), using a mixture of mud, sand and talpetate blocks. It is worth mentioning that this fill was placed only in its northern section, where it was deeper, where some type of ceremonies were carried out, evidenced by the remains of censers associated with burnt mud and charcoal. The southern, shallower section was left open and filled-in naturally (27). In its northern section, this channel had five holes on its east side, which by their

dimensions and placement suggest that they functioned as an improvised stairway ((Figure 17)), used to descend to the bottom of the channel when it was dry and to clean it of sediments. A short distance from its east side, some holes excavated in the talpetate were found. These have been interpreted as places for storing or collecting water or to be used as cisterns for cleaning the liquid, where it was deposited so that the sediments it carried would fall to the bottom and thus obtain clean water for domestic use (Barrientos 1997).

At a midpoint in its course, it presents a pronounced widening of its walls and an abrupt increase in its depth. This possibly conforms to a hydraulic jump in which the water flow is elevated, considerably reducing its velocity, facilitating its use for agricultural tasks (Barrientos 1997).

**San Jorge Canal**

This canal is the largest found so far at the site. It is oriented 12° northwest ((Figure 16)) and runs north-south. It began directly on the shore of the lake and was excavated during the Verbena Phase (400-200 B.C.) in the talpetate and sand stratum ((Figure 18)) from the modification of a stream that drained the lake to the south (Popenoe de Hatch 1997: 15). Like the Miraflores Canal, it is narrower and deeper to the north and wider and shallower at the other end. It is estimated that it had a total length of approximately 1750 m, 10 m in shallow width and 5.4 m in depth in its northern section, while to the south, as it widened, it reached 18 m in width and 6 m in depth; after this widening, the canal gradually narrows in a 150 m section, until it disappears (Barrientos 1997).

Like the Miraflores Canal, it has hydraulic jumps along its course. However, unlike the latter, in the San Jorge Canal some secondary canals were detected, which was interpreted as an irrigation system for elevated fields during the Late Preclassic (Popenoe de Hatch 1997: 14-15). This canal may have been designed to have two functions: first, to drain excess water from Lake Miraflores during the rainy season and, second, to provide water for agriculture in the dry season (Popenoe de Hatch 1997: 14).

During the Arenal Phase (200 B.C.-A.D. 100), the canal was modified, cutting further into the talpetate stratum. This new deeper and narrower cut makes its section show stepped profiles, and was intended to compensate for the

loss in flow velocity due to the decrease in the lake level, product of its slow drying (Popenoe de Hatch 1997: 15). At the end of the Late Preclassic, in the Santa Clara Phase (A.D. 100-200), the canal was intentionally filled in, possibly because water was no longer flowing inside it, given that the lake was at a very low level (Popenoe de Hatch 1997:16-19).

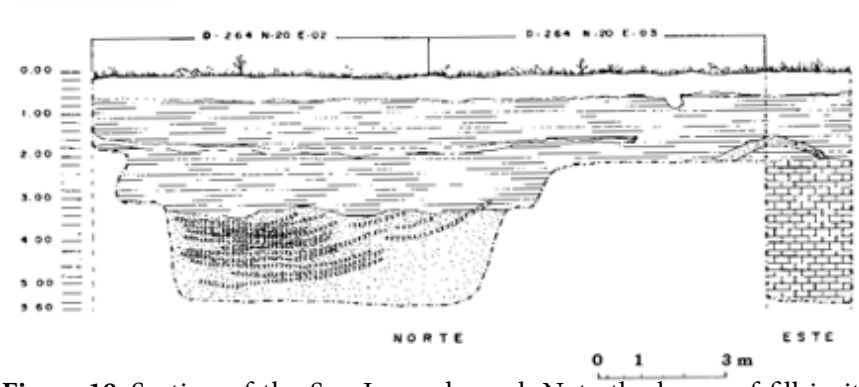


**Figure 18:** Section of the San Jorge channel. Note the layers of fill in its interior (taken from Popenoe de Hatch 1997).

**Mirador Canal**

It is smaller than those described above and, unlike them, it was not artificially filled, but was left open by the ancient inhabitants of the city (Barrientos 1997). It is oriented approximately 28° northwest and runs in a northwest-southeast direction.

It was cut into the talpetate stratum during the Late Preclassic. Due to its orientation, it intercepts the Miraflores Canal, which was filled in prior to the construction of the Miraflores Channel ((Figure 16)). At this interception, the sides of the Mirador Canal are constructed of mud and compacted pumice. The starting point of this canal is unknown, as well as whether it is a secondary canal of the San Jorge (Barrientos 1997).

Taking into account the distance measured from the San Jorge Canal, it is estimated that it was 230 m long. Unlike the other two canals, as its course advances towards the southeast, its surface width is reduced from 2.6 m to 1.6 m, and its depth from 3 m to 0.35 m. Its sides were cut in the form of a cut in the canal. Its sides were cut in the form of a slope and its bottom is

generally flat ((Figure 19)); as it advances, its sides become more vertical. A relevant feature of the channel is that, immediately after the intersection, protrusions were identified on its sides, with corners of almost 90° and rectangular in plan ((Figure 20)). The purpose of these has been associated with the use of gates or some similar device built with perishable materials to control the flow of water (Barrientos 1997).

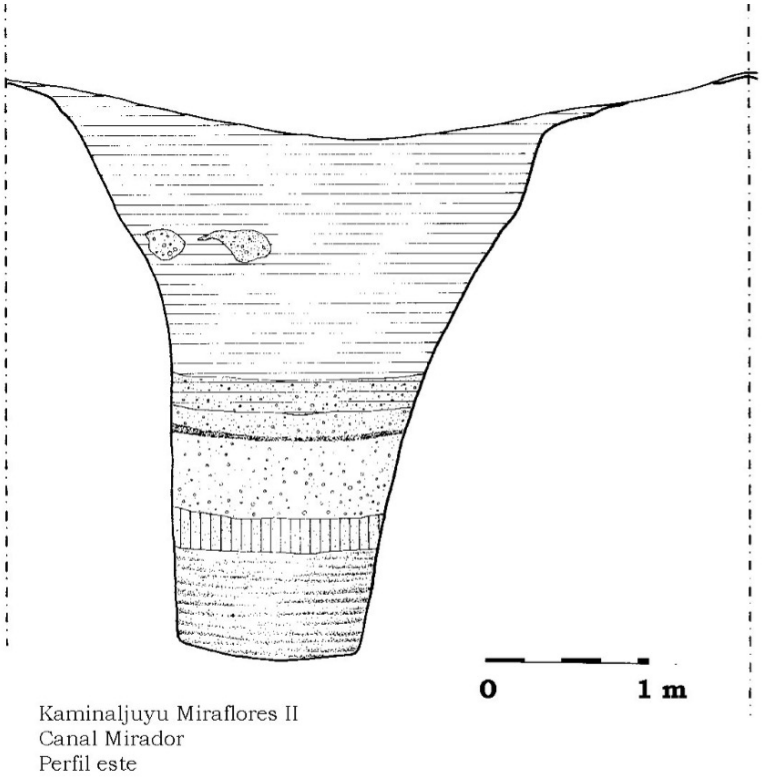


**Figure 19:** Drawing of the east profile of the Mirador Canal. Note the sedimented bottom of the channel (taken from Barrientos 1997).

Because the Miraflores and San Jorge canals began at the edge of the lake, it has been hypothesized that there was a water dam to the south of the lake, built during the Providencia phase (650-400 B.C.). Unfortunately, any evidence of the existence of this feature was erased because the area where it could have been found was destroyed without archaeological investigations

(Barrientos 1997). The existence of these three canals ((Figure 16)) testifies to a social complexity dating to the Middle Preclassic. The Miraflores Canal was the first to be built during this period, following the natural slope of the land south of the lake. Based primarily on its widening to the south, it is believed to have irrigated crops through controlled flooding. This system was used for at least four or five centuries, until the increase in population during the Late Preclassic period forced its use to be abandoned and new hydraulic management works were begun (Valdés 2006; Barrientos 1999).

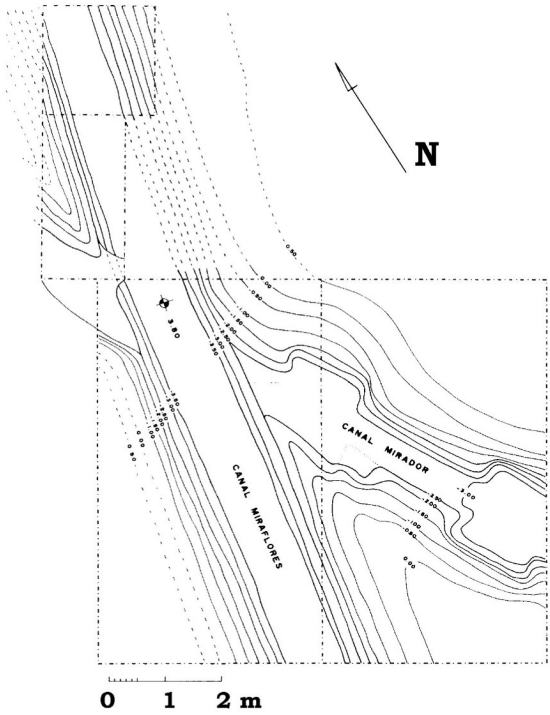


**Figure 20:** Plan drawing of the intersection of the Miraflores and Mirador canals. Note the overhangs associated with the use of sluice gates in the latter. (Taken from Barrientos 1997).

During the Verbena Phase (400-200 B.C.), the San Jorge Canal was built, the largest in the entire site. The presence of smaller secondary canals starting from this canal suggests that the irrigation system was practiced through

elevated fields (Valdés 2006; Barrientos 1997), reflecting a more complex organization than before, associated with large communal kitchens where food was prepared for a large number of people (Gutiérrez Mendoza 1989).

Later, during the Arenal Phase (200 B.C.-A.D. 100), the Mirador Canal was built as a branch or diversion of the San Jorge. At this time, the lake level was beginning to drop (Popenoe de Hatch, et. al. 2002), making the gigantic canal too large. Although smaller in size, the hydraulic technology used in this branch differs from the other two canals, since a system of gates was used to regulate the flow of water, a resource that became increasingly scarce as the lake level continued to fall, maximizing its use (Barrientos 1997).

**Other examples of hydraulic management in Kaminaljuyu**

In addition to the three large canals in the south of the city, whose purpose was to promote intensive agricultural production, evidence of smaller canals has been found in other areas of Kaminaljuyu. In the Culebra Mound, evidence of some smaller canals was found. Approximately in the middle of the mound, at 6a. Av. 1-29, zone 14, a 4.5 m long section of basalt slabs of variable width between 0.20 and 0.28 m, oriented east-west, was found on its southern slope ((Figure 21), left). Nearby there are two rammed stones dated to the Providencia phase (650-400 B.C.), however, the slabs were not removed, so there is no dating for their construction (Valle 2007). On the southern slope of its eastern end, at 20 Av. and 4th Street, zone 14, an intrusive channel was found cut into the mud fill dated to the Santa Clara Phase (100-200 A.D.). This was oriented east-west and only a 10 m long by 1 m wide segment constructed with basalt slabs was found ((Figure 21), right). Apparently it was left open after its use, so the materials inside were found mixed, making it impossible to date it (Ortega, Suasnávar, Velásquez and Roldán 1996; Ericastilla 2013).

In an area located approximately 250 m east of Mound C-IV-4 and 120 m south of Mound D-IV-2, evidence was found of a canal cut in the sand stratum and dated to Providencia/Verbena, beginning of the Late Preclassic (Padilla 2011). It was 1.62 m wide and 0.66 m deep, with a trapezoidal section and running in an east-west direction ((Figure 22)). It was only observed in the profiles of a 4 x 4 m well, so its total length and direction are unknown. It is associated with a local obsidian production area and it is believed that it

functioned as a drainage to the site, to prevent the accumulation of rainwater during the winter (Padilla 2011; Martínez 2012).

**Figure 21:** Photographs of the canals found in the Culebra Mound. Left: slabs found at 6a. Av. 1-29, zone 14 (Taken from Valle 2007). Right: canal< found at 20 Av. and 4a. Calle, zone 14 (Taken from Ericastilla 2013).

In the plaza area south of Mound C-IV-4, in the place occupied by Mound C-V-12, evidence was found of the cuts in the talpetate that formed the platform on which the building was supported (Bustamante 2013). To the south of this platform, several test pits revealed cuts in the talpetate and sand stratum no more than 1 m wide and 0.80 m deep, which were interpreted as evidence of a drainage channel that ran in a southeast direction at the site. This may have functioned to drain water from the plaza into Lake Miraflores (Martínez 2013). In the plaza to the south of Mound C-IV-4, evidence was found of a hydraulic channel of smaller dimensions than those previously described ((Figure 23)). This appears to have been fed with water from Lake Miraflores and discharged into an undetermined area due to the recent destruction of the sector (Díaz García 2016). This channel was intentionally filled, in an action where in addition to partial vessels, human skulls and

layers of mud and earth were deposited (Díaz García 2016). The following section on ceramics and agriculture in the ancient city will complement the information on hydraulic management in Kaminaljuyu.

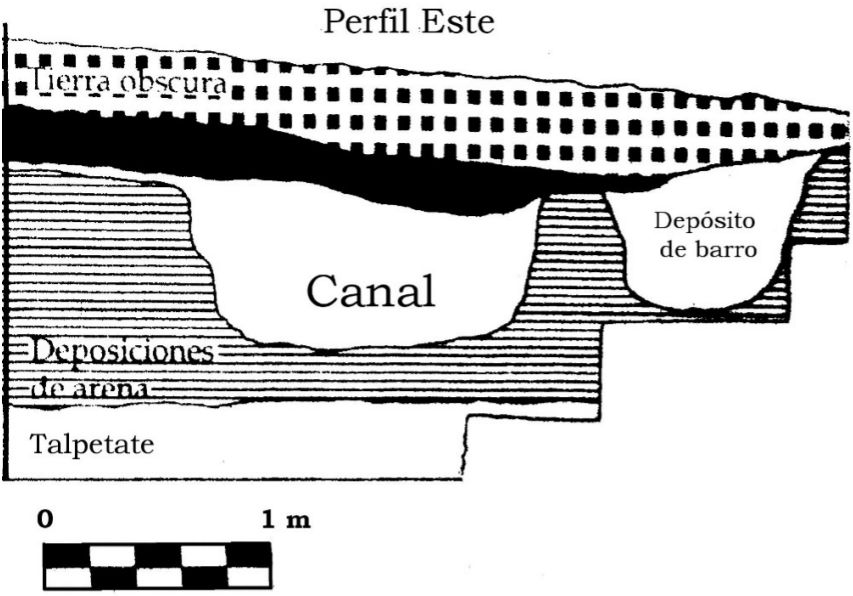


**Figure 22:** East profile of the channel located east of Mound C-IV-4. (Taken from Padilla 2011).

**Kaminaljuyu's Agriculture and Pottery**

Much of the development of Kaminaljuyu is reflected in its ceramic traditions. For years, archaeologists who have investigated it have based part of their interpretations on the sherds and complete pieces that have been constantly found in each of the excavated contexts of the site. This evidence has formed a ceramic complex with very specific features in its forms, decorations and surface finishes. The complex known as Las Vacas for the Preclassic (1100 B.C.-100 A.D.) (Popenoe 1997:86), includes an inventory of locally produced wares in the Valley of Guatemala, which had great diffusion in the Guatemalan Highlands and other regions, which in some way reflects the dynamics of common activity.

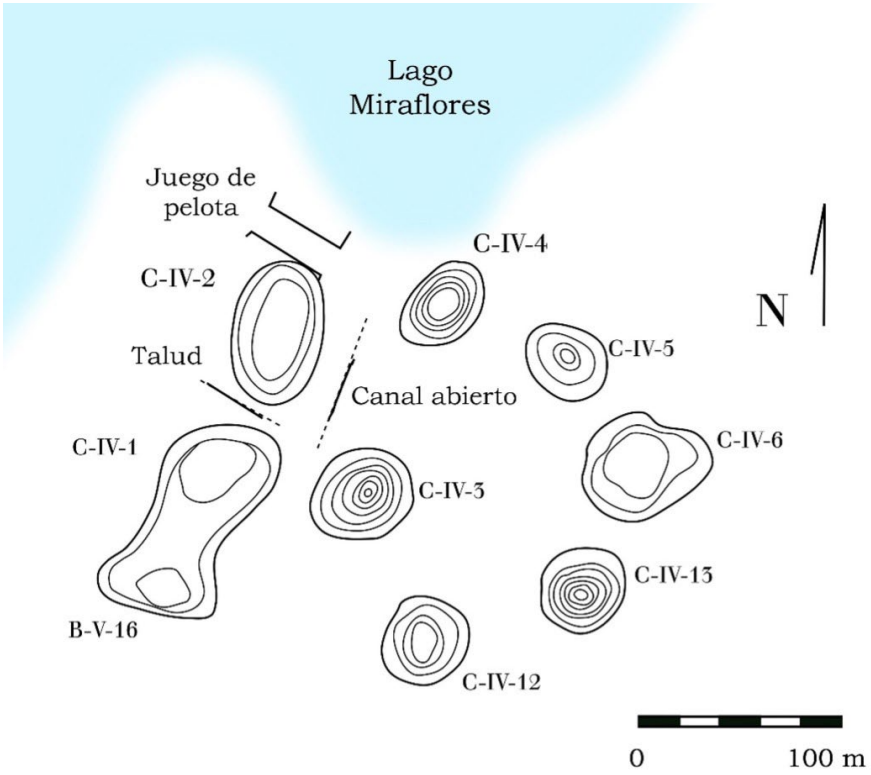


**Figure 23:** Map showing the ballcourt, the open channel southwest of Mound C-IV-4 and the slope reported south of Mound C-IV-2 (Drawing Mauricio Díaz García).

Potsherds are commonly the materials that are found in archaeological excavations, since by their nature they remain through time. Their association with different findings and in correlation with the stratigraphy allow defining the chronologies of the sites, but also other cultural aspects, production technology, commercialization, among others. It is very common to use terms such as deposit, offering, dump, workshop, fill material, and this is derived from the interpretations made in the field, which depends on their distribution, stratigraphy and association with other sets of artifacts and features. The common goal is to make interpretations that come closer to knowing what life was like in ancient societies. Following this premise, we enter the concept of activity areas, which refers to concentrations of material

that reflect particular activities, areas spatially delimited by constructive elements (Manzanilla 1986: 11).

Agriculture, as one of the elements of the process of human sedentarization, was and continues to be a key point in the conformation of social networks for the production, processing, storage, distribution and consumption of food, as a crucial economic and subsistence base ((Figure 24)). Research on the Kaminaljuyu agricultural system (Valdés 1997; Popenoe 1997; Barrientos 2000) has highlighted the role of ceramics associated with these areas. Certain types of ceramics were identified that were created with the purpose of fulfilling a role in the productive scale of the site. In Mound A-VI-5, a large concentration of a specific type of pottery was found. The ware was named Monte Alto Red (Popenoe 1997:89), after the name of the Monte Alto archaeological site located on the coast of Escuintla, Guatemala.

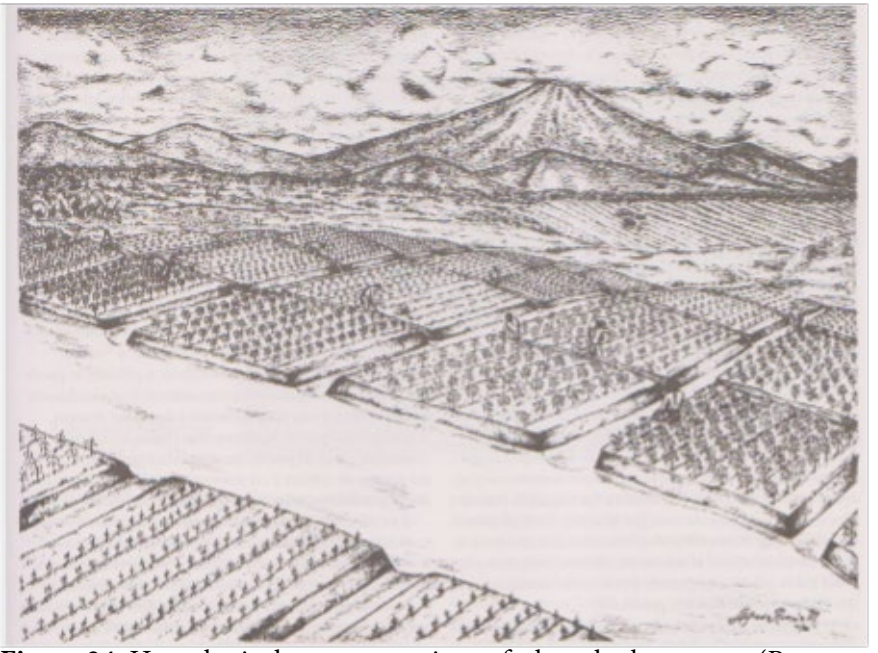

**Figure 24:** Hypothetical reconstruction of the plank system (Popenoe 1997).

The Monte Alto Red pottery is characterized by its large pitcher shape, the vertical elongated body with a short or divergent shoulder and neck, with a restricted mouth. The sector where this ceramic was located was interpreted

as a food processing area, suggesting that the presence of these large red pitchers was related to their food storage function. This is suggested by their enormous size and the shape of their base, which must have a type of base to support it. Hypothetically, it is thought that its support could have been a type of basket ((Figure 25)). A recent study on the form and use of the Monte Alto Rojo vessels shows that there were carbonized seeds of cacao, maize, chili, amaranth, avocado, beans, jocote and ayote inside (Rodríguez 2019: 874). On the other hand, the existence of six variants of its shape is mentioned: bottle, amphora, cylinder, globular bell, bell and gourd (Ibid. 873). The interesting thing is to see that their morphology changed and appeared in different contexts, so we could think that they were manufactured for specific tasks. In our examples from Mound C-IV-4 their presence was constant both in the plaza related to the canals and also in the domestic deposits near the mound. Based on this we can assume that the shapes and sizes could correspond to specific purposes. Making comparisons of the shape modes, our specimens correspond to the descriptions of San Jorge (Popenoe 1997), although there are also longer and straighter necks, the shape of the rims is much more everted, and the position of the punched and fillet decoration was more varied. It is possible that these vessels were used to store the products that were processed in this sector and that at the time of the closure of the channels were used as part of the filling ((Figure 25)).

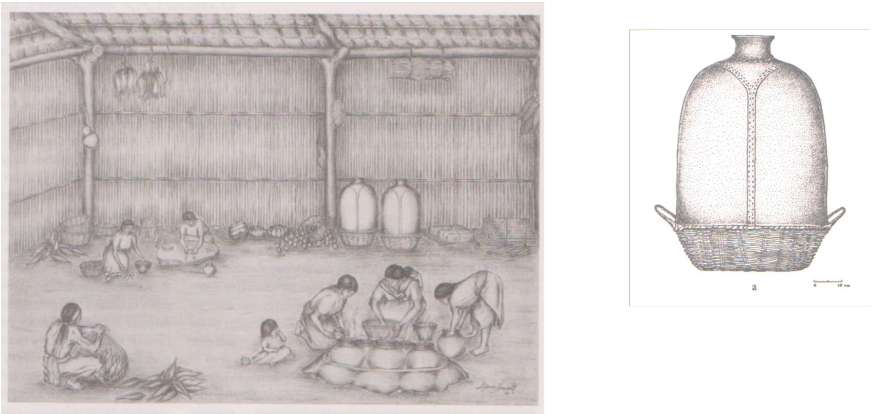

**Figure 25:** Hypothetical reconstruction of a Preclassic kitchen from Mound A-VI-5, showing the Monte Alto Rojo vessels in the background (Popenoe 1997).

Other types of pottery had different functions, to contain water, to cook, to serve, among many other specialized activities. Ceramic production also involved other activities of a religious nature, since there were also other types of vessels made to be used as offerings, gifts, containers or relics. Sites such as Joya de Cerén in El Salvador, are a good example of research, since the remains left after the volcanic eruption that buried the site allowed observing evidence of daily life, agricultural activities and their way of life (Toledo et. al. 2017). Within domestic areas, vessels were found that still contained remains of cocoa seeds among others.


**Figure 26:** Ceramic specimens Monte Alto Rojo from Mound C-IV-4.

During the Preclassic (1100 B.C.-A.D. 100), but especially during the Verbena-Arenal phases (400 B.C.-A.D. 100), the site evidenced a large increase in population, strong construction activity and material remains that speak of the multiple activities that took place in the different architectural complexes. From the first investigations (Villacorta 1927; Kidder et al. 1946; Shook and Kidder 1952; Gall 1961) to the excavations carried out at the end of the 1990's onwards (Román 1993; Robles 1994; Valdés 1994-1995; Valdés and Popenoe 1996, Popenoe 1996-1997), several areas of activity were discovered, always associated with an important element, water. Lake Miraflores was the basis for the development of their society, the constructive activity was thought

around it, for its management and use within the big city. This is why Barrientos (1997; 2000) defines Kaminaljuyu as a hydraulic society that exploited this resource and the natural topography of the valley.

If we think of this society that based its economy on agricultural production, we must also imagine a series of conditions that must have been met. The elaboration and use of pottery was fundamental in the last stages of the process, as a necessary tool for transporting, storing and cooking. In the archaeological reports of the excavations at the site, the presence of hearths and dumps or deposits in different domestic areas is constantly mentioned, mostly related to the hydraulic constructions and the lake that, as we have already said, played a preponderant role in their society. Around the mounds hearths associated with complete vessels, ceramics and waste of domestic materials (López and Martínez 1992; Robles 1994; Valdés 1994-1995; García and Castillo 2015; Arroyo and Ajú 2015; García 2017). Kaminaljuyu was a site known in its beginnings for the pattern of its burials, the tomb of mound E-III-3 with large ceramic offerings, obsidian, among other high quality artifacts is well known. Other contexts have also been defined as ritual deposits of initiation or termination of certain important events, referring that the society of this site had the constant custom of making this type of dedications in critical or relevant moments of its history (Shook and Kidder 1952; Velásquez 2005; Ajú et al. 2013: 184; Estrada and Álvarez 2015).

However, we must also think about the evidence of the daily life that is found and their way of life. For this we also have several references on the use and administration of water for their use and also for their agricultural system. Food production zones, specialized workshops and areas of common life have been identified in their plazas and structures (Valdés and Popenoe 1996; Popenoe 1996, 1997; Escobedo et al. 1994; Popenoe 1997; De León and Alonzo 1995; Carpio and Chavarría 2012). These results gave way to the investigation of communal kitchens or domestic areas, in which still-preserved remains of avocado seeds, cacao, squash, corncobs , among others, have been found (Hermes and Velásquez 1996; Popenoe 1997; García 2017), especially in the Late Preclassic (Gutiérrez 1998: 3). This suggests that several spaces and sections of the site were used for food processing and shelter by the large concentration of pitcher sherds for example from the Monte Alto Rojo wares already mentioned (Popenoe 1997), in addition to others such as Sumpango, Terra and Navarro.

**Figure 27:** Specimen of Black Coffee ceramic, the shape corresponds to the representation of a pumpkin.

The study of agricultural systems is not only restricted to the identification of canals, cultivation areas and irrigation mechanisms, but also to the study of the foods that were sown and harvested. Although they are organic elements whose decomposition is imminent, as we have already mentioned, on some occasions minimal remains have been found that have provided new perspectives of what was produced thousands of years ago. Thanks also to the investigation of the vessels, since they are containers of the products they consumed, important information has been obtained. Iconographic, epigraphic studies, and studies of the remains inside the vessels indicate the presence of Mesoamerican foods, cacao, chili, maize, squash, among others (Flannery 1976; Stuart et al. 2005; Venegas 2018; Mirón 2014; García 2017) ((Figure 27)).

The ceramic analysis was conducted in two stages. The material found in the mound and what was found in the hydraulic canals of the plaza. It was a significant sample of more than approximately 60,000 sherds from the Middle and Late Preclassic period (Garcia 2017), of which 10 local utilitarian wares

and 14 fine wares were identified according to Popenoe's (1997) typology. According to the analysis of the material, it was determined that the construction of the main canal may have been carried out during the Providencia phase (650-400 BC), in order to conduct water from Lake Miraflores to the open plaza. The other important moment is the closing of the same canal in the following Verbena phase (400-200 B.C.), which is marked by a moment of transformation towards a new stage that reached up to the Arenal phase (200 B.C.-100 A.D.).

In summary, the area of this mound was in use for approximately 700 years, during the phases mentioned as Providencia, Verbena and Arenal, although its occupation continued until the Early Classic (250 A.D.), due to the erosion caused by the modern constructions of the XX century, it was not possible to define any clear trait, although thanks to the ceramics of this phase we can at least suggest that the mound was also occupied in later times. What is interesting is a large deposit of prismatic and irregular blades (Carpio and Chavarría 2012), whose analysis indicated that they were finished tools used for some activity such as food preparation, cutting vegetables, wood or meat. On the northeast and southwest side of the mound, two hearths were found where extensive and dense layers of ceramics were raised associated with the burning area where abundant charcoal was recovered. The hearths were rectangular in shape with a base of burnt clay, there were fossilized remains of corn stools, as well as charcoal, animal bones, ceramic fragments, reused hands and grinding stones. As mentioned by Barba and Ortiz (1992), there are universal patterns that evidence activities such as cooking or eating, since they impregnate the soil with various organic elements.

Bottles have also been present as another form of product storage. Most are dated to the Las Charcas (1000-650 B.C.) and Providencia (650-400 B.C.) phases, however the jar found in mound C-IV-4 is dated to the Arenal phase (200 B.C.-100 A.D.), due to the presence of some sherds. According to Marroquín (2006: 94), many were left empty and others were filled with sterile soil or garbage that accumulated.

The ceramics associated with traces of perishable dwellings associated with the canals indicate that they were intended for domestic tasks related to the use of water and what was processed or worked in this sector, according also to the evidence of the obsidian deposit.

The different domestic spaces with their associated materials lead us to think about the interpretation of what could be the metate/fogón/comal system (Rodríguez 2013: 381), whose ultimate purpose is the production of food, a basic human need. The kitchen is currently perceived as an intimate space where the members gather around the hearth that is the warmth of the home (García 2022: 17-33), hence its importance that since primitive history was present, with the use of the three-stone system and that was developed in different ways (Flouest 2007). On the other hand, the so-called "comal" can be the subject of an extensive study, since some claim that these appeared until the Late Classic horizon. However, Kaminaljuyu is a good example of their presence since the Middle Preclassic (Popenoe 1997; Castillo 1994; García 2017; Fournier 1998).

The comales are included for Kaminaljuyu within the ware known as Terra (Popenoe 1997) ((Figure 28)), its name is precisely due to its features. A rather coarse paste and a surface without engobe and only smoothed, on its surface we can still observe the marks and fine lines of this process, possibly made with some kind of cloth. Its basic shape would be that of a flat or flat plate of circular shape, its edges are curved with a rounded or thickened lip on the outside. In some specimens there is a groove on the outside of the rim. Sometimes it presents perforations of one or two. According to the ceramics and context it is dated to the Providencia phase, a complete but fragmented comal was found at the bottom of the main channel of mound C-IV-4. Its shape evolves over time, in the Arenal phase the edges are much more raised and have solid tubular handles that were probably to hold the comal.

For the Early Classic (250-500 A.D.) the Prisma ware appears in Kaminaljuyu with short walls and triangular handles that may have a perforation or a depression, a form that continued until the Late Classic (500-900 A.D.) (Popenoe 1997: 133; Arroyo and Paiz 2010: 182) The form reaches into the Postclassic and there are beautiful specimens throughout the Highlands with handles that are even decorated with zoomorphic styles (Nance 1996; Borgstede 2012), a form that we would call pan today and that at this time were also used as a type of incense burner called sahumerio (Laporte 2008: 11-36).

Today when we refer to a comal, we quickly think of cooking tortillas made from corn. However, we have no evidence of its preparation in the Preclassic, however, we know that its name also indicates the fact that its creation was intended for exposure to fire, i.e. a cooking plate, which can be clearly seen

in the dark spots on the outside of its base, which is a constant feature in each of the pieces. Therefore, although it was not a comal as we might think today, we know that if it was used for the processing of some food always over a fire (for roasting, grilling, etc.) (Popenoe 1997, Arroyo and Paiz 2010: 182).


**Figure 28:** Comales found in the excavations of the channel of mound C-IV-4.

The Sumpango ware is also an important part of the domestic ceramics of Kaminaljuyu and the Highlands in general. It was better known as Red Polished on Suede, so called by Edwin Shook (1999), and renamed by Popenoe as Sumpango (1997) ((Figure 29)). However, this same tradition is also mentioned in other sites from the Middle Preclassic, Las Charcas phase, such as the Naranjo site located 3 km north of Kaminaljuyu. The specimens from this site include a variety of designs whose iconography denotes religious and cognitive ideas (De León 2008: 181).

During the Providencia phase this pottery becomes very common throughout the site and includes various forms of bowls, plates and pitchers. Most of the forms found in Mound C-IV-4 correspond to pitchers of different sizes and shapes of necks and rims. Their constant presence in the domestic areas associated with the hearths indicates that they were used for cooking and serving. Their exterior surface indicates this, since the specimens were found burned on the exterior. In addition to the pitchers, other forms of bowls were found associated with the main channel as offerings at the time of its closure. That is, these ceramics fulfilled different functions that can be defined according to their context, some were dedicated to special offerings, they could also have had the function of service in the case of the variety of plates and open bowls. Those with some iconography mostly present aquatic designs or shapes of birds and other animals also related to water, which was a primordial element for the Kaminaljuyu society.

**Figure 29:** Specimens of red ceramic on buff or Sumpango from Mound C-IV-4.

**Conclusions**

Revolving around Lake Miraflores, during the Preclassic period in Kaminaljuyu the ancient population of the city carried out extensive works that included the construction of canals as hydraulic elements. These have been located to the south of the site -named Miraflores, San Jorge and Mirador-, which were used to irrigate large agricultural areas. Their construction and maintenance undoubtedly meant a great deal of work, with the population taking an active role in keeping them functioning effectively. It is possible that there were organized groups of people for this purpose. There is evidence of these canals not only for agricultural purposes, but also in other housing sectors, which together made up a system of hydraulic management system that encompassed the different areas of activity. The construction objectives of these systems responded to pressing needs and depended on the sectors in which they were located. the sectors in which they were located, for example, housing, residential, ceremonial, and agricultural fields, food and product processing areas, which encompassed a variety of activities aimed at the proper functioning of the economy and sustainability of Kaminaljuyu's society. The botanical, ceramic and constructive evidences found in the various excavations carried out over the years show us an advanced organization in which the different groups and families fulfilled their role for the good balance of the economic policy of the site. These activities and water management systems allowed the development of a great city that was the most important in the Valley of Guatemala in ancient times.

REFERENCES

Ajú, Gloria, Andrea Rojas, Emanuel Serech, Javier Estrada, Maria Reneé Jerez, Rony López y Barry Brillantes

2013 Excavaciones en La Palangana. En *Informe Final Zona Arqueológica Kaminaljuyu, Temporada 2013*, Tomo I (editado por B. Arroyo), pp. 8-28. Informe presentado al Instituto de Antropología e Historia.

Alvarado Najarro, Silvia

2011 *Análisis funcional de las reservas de agua en Cancuen*. Tesis de Licenciatura en Arqueología presentada a la Universidad de San Carlos de Guatemala. Guatemala.

Arroyo, Bárbara y Gloria Ajú

2015 *Informe Final Zona Arqueológica Kaminaljuyu, Temporada 2015*. Informe presentado al Instituto de Antropología e Historia de Guatemala.

Arroyo, Bárbara y Lorena Paiz

2010 Cerámica. En *Entre Cerros, Cafetales y Urbanismo en el Valle de Guatemala*, Proyecto de Rescate Naranjo. Academia de Geografía e Historia de Guatemala (editado por B. Arroyo), pp. 103-183. Publicación Especial No. 47. Guatemala.

Barrientos Q., Tomás

1997a *Desarrollo evolutivo del sistema de canales hidráulicos en Kaminaljuyu***.** Tesis de Licenciatura, Facultad de Ciencias Sociales, Departamento de Arqueología, Universidad del Valle de Guatemala.

1997b Evolución tecnológica del sistema de canales hidráulicos en Kaminaljuyu y sus implicaciones sociopolíticas. En *X Simposio de Investigaciones Arqueológicas en Guatemala, 1996* (editado por J.P. Laporte y H. Escobedo), pp.61-69. Museo Nacional de Arqueología y Etnología, Guatemala.

1999 Interpretaciones para una sociedad hidráulica en Kaminaljuyu Miraflores. En ***Utz'ib*** Vol. 2 (6). Pp.16-23. Asociación Tikal. Guatemala.

2000 Kaminaljuyu: ¿Una sociedad hidráulica? En *XIII Simposio de Investigaciones Arqueológicas en Guatemala, 1999* (editado por J.P. Laporte, H. Escobedo, B. Arroyo y A.C. de Suasnávar), pp.21-41. Museo Nacional de Arqueología y Etnología, Guatemala.

Barba, Luis y Agustín Ortiz

1992 Análisis Químico de Pisos de Ocupación: Un caso Etnográfico en Tlaxcala, México. En *Latin American Antiquity*. Vol. 3, No. 1. pp. 63-82. México.

Borgstede, Greg

2012 Late Postclassic Period Ceramics of the Western Highlands, Guatemala. En *Maya Archaeology 2*, (editado por C. Golden, S. Houston y J. Skidmore), pp. 104-115. Precolumbia Mesoweb Press, San Francisco.

Bustamante, Eduardo

2013 PARR T-02. En: *Proyecto de Rescate Arqueológico Rouss*, Calzada Roosevelt 12-76, zona 7, Guatemala. Pp. 179-186. Editado por Cristopher Martínez. Informe presentado al Departamento de Monumentos Prehispánicos (DEMOPRE), Guatemala.

Carpio, Edgar y Mónica Chavarría Crespo

2012 Análisis de los artefactos de obsidiana del sector C-IV-4 de Kaminaljuyu. *Informe entregado al Proyecto Arqueológico Montículo C-IV- 4 de Kaminaljuyu*. Guatemala.

Castillo, Donaldo

1994 La evolución de la cerámica en Kaminaljuyu: Comales y cántaros a través de 1500 años de su desarrollo. En *I Simposio de Investigaciones Arqueológicas en Guatemala, 1987* (editado por J.P. Laporte, H. Escobedo y S. Villagrán), pp.17-19. Museo Nacional de Arqueología y Etnología, Guatemala.

Davis-Salazar, Karla

2003 Late Classic Maya water management and community organization at Copan, Honduras. En Latin American Antiquity. Volumen 14, No. 3, pp. 275-299.

De León, Francisco y Juan Alonzo

1995 Excavaciones en el Sector 1. Informe Final. *Archivo del Proyecto Arqueológico Kaminaljuyú Miraflores II*. Capítulo II. Informe presentado al Departamento de Monumentos Prehispánicos (DEMOPRE), Guatemala.

De León, Francisco y Juan A. Alonzo

1996 Lago Miraflores, núcleo de actividad humana de Kaminaljuyu. En *IX Simposio de Investigaciones Arqueológicas en Guatemala, 1995* (editado por J.P. Laporte y H. Escobedo), pp.371-377. Museo Nacional de Arqueología y Etnología, Guatemala.

De León, Mónica

2008 La cerámica Rojo Sobre Ante del Preclásico Medio en el sitio Naranjo, Guatemala. En *XXI Simposio de Investigaciones Arqueológicas en Guatemala, 2007* (editado por J. P. Laporte, B. Arroyo y H. Mejía), pp.178-197. Museo Nacional de Arqueología y Etnología, Guatemala.

Del Águila, Patricia

2009 Kaminaljuyu: Rutas de comercio y ritos funerarios. En *Kaminaljuyu: Edición especial*. Pags. Editado por: H. Sacor, P. Del Águila, pp. 25-40. Instituto de Antropología e Historia, Departamento de Monumentos Prehispánicos y Coloniales. Serie de Estudios Arqueológicos 5. Guatemala, C. A.

Díaz García, Mauricio Roberto

2016 *La plaza al sur del Montículo C-IV-4 de Kaminaljuyu: un ejemplo de manejo hidráulico durante el Preclásico Medio y Tardío.* Tesis de Licenciatura presentada a la Escuela de Historia. Universidad de San Carlos de Guatemala. Guatemala.

Escobedo, Héctor, Mónica Urquizú y Jeanette Castellanos

1994 Excavaciones en el sector A del Proyecto Arqueológico Miraflores II. En *Reporte arqueológico del Proyecto Miraflores II*, (editado por J. Valdés). Informe presentado al Instituto de Antropología e Historia de Guatemala.

Estrada, Javier y Josué Álvarez

2015 Excavaciones en el Montículo E-III-3. En *Informe Final Zona Arqueológica Kaminaljuyu, Temporada 2015* (editado por B. Arroyo y G. Ajú), pp. 196-258. Informe presentado al Instituto de Antropología e Historia de Guatemala.

Fialko, Vilma

2000 Recursos hidráulicos en Tikal y sus periferias. En *XIII Simposio de Investigaciones Arqueológicas en Guatemala, 1999* (editado por J.P. Laporte, H. Escobedo, B. Arroyo y A.C. de Suasnávar), pp.556-565. Museo Nacional de Arqueología y Etnología, Guatemala.

Flannery, Kent (ed).

1976 The early formative household cluster on the Guatemalan Pacific Coast. In: *The early Mesoamerican Village. Studies in archeology*. Academic Press New York, pp. 31-34. USA.

Flannery, K. V. Winter, M.

1976 Analyzing household activities. En *The early Mesoamerican village* (editado por Flannery K.), pp. 34-47, New York: Academic Press.

Flouest, A. y Romac, J.P.

2007 *La cocina neolítica y la cueva de La Molle-Pierre*. España: TREA.

Flores, Rosa María

2005 *Informe final Proyecto de rescate arqueológico, Montículo C-IV-4.* Informe presentado al Instituto de Antropología e Historia. Guatemala.

Fournier, P.

1998 *El complejo nixtamal/comal/tortilla en Mesoamerica*. Boletín de Antropología Americana, 32, 13- 40.

Jacobo, Álvaro

1992 Resultados preliminares de las excavaciones de rescate arqueológico en el área sur de la laguna El Naranjo, Kaminaljuyu. En *V Simposio de Investigaciones Arqueológicas en Guatemala, 1991* (editado por J.P. Laporte, H. Escobedo y S. Brady), pp.26-37. Museo Nacional de Arqueología y Etnología, Guatemala.

Kidder, Alfred, Jesse Jennings y Edwin Shook

1946 *Excavations At Kaminaljuyu, Guatemala*. Carnegie Institution of Washington. Publicación 561. Washington, Estados Unidos de América.

Gall Atlas, Francis

1961 *Diccionario Geográfico Nacional. Instituto Geográfico Nacional de Guatemala*, Guatemala.

García, Dora Maritza y Donaldo Castillo

2015 La evidencia cerámica del montículo C-IV-4 Kaminaljuyu durante el Preclásico Tardío. En *XXVIII Simposio de Investigaciones Arqueológicas en Guatemala, 2014* (editado por B. Arroyo,L.Méndez Salinas y L. Paiz), pp. 809-822. Museo Nacional de Arqueología y Etnología, Guatemala.

García Patzán, Dora Maritza

2017 *Áreas de actividad en el Montículo C-IV-4 del sitio arqueológico Kaminaljuyu: evidencia cerámica y revisión cronológica del Preclásico Tardío*. Tesis de licenciatura en arqueología, Escuela de Historia, Universidad de San Carlos de Guatemala, Guatemala.

2022 Manjares tradicionales de San Martín Jilotepeque, Guatemala. En *The Mayanist*. Vol. 3, No. 2. Pp. 17-33.

Gutiérrez Mendoza, Edgar

1989 *Cocinas comunales asociadas con agricultura intensiva (sistema de irrigación) en el sitio arqueológico Kaminaljuyu/San Jorge, Guatemala*. Tesis previa a optar el grado de Licenciatura en Arqueología, presentada a la Escuela de Historia de la Universidad de San Carlos de Guatemala. Guatemala, C. A.

Gómez Rueda, Hernando

1995 Exploración de sistemas hidráulicos en Izapa. En VIII Simposio de Investigaciones Arqueológicas en Guatemala, 1994 (editado por J.P. Laporte y H. Escobedo), pp.6-16. Museo Nacional de Arqueología y Etnología, Guatemala.

Gutiérrez Mendoza, Edgar

1989 Cocinas comunales asociadas con agricultura intensiva (sistema de irrigación) en el sitio arqueológico Kaminaljuyu/San Jorge, Guatemala. Tesis previa a optar el grado de Licenciatura en Arqueología, presentada

a la Escuela de Historia de la Universidad de San Carlos de Guatemala. Guatemala, C. A.

Hermes, Bernard y Juan Luis Velásquez

1996 El complejo cerámico Majadas de Kaminaljuyu. En *IX Simposio de Investigaciones Arqueológicas en Guatemala, 1995* (editado por J.P. Laporte y H. Escobedo), pp. 393-403. Museo Nacional de Arqueología y Etnología, Guatemala.

Ivic de Monterroso, Matilde y Carlos Alvarado Galindo

2004 *Kaminaljuyú. Informe de las excavaciones realizadas en el Parque Kaminaljuyú*, Guatemala, de julio 2003 a febrero 2004. Primera edición. Centro editorial Vile. Guatemala, C.A.

Kidder, Alfred, Jesse Jennings y Edwin Shook

1946 *Excavations At Kaminaljuyu, Guatemala*. Carnegie Institution of Washington. Publicación 561. Washington, Estados Unidos de América.

Laporte, Juan Pedro

2008 Humo, Humareda, Humazón: Análisis Regional de los Fragmentos de Incensarios de una amplia zona de Petén. Utz'ib 4(4):11–36.

López, Roberto F. y Gustavo Martínez Hidalgo

1992 Excavaciones en el Montículo A-IV-2, Kaminaljuyu, Guatemala. En *V Simposio de Investigaciones Arqueológicas en Guatemala, 1991* (editado por J.P. Laporte, H. Escobedo y S. Brady), pp.1-8. Museo Nacional de Arqueología y Etnología, Guatemala.

Manzanilla, Linda

1986 *Unidades Habitacionales Mesoamericanas y sus áreas de actividad*. UNAM, México.

Martínez, Cristopher

2013 *Proyecto de Rescate Arqueológico Rous*, Calzada Roosevelt 12-76, zona 7 Guatemala. Informe presentado al Departamento de Monumentos Prehispánicos y Coloniales. Guatemala.

Marroquín Álvarez, Elizabeth

2007 *El sistema hidráulico de Tak'alik' Ab'aj, evidencia de canales de desagüe y abastecimiento*. Tesis de licenciatura presentada a la Escuela de Historia de la Universidad de San Carlos de Guatemala. Guatemala.

Marroquín, Franco, Luz Midilia

2006 *Los Botellones en el valle central de Guatemala: rasgos y contextos*. Tesis de Licenciatura, Escuela de Historia, Universidad de San Carlos de Guatemala.

Martínez Paiz, Horacio

2004 *Proyecto Arqueológico de Rescate Jardines del Acueducto*, Informe Final. Presentado al Instituto de Antropología de Historia de Guatemala. Guatemala.

Mirón Marván, Esteban

2014 *Las prácticas culinarias y sus recipientes cerámicos en la región de Palenque y Chinikihá durante el Clásico Tardío.* Tesis de licenciatura en Arqueología. Escuela Nacional de Antropología e Historia INAH, México.

Nance, Roger C

1996 *The Guillemin Ceramic Collection From Iximché*, *The Cakchiquel Capital In Highland Guatemala*, Guatemala.

Navarrete, Carlos y Luis Luján

1986 *El gran Montículo de la Culebra en el Valle de Guatemala*. Universidad Nacional Autónoma de México. Dirección General de Publicaciones. México.

Padilla, Liliana

2011 *Proyecto Arqueológico de Rescate Jordán,* 3ra calle "A" 12-23, zona 7, Quinta Samayoa, Guatemala. Informe presentado al Departamento de Monumentos Prehispánicos (DEMOPRE), Guatemala.

Paredes, Federico, Margarita Cossich, Diana Belches, Jonathan Kaplan y Juan Antonio Valdés

2005 Un sistema de manejo de aguas en el Grupo Norte de Chocola, Suchitepéquez. En *XVIII Simposio de Investigaciones Arqueológicas en Guatemala, 2004* (editado por J.P. Laporte, B. Arroyo y H. Mejía), pp.947-954. Museo Nacional de Arqueología y Etnología, Guatemala.

Pérez, Carlos

2009 Estructura geológica del valle de la ciudad de Guatemala, interpretada mediante un modelo de cuenca por distensión. En *Revista Geológica de América Central,* No. 41, pp. 71-78. Universidad de Costa Rica, Costa Rica, C. A.

Ponciano, Erick M.

2000 La concepción de Kaminaljuyu como una ciudad en el Altiplano Central del valle de Guatemala durante el periodo Formativo. En *XIII Simposio de Investigaciones Arqueológicas en Guatemala, 1999* (editado por J.P. Laporte, H. Escobedo, B. Arroyo y A.C. de Suasnávar), pp.1-7. Museo Nacional de Arqueología y Etnología, Guatemala.

Ponciano, Eric y Carolina Foncea

2006 Investigaciones Arqueológicas y de Rescate del Montículo D-III-10, Kaminaljuyu, Guatemala. En *Kaminaljuyu: Edición especial*. Editado por H. Sacor, P. Del Águila, pp. 41-84. Instituto de Antropología e Historia, Departamento de Monumentos Prehispánicos y Coloniales. Serie de Estudios Arqueológicos 5. Guatemala, C. A.

Popenoe de Hatch, Marion

1996 *Informe de trabajo No. 21, Proyecto Kaminaljuyu Miraflores II*. Informe presentado al Instituto de Antropología e Historia de Guatemala.

1997 *Kaminaljuyu/San Jorge: Evidencia arqueológica de la actividad económica en el valle de Guatemala, 300 a.C. a 300 d.C*. Universidad del Valle de Guatemala, Guatemala.

Popenoe de Hatch, Marion; Erick Ponciano, Tomás Barrientos Q., Mark Brenner, y Charles Ortloff

2002 Climate And Technological Innovation At Kaminaljuyu, Guatemala. En *Ancient Mesoamerica*, 13, pp. 103–114. Cambridge University Press. Estados Unidos de América.

Rice, Don S.

1997 Ingeniería hidráulica en el centro de Petén, Guatemala. En *X Simposio de Investigaciones Arqueológicas en Guatemala, 1996* (editado por J.P. Laporte y H. Escobedo), pp.581-594. Museo Nacional de Arqueología y Etnología, Guatemala.

Rodríguez, José Ruperto

2013 *La molienda en Mesoamérica, formas, funciones, usos y manufactura de los instrumentos*. Un estudio Etnoarqueológico en México. Tesis doctoral, Universidad de Barcelona, Facultad de Geografía e Historia, Departamento de prehistoria, historia antigua y arqueología.

Rodriguez Ortíz, Henrry

2019 Resguardando la semilla: el área de almacenamiento en Kaminaljuyu. En *XXXII Simposio de Investigaciones Arqueológicas en Guatemala, 2018* (editado por B. Arroyo, L. Méndez Salinas y G. Ajú Álvarez), pp. 871-883. Museo Nacional de Arqueología y Etnología, Guatemala.

Román, Otto

1993 Hallazgos Preclásico Medio en Kaminaljuyu. En *III Simposio de Investigaciones Arqueológicas de Guatemala, 1989* (editado por J.P. Laporte, H. Escobedo y S. Villagrán), pp. 175-181. Museo Nacional de Arqueología y Etnología, Guatemala.

Robles, María Teresa

1994 Montículo A-VI-5, Kaminaljuyu. En *I Simposio de Investigaciones Arqueológicas en Guatemala, 1987* (editado por J.P. Laporte, H. Escobedo y S. Villagrán), pp. 5-8. Museo Nacional de Arqueología y Etnología, Guatemala.

Schávelzon, Daniel y Víctor Rivera

1984 *Kaminaljuyu: el proceso de destrucción de un sitio arqueológico en Guatemala*. Ed. V. Rivera G. Recuperado de: http://www.danielschavelzon.com.ar/?p=1414

Scarborough, Vernon

1998 Ecology and ritual: Water management and the Maya. En *Latin American Antiquity,* Volume 9, No. 2. Pp. 135-159.

Scarborough, Vernon, Matthew Becher, Jeffrey Barker, Garry Harris y Fred Valdez, Jr.

1995 Water and land at the Ancient Maya community of La Milpa. En *Latin American Antiquity*, Vol. 6, No. 2, pp. 98-119. Society for American Archaeology.

Stuart, David, Barbara Macleod, Yuriy Polyukhovich, Stephen Houston, Simon Martin, Dorie Reents-Budet

2005 *Glyphs on Pots, Decoding Classic Maya Ceramics* – Sourcebook for the 29th Maya Meetings at Texas, Austin: University of Texas Press

Shook, Edwin y Alfred Kidder

1952 *Mound E-III-3, Kaminaljuyu, Guatemala*. Contributions to American Anthropology and History, Vol. 11. Pub. 596. Carnegie Institution, Washigton, D.C.

Shook, Edwin y Marion Popenoe de Hatch

1999 Las Tierras Altas Centrales: Períodos Preclásico y Clásico. En *Historia General de Guatemala* (editado por J. Luján y M. Popenoe), pp. 264-300. Asociación de Amigos del País, Fundación para la Cultura y el Desarrollo.

Toledo, Michelle, Stephenie Aguilar, Gabriel Lozano, Laura Sermeño

2017 *Almacenamiento prehispánico de una aldea maya: análisis de material cerámico procedente de Joya de Cerén, El Salvador*. Universidad Tecnológica de El Salvador. Revista Entorno núm. 64.

Valdés, Juan Antonio

1994 *Informe de trabajo No. 2 y 3, Proyecto Kaminaljuyu Miraflores*. Informe presentado al Instituto de Antropología e Historia de Guatemala.

1995 *Informe de trabajo No. 4, 5, 6, 7, 11 y 12, Proyecto Kaminaljuyu Miraflores*. Informe presentado al Instituto de Antropología e Historia de Guatemala.

1997 El proyecto Miraflores II dentro de marco Preclásico de Kaminaljuyu. En *X Simposio de Investigaciones Arqueológicas en Guatemala, 1996* (editado por J.P. Laporte y H. Escobedo), pp.80-91. Museo de Arqueología y Etnología de Guatemala.

Valdés, Juan Antonio y Marion Popenoe de Hatch

1996 Evidencias de poder y control social en Kaminaljuyu: Proyecto Arqueológico Miraflores II. En *IX Simposio de Investigaciones Arqueológicas en Guatemala, 1995* (editado por J.P. Laporte y H. Escobedo), pp.341-359. Museo Nacional de Arqueología y Etnología, Guatemala.

2006 Water Management at Kaminaljuyu: The beginnings of Power and Ideology in the Guatemalan Higlands. En *Precolumbian Water Management: Ideology, ritual and power.* (Edit by: L. Lucero y B. Fash). The University of Arizona Press. Estados Unidos de América.

Valdés, Juan Antonio; Juan P. Herrera, Marco A. Valladares, Andrea Tobar y Ma. Belén Méndez

2006 *Proyecto de rescate El Rodeo*. Informe final presentado al Instituto de Antropología e Historia. Guatemala.

Valle, Judith

2007 Rescate arqueológico en el Montículo de La Culebra y el Acueducto de Pinula: Dos montículos en agonía. En *XX Simposio de Investigaciones Arqueológicas en Guatemala, 2006* (editado por J. P. Laporte, B. Arroyo y H. Mejía), pp. 1021-1035. Museo Nacional de Arqueología y Etnología, Guatemala.

Velásquez, Juan Luis

1993 Un entierro dedicatorio a finales del Preclásico Medio en Kaminaljuyu, Guatemala. En III Simposio de Investigaciones Arqueológicas en Guatemala, 1989 (editado por J.P. Laporte, H. Escobedo y S. Villagrán), pp.165-174. Museo Nacional de Arqueología y Etnología, Guatemala.

2005 Análisis de la cerámica. En *Informe final Proyecto de Rescate Arqueológico, Montículo C-IV-4*, (editado por R. Flores). Informe presentado al Instituto de Antropología e Historia d e Guatemala.

Venegas, Benito Jesús

2018 Los contenedores de alimentos durante el Clásico Maya: Nuevos aportes desde el campo de la arqueobotánica, la paleoetnobotánica y la epigrafía, para comprender los procesos de elaboración de alimentos en el área maya. En *Lakamha´*, Boletín informativo del Museo de Sitio y la Zona Arqueológica de Palenque, UADY Instituto Nacional de Antropología e Historia 18(4): 9.

Villacorta Calderón, José Antonio

1927 *Arqueología Guatemalteca*. Tipografía Nacional de Guatemala. Guatemala, C. A.

Wittfogel, Karl

1957 Oriental Despotism: A Comparative Study of Total Power. Sexta reimpresión. New Haven. Yale University Press. Estados Unidos.

# EPIGRAPHY & ICONOGRAPHY

# CACAO, SACRED PLANT AND ECONOMIC COMMODITY IN MESOAMERICA: FROM A RITUAL DRINK TO A CURRENCY

Iveta Puchovanová [4]

**Cacao, a crop, an origin and its conditions for grow**

Cacaco (Theobroma cacao) is a tree which grows in humid tropical regions. A cacao tree (Theobroma cacao) is relatively small, max. 8 – 10 m high with 3 to 5 branches with average diameter 6 to 7 m. ((Figure 30)) Fruits in a form of pods grow from a tree trunk. ((Figure 31)) A cacao pod is long about

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15 – 20 cm, from 5 to 12 cm in diameter. Ripe pods are in a yellow-orange colour, but can be also red-purple, based on a type. Each pod consists of 20 – 50 seeds. Cacao seeds are called cacao "beans" usually. (Millon, 1955)

The scientific name of the genus is Theobroma, which was created by Carl Linnaeus in 18th century. This word means "food for the gods", in Greek "theos" is a god, "broma" is a food. . (Millon, 1955). Actually, it is a very good meaning regarding to the role of cacao in lives of Mesoamerican´s civilizations.

There are two main varieties of Theobroma cacao, which are known like "Criollo" (native or indigenous) and "Forastero" (foreign). (Cheesman, 1944). The scientific names of these two separate subspecies are T. cacao ssp. cacao and T. cacao ssp. sphaerocarpum. (Cuatrecasas, 1964). A third hybrid group originating from crosses between Criollo and Forastero was called Trinitario. Criollo cacao was cultivated in Latin America during the pre-Columbian and colonial period, and had a higher quality than Forastero types, but with a low vigour and yield (Cheesman, 1944). There are several differences between "Criollo" and "Forastero" subspecies, especially a tase, beans of "Forastero" are more bitter. Nowadays 80% of the whole world production is a "Forestero", it is cultivated especially in Africa. "Criollo" is cultivated in South and Middle America, but a production is limited because this type is more sensitive of various dieses.

**Figure 30:** Cacao tree with cacao pods. (Photo: Shutterstock).

Theobroma cacao is not the only culturally important species of the genus Theobroma in Mesoamerica. Since prehistoric times, Theobroma bicolor also has been consumed and has been used for ritual purposes. This specie, commonly referred to as pataxte or balamte, has frequently been called "wild cacao," but it is not the closest relative of domesticated T. cacao. As the pods dry, their surface comes to resemble the pattern on a jaguar's pelt. This pattern has likely led to one of the common names for T. bicolor in Mesoamerica, balam te' (the Jaguar Tree) (McNeil, 2009, 90)

There are still some discussions about the origin and domestication of cacao (Theobroma cacao). There are several possibilities how seeds were spread to Mesoamerica, naturally with animals like monkeys, birds, bats or like already a cultivated plant.

**Figure 31:** Cacao pod on cacao tree. Botanic garden, Bratislava, Slovakia. (Photo: Iveta Puchovanova).

Some authors from 20th century stated that cacao is originally from the region of the Orinoco and Amazon basins (Van Hall, 1914), others placed its origin to the Upper Amazon near the boarder of Colombia and Ecuador, on the eastern part of the Andes (Cheesman, 1944).

The new investigations from 2018 reported cacao use identified by three independent lines of archaeological evidence (cacao starch grains, absorbed theobromine residues and ancient DNA) is dating from approximately 5,300 years ago. Evidences were recovered in the Santa Ana-La Florida (SALF) site in southeast Ecuador. These findings constitute the earliest evidence of T. cacao use in the Americas and the first unequivocal archaeological example of its pre-Columbian use

in South America. They also reveal the upper Amazon region as the oldest centre of cacao domestication yet identified. (Zarrillo, S et al., 2018)

Based on investigations made by team of Juan Carloson Motamayor about the origin of cacao there are several facts available. RFLP (Restriction fragment length polymorphism) and microsatellite analyses were performed on a sample that avoided mixing pure Criollo individuals with individuals classified as Criollo but which might have been introgressed with Forastero genes. The results proofed that the Ancient Criollo individuals represent the original Criollo group. The results also implies that this group does not represent a separate subspecies and that it probably originated from a few individuals in South America that may have been spread by man within Central America. (Motamayor et al., 2002).

A cultivation of cacao requires very special conditions. It "thrives on the deep, fertile alluvial soils of the river valleys in a shaded, heavily humid atmosphere (over 90 percent) with a heavy annual rainfall (177 cm [or more]) and a high average temperature (circa 27°C.) and with a subsoil constantly moist because of the proximity of rivers" (Millon 1955a:14).

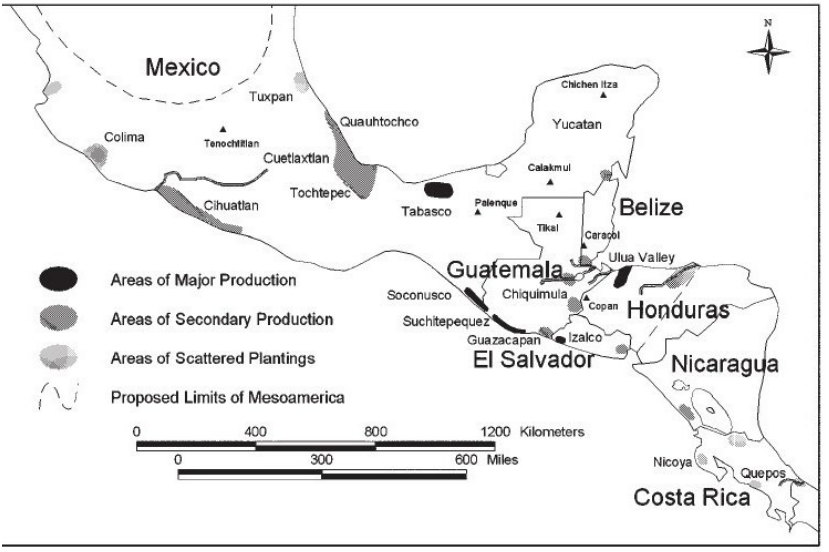


**Figure 32:** Map of Mesoamerica and Lower Central Amercia with the major cacao-growing areas. (Drawing: Marc Wolf after Bergmann, 1969, 86).

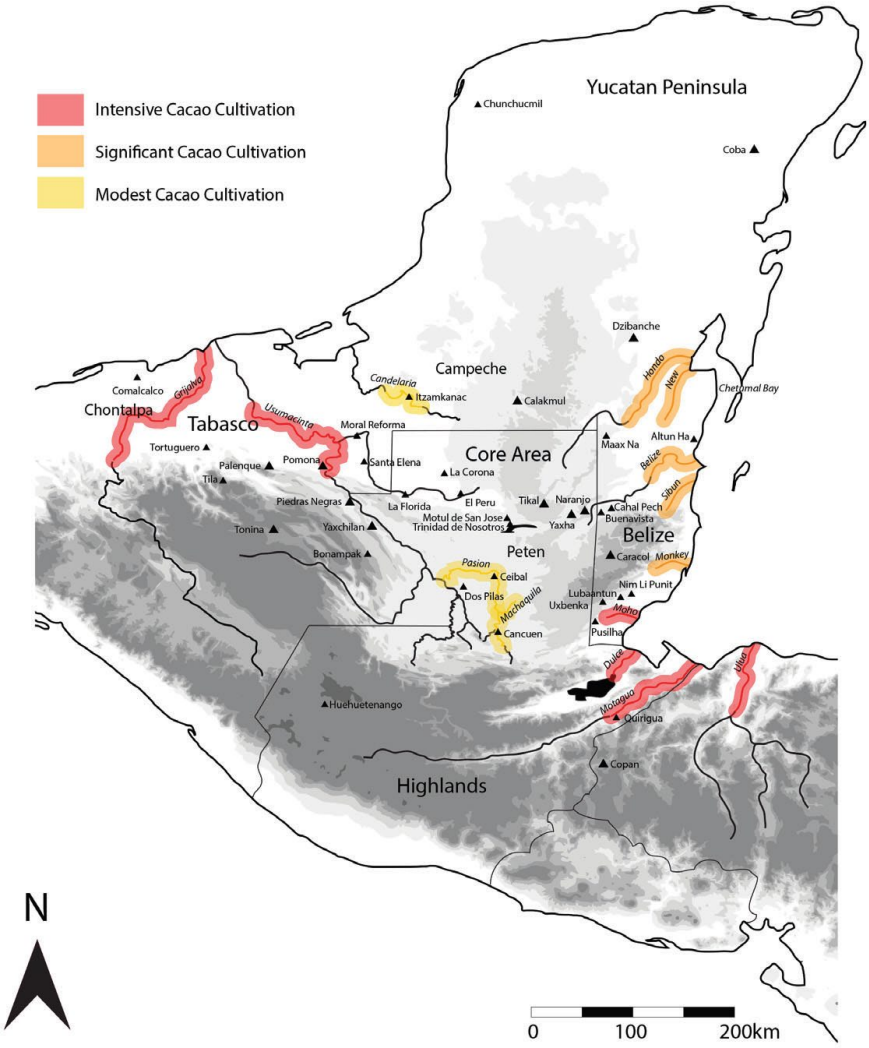


**Figure 33:** Map of areas of cacao cultivation available to Classic Maya of the southern lowlands. (Baron 2018, 7).

When the Spanish arrived on the shores of Mexico in 1519, the ideal growing areas for cacao in Mesoamerica were Tabasco, Mexico; the Soconusco region of Chiapas, Mexico, and the adjacent Pacific Coast region of Guatemala; Su-

chitepequez, Guatemala; the Ulua Valley, Honduras; and Izalco, El Salvador; with scattered secondary and tertiary centers in other parts of Mesoamerica and Central America (Bergmann 1969:86). ((Figure 32)) If we compare these areas with these ones where cacao was cultivated during Classic Maya period ((Figure 33)) we can see that there was a more extensive cultivation of cacao, even in areas where conditions were not ideal.

However, there is archaeological evidence that important Classic Maya cities tried to grow cacao, even if they did not have the most suitable conditions for it. In Tikal, not only the remains of cacao beans (which could be imported), but also burnt cacao wood were identified. (Lentz 2014, 18513 – 18518). The remains of "wild" cacao trees can still be found in the forests of northern Petén.

Recently, based on the investigation of a team from Brigham Young University was announced that the wide variety of common sinkholes on the peninsula Yucatán also all have microclimates with just the right conditions for cacao growth. At the same time the Yucatan peninsula's drier climate is inhospitable for cacao growth but anyway there were found some suitable places. In a sinkhole near Coba, Mexico, the research team found remnant cacao trees growing there, making it highly possible that this sinkhole, called "Dzadz Ion," was the location of a sacred cacao grove during the Late Postclassic period (circa 1000-1400 AD). (Terry, R. E et al., 2022).

It is very important to consider where were intensive cacao cultivation areas located, where only limited cultivation was able and where it was extremely difficult. Limited growing areas for cacao heightened its value. An abundance or a lack of cacao had an impact on a perception of its value. Given the characteristics of the plant and its fruit, a harvest process of cacao is basically the same for centuries. Once flowering has occurred, a fruit goes through a ripening period that can take between four and six months. A single tree may yield up to 70 such fruits annually. It is maximum 4200 beans per each tree per year.

Another necessary condition for a cultivation of cacao is an existence of trees that provide shade, which allows an accumulation on a ground of organic matters that provides nutrients to a plant and a presence of insects that facilitate fertilization. Based on all mentioned facts it is obvious that cacao like a plant requires special conditions to grow and it is not easy to cultivate it. Its scarcity is a significant factor that affects its value.

Cacao seeds have special properties pharmacological, which include neuroactive elements, antioxidants and stimulants. More than 400 chemical elements have been identified in its composition. The best studied are three alkaloids or methylxanthines: theobromine, caffeine and theophyllinau. (Bletter y Daly, 2006: 45). These chemical elements, especially caffeine and theobromine, could have a stimulant effect, small but significant. But concentration of them don´t have effect on the central nervous system. (Smit, H. J., Gaffan, E. A., & Rogers, P. J. 2004). A stimulant effect could be an important reason that cacao became a ritual drink in Mesoamerica.

**Figure 34:** Spouted vessel no.13 which was found to contain cacao residue, dating between 600 BC and 250 AD. Colha, Belize (Hurst, 2002, 289).

Other cacao´s properties are sensory qualities and health benefits, especially due to antioxidant compounds. (Weisburger, 2001, Kim et. al, 2014). These properties create a use value of cacao which serves useful purposes and can

satisfy some human want, requirements and need. Despite these favourable utility features cacao is not a vital crop. It was not a dietary staple but we can consider it to be a food commodity because it was valued for use in ritual. (Fedick, 2017)

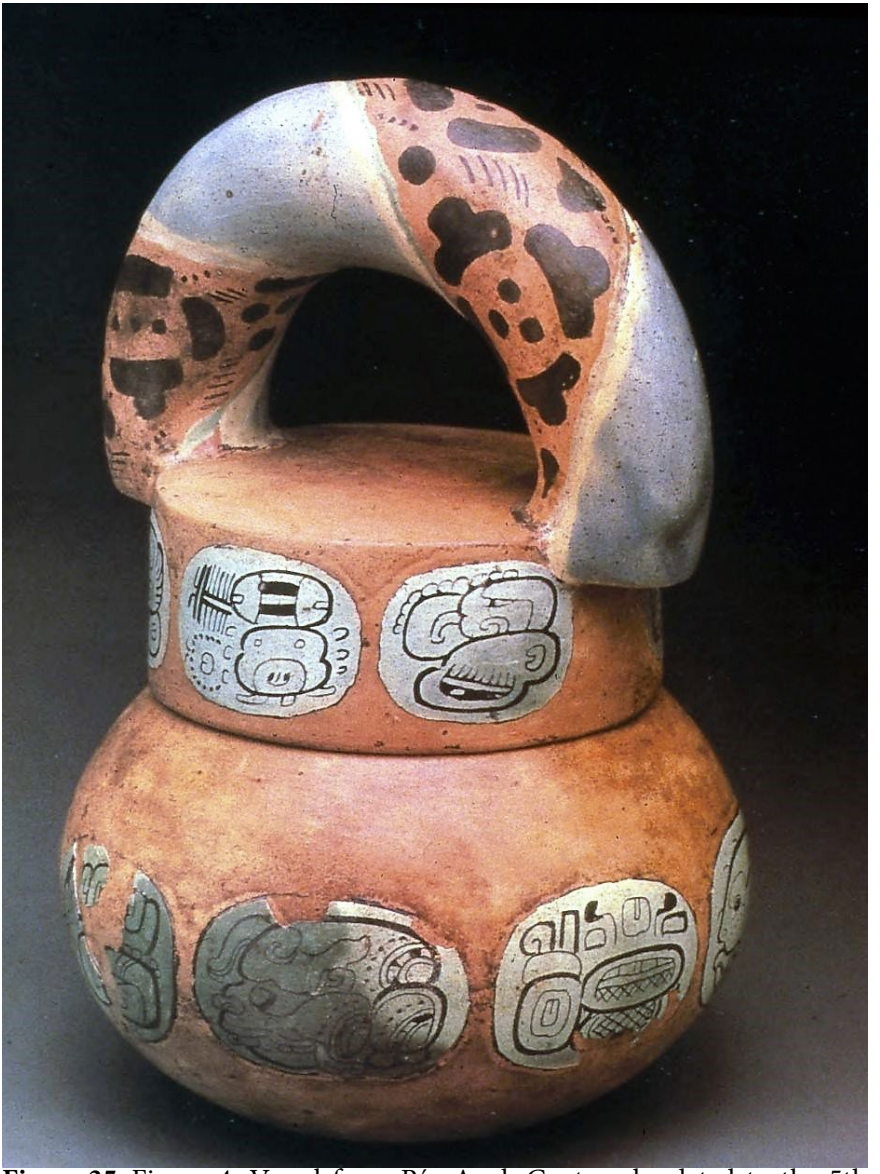

**Figure 35:** Figure 4. Vessel from Río Azul, Guatemala, dated to the 5th century AD, found in tomb 19 (photo: Justin Kerr, in "A precolumbian portfolio" digital photographic archive).

**First evidences of cacao in Mesoamerica.**

The earliest Theobroma macroremains found in Mesoamerica are charred wood fragments excavated from the site of Cuello, Belize (Miksicek 1991). They are dated to be as old as 1000–900 B.C. But Charles Miksicek (1991) notes that this wood could be from either T. cacao or T. bicolor, a close relative also used for food and beverages.

Based on research of John Henderson and Rosemary Joyce (2007) in Puerto Escondido in Honduras the presence of ceramic forms used for consuming cacao was proved. Chemical analyses of residues extracted from pottery vessels showed that cacao beverages were being made there before 1000 B.C. It refers to this area may have been one of the first ones in which cacao cultivation and also the custom of cacao drinking occurred. There is interesting also the part of the research about the change of forms of vessels which was caused probably by the change of a type of consumed drink. They argued that fermenting the fruity pulp of cacao to produce a chicha-like beverage probably preceded the use of the seeds for chocolate. Mesoamerican people may have happened onto the technique of fermenting, drying, and grinding the seeds for "chocolate" production over time. (Henderson and Joyce, 2007).

Using modern chemistry analysis, high-performance liquid chromatography coupled to atmospheric-pressure chemical-ionization mass spectrometry, it was proved the presence of cacao in ceramic vessels from the Maya archaeological site at Colha in northern Belize, Central America. Several spouted ceramic vessels contained residues from the preparation of food and beverages and show that cacao was consumed by the Preclassic Maya as early as 600 B.C. The type of a vessel which contained the peaks from the extract of the residue is the earlier Preclassic spouted jars. It is the evidence that frothing would also have been accomplished by introducing air through the spout, not only by pouring the liquid from one vessel into another. (Hurst et al. 2002) ((Figure 34))

Cacao wood charcoal dating to the same period has been found at several sites in the region (Turner, B. L., & Miksicek, C. H. 1984)., further supporting the idea that cacao drinking has its roots in the Preclassic, and indicating that this part of northern Belize may have been one of the main production areas for cacao during this period.

The regions of the Gulf Coast and the Pacific Coast inhabited by earlier civilizations of Olmec and Mokaya were shown knowing and using cacao even in Early Formative. The initial occupation of Soconusco Region at the Pacific Coast began during the Barra ceramic phase 1900 – 1700 B.C. Most of the ceramic information pertaining to the Barra phase was collected at Paso de la Amada. The common form here was the tecomate, which is a neckless jar with rounded sides and a restricted rim. (Lesure, Richard G. 1998] ) These vessels were not designed for cooking but probably for holding liquids. One specific tecomate found above Structure 4 in Mound 6 at Paso de la Amada tested positive for traces of cacao. It indicates that cacao was used by Mokaya people from Soconusco even in Early Formative period around 1900 B.C. Based on chemistry analysis also pre-Olmec people were involved in the production and consumption of liquid cacao by 1650 B.C. (Powis et. al., 2008)

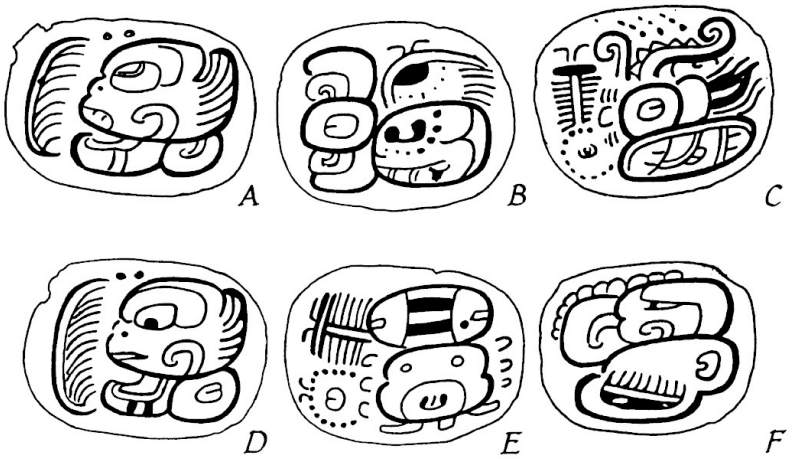


**Figure 36:** Painted hieroglyphs on vessel from Tomb 19. Rio Azul, Guatemala. (Drawing: David Stuart)

All data from mentioned studies reported use of cacao in Mesoamerica to very early periods which means that this significant crop was cultivated and use there through more than 34 centuries.

**Evidences of cacao during Early Classic Period in Maya area**

There are not very much archaeological records of cacao beans themself. It is because the tropical climate and organic nature of beans. But in spite of that there are several examples. One of them was the discovery of two well-preserved grains reported in Uaxactún, Guatemala in Tomb A-40, dated to Early Classic (300 – 600 A.D.) (Kidder, 1947: 71). It is interesting because Petén area is not suitable to grow cacao, so it was probably imported there by long-distance trade.

There is one evidence of a seed of T. bicolor recovered from a sealed late Early Classic period cache vessel at Tikal, Guatemala which was identified by C. L. Lundell (Moholy-Nagy, Haviland, and Jones 2003:95).

In 1995 a small bowl containing five cacao seeds was recovered from a burial in a remote cave in southwestern Belize, in Bats'ub Cave. The seeds were part of a complex funerary offering accompanying a decapitated individual. The burial context dates to 400 - 500 A.D., making this one of the oldest known examples of intact cacao seeds in Mesoamerica. (Prufer, K. M., & Hurst, W. J. (2007).) The maize cob was found alongside cacao which is an example of paired opposites, one of the principals of Maya cosmology. (Miller and Taube, 1997, 81). The area of Bats´ub Cave was close to areas where cacao had good conditions to grow.

There are archaeological evidences that cacao was a part of funerary offering in the royal tombs and burials of elite at Copán, Honduras, during the Early Classic. A deer effigy vessel with its hand-shaped ladle demonstrated great variability in the shapes of the containers that contained evidence of cacao. Based on analysis of 31 vases from Margarita Tomb, Hunal Tomb, Sub-Jaguar tomb and Burial 92-3 Theobroma cacao was identified in eleven of them. (McNeil, C. L., Hurst, W. J., & Sharer, R. J. (2006).


**Figure 37:** Maize God like a tree Iximté. "Maize Tree". K4331. (Photo: Justin Kerr).

The most famous Early Classic example of using cacao is a decorative "lock-top" vessel from Rio Azul. ((Figure 35)) In 1984 at the site of Rio Azul in Guatemala excavations uncovered a burial site that was later designated as Tomb 19. The tomb contained the remains of a middle-aged man and many other artifacts including fourteen pottery vessels. Archaeological evidence indicated that the vessels in Tomb 19 should be assigned to the period 460-480 A.D. during the Early Classic Period of Maya culture. The team from Hershey Foods Technical Center identified a presence of theobromine and caffeine in one of the vessels which was highly decorated with a unique lid. There were used biomarkers of theobromine for identification in cacao residue. (Hurst, W. J et al. 1989).


**Figure 38:** Maize God with cacao pods. K4331. (Drawing: Simon Martin)

This particular vase from Rio Azul is important also because of an epigraphic evidence of the word "cacao". The vessel is decorated at the handle by stripes in blue colour and by stripes with the décor of jaguar pelt. Outside parts of

the vessel contains 15 light blue oval medallions with painted hieroglyphs in black line. The text presents the format of a dedicatory formula or Primary Sequence Standard, which refers to the owner and the type of vessel, indicating its contents. The epigraphic analysis carried out by David Stuart (1988) managed to identify in this inscription the glyph for cacao, which is mentioned twice, possibly in order to describe the type of grain used in the vessel or its combination with other ingredients. ((Figure 36)) The phonetic spelling of the Maya word kakaw using the three syllabic signs *ka – ka – w(a)* and it was firstly identified by Lounsbury (1974, 114, 138).

The word for "cacao" originated in the Gulf Coast of southern Mexico, among speakers of an early Mije-Sokean language. From there it spread to the Basin of Mexico—in the form kakawa—and, separately, into Maya languages, probably, but not necessarily from Sokean. In Maya the word came to be pronounced as kakaw. (Kaufman, T., & Justeson, J. (2006).) The Mije-Sokean language family was settled in the region of the Isthmus of Tehuantepec, which would coincide with some of the most important areas of pre-Hispanic cultivation. (Lowe, L. (2016).)

**Epigraphic and Iconographic records of cacao during Maya Early Classic Period**

Cacao like an important part of Maya social life and mythology was depicted widely from Early Classic Period on different objects. There were depictions of cacao tree, pods and seeds during this period especially. Cacao drink was a part of iconography later during Late Classic Period.

It is not possible to separate a cacao depiction from Maya mythology. It was part of it and there are enough records where is possible to identify cacao in different ways but mostly with the myth of a corn and a rebirth.

There are on the small stone bowl from the Early Classic era (250–600 A.D.) from Northern Yucatan, now in the Dumbarton Oaks Collection in Washington D.C. (K4331) three roundels, each containing a figural scene accompanied by a hieroglyphic caption with additional columns of text between each roundel. ((Figure 37)) The two surviving scenes feature a male figure variously sitting or lying on a mat-decorated seat. His libs are studded with ripe cacao pods, and his skin is marked with wavy "wood" motifs. In one

scene he points to what may be a chocolate pot, in another he examines an open book. The third scene is now missing, but there are enough remains of the pods to show that it was a similar portrait. These scenes were identified by Simon Martin (2009) based on physical characteristics of a man figure —his sloping brow, tonsured hairstyle, and prominent forehead jewel—like the Maize God. ((Figure 38)) Despite of depiction of cacao pods, this is not a cacao deity as such but the familiar Maize God in as the embodiment of a cacao tree. In both surviving hieroglyphic passages the second glyph joins the head of the Maize God to the sign for TE' 'tree' (at A2, E2). A reading of IXIM was proposed for this particular portrait of the maize deity by David Stuart; *ixim/ixi'im* is the word for 'maize' in almost every Maya language spoken today. This would make the depicted figure the iximte' 'Maize God Tree' or simply "Maize Tree" with cacao pods. According to this iconographic and epigraphic depiction, cacao was part of the story of the rebirth of the maize god, which was an expression of the cycle of life and death as the basis of Maya religiosity.

This coexistence of maize and cacao is in line with another Mesoamerican concept central in Maya religious thought: a cosmological order based on the structural principle of paired opposites (Miller & Taube, 1997). These opposites are complementary rather than competing, because a balance between both partners of a pair is considered essential for the continuation of human civilisation and the periodical recreation of the world. The most important pairings include male and female, day and night, sky and earth, life and death and fire and water. These individual pairings of opposites may be grouped into complexes, with one side representing day, sun, male and fire, which is represented by maize and the other represents night, moon, female, and water represented by cacao. The opposition between field and forest is another aspect of this cosmological order. The field is an open space where sunlight reaches the ground, hence it belongs to the sun–day–light complex, whereas the cool, damp shade of the forest is associated with the complex moon–dark–night. (J. Kufer N. Grube,M. Heinrich, 2006). Maize and cacao represented for Maya existential opposites that allow life to continue.

Another famous representation of the death, transformation and rebirth of Maiz God is depicted on the blackware vessel know like "Berlin Vase" (K6547) because it is currently in the Ethnologisches Museum in Berlin. This vessel is dated in the Early Classic Period and was produced most likely in the central

Peten region. There are two scenes, at the first one there is the dead lord lies on a funerary bier which is represented like a primary mountain where is a place of maiz birth. There is at the second scene his body is reduced to a skeleton surmounted by anthropomorphic trees. The central tree depicted on the vessel is a cacao tree.

Other iconographic records from Early Classic Periods can be found on Esquintla style tripod bowl with Tlaloc mask and cacao trees. (K7784). ((Figure 39))


**Figure 39:** Tripod bowl with Tlaloc mask and cacao trees, Early Classic Periods, Esquintla, Guatemala. K7784. (Photo: Justin Kerr).

Interesting art representation of cacao is found on an Early Classic censer lid from the Pacific slopes of southern Guatemala, Esquintla, here the woman is attired as a Teotihuacan-style war goddess with a headdress and butterfly wings, adorned with flowers on both sides and a large mirror on the chest. The whole sits on split cacao fruits. (Chinchilla 2005, 14) This piece of art symbolizes an ideological association between women and cacao which is another important part of cacao concept in Maya culture.

The very earliest example of an inscribed vessel is a sherd excavated at Tikal, Guatemala, dating to the "proto-Classic" Cimi phase (ca. 100 B.C.- 300 A.D.) The evidence suggests that the tradition of inscribing certain elite ceramics with cacao labels began in the area of Uaxactun and Tikal, probably no later than 300 A.D. (Stuart D., 2006)

**Figure 40:** K'awiil carries a bag of cacao seeds. Painted capstones, the Museo Amparo, Puebla, Mexico. (Photo: Museo Amparo, Mexico)

There are enough examples of epigraphic records of glyph *"kakaw"* on Early Classic vessels (Stuart D., 2006). Gradually, the cacao glyph began to appear in connection with the glyph which refers to an ownership of a vessel. The two glyphs for *"y-uk'ib"* and *"kakaw"* together form the basic elements of the great majority of texts inscribed on Maya drinking vessels. A simple text might read *y-uk'ib' kakaw* '(it is) his drinking cup (for) cacao". An Early Classic cup made not of ceramic but of a cut "tun" shell (Tonnea galea) is one of remarkable evidence of this hieroglyphic text. (G. E. Stuart, 2001).

Based on mentioned examples there is evident that there were especially iconographic depictions of cacao tree and pods during Early Classic. The emphasis was primarily on the sacred character of cacao as a plant that was strongly associated with the birth of the Maiz god. Cacao as a drink was not depicted in the iconography.

Hieroglyphic writing started to appear on vessels with glyphs for "kakaw" during Early Classic. Forms of vessels varied, many of them were tripod vessels, ring-based bowls, open plates or even shells. In spite of a presence of glyph *"y-uk'ib"* which is translated like '(it is) his drinking cup, some of them didn´t seem to be suitable for drinking.

**Epigraphic and Iconographic records of cacao during Maya Late Classic Period**

A popularity of cacao among Maya elite grew rapidly. Cacao became a commodity which was a part of a ritual economy. (Mcanany, P. A., & Murata, S. 2007, 15). Maya Late Classic was definitely a cacao´s period.

Because of flourish of inscribed and painted ceramics there are a lot of records of cacao in different forms. Painters portrayed elite life, the supernatural beings and religious myths that explained the universe and the place of the Mayas therein, and they sanctioned Maya rulership by way of their special association with deities and supernatural forces. Cacao was presented very often in various context.

Mythological story of cacao is depicted with God L and K´awiil. A painted ceramic scene at a vessel known as K631 depicts God L seated in a throne room —identified by the owl avatar, or familiar, in his broad hat—the most senior and powerful lord of the Maya Underworld. An aged figure with jaguar

characteristics, he is often shown with a decorated cape, a staff, and a cigar. On this vase he converses with the fiery, torch-headed K'awiil, who gestures toward an anthropomorphic tree weighted with cacao pods. Essentially the same inverted figure depicted on the Berlin vase, this character, in turn, interacts with a standing companion dressed in a scarlet macaw headdress and feathered "back-rack. Like the corresponding gods in the Popol Vuh, One Death and Seven Death, God L would have presided over the demise of the Maize God and possessed the resulting Maize Tree. This would explain why he is associated with the wealth of cacao. (Martin S., 2006, 156). God L is identified like a merchant or a god of merchants (Tokovinine, A., & Beliaev, D. (2013). Another depiction of him and cacao was found on murals of Cacaxtla, Mexico.

K'awiil has long been linked to ideas of fertility and abundance. There are several depictions where K´awiil has his cargo. A series of painted capstones, one of them now in the Museo Amparo, Puebla, Mexico, is particularly explicit, ((Figure 40)) K'awiil carries a bag of seeds, which are mentioned like kakaw (here in the under-spelling ka-ka) A painted glyph on the bag spells 9-PIK *bolon pik* for "nine eight-thousands." This could describe the unfeasibly large and unworldly quantity of beans it contains (seventy-two thousand), although "nine" is also used as a synonym for "many" in Maya languages and that is probably the intention here. (Martin., 2006, 173).

Cacao tree is sometimes portrayed as a cosmic or sacred directional tree. At Copan, cacao pods grow from the trunk of a censer in the form of the axis mundi (World Tree or cross). This cacao tree axis mundi replaces the more common representation of the World Tree as a ceiba tree or maize plant. (McNeil, 2009, 238). Presentation of cacao tree like an embodied one was identified also in Palenque, Mexico at the famous Pakal´s sarcophagus. His mother Lady Sak' K'uk' is presented like a cacao tree. It is similar like an Early Classic Berlin Vase image where a cacao tree springs from the bones of a dead lord symbolized his rebirth as this tree.

Other ways how cacao was presented during Late Classic period were stone censers. There were at least seven with cacao iconography found at Copan with various depictions: form of crocodile, diving god, woman body, mono. These objects used at rituals approved a connection between cacao, Underworld and rebirths.

All mention depictions referred to cacao like a sacred crop which was a part of mythology. But during Late Classic period there are a lot of depictions where cacao is presented like a drink and even like a manifestation of wealth.

**Late Classic Period Ceramics with cacao epigraphic records in Primary Standard Sequence**

Late Classic pottery is a very rich source for a study of a role of cacao in Maya society. These vessels were painted with pictorial and hieroglyphic imagery that featured elite individuals and historical sociopolitical events as well as religious themes that were the ideological foundations of Maya rulership and culture. (Reents-Budet, D. 1998)

There are two types of information which is possible to study regarding to cacao at polychrome painted pottery: epigraphic Primary Standard Sequence and iconographic scenes (sometimes with hieroglyphic text also) which were painted at vessels. It is interesting that these two types of information often have no connection with each other.


**Figure 41:** Cylindrical vessel K1728 in tribute scenes next to elite persons. (Photo: Justin Kerr).

Primary Standard Sequence (PSS) functions as a "label" that identified the method of decoration, the type of vessel (vase, plate, etc.) and the function of the container, as well as its content and the name of the owner. (Houston, Stuart, and Taube, 1989). Studying there were identified several types of vessels which were used for different types of a cacao.

The mostly mentioned vessels types include for example uk'ib, "drinking cup", jaay, "bowl", lak, "plate", and jawa[n]te', "tripod plate". The total number of distinct vessel types discovered thus far amounts to over 20. The majority of these terms occur only rarely in the inscriptions and a few of these terms may simply be variables of a type. (Kettunen and Helmke. 2020, 32)

Often, the glyph for cacao in PSS is preceded by one or more glyphs that qualify or further specified the type of cacao that was contained in a vessel. David Stuart (2006, 193) listed following:

| | |
|---|---|
| *Y-uk'ib' ta kakaw* | His/her cup for cacao |
| *Y-uk'ib' ta tzih* | His/her cup for pure (cacao) |
| *Y-uk'ib' ta tzih kakaw* | His/her cup for pure cacao |
| *Yuk'ib' ta yutal kakaw* | His cup for ? kakaw |
| *y-uk'ib' ta ach' kakaw* | His/her her cup for new cacao |
| *Y-uk'ib' ta yutal k'an kakaw* | His her cup for ? ripe cacao |
| *Y-uk'ib' ta yutal chab'il kakaw* | His/her cup for ? sweet cacao |
| *Y-uk'ib' ta iximte'el kakaw* | His/her cup for iximte' cacao |
| *Yuk'ib' ta yutal iximte'el kakaw* | His/her cup for ? iximte' cacao |

New theories by Jennifer Loughmiller-Cardinal argued that not all of cups where drinking cups. (Loughmiller-Cardinal 2018). She analysed seventy tall, cylindrical vases, of which sixty-one bore dedicatory inscriptions, none contained the chemical signatures of cacao. Indeed, tall, cylindrical uk'ib' vessels tend not to show the evaporation rings or staining that would be expected if they had contained liquid cacao; instead, their interiors may exhibit vertical scrape or pockmarks, especially toward the bottoms of the walls. As Loughmiller-Cardinal (2018:4–5) suggests, these patterns of use-wear and the absence of cacao residues might be reconciled with textual descriptions of tall cylinders as "drinking instruments for cacao" The vessels could be used to store or serve dry cacao beans, with a wooden or bone implement used to scoop out quantities to be ground and mixed with liquids in other containers. (Carter and Matsumoto, 2022, 108)

This theory is supported by a shape of some "cylinders" vessels, which are not always designed to be consumed from, some of them are far lager than is possible to drink from, others are too heavy or have a square shape.

On the other hand, these types of cylindrical vessels are depicted in palace scenes on the vessels themselves. It makes sense that they were used as containers for dry cacao beans. If we consider cacao as one of five paradigmatic goods (cacao, cloth, jade, Spondylus shell, and quetzal feather) (McAnany 2010) that were passed down as tribute, cacao itself is not so commonly depicted. But cylindrical vessels are often shown in tribute scenes. It is possible that the cacao tribute was handed over in cylindrical containers. ((Figure 41), (Figure 42))

**Figure 42:** Cylindrical vessel K2914 in tribute scenes next to elite persons. (Photo: Justin Kerr).

The two main ingredients mentioned in the contents section of the PSS were cacao and atole (maize gruel), but the list of additives and flavours is much wider. Based on decipherment of Dmitri Beliaev et. al (2010) there were identified:

*Yutal kakaw,* "fruity or fruit-flavoured cacao" (perhaps made from the fresh or fermented pulp)

*Tzah kakaw,* "sweet cacao".

*Kaab'il kakaw* or *chaab'il kakaw*, "cacao with honey."

*Suutz kakaw*, "berry-flavored cacao ."

*Kakawal 'ul*, "atole de cacao" (a cacao-flavoured corn gruel).

*Sa'al kakaw,* "chocolate with some ground corn" (drink where cacao, with the consistency or flavour of corn gruel).

*Sak ha',* "a cold drink made from cooked corn kernels, mixed with water and some cacao"

Based on resent published studies (Carter and Matsumoto, 2022), there are new proposals for reading of "*Yutal kakaw*". There were several interpretations how to decipher *"yutal*", in some proposals, *yutal* derives from a root *ut meaning "food" (Reents-Budet 1994: 75, 161) or "seed" (Alfonso Lacadena, personal communication 2005, cited in Beliaev, Davletshin, and Tokovinine 2010: 258), with the initial y- the prevocalic third-person ergative pronoun, so that *yutal kakaw* would be "cacao sustenance" or "the seeds of cacao." Yet linguistic evidence from Ch'orti' and one instance in the hieroglyphic corpus of *u yutal* among the titles of an elite youth indicate that the root is not *ut* but *yut.* Dmitri Beliaev and colleagues (2010: 258–260) identify *yut* as a cognate of Ch'orti' *yutir*, "fruit," and conclude that *yutal kakaw* means "fruity cacao"—a beverage made either with cacao nibs flavored with other fruits or from the flesh of cacao pods. But a fragment of a royal throne recently discovered at the site of Ixtutz bears an inscription describing it as a *yutal tz'am* ("yutal throne"). Meanings connected to fruit and seeds seem unlikely here, and it is worth considering a suggestion by John Justeson (personal communication to Jennifer Loughmiller-Cardinal 2017, cited in Loughmiller-Cardinal 2018:6) that Classic Maya *yutal* is a cognate of proto-Tzeltalan *yut, "inside." Conceivably, *yutal kakaw* in Primary Standard Sequences could describe cacao as the "content" of vessels, while a *yutal tz'am* might be something like an "interior throne" or the carved "face" (*ut; see Beliaev, Davletshin, and Tokovinine 2010: 259) of a bench.

A second common term in Primary Standard Sequences, *tzih*, modifies kakaw but also appears alone as the intended beverage for some vessels. As adjectives, *tzih* and the derived form *tzihil* mean "fresh," "pure," or "raw," and

although a noun tzi does mean "nixtamalized maize" or "cooked maize" in K'iche', the most likely sense of *tzih* when it occurs by itself in dedicatory texts is as a term for unmixed cacao (Grube 1990: 326; Stuart 2006b:195–197). The third, highly frequent modifier is ixiimte' (maize tree) or ixiimte'el (maize-tree- like, of a maize tree). Simon Martin (2006) argues, ixiimte'el kakaw may refer not to cacao mixed with maize or other ingredients, but to myths surrounding cacao itself, which was described above. (Carter and Matsumoto, 2022, 109 – 110).

There are differences among individual regions how additional characteristic of cacao in Primary Standard Sequences were used. It could refer to regional differences of preparing cacao beverages but also different time periods. It will be interesting to examine if there is any correlation between used characteristic of cacao in PSS and accessibility of it, if a region was close or far from a region of cultivation.

It is possible that all three mentioned sorts of cacao most often referenced in Primary Standard Sequences are not necessarily prepared beverages, but simply "cacao" in a broad sense that included dry beans (perhaps stored or presented in decorated cylinders) and drinks made from them (drunk from shorter pots, bowls, and cups). (Carter and Matsumoto 2022, 110).

**Late Classic iconographic records of cacao in palace scenes**

Cacao played very important role of the complex cultural practices of Maya elites during Late Classic Period. It is depicted in various forms and context in palace scenes. A lot of polychrome vessels—painted with palace scenes which were identified as vessels for cacao and based on PSS belonged to royal personage – depicted a chocolate drink which was a part of ritual and was served at court feasts. Feasting and banquets were crucial point of elite economic system with gift giving that include both basic commodities and luxury goods. There are multiple samples of the scenes that portrayed the Maya courts, where the ruler can be seen sitting on the throne, accompanied by vessels containing frothy cacao-based drinks. Foamy cacao beverages are recognizable in some cases.

There is also other form how cacao is depicted at polychrome vessels but also at painted murals. Bundles of cacao beans are often depicted in other court

scenes. There are bundles marked with slightly smaller numbers at Maya vessels. Probably the most common are 2-PIK (2 x 8,000 beans) or 3-PIK (3 x 8,000) beans. The bundles often rest on the floor or on a platform before an enthroned lord with visitors, no doubt to specify the gift or tribute payment brought by the guest. (Reents-Budget, 2006)

But there is also famous scene from mural painting of Bonampak, Room 1, where at the foot of the throne of a ruler appears a bundle knotted with the inscription *jo´ pik kakaw*, a numerical expression referring to five (jo'), units of eight thousand (pik) cacao beans, that is, 40 thousand beans.

There are theories that bundles or depictions of cacao near a ruler demonstrated his wealth. (Houston, 2017, 79).

Cacao was one of five paradigmatic goods (cacao, cloth, jade, Spondylus shell, and quetzal feather) (McAnany 2010) which were handed out like tribute, gifts or war booty. The delivery of cacao packages that we see in the palace scenes may have been motivated by political alliances, military victories, betrothals or diplomatic attempts, or even correspond to the exchange of gifts that accompanied ritual celebrations or banquets.

Even cacao is important ritual, prestige goods there is not so common to identify bags of cacao near lords on thrones. But in contrary, lid cylindric vases are presented very often. Therefore, the theory mentioned above that these vessels were used like containers for dry cacao beans which were handed out or which presented a wealth of a rulers has a sense.

All mentioned depictions of cacao during Late Classic Period refer that this sacred crop became more "commodity" like a sacred plant which was "untouchable". Of course, that rulers used cacao to demonstrated also their connection with gods because of sacred character of it, but cacao was a wealth for them, especially. Cacao was a sign of wealth, power and rulership.

**Cacao as an economy commodity and money**

Cacao was definitely part of a ritual economy which is defined as the materialization of socially shared values and beliefs through the acquisition and consumption of objects that facilitate symbolic communication (Wells 2005), ritual economy is concerned with those goods that carry a significant

symbolic charge and that often are used to mark and elevate certain sectors of society. (McAnany, 2006, 15).

Demand of Maya nobility for cacao grew continually during Late Classic Period. If it was not only a necessary ingredient for a preparation of ritual drinks, but also a proof of wealth, then it is understandable. Because geographically limited possibilities to grew cacao, Maya kingdoms have used two alternative strategies how to get it, they may have engaged cacao growers and traders footing, negotiating favourable trade, or they may have, taken what they wanted through violence against a seemingly inferior peripheral region. There are evidences for both of these strategies. (Baron, 2018, 210 -223)

"Conflicts over resources and access to zones of cacao cultivation probably were the subtext of many hieroglyphic "histories." Given this perspective, the cacao-growing areas along the Gulf of Mexico and the Caribbean watershed were key areas in which to flex political muscle. The wealth of Maya kingdoms such as Palenque and Naranjo—gateways to these respective supply zones—must have been considerable. Hieroglyphic texts indicate that such strategic positioning came at a great price. " (McAnany, 2006, 23).

Texts and imagery of tributary offerings rendered by vanquished powers intimates that the maintenance of a steady flow of goods necessary to the materialization of the values and hierarchy that underscored the Classic-period ritual economy was of critical importance. Areas in which cacao could be cultivated may have been increasingly perceived as strategic locales over which to exert political influence in order to ensure a steady flow of chocolate, either as trade or tribute. (McAnany, 2006, 24)

Although there is no iconographic or epigraphic record of cacao being used as money during the Classical period (Tokovinine and Beliaev 2013), there are scholars who argue that the development of marketplaces and standardized depictions of cacao and textiles made them a currency even in this period. (Baron 2018, 210 -223). These products were used to facilitate buying and selling in marketplaces, to gamble, and as payments for tribute and labor.

**Cacao at marketplaces, available for commoners?**

There is just one iconographic and epigraphic record of marketplace during Late Classic known, 7$^{th}$ century murals discovered in Calakmul, Chiik Nahb,

Structure. Sub 1-4 show remarkable scenes of interactions between sellers and buyers. They appear to buy, sell, and exchange products, such as maize grain, atole (a maize drink), tamales, tamale dough, tobacco, salt, clay jars, weaving pins, mats, a figurine, an ear flare, and a live parrot (Carrasco Vargas 2012; Martin 2007, 2012). There is presented a scene in which a woman offers a bowl of what is probably frothing chocolate to a man in exchange for tamale dough (Martin 2012, 69–70).

New researches from El Pilar published just in September 2022 by Anabel Ford and colleagues, approved that cacao was available there also for commoners. (Ford et al.,2022). This study examines 54 archaeological ceramic sherds from El Pilar (Belize/Guatemala) of Late Classic (600 to 900 A.D.) residential and civic contexts representing a cross-section of ancient Maya inhabitants. They used the discrete presence of theophylline, a unique key biomarker for cacao in the region. Based on results there were 30 samples (56%) from the whole sample where found to contain significant amounts of theophylline and thus test positive for cacao. Cacao was present in all contexts, common to all Maya residents near and far from centers.

This research modifies the view of cacao as a supremely elite and prestigious commodity. There is an assumption if commers use cacao in theirs houses that they could get it on markets. This just confirms a theory that cacao functioned as a currency even in Late Classic Period.

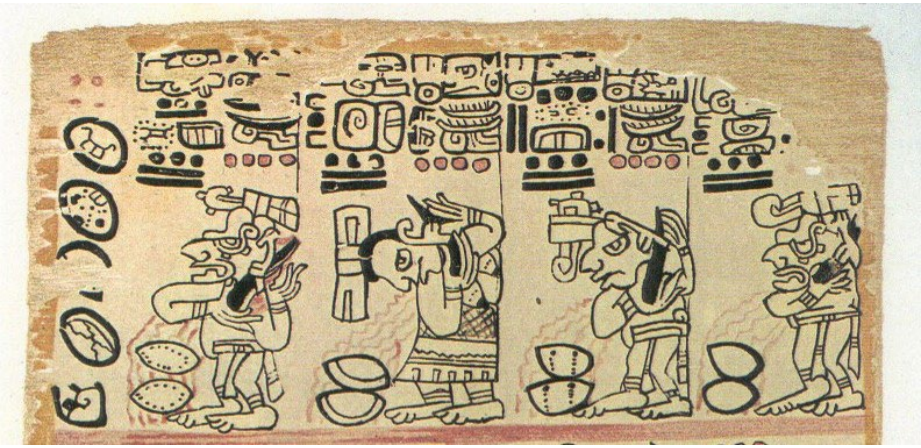

**Figure 43:** Four deities appear performing a ceremony of self-sacrifice with cacao offering. p. 95a. Madrid Codex.

It is only one evidence which have to be supported by other researches. El Pilar is Maya center in Belize and Guatemala which dominated the eastern Maya lowlands of the upper Belize River area in the Late Classic period, where toponymic references to cacao are recognized. But we have to consider to be this area is enough close to growing areas of cacao so it was more available. Based on economic theories (Ricardo, 2020) besides a labour also a scarcity is important for value. The results that cacao was available and widespread should not be automatically applied in the Petén region, where cacao was imported and its value was higher due to its scarcity. There were regional differences.

The anthropologist Karl Polanyi (1957, p. 264) defined money in use terms: objects used for payment, a standard of accounting, and a medium of exchange (standard of value). Cacao money perhaps had the greatest geographic reach and common use across Mesoamerica by the Late Postclassic.

**Figure 44:** A blue-painted Itzamna standing facing the youthful earth deity Ix Kaab' with a hieroglyphic text t*z'a'ab' u kakaw chaak ix kaab'*, "Their cacao was given to Chaak [the rain god] and Ix Kaab' [the earth goddess]"p. 52c, Madrid Codex

## Cacao in Postclassic Period

In spite of "commercialization" of cacao during Late Classic Period it is still depicted in mythological context during Postlclassic Period. The pivotal importance of the cacao tree can be seen in the Postclassic Mixteca-Puebla Codex Fejérváry-Mayer, where a cacao tree occupies the southern position in a diagram of the world whose cardinal directions are marked by four cosmic trees. (McNeil, 2006, 13)

Several evidences of cacao depictions were found in important Postclassic site Chichen Itza. The iconography of crocodilian trees is applied to the Maize God's rebirth, stressing his transformation into a World Tree (Taube 2005:25) A carved block from the Osorio Temple at Chichen Itza depicts a crocodile whom cacao pods sprouted from its tail.

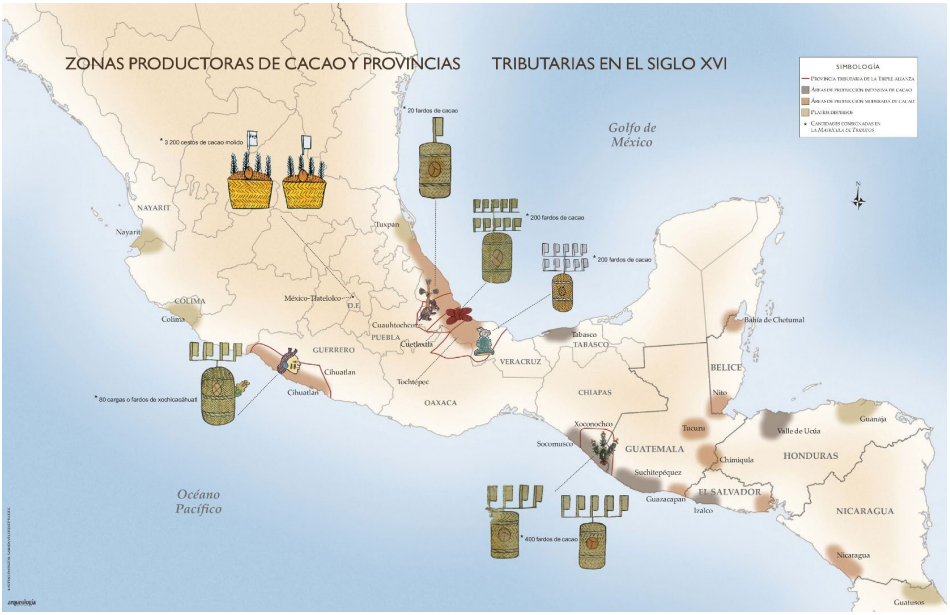


**Figure 45:** The provinces that provided cacao to the Mexica empire at the beginning of the 16th century. (Source: Arqueoloqía Mexicana, No. 45, 2012)

A story of K´awiil on a capstone from Temple of the Owls, also in Chichen Itza is very similar like that one mentioned above, now in the Museo Amparo, Puebla. An iconography and mythology regarding to cacao continued further. The Temple of the Owls appears to be a shrine celebrating the maize-cacao

story and the setting for appropriate rituals and reenactments by the Chichen Itza elite. (Martin, 2004)

Cacao is depicted also in Postclassic Maya Codices. Scenes are connected also with K´awiil and abundance like in the Dresden Codex on page 12. This confirms that cacao was a part of different rituals with agricultural character.

Two interesting scenes with cacao are depicted in the Madrid Codex. ((Figure 43), (Figure 44)) First one on p. 95a where four deities appear performing a ceremony of self-sacrifice, piercing their ears with knives. The text indicates that the offerings delivered during the ritual consisted of cacao, *kakaw*, copal, *pom*, and rubber, *k'ik'*, all of them sacred substances that served as food for the gods. Another scene p. 52c pictures a blue-painted Itzamna standing facing the youthful earth deity (Ix Kaab'). Both figures hold what appears to be honeycomb in their outstretched hands. Below them is a tripod vessel with a rattlesnake at its base. The vessel is marked with two *"ka*" glyphs, suggesting that it contains cacao (*kakaw*). Resting on the top are two gourd-shaped objects (perhaps representing cacao pods), and another two occur above the honeycomb(?) in the deities' outstretched hands. (Vail, G., Hernández, Ch. 2018) A hieroglyphic text says: *tz'a'ab' u kakaw chaak ix kaab',* "Their cacao was given to Chaak [the rain god] and Ix Kaab' [the earth goddess]" (Lowe, L. 2016, 26). Cacao offerings formed an important part of wedding ceremonies in prehispanic Mesoamerica which it is a custom that still is preserved in certain indigenous communities (Vail 2009, 5 -6).

All above mentioned depictions of cacao confirm a sacred character of this crop. But the role of cacao has also shifted significantly to the economic level during Late Postclassic times and continuing into the Colonial period. Cacao beans functioned as an abstract representation of value; that is, as money. For example, in the markets of Tenochtitlan, the capital of the Aztec empire, the beans could be exchanged for any number of commodities. Cacao beans were the preferred payment for tax or service obligations because they were a readily convertible capital medium in most of the prevailing economic systems of the myriad cultures of Mesoamerica and also of those to the south in Central America (McAnany et al. 2002:129).

**Cacao in Aztec Empire**

Tributary system was a basic of Aztec economy. The diversity of products that arrived in the Central the Central Highlands from the conquered provinces was wide and include food granaries of maize, beans, amaranth, or chia; other consumables included chili, honey, maguey syrup, salt, prepared war rations, and cacao. The majority of the tribute items were wealth goods or the raw materials to make them. Cotton textiles were at the top of the list and included both richly decorated cloaks as well as plain white quachtli, which, along with cacao beans, served as a form of currency among the Aztecs. (Hirth, K., 2020, 180).

We can identify cacao in both tributary codices the Matrícula de Tributos and the Códice Mendoza. There is included a detailed record of the provinces that provided cacao to the Mexica empire at the beginning of the 16th century: Soconusco, Tlatelolco, Cihuatlán, Cotaxtla, Cuauhtochco and Tuxtepec. ((Figure 45))

Probably one of the most famous provinces where cacao was cultivated in Maya region was Soconusco. The Soconusco region of Chiapas, Mexico is ideally suited for cacao cultivation, and in prehistoric and historic times the area was one of the principal cacao-producing zones of Mesoamerica. (Bergmann,1969, Gasco, 2006). In the Late Postclassic period, a growing demand for cacao across Mesoamerica almost certainly led to both increased cacao production in the Soconusco and an expanded role for the entire region within the Mesoamerican economic system. Soconusco was required to pay the equivalent of more than 4 500 kg of cacao beans as well as other products annually to the Aztec empire (Gasco 2003). In terms of labor investment and value, cacao was clearly the most important tribute item paid by the region. ((Figure 46))

We can identify several forms of cacao tribute in the Matrícula de Tribútos and the Códice Mendoza. There are mentioned "cargas de cacao" which each contains 3 *xiquipillis* which was 24 000 cacao beans. The province of Soconusco provided the Mexica lords with 200 cargas per year.

There were also other ways how cacao was handed over like vessels "tecomates", "jicara" or even baskets with ground cacao "cestos de cacao molido". A popularity of cacao was enormous in Aztec empire. Chocolate was served

as a cold beverage and depending on the recipe, was a mixture of various ingredients including chili, vanilla, honey, and aromatic flowers. (Hirth, 2016).

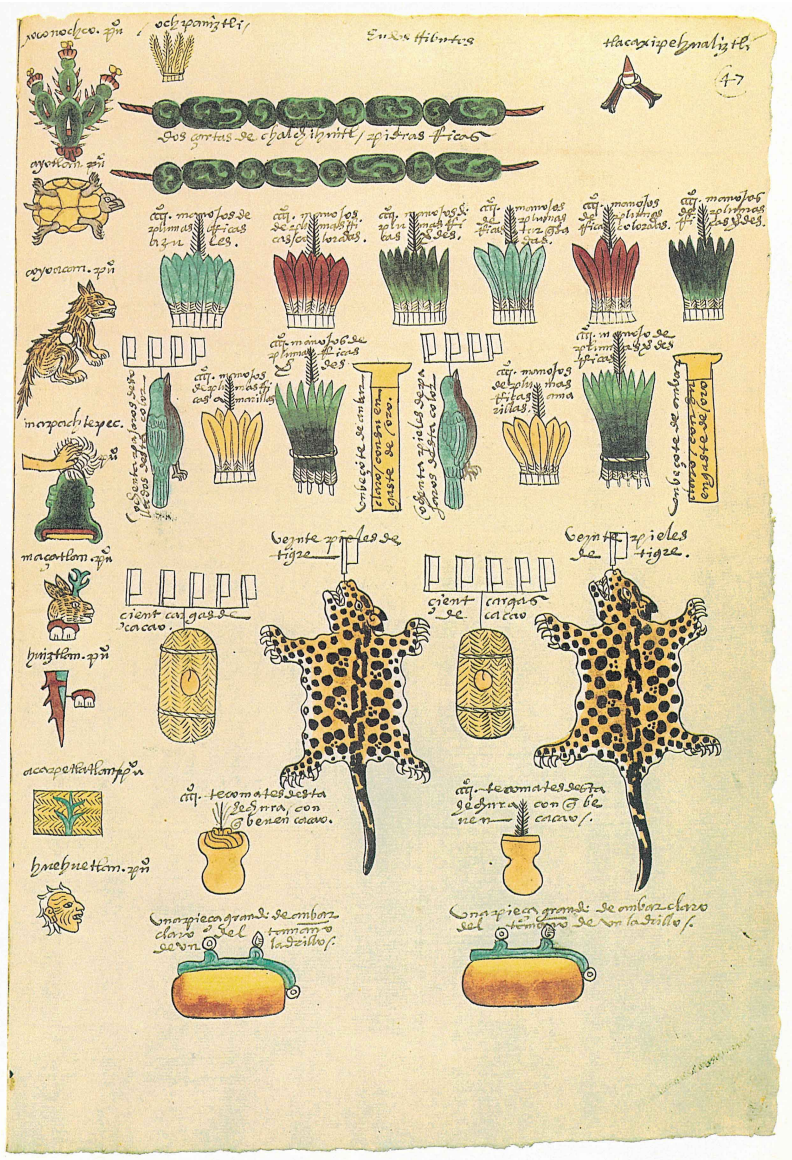

**Figure 46:** Soconusco tribute list from Codex Mendóza, folio 47.

The origin of word "chocolate" is also found in Nahuatl languages. An *ikola:tl* form is postulated, attested mainly in the eastern dialects of Nahuatl, from where spread to other languages. (Dakin, K. , Wichmann S. 2000).

The economic function of cacao was already absolutely established among the Aztecs. The huge quantities of cacao beans that they demanded as tribute from the conquered provinces were therefore not only related to the popularity of chocolate, but above all to the economic value of cacao beans. They functioned like a commodity money which were used at marketplaces for both elites and commoners.

**Records of cacao during Contact period**

There are a lot of evidences about cacao especially from the Contact Period. A comprehensive source of information is Bernardo Sahagun's Florentine Codex. We can find there a detail description of cacao like a plant in Book 11. But there are found interesting information about consuming cacao beverages which could help to understand also Maya types of drinks:

"This cacao, when much is drunk, when much is consumed, especially that which is green, which is tender, makes one drunk, takes effect on one, make one dizzy, confuses one, makes one sick, deranges one. When an ordinary amount is drunk, it gladdens one, refreshes one, consoles one, invigorates one." (Sahagún, Bernardino de. 1950 – 82, Book 11, 119)

Regarding cacao beverages there is a list of various drinks in Florentine Codex following:

xoxouhqui cacahuacintli = cacao made from young cacao pods

cuauhnecuyo cacáhuatl = cacao made with honey from bees

xochyo cacáhuatl = cacao made with hueinacaztli

xoxouhqui tlilxochyo = cacao made with tender tlilxochitl

chichiltic cacáhuatl = cacao made red

xuchipal cacáhuatl = cacao made orange

tilític cacáhuatl = cacao made black

iztac cacáhuatl = cacao made white

(Sahagún, Bernardino de. 1950 – 82, Book 8, 39)

There are similarities with some cacao drinks which are identified at Classic Maya vessels (see above). No less important information is about the method of preparation of cacao, its serving, role in rituals in Florentine Codex Books 2,9 and 10.

Cacao role as commodity money is mentioned by Cortés himself:

"a fruit resembling our almonds which they sell crushed, and of which they have such stores that they are used as money throughout the land to buy all necessities in the public markets and elsewhere" (Cortés 1962:79).

The sixteenth-century writer Bartolomé de las Casas (1967:I:368) says that cacao beans were used to even out barter exchanges when exact equivalents could not be found (Berdan 1975:223).

Diego de Landa notes that, "the occupations to which they had the greatest inclination was trade, carrying salt and cloth and slaves to the lands of Ulua and Tabasco, exchanging all they had for cacao and stone beads which were their money" (Tozzer 1941 [1566]:94–95).

So, there are numerous records that cacao beans were used like money and there is also the list of value of various goods from Aztec markets expressed in number of cacao beans. ((Table 3)). From economy point of view is important that although cotton textile *quachtli* also functioned like a money, it value was also expressed in cacao beans. Textile *quachtli* circulated in three different size-value denominations calculated in cacao: small *quachtli* were worth 65 cacao beans, medium sized *quachtli* were worth 80 cacao beans, and large *quachtli* were worth 100 cacao beans. (Sahagún, Florentine Codex, Book 9, The merchants, 48) .

**Table 3:** The cost of goods in cacao beans. (Hirth K., 2016, 253 – 254).

| Item | Cost in cacao beans | Date | Source |
|---|---|---|---|
| 1 large tomato, 1 tamale, 2 cactus fruits, 4 ripe chiles, 20 small tomatoes, chopped firewood | 1 | 1545 | Anderson et. al. 1976 |
| 1 avocado: fully ripe to newly picked | 1 - 3 | 1545 | Anderson et. al. 1976 |
| 1 fish wrapped in maize husks | 3 | 1545 | Anderson et. al. 1976 |
| 1 turkey egg | 3 | 1545 | Anderson et. al. 1976 |
| 1 salamander | 2 - 4 | 1545 | Anderson et. al. 1976 |
| 1 strip pine bark kindling | 5 | 1545 | Anderson et. al. 1976 |
| 1 day´s labor | 20 | 1521 - 1526 | Borah and Cook 1958: 45 |
| 1 small rabbit | 30 | 1545 | Anderson et. al. 1976 |
| 1 small *quachtli* cloth | 65 | Contact | Sahagún 1959: Durand-Forest 1971 |
| 1 medium *quachtli* cloth (tecuachtli) | 80 | Contact | Sahagún 1959: Durand-Forest 1971 |
| 1 large *quachtli* cloth (totolcuachtli) | 100 | Contact | Sahagún 1959: Durand-Forest 1971 |
| 1 forest hare | 100 | 1545 | Anderson et. al. 1976 |

| Item | Cost in cacao beans | Date | Source |
|---|---|---|---|
| 1 turkey hen | 100 | 1545 | Anderson et. al. 1976 |
| 1 canoe of potable water | 100, 1 totolcuachlti worth 100 cacao | Contact | Sahagún 1959: Durand-Forest 1971 |
| 1 turkey cock | 200 | 1545 | Anderson et. al. 1976 |
| Subsistence for 1 year, the price for selling yourself into slavery | 2000, 20 totolcuachtli worth 100 cacao/cloth | Contact | Durand-Forest 1971 |
| 1 slave for sacrifice | 3 000 - 4000, 30- 40 totolcuachlti worth 100 cacao/cloth | Contact | Sahagún 1959: Garibay 1961:177 |

Cortés paid his troops in cacao during the first years of the conquest (Durand-Forest 1971:fn116) which was the most expedient way for them to provision themselves with basic necessities. Torquemada (1975:III:228) reports that the Spanish gave cacao beans to beggars and the poor according to their faith and charity. The Spanish referred to cacao as *moneda menuda* or small money because it could be used for any number of small or large purchases both in and outside the marketplace (Torquemada 1975:III:228). (Hirth, 2016)

We know that cacao was an effective currency for two reasons. First, the Spanish continued to use it well into the colonial period until the production of silver coinage covered the demand for fractional currency. Second, cacao was counterfeited during prehispanic times which underscores its importance as a currency if people took the time to counterfeit individual beans. ((Hirth 2016)

The "small change" dimension of cacao is evident in the number of different food items that could be purchased for a few cacao beans. The price of a year's labor was calculated in terms of the subsistence value of 20 large quachtli valued at 100 cacao beans each; this was the normal price paid when someone sold themselves into slavery (Durand-Forest 1967:179). Quachtli, therefore, can be thought of as larger denominations of cacao and when they were used together, they functioned as an integrated and divisible system of allpurpose commodity money. ((Hirth, K. G. 2016)

Prices changed throughout the colonial period as a result of inflation with the value of cacao ranging from 100 to 200 cacao beans to 1 Spanish tomín or silver real. According to Rojas (1986) the value of the real was regulated at 140 cacao beans in 1555 and then 120/real in 1590. The value of cacao in the 1545 Tlaxcalan document published by Anderson et al. 1976, equates 1 tomín to 200 "full" cacao beans or 230 "shrunken" beans (Berdan 2014:126). (Hirth 2016)

Bernard Sahagun reports "bad cacao sellers" who would counterfeit cacao beans using an elaborate process to transform "amaranth dough, wax, avacado pits" into fake cacao beans. The Florentine Codex Book 10 (p.65) includes this description of a bad cacao seller as a trickster who: 'counterfeits cacao... by making the fresh cacao beans whitish... stirs them into the ashes... with amaranth seed dough, wax, avocado pits he counterfeits cacao.... Indeed he casts, he throws in with them wild cacao beans to deceive the people.'

Concerning Maya area during Colonial period there are also evidences about cacao like a ritual drink and tribute. Each ruler who participated of a feast held in 1556 (called a Halach Uinicin Postclassic Yucatán) was given five bakal (400 piece lots) of cacao, five cotton mantas (of four breadths each), a string of red beads as long as anarm, and one hunkal (unit of 20) pieces of jadeite (Morley 1941 :159; Roys 1943 :186). Using measures that are easier to understand today, these gifts translate into 2,000 cacao beans, 30 to 40 yards of cloth, a string of either red coral or Spondylus beads over 2 feet in length, and 20 pieces of worked jadeite. (McAnany, 2010, 304)

Cacao held economic significance also in recent times in some Maya regions. Q'eqchi' Maya of southern Belize bartered cacao for huipiles (traditional embroidered dresses) and mats with traders from Alta Verapaz (cobaneros), until at least the early twentieth century (J. E. S. Thompson 1964:21). According

to Thompson (1930:185–186; 1956:100), the practice of using cacao beans as a form of "currency" survived in the region of Q'eqchi' Maya of southern Belize throughout the Colonial period and well into the nineteenth century. (McAnany, P., & Murata, S. (2006).)

**Conclusion**

Cacao played an important role in Mesoamerica, both as a ritual crop and as an economic commodity. While corn, which forms the basis of Maya mythology above all, was the basic crop that fed the population, cacao was not a dietary staple. But it became necessary for the rituals associated with the rebirth of the Maiz God. Why cacao has taken this important place in mythology can have several reasons. Paired opposites are also a basic principle of Maya mythology. Cacao was the ideal opposite of maize, and not in a negative way. Its properties, colour, conditions in which it grows were the exact opposite of those typical of maize. The sensory properties of cacao drinks, their stimulating and partly intoxicating properties, which could play a role in rituals, certainly were important. Cacao was identified as food for Gods, with rulers demonstrating their connection to them when they consumed it. Cacao in the palaces was simply a must. The more structured Maya society was, the more people wanted access to cacao and the more it was needed. However, the limited cultivation possibilities made it a prestigious commodity with a high value. Thus, the important Maya centers of Tikal and Calakmul tried to form alliances or fight for supremacy over the territories where cacao was grown, so that their palace courts would be constantly supplied with cacao. This is how cacao gradually became an important economic commodity. Cacao was used to express wealth. Painted pottery of Late Classic Period shows bundles of cacao next to rulers and the elite. Sometimes the packages are also shown with an epigraphic record of the number of cacao beans in a given package. However, cylinder vases are often placed next to a ruler, which have so far been identified as containers for drinking cacao. However, the remains of cacao drinks were not identified in this type of vessels. It is believed that these containers also contained cacao beans, which were given in such a "packaging" as a tribute or gift and prepared for a preparation of a drink. Cacao beans themselves became suitable candidates to become a currency and a standardized unit of value. There are three basic elements that objects should fulfill in order to become money: they should function

as a medium of exchange, a store of value, and a unit of account. Money can be referred to "as anything that is generally accepted in payment for goods or services or in the repayment of debts" (Mishkin, 2006). Gradually, cacao spread both as a commodity and as money to the markets and thus became more accessible to a wider group of the population. Among the Aztecs, it was already a real standardized currency that expressed the value of other goods. Even the Spanish used cacao beans as "small money" *moneda menuda* for many years after their arrival. Nowadays, customs related to cacao and chocolate persist in native Maya communities, whether it is the preparation of various drinks during holidays or as part of wedding customs. Cacao remains present in the identity of Mesoamerican cultures.

REFERENCES:

Baron, Joanne P. 2018. "Making money in Mesoamerica: Currency production and procurement in the Classic Maya financial system." Economic Anthropology 5, no. 2: 210-223.

Beliaev, Dmitri, Albert Davletshin, and Alexandre Tokovinine. 2010.. "Sweet cacao and sour atole: Mixed drinks on Classic Maya ceramic vases." *Pre-Columbian Foodways*. Springer, New York, NY, 257-272.

Bergmann, John F. 1969. The Distribution of Cacao Cultivation in Pre-Columbian America. *Annals of the Association of American Geographers* 59(1):85–96.

Bletter, Nathaniel y Douglas C. Daly, 2006 "Cacao and its Relatives in South America. An Overview of Taxonomy, Ecology, Biogeography, Chemistry and Ethnobotany", In Chocolate in Mesoamerica. A Cultural History of Cacao, Cameron L. McNeil (ed.) pp. 31- 68, Gainesville, University Press of Florida.

Berdan, Frances F., 2014. *Aztec archaeology and ethnohistory*. Cambridge University Press.

Carter, Nicholas, and Mallory E. Matsumoto. 2022. "4. The Epigraphy of Ancient Maya Food and Drink." In: *Her Cup for Sweet Cacao*. University of Texas Press, 87-123.

Cheesman, E. E. 1944. Notes on the nomenclature, classification and possible relationships of cacao populations. *Tropical Agriculture*, *21*(8).

Chinchilla Mazariegos, O. 2005. Kakaw: El Chocolate en la Cultura Guatemalteca. *Museo Popol Vuh, Universidad Francisco Marroquín, Guatemala City*. (14)

Coe Sophie D. and Michael D. Coe. 1996. The True History of Chocolate. New York: Thames and Hudson.

Coggins, Clemency Chase. 1975. *Painting and Drawing Styles at Tikal: An Historical and Iconographic Reconstruction*. Harvard University,

Cortés, Hernando 1866 Cartas de relación de la conquista de México (Cartas y relaciones al emperador Carlos V). Edición de Gayangos, París. 1962 5 letters of Cortés to the emperor. W. W. Norton, New York

Cuatrecasas, José. 1964. *Cacao and its allies: a taxonomic revision of the genus Theobroma* (Vol. 35, No. 6). Smithsonian Institution.

Dakin, Karen, and Søren Wichmann 2000 Cacao and Chocolate: A Uto-Aztecan Perspective. Ancient Mesoamerica 11(1):55–75.

de Durand-Forest, Jacqueline. 1967. El cacao entre los aztecas. *Estudios de cultura Náhuatl*, *7*, 155-181.

de las Casas, Fray Bartolomé 1967 Apologética historia sumaria. 2 volumes, UNAM and Instituto de Investigaciones Historicas, Mexico City.

de Rojas, José Luis. 1986. *México Tenochtitlan, economía y sociedad en el siglo XVI*. Fondo de Cultura Economica USA.

Fedick, Scott L., Jennifer P. Mathews, and Thomas H. Guderjan. 2017. *Plant-food commodities of the Maya Lowlands.* pp. 163-172. University of Arizona Press, Tucson, AZ.

Ford, Anabel, Ann Williams, and Mattanjah S. de Vries. 2022. New light on the use of Theobroma cacao by Late Classic Maya. *Proceedings of the National Academy of Sciences*, *119*(40), e2121821119.

Gasco, Janine. 2006. Soconusco cacao farmers past and present: continuity and change in an ancient way of life. *Chocolate in Mesoamerica: A cultural history of cacao*, 322-337.

Henderson, John S., et al..2007. Chemical and archaeological evidence for the earliest cacao beverages. *Proceedings of the National Academy of Sciences*, *104*(48), 18937-18940.

Hirth, Kenneth G. 2016. *The Aztec economic world: Merchants and markets in ancient Mesoamerica*. Cambridge University Press.

Hirth, Kenneth. 2020. *The organization of ancient economies: A global perspective*. Cambridge University Press.

Houston, Stephen D., David Stuart y Karl A. Taube. 1989 "Folk Classification of Classic Maya Pottery", *American Anthropologist*, 91 (3): 720-726.

Houston, Stephen D. 1997. A king worth a hill of beans. *Archaeology*, *50*(3), 40.

Houston, Stephen D. 2017. Essential Luxuries in Pillsbury, J., Potts, T., & Richter, K. N. (2017). *Golden kingdoms: luxury arts in the ancient Americas*. Getty Publications.

Hurst, W. Jeffrey, et al. 1989. Authentication of cocoa in Maya vessels using high-performance liquid chromatographic techniques. *Journal of Chromatography A*, *466*, 279-289.

Hurst, W. Jeffrey, et al. 2002. Cacao usage by the earliest Maya civilization. *Nature*, *418*(6895), 289-290.

Kaufman, Terrence, and John Justeson. 2006. The history of the word for "cacao" and related terms in ancient Meso-America. *Chocolate in Mesoamerica: A cultural history of cacao*, 117-139.

Kettunen, Harri, and Christopher Helmke. 2020. Introduction to Maya Hieroglyphs.17th ed. N.p.: Wayeb.

Kidder, Alfred V. 1947 *The Artifacts of Uaxactun, Guatemala*. Washington, Carnegie Institution (Publication 576).

Kim, Jiyoung, et al. 2014. Cocoa phytochemicals: recent advances in molecular mechanisms on health. *Critical reviews in food science and nutrition*, *54*(11), 1458-1472.

Kufer, J., N. Grube, and Michael Heinrich. 2006. Cacao in Eastern Guatemala––a sacred tree with ecological significance. *Environment, Development and Sustainability*, *8*(4), 597-608.

Lentz, David L., et al. 2014. "Forests, Fields, and the Edge of Sustainability at the Ancient Maya City of Tikal." Proceedings of the National Academy of Sciences of the United States of America 111, no.52: 18513–18518.

Lesure, Richard G. 1998 "Vessel Form and Function in an Early Formative Ceramic Assemblage from Coastal Mexico." Journal of Field Archaeology 25 (1998): 19-36. JSTOR.

Loughmiller-Cardinal, Jennifer. 2018. "Distinguishing the Uses, Functions, and Purposes

of Classic Maya 'Chocolate' Containers: Not All Cups Are for Drinking." Ancient Mesoamerica 30(1):1–18.

Lounsbury, Floyd G. 1973. On the derivation and reading of the'ben-ich'prefix. *Mesoamerican writing systems*, 99-143.

Lowe, Lynneth. 2016. Del cacao y su arqueología en el sur de Mesoamérica. Kakaw, Oro Aromado. De Las Cortes Mayas a Las Europeas (Mario H. Ruz, Editor), Pp. 19-47. México, Gobierno Del Estado De Tabasco, Centro De Estudios Mayas, IIFL, UNAM.

Martin, Simon. 2004 Chocolate, Corn, and the Tree of Abundance: Cacao in Ancient Maya Religion. Paper presented at the 22nd University of Pennsylvania Museum Maya Weekend, "Ancient Masks and Modern Eyes: New View on Maya Traditions," March 26–28

Martin, Simon. 2012. "Hieroglyphs from the Painted Pyramid: The Epigraphy of Chiik Nahb Structure Sub 1–4, Calakmul, Mexico." In Maya Archaeology, vol. 2, 60–81. San Francisco: Precolumbia Mesoweb Press.

Martin, Simon. 2006. Cacao in ancient Maya religion: first fruit from the maize tree and other tales from the underworld. *Chocolate in Mesoamerica: a cultural history of cacao*, 154-183.

McAnany, Patricia A., et al. 2002. Praise the ajaw and pass the kakaw: Xibun Maya and the political economy of cacao. *Ancient Maya political economies*, 123-139.

McAnany, Patricia, and Satoru Murata. 2006. From Chocolate Pots to Maya Gold: Belizean Cacao Farmers through the Ages. *Chocolate in Mesoamerica: A Cultural History of Cacao*, 429-450.

McAnany, Patricia A., and Satoru Murata. 2007. America's first connoisseurs of chocolate. *Food and Foodways*, *15*(1-2), 7-30.

McAnany, Patricia Ann. 2010. *Ancestral Maya economies in archaeological perspective*. Cambridge: Cambridge University Press.

McNeil, Cameron L. 2009. *Chocolate in Mesoamerica: a cultural history of cacao*. University Press of Florida.

McNeil, Cameron L., W. Jeffrey Hurst, and Robert J. Sharer. 2006. The use and representation of cacao during the classic period at Copan, Honduras. *Chocolate in Mesoamerica: a cultural history of cacao*, 224-252.

Miksicek, C. H., Wing, E. S., Scudder, S. J., & Hammond, N. 1991. The ecology and economy of Cuello. *Cuello: an early Maya community in Belize*, 70-84.

Miller, Mary Ellen, and Karl A. Taube. 1997. *An illustrated dictionary of the gods and symbols of ancient Mexico and the Maya*. Thames and Hudson.

Millon, René Francis. 1955. *When money grew on trees: a study of cacao in ancient Mesoamerica*. Columbia University.

Mishkin, Frederic S. (2006). The Economics of Money, Banking, and Financial Markets, New York: Pearson Addison-Wesley.

Moholy-Nagy, Hattula. 2003. *The Artifacts of Tikal--Utilitarian Artifacts and Unworked Material: Tikal Report 27B* (Vol. 118). UPenn Museum of Archaeology.

Morley, Sylvanus G. 1941 The Xiu Chronicle. Part I: The History of the Xiu. Unpublished manuscript, Tozzer Library. Harvard University, Cambridge, MA.

Motamayor, Juan Carlos, et al. 2002. Cacao domestication I: the origin of the cacao cultivated by the Mayas. *Heredity*, *89*(5), 380-386..

Polanyi, Karl, Conrad M. Arensberg, and Harry W. Pearson. 1957. Trade and market in the early empires. Glencoe.

Powis, Terry G., et al. 2008. The origins of cacao use in Mesoamerica. *Mexicon*, 35-38.

Prufer, Keith M., and W. Jeffrey Hurst..2007. Chocolate in the underworld space of death: Cacao seeds from an early classic mortuary cave. *Ethnohistory*, *54*(2), 273-301.

Reents-Budet, Dorie. 1994. Painting the Maya Universe. *Durham: Duke UP*.

Reents-Budet, Dorie. 1998. Elite Maya pottery and artisans as social indicators. *Archeological Papers of the American Anthropological Association*, *8*(1), 71-89.

Reents-Budet, Dorie. 2006. The social context of kakaw drinking among the ancient Maya. *Chocolate in Mesoamerica: A cultural history of cacao*, 202-223.

Ricardo, David. 2020. Extract from On the Principles of Political Economy and Taxation, London, 1817, pp. 156–185. In *Romanticism and Politics 1789–1832* (pp. 175-204). Routledge.

Roys, Ralph L. 1943 The Indian Background of Colonial Yucatan . Carnegie Institution of Washington Publication 548, Washington, DC.

Sahagún, Bernardino de. 1950 – 82. F*lorentine Codex: General History of the Things of New Spain* (Arthur J.O. Anderson and Charles E. Dibble, eds. and trans.). Salt Lake City, University of Utah Press, Book 2, Book 8, Book 9, Book 10, Book 11.

Smit, Hendrik J., Elizabeth A. Gaffan, and Peter J. Rogers. 2004. Methylxanthines are the psycho-pharmacologically active constituents of chocolate. *Psychopharmacology*, *176*(3), 412-419.

Stuart, David. (1988). The Rio Azul cacao pot: Epigraphic observations on the function of a Maya ceramic vessel. *Antiquity*, *62*(234), 153-157.

Stuart, David. (2006). The language of chocolate: References to cacao on Classic Maya drinking vessels. *Chocolate in Mesoamerica: A cultural history of cacao*, 184-201.

Stuart, George E. 2001 An Inscribed Shell Drinking Vessel from the Maya Lowlands. *Research Reports on Ancient Maya Writing* 48: 1–9.

Taube, Karl A. 2005 The Symbolism of Jade in Classic Maya Religion. Ancient Mesoamerica 16(1):23–50.

Terry, Richard E., et al. 2022. Soil biomarkers of cacao tree cultivation in the sacred cacao groves of the northern Maya lowlands. *Journal of Archaeological Science: Reports*, *41*, 103331.

Thompson, J. Eric S. 1930 *Ethnology of the Mayas of Southern and Central British Honduras*. Field Museum of Natural History Anthropological Series 17, No. 2. Field Museum of Natural History, Chicago, Illinois.

Thompson, J. Eric S. 1964 Trade Relations between the Maya Highlands and the Lowlands. *Estudios de Cultura Maya* 4:13–48.

Tokovinine, Alexandre, and Dmitri Beliaev. 2013. People of the road: traders and travelers in ancient Maya worlds and images. In *Merchants, markets, and exchange in the Pre-Columbian world* (pp. 169-200).

Torquemada, Juan de. 1975. Monarquia indiana, 3 volumes, Editorial Porrua, Mexico City

Tozzer, Alfred Marston, 1941. ed. *Landa's Relación de las cosas de Yucatan: A Translation*. Peabody Museum of American Archaeology and Ethnology, Harvard University.

Turner, Billie L., and Charles H. Miksicek .1984. Economic plant species associated with prehistoric agriculture in the Maya lowlands. *Economic botany*, *38*(2), 179-193.

Vail, Gabrielle. 2009. Cacao use in Yucatán among the Pre-Hispanic Maya. *Chocolate: History, Culture, and Heritage*, 3-15.

Vail, Gabrielle, and Christine Hernández. 2018. The Maya Codices Database, Version 5.0. A website and database available at http://www.mayacodices.org/

Van Hall, Constant Johan Jacob. 1914. *Cocoa*. Macmillan and Company, limited.

Weisburger, John H. 2001. Chemopreventive effects of cocoa polyphenols on chronic diseases. *Experimental Biology and Medicine*, *226*(10), 891-897.

Wells, E. Christian. 2006. Recent trends in theorizing prehispanic Mesoamerican economies. *Journal of Archaeological Research*, *14*(4), 265-312.

Zarrillo, Sonia, et al. 2018. The use and domestication of Theobroma cacao during the mid-Holocene in the upper Amazon. *Nature ecology & evolution*, *2*(12), 1879-1888.

# THE DEATH AND RESURRECTION OF THE MAIZE GOD ACCORDING TO CLASSIC MAYA ICONOGRAPHY

Lucia Chvaštulová [5]

In this chapter, I will focus on Maya iconography from the Classic era connected to the Maize God and his traveling to the Underworld followed by the resurrection that is similar to the agricultural cycle we can find in nature. After a short introduction to the Maize God and two characters widely known as Paddler Gods with their possible role as psychopompoi (with several mentions of other figures depicting soul guides). In the end, I will try to demonstrate the agrarian cycle depicted in the iconography of the Maize God on ceramics.

**Introduction**

The topic of the Maize God has always generated great discussion. Starting with Schellhas and his most known work; Representation of Deities of the Maya Manuscripts (1904) continuing with The Maya Scribe and His World from Coe (1973) and The Major Gods of Ancient Yucatan from Taube (1992). As the focus shifted from general knowledge about the gods, scholars started to focus more on the death and resurrection of the Maize God as well as his connection to the creation of the world and his connection to the Hero Twins from Popol Vuh. I can not forget to mention most formative works from Braakhuis; like The Tonsured Maize God and Chicome-Xochitl as Maize Bringers and Culture Heroes: A Gulf Coast Perspective (2009) or The Bitter

5 Comenius University in Bratislava.

Flour Birth Scenes of the Tonsured Maize God (1990), Looper's Lightning Warrior: Maya Art and Kingship at Quirigua (2003) or The Image of the Maize God in Classic Maya Art: The Ideal Aesthetic of Gods and Royalty by Carroll (2005). Of course, I will work with several of these papers and books within this chapter. However, I will mainly focus on the depiction of the Maize God in Classic Maya iconography, with detail on his connection to Paddler Gods. I will briefly introduce them later in this chapter and their possible role as psychopompoi. As it was previously mentioned, I will focus on iconography from the Classic era, which can be dated from 150 to 900 CE (Martin 2020: 1-12), mainly on the three depictions of Maize God on ceramics that can be found in Justin Kerr's vase database. Particularly I will analyze the depiction on K1560, and K3033 where we can see the Maize God in the company of the Paddler Gods but I will look also into K2068 where is only the Maize God and Chaak.

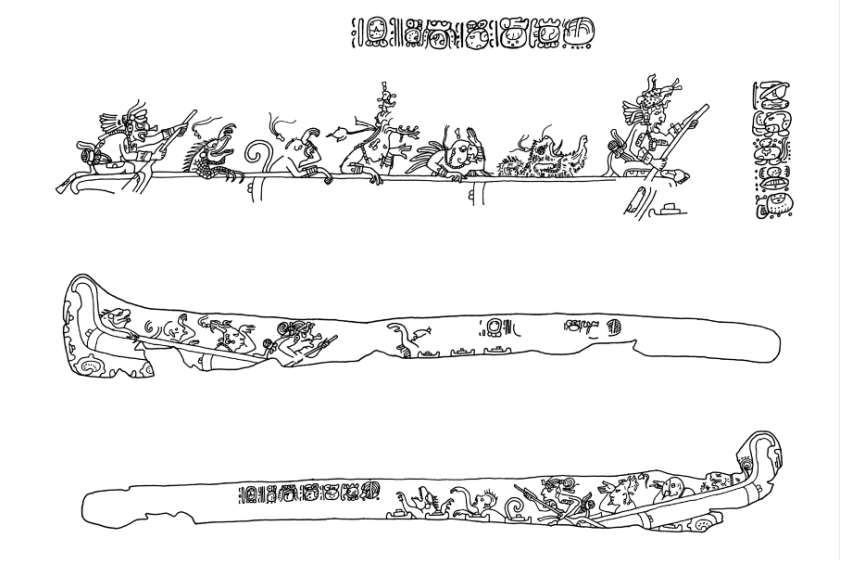

**Figure 47:** Bone fragment from cache 116 – Schele 2014 (drawing by Linda Schele).

**Maize God, the god of vegetation**

As we all know, Maize God is usually depicted as a young god, with a big and deformed forehead, straight nose, and almond-shaped eyes. This visualization is the ideal of beauty for precolonial Maya people. By Paul Schelhas, Maize God was given the name God E, as he found him in Maya Codices 114 times. Even though Schellhas correctly pointed out that Ixiim can be a god of life and prosperity, he did not find any mentions or connections of the Maize God with death or the Underworld (Schellhas 1904: 25). Today it is well known that Maize God is associated with death, sacrifice, and resurrection. During the Classic era, Ixiim is usually depicted as a young man that can be seen dancing, being dressed by women, or as someone emerging from a cracked turtle shell or earth, symbolizing the resurrection. Moreover, he can be seen on his journey to the Underworld with two Paddler Gods (known as Jaguar Paddler and Stingray Paddler) so he can be later resurrected with the whole vegetational cycle. Helping with this resurrection we can see Chaak or sometimes the hero twins; Yax Balam and Jun Ajaw - or Xbalanque and Hunahpú as they are more recognized by these K'iché names from Popol Vuh. Chaahk is usually depicted as cracking open the turtle shell, as on K731 from which the young Maize god is sprouting or breaking down building where the god E is a prisoner on K2068. A similar depiction, where the Maize god is sprouting out of the cracked turtle shell, can be seen on K4681, however, it is not with the help of Chaak, but the Hero twins. As I previously mentioned I will work with both depictions of Maize God with Paddler Gods as well as with Chaak.

But not only the sign *IL* that is marking him as young is typical for this deity. The main attribute that we can with certainty say that the depiction is a Maize god is the headdress or the whole shape of his head (this is the case we can find in the Madrid codex), which looks like the sprouting corn in the shape of logogram *KAN*. Taube suggested that his name is made out of a prefix syllable and one logogram (1992: 41). The syllable that was usually thought to be in the name was syllable *il* (Ratsch 1999: 52) but later suggestions work with the theory that it is a logogram *LEM*.

The second part of the name is the head of the Maize God. The older name that is connected to the Popol Vuh is Hun Nal Yeh but we can find many different variations and readings like Ju'un Ixiim, Lem Ixiim, Nal, Ajan, or Aj Nal (Špoták 2019: 74-77). On iconography, we may see him getting

dressed by young females, dancing, or in a few cases being taken to the Underworld or getting out of the cracked turtle shell or earth. As he is a deity connected to vegetation, we can see the same resemblance with the Aztec god Xochipili, the prince of flowers. As a deity of vegetation, he is probably following the agrarian cycle, which is depicted with him in different scenes I already mentioned but we can find depictions of the Maize God with his head being cut off, which could point to the harvest season (Taube 1992: 41-50). The Maize God is also mentioned in the book of Popol Vuh, where only his head could shower fruit on a barren tree or impregnate Ixquic with only his saliva. However, the theory that Ixiim is in Popol Vuh depicted as Hun-Hunahpu was criticized by Braakhuis who developed the theory of Coe who is connecting the Maize God to one of the twins. This twin left a corn knob to his grandmother Ixmucané as it could show her whether he is still alive or not. Another point of this theory is that the bones of this twin are ground in the same way as corn (Braakhuis 2009: 2-4; Coe 1973: 13).

**The soul-guiding Paddler Gods**

Paddler Gods, or rather Jaguar Paddler and Stingray Paddler are considered to be dual deities or even twins (Schele – Friedel 1990: 413; Milbrath 1999: 127). These gods are nearly always depicted together and the name is derived from their usual activity in iconography, sitting in a canoe with a paddle. They are only typical for Classic era art and there are no mentions of these gods in the Post-classic period. According to Schele, they could be connected to the primal artists that painted the sky as they are marked as *chan itz'at* (Schele 1992: 257-259). Paddler Gods are also tied to the ritual bloodletting that can be seen on Panel 19 from Dos Pilas with the person depicted there being marked as *itz'at* (Stuart 1984; Houston 1993: Fig. 4-19). The best-known depiction of Paddler gods is on the bone fragment from Tikal, from the burial of Jasaw Chan K'awiil I, where we can see not only Paddler Gods but also the Maize God and different types of animals (dog, parrot, monkey, and iguana) (Schele – Miller 1986: 270).

Both of these gods are depicted in iconography as an old deity. Jaguar paddler is characterized by a big eye, hooked nose, jaguar spots, and jaguar tail or sometimes his headdress is just a head of a jaguar. Stingray paddler is similar as his duality, but instead of jaguar features he has some fish features, the main sign is pierced nose with the stingray spine or headdress in the shape of a fish (Stuart 2016; Benson – Griffin 1988: 189). They are usually depicted

together whether in a canoe, in *muyal* - the mystical clouds, or coming out of the ceremonial bars. The reading of their names is still unknown as the usual epigraphy uses only their head variants or are tied to day/darkness and night/sun (or *ak b'al* and *k'in)* (Macri – Looper 2003; Stuart 2016).

But there are other mentions of Paddler Gods, not only iconography but also mythical stories connected to the creation of the world like on Stela C from Quirigua or the Temple of the Foliated Cross from Palenque that is interconnecting Paddler Gods again to the Maize God.

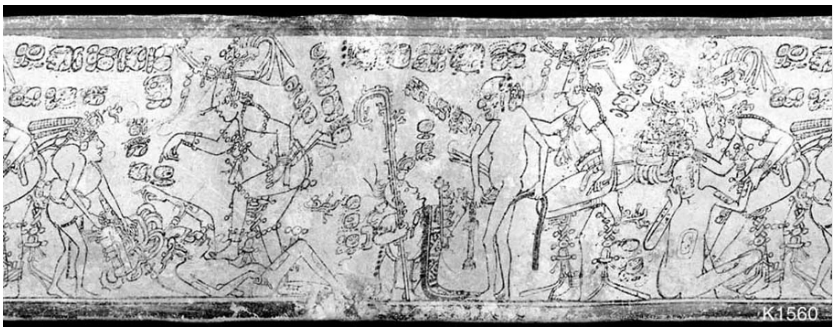


**Figure 48:** Ceramic vessel K1560 (photograph by Justin Kerr).

I hypothesize that the Paddler Gods can be seen not only as psychopomps but as the guardians of the Underworld too. The word psychopomp means guide of soul and can be derived from its Greek roots; psyché for soul and pompos for guide or conductor (Liddell – Scott 1940; Leeming 2005: 71, 436). They can be found in nearly every religion. The best-known guide of the soul is Charon or valkyries. In many religions, this guide is depicted as a ferryman or as an animal. In the Maya religion, we see the Paddler Gods connected to the animal realm and odd types of ferrymen as well. In Egyptian mythology, we see a mention of a ferryman known as 'He whose face is behind him' who also has one companion with whom they patrol the gates to Osiris (Ahmed 2019: 128-141). In Etruscan myths, we can see Charu or Charun, a demon of death that can be seen as a plural demon more than a single being. This demon was not only marked as psychopompoi but as a tomb guardian as well (Thomson de Grummond 2006: 57-58, 67, 81; Gleba – Becker 2009: 137). A similar entity can be found in Greek mythology; however, this is probably the best-known psychopompoi in the whole world. Charon is an old and bearded ferryman who is transferring the dead ones through the waters of Acheron (Hansen 2005: 136-137). He is usually

depicted on a small boat with an oar and a dead person waiting to be taken to the Underworld. Sometimes we can see him even with Hermes, which is another psychopompoi according to Zupančič (2004: 62-63) or guardian of the tombs, so the dead will not leave their last resting place, according to Brown (1990: 3-11). However, we have mentions of a young version of Charon as well, usually on letkythoi [6] (Sullivan 1950: 11-12). In Mayan mythology, we have mentions of owls as messengers of bad news or death (Christenson 2007: 105; Kettunen 2016: 130). Lacandons believe that they need to swim or cross water (created by the tears of their relatives) to reach the Otherworld (Kováč 2016: 44-47). As we may see, usually death and the last journey are connected to the water and/or crossing it.

**Iconographical analysis**

In this part of my chapter, I will dive more into the analysis of the before-mentioned ceramics from the Classic era from Justin Kerr's Maya Vase Database. As my prime focus is connected to the theme of this book, I will be working with three different depictions of the Maize God and his life journey that could be compared to the agrarian cycle of sowing, growing, and harvesting.

**Vessel K1560 – Freeing from the Underworld**

This vessel is painted only in black and white, with a height of 16,3 centimeters and a diameter of 15 centimeters (Maya Vase Database). The top and the bottom rims of the vessel are visible as well as the short hieroglyphic text and our main focus, iconography. In total eight characters can be divided into three different scenes with one common denominator, the Maize God.

Starting from the first scene on the left side, three beings are in contact. The biggest and most notable being is a male, young deity with an almond-shaped eye, a big forehead, and pierced nose and ear. This figure has a feathery headdress on his head, around his waist he has only a loincloth and he has some small beads-like ornaments around his arms and legs. On his ankles

6 Letkythoi are Greek vases or jugs used for storing olive oil (Sullivan 1950: 12).

and wrists, he also has an easy bracelet. He also has some sort of necklace and in between his legs, we can see some ornament that is probably coming out of the lion cloth with signs that are usually used to depict tangled knots or ropes. He is pointing with his right hand at the character below him and with his left foot, he is stomping on this character. The second character is laying on his back with one leg folded. While he is being stomped on, he is trying to reach with his hand for the headdress or the character behind him. We can see some spots on his body, that are different from the rest of his body. These spots could hold hieroglyphs for *K'IN*. This character is nearly naked, some weak lines around his waist could be hinting that he is still in his lion cloth. On his head, we can see a very rich headdress in the shape of an animal, probably a scull of centipede or some supernatural being. This headdress is however being taken away. This second person has a big hooked nose that is pierced, a big eye, and a toothless mouth. The third character is standing behind the laying character and is the smallest in size. This person has a headdress similar to depictions of a net with a waterlily flower coming out of it with a small bird trying to reach the flower. This character has also round-shaped earing and an atypical upper body. The „loincloth" around this person's waist is more in a shape of a shell or something similar. This person is taking away the headdress of the laying deity with both hands, however, he is looking right at the biggest character as if he was listening to his orders. The first and biggest character can be linked to the Maize God. The second being that is laying below the Maize God can be connected to the Stingray Paddler thanks to the pierced nose with the stingray spine as well as him being from the old generation of gods. Last but not least, the spots on his body are depicting *k'in* which is characteristic of the Stingray Paddler (Benson – Griffin 1988: 190-191; Pharo 2014: 50). The last being from this scene probably depicts Bakab [7]. He is wearing the typical nest headdress

7 Bakab, Pawahtun, or God N is a very complex deity usually consisting of several different beings. They can be connected to the earth, thunder, old year, or cardinal directions. They have been quite frequently depicted as they are important for mythology and ritualism. They are called also „Year bearers" and so they are also connected to the calendrical cycles and Tzolk'in. During the Colonial era, Pawahtuns were connected also to the predictions and prophecies for the following years, so they can be not only positive deities but also negative ones (Špoták 2019: 92-95).

that can be seen in another iconography from Classic Period as well as the shell-shaped clothes around his waist.

Moving to the next scene to the right side we can see again three figures. Starting from the biggest and probably most important character, we can see again a young deity with a big forehead and almond-shaped eyes. His head is covered with a headdress but also something that could be potentially maize leaf. His nose is pierced as well as the ear. He is again dressed in a loincloth with bead-like ornaments around his arms. He is wearing a necklace and a belt around his waist just like the biggest figure in the first scene. However he is standing only on one leg, the other one is bent in the knee. His hand is also on the shoulder of the figure in front of him. The second figure is a bit smaller than the previous one, however, we can see that this character has an obvious jaguar ear as well as some spots on his cheek. Even thou this character has a jaguar ear, we can still clearly see another human ear. This character is without any hair or headdress, he has a big crooked nose and mouth without teeth. He is standing on both feet and is fully naked, the only thing that covered him was the black loincloth or waistband that he is now putting away. The very last figure is the smallest of them all and is even the smallest on the whole ceramics. This character is nearly half in size compared to the others. This character has an easy headdress that looks like *K'AK* flame. It looks like this character is speaking to the character on his right at whom he is looking at. He is dressed in a plain loincloth, however, in one hand he holds a staff, and in the other a very detailed hat with feathers and some type of bird on top. This small figure is also holding a piece of cloth that is mostly black. As in the previous scene, we can interpret the biggest character as the young deity, the Maize God thanks to his attributes. He is kicking the middle character into the ass. This kicked character is the God L, that is stripping away his clothes. Not only we can see his jaguar attributes, but the dwarf figure is also holding the rest of his clothes, hat, and his staff (García 2009: 12). At least one similar scene with the naked God L who is begging for his clothes can be found on ceramics K1398. This is an interesting depiction, as the Maize God, the bringer of vegetation is winning over the God L, who is the lord of the Underworld, later the ruler of Xibalba and we can find him also in the stories from Popol Vuh. Moreover, the connection to the Hero Twins of this god can be also seen in the ceramics K511. On the ceramic vessel mentioned before, K1398, we can see that the clothes of God L is holding a rabbit standing on two feet. This critter is resembling the dwarf

on the vessel below. Some are even suggesting that the dwarf is just another depiction of a rabbit or that they have some connection with each other (Wichmann – Nielsen 2016: 15).

The last scene, on the right side, looks similar to the very first scene, but with only two characters. The central figure is bigger and standing over the other figure. The bigger figure has a big forehead and almond-shaped eyes and on his head, he has a headdress with a potential bird and feathers. His nose as well as his ear are pierced. This figure is dressed in a loincloth and has a belt as the Maize God in the previous scenes. He is also wearing other ornamental beads, a necklace with a human head, and bracelets on his wrists and ankles. He is standing on one leg, and with the other, he is kicking the sitting figure. This character also bends over the other character, holding them with one arm and with the second one taking away their headdress. The other character is sitting on the ground with his legs crossed, fully naked with only something like a small ornament near his ear. However, this ornament could be also some type of jaguar ear. One of his hands is being held by the other figure and with the other, he is covering his mouth. On his body, we may see at least six patches of a jaguar pelt and he used to have his headdress, which was probably a jaguar head or something connected to the jaguar. From this, we can clearly state that the bigger character is once again the Maize God and that he is depicted in all three scenes as the winner or torturer. The sitting figure is probably the other Paddler God, the Jaguar Paddler as he is possessing the jaguar pelt attributes and it is the most fitting for this scene when we can see also the other Paddler God. García did say that this character is just another depiction of God L, however, this figure has a different headdress as well the jaguar pelt in his torso and limbs did not appear in the previous scene (García 2009: 12).

In general, on this ceramic vessel, we can see the story of how the Maize God is fighting three different characters and taking their power off – by dominating them or by taking away their headdress or hat. He is winning over the god of the Underworld, the God L (Taube 1992: 79-88) as well as the Paddler Gods that as we mentioned in the previous part are the psychopompoi that are taking the Maize God into the Underworld or even can be seen as the possible guardians just as in Etruscan or Greek myths. By this act, the Maize God is freeing himself from the Underworld and he can come

to earth once again, just as the small seed or kernel is slowly fighting its way from below the ground while sprouting.


**Figure 49:** Ceramic vessel K2068 (photograph by Justin Kerr).

**Vessel K2068 – Escape from the prison**

This polychromatic ceramic vessel was dated to the Classic period between 600 CE – 700 CE and was situated in Guatemala or Mexico. The height of this vessel is 19 centimeters with a diameter of 10,8 centimeters. The vessel can be found in the Met under the accession number 2014.632.1 (The Met).

The base color of the vessel is most visible, however, we can see the use of light brown or light red for filling out the characters and structures as well as the glyphs, black for contouring and detailing, and red is used for the edges of the vessel. On the whole vessel, we have depicted only one scene or event with four main figures and one structure.

Starting from the left side we can see a snake body coming from behind the structure. Only the head of the snake is visible with a giant open maw. From the maw is emerging an old head with a toothless mouth and round eye. On top of the head, we can see a headdress that looks like is made from the net and a possible jaguar paw in the front. We can see only one hand emerging with the head and this hand looks like is holding something small. Moving to the right side, we can see a simple structure with the bead-like ornament on the upper part and the flowery ornament on the sides. In the structure, we can see two figures. The one on the left side is standing with bend knees

nearly as if he would be dancing. His hands are touching each other in front of his chest. This figure is dressed in a plain loincloth and simple wrist bracelets. His head is looking towards the top of the vessel and to the top of the structure. He has an almond-shaped eye and a cob-like shape of a head with a big forehead. The other figure inside of this structure is sitting on the ground with one leg bent in the knee. This figure is also dressed in a plain loincloth but his hands are tied together behind his back. Inside his ear, we can see a piece of paper or cloth, which is typical for captives. The head looks nearly the same as the previous figure however this figure has black markings around his mouth and his almond-shaped eye. The very last figure is holding the structure with his right hand and has an ax in his left hand. The body of this figure is saggy with folds of skin on his torso. The head of this character is depicted not in the usual style used by Maya. This figure has a round eye small nose with two spurs. He is dressed in plain loincloth and bracelets on both arms and legs. He also has a shell ornament on his ear and necklace. From his mouth, he is emitting a volute that is forming an U shape that is flowing from his mouth, between his legs, and up to the hand with an ax. This figure could be possibly sitting on this volute which is resembling the moon shape that is typical for Goddess I.

The first character could be again Pawahtun or God N as in the previous (Figure 48) thanks to his net-like headdress and old look. He is emerging from a serpent monster that could be possibly interpreted as a vision serpent. He would be again marking the end of one cycle as on the previous vessel. On the right side, we can see a structure, possibly a temple or representation of the earth. By the grape-like ornaments (looks like part of the hieroglyph *TUN*) on the top of the structure we can see that it is a structure made from stone. However, the flowery ornaments on the sides are resembling the syllable *mi* which would stand for zero or nothing, possibly depicting something empty or hollow. The raising figure can be identified as the Maize God, which is slowly raising from the ground depicted here as the structure. Right next to him we can see a captive, that looks nearly exactly like the raising Maize God. This can be a reference to the Maize God in the Underworld or when the corn kernel is in the ground trapped as a prisoner before sprouting out. The important part is also the opening in the structure which is a response to the chopping from the last figure. This figure can be identified as a God B or Chaahk as he is holding the typical ax and has the shell ornament on his ear. This particular Chaahk can be identified as Yax Ha'al Chaahk (Špoták 2019:

66-68) and is the main figure in releasing of the Maize God. As Chaahk is connected to rain and water, we can assume that the watering of the kernels was needed for softening the soil, so the kernels could sprout.


**Figure 50:** Ceramic vessel K3033 (photograph Justin Kerr).

**Vessel K3033 – Reborn from the Water**

This polychromatic ceramic vessel was dated to the late Classic or terminal Classic period between 600 CE – 900 CE and is from the Northern Lowlands. The height of this vessel is 22,5 centimeters with a diameter of 10 centimeters. It can be found in the Museo Popol Vuh in Guatemala under catalog number 0368 (Museo Popol Vuh).

The most used color on this vessel is black as the background color and red is used for the edges of the vessel, the hieroglyphic text, or contouring and details on the figures. The rest of the figures are not painted so they hold the primary color of the vessel. As in (Figure 48), we may also see three scenes happening on the same vessel. In total, we can see seven figures with one that is repeating in each scene, the figure of the Maize God.

Starting with the scene from the left side, we can see three figures and one animal. The main character is in the middle. He is by far the biggest, standing on one leg with the other one bend in the knee. This character has a

big forehead, almond-shaped eye, and a big headdress that could resemble vegetation or a head of a mystical being. This character has a necklace with a head-shaped ornament, bracelets on his wrists and ankles as well as some ornamental clothing on his thighs. Both other figures are holding his waist, loincloth, or reaching out to him. We can see the double-sided belt or ornament as we saw on the main character in (Figure 48). Also his hand are trying to touch his waist or at least be next to it. Another character can be found on the right side of the previous figure. This character is a bit smaller than the main character, however, we can see that this character is probably naked and decorated only in wrist bracelets. We can see that this character is squatting or walking towards the main figure and is holding their hands on the waist of the main figure. As this character is naked, we can see her breast and longer hair. Her face is not very visible as the paint is scraped off. On the left side of the main figure, we can see another naked woman showing breasts and tied hair. She is again decorated only in wrist bracelets and some earrings. She is squatting, nearly sitting on the ground in front of the main figure. Her hands are reaching out to the waist of the central or maybe she was holding something. The most important part about this woman is probably the turtle shell that looks like is connected to her back [8]. Over the central figure, we can see a flying bird with a long neck that is probably catching another bird with its beak. In Schele's drawing, it looks like the bird is catching a part of the central figure's headdress The bird could be a sign or a reference to the Underworld. The central figure in this scene is our main focus for this chapter as we can recognize the Maize God in him thanks to his big forehead and big headdress. The women that are close to the Maize God could be referencing the young Maize God's wives or the other vessels depicting Maize God and nude women. Usually, this scene is marked as the dressing of the Maize God, however, it can also be undressing of him. This can even be seen on different ceramics like K1202 or K6979 where we can see the Maize God in the company of women as he is entering the water symbolizing his death. This hypothesis could be supported by the fact, that one of the women is connected to water, as she has the turtle shell connected to her waist or back with falling water out of it. Also if the bird that could be connected to the Underworld is catching the part of Maize God's headdress it can be a sign of his way into the Underworld.

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vvvv

The second scene can be found on the right upper side. We can see three figures on the canoe. The figures on both ends of the canoe are looking quite similar. The figure on the left side is sitting on one of his legs, the other leg is hanging out of the boat or canoe. He is dressed in a loincloth, a big headdress, and bracelets on his wrists and ankles. We can see that his headdress has also a part that looks like a part of a corn leaf. He has pierced nose, a big squared eye with a hooked nose, and a toothless mouth. In his hands, he is holding a paddle. The second figure holding a paddle is seated on the other end of the boat, looking to the right side. One of his legs is again hanging out of the boat the other is folded in front of him. Again this person has a big squared eye, hooked nose, and toothless mouth. The big difference compared to the first paddler is a jaguar ear on his head and different ornament coming out of his nose. On his head, we can see a big headdress and on his ankles and wrists, we can see bracelets. He is again wearing just the loincloth that has some spots that could be from a jaguar pelt. Also, the knot on his back could be referencing the jaguar's tail. The last figure in this scene is sitting in the middle of the boat with crossed legs. He is the only young character in this scene, with a straight nose and almond-shaped eye. He is dressed in a loincloth with a belt and visible wrist bracelets. He is wearing a headdress with a head of a monster or a fish coming out of it. With one of his hands, he is holding a sack and the other hand is near his forehead. The old deity sitting on the left side of the boat can be identified as the Stingray Paddler God thanks to the stingray spine going through his nose and the usual depiction of this god as a paddler. The figure on the opposite side of the boat can be identified as a Jaguar Paddler God not only as he is supposed to be with the other Paddler God but also through the jaguar ear. The central figure is as in the previous scene the Maize God, holding a bag, possibly filled with corn kernels. Prager and Wagner are suggesting that on the other hand, he is spilling out the kernels (2019), however, the other hand could be there just to show that the Maize God is dead or dying. We can see the same movement, eg. a hand near the forehead, on bones from Tikal's cache 116. This whole scene can be seen as the Paddler Gods taking the Maize God into the Underworld after his death, possibly with more corn kernels, so he can be reborn later.

The third scene is situated on the right bottom part of this vessel, right below the boat or canoe. In this scene, we can see only one character that is laying on his back on the ground with bent legs like a baby. It is visibly the smallest figure on the whole vessel. The figure still has the loincloth, headdress,

and necklace as well as the ornamental bracelets on his wrists and ankles. It is again a young character with a small nose and a bigger forehead. However, the eye of this figure is closed. Near the mouth of this figure, we can see a fish that is nearly bigger than the whole head of the figure. The legs of the figure are entering wide opened jaw of a monster with a serpent-like tail or body. On the connection of jaws, we can see a scroll sign and on top of the monster's head, we can see a maize leaf. The figure is once again the Maize God in the baby pose. This depiction of his is showing him dead, as we see his closed eye and a fish that is kissing him. The fish is also symbolizing the water and the watery realm. The monster with an open mouth could be both swallowing or spitting out the Maize God. This scene can be also related to the depiction in Popol Vuh, where are the Hero Twins grounded to dust and thrown into the water. Later they reformed in the shape of a fish and then as the original twins.

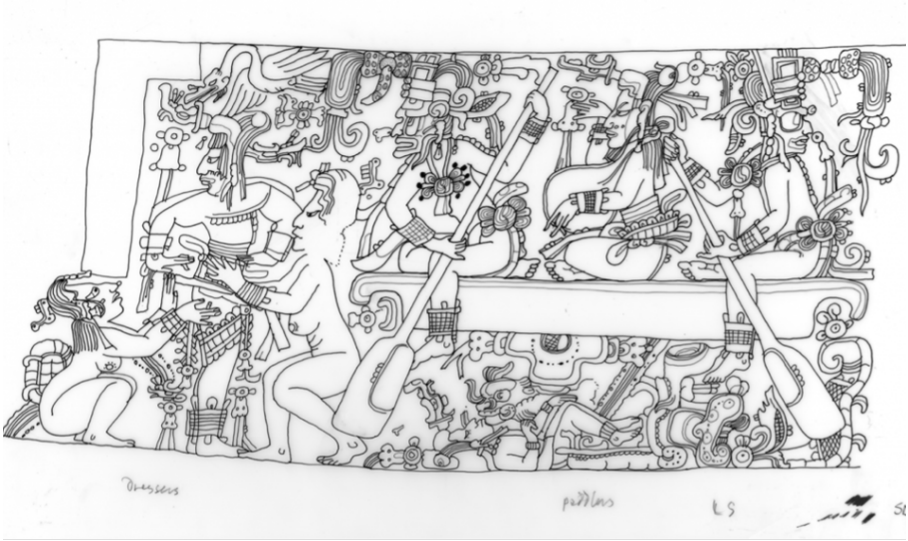

**Figure 51:** Drawing of the ceramic vessel SD 5515 (drawing by Linda Schele).

This vessel is depicting three states of the Maize God. Depending on whether the nude women are undressing or dressing the Maize God we see the taking of the Maize God into the Underworld by Paddler Gods on the upper right side. Later we see the scene on the bottom right side, where the

Maize God is in the Water Realm or the Realm of the dead. And in the end, we see the rebirth on the left side as the women are dressing up as the Maize God. If this scene was however undressing, it would be the first scene. My personal opinion is, that the scene on the

left side should be looked at firstly and that this scene is in reality depicting the undressing of the Maize God just as we need to shuck the corn before getting to the kernels. Later the kernels, depicted by the Maize God, and the sack full of the kernels are taken into the Underworld, or into the ground. The whole process is later finished when the Maize God enters the water, which can be understood as the watering of the crops or the seeds. After this, the Maize God can be resurrected and reborn again.

**Conclusion**:

In this chapter, we went in detail through three iconographical depictions of the Maize God on ceramic vessels from the Classic period. As we firstly postulated in the part about Paddler Gods, we can see them in two of these depictions. One time they are taking the Maize God into the Underworld, thanks to which we can see them as the previously mentioned psychopomps. However, on one vessel we can see them being kicked down by the Maize God as he is trying to escape from the Underworld, where we can see the other function of psychopompoi, which is not as popular in the depiction or mentions, the function of the guardians. The Maize God has to win over them so he can be reborn or resurrected, not only against the main deity that is depicted as God L. On these vessels, we can see different imaginations of the possible rebirth of vegetation substituted by the Maize God as the deity of vegetation. In three of these iconographies, we can see the much-needed water that is necessary for the growth of crops or is a part of the road for the Maize God to be reborn again. Even when we have different possible funerary rites or a visible plurality of eschatological ideas, we can see that the key element was always for the Maize God to undergo the phase of death and be reborn. These ideas can be of course different depending on the regional or local traditions. However, the meaning behind this was always the same and some of the narratives, or at least fragments of them can be found nowadays in Quiché, Cakchiquel, or Ixil traditions, where we can find the narrations connected to the rescue from the mountain or the stone temple, as seen on

Fig 3. On the other hand, the narratives that included emerging from the water or triumph of the Maize God over the lords of the Underworld (with the Paddler Gods included) were lost in the modern narrations (as seen in (Figure 48), (Figure 50), and (Figure 51)). This could be explained by the adaptation of need to water the crops for them to sprout into the regular life without the further necessity to remind it. However, the agrarian cycle is typically depicted on ceramic vessels with the Maize God as a central figure.

REFERENCES

AHMED, Radwan Abdel-Rady Sayed, The Celestial Ferryman in Ancient Egyptian Religion "Sailor of the Dead", v Journal of the General Union of Arab Archeologists, Vol. 1, Issue 1, pp. 126-165, 2019.

BENSON, Elizabeth L., GRIFFIN Gillett G., Maya Iconography, Princeton University Press, Princeton, 1988. ISBN 0-691-03590-3.

BRAAKHUIS, H.E.M., The Bitter Flour Birth Scenes of the Tonsured Maize God, in Mesoamerican Dualism, Utrecht University, Utrecht, pp. 125-147, 1990.

BRAAKHUIS, H.E.M., The Tonsured Maize God and Chicome-Xochitl as Maize Bringers and Culture Heroes: A Gulf Coast Perspective, Wayeb Notes, No. 32, 2009. ISSN 1379-8286.

BROWN, Norman O., Hermes the Thief: The Evolution of a Myth, 2nd ed., Lindisfarne Press, Great Barrington, 1990. ISBN 0-940262-26-6.

CARROLL, Cynthia R., The Image of the Maize God in Classic Maya Art: The Ideal Aesthetic of Gods and Royalty, in Studia Antiqua, Vol. 4, No. 1, 2005, online, visited 16.11.2022 [https://scholarsarchive.byu.edu/cgi/viewcontent.cgi?article=1042&context=studiaantiqua].

COE, Michael D., The Maya Scribe and His World, The Grolier Club, 1973. ISBN 0-8139-0568-0.

GARCÍA, Erik V., Reflections on the Codex Style and the Princeton Vessel, The PARI Journal, Vol. 10, Issue 1, pp. 1-6, 2009. ISSN 1531-5398.

GLEBA, Margarita, BECKER, Hilary, Votives, Places and Rituals in Etruscan Religion, Brill, Leiden, 2009, ISBN 978 90 04 17045 2.

HANSEN, William F., Classical Mythology: A Guide to the Mythical World of the Greeks and Romans, Oxford University Press, New York, 2005. ISBN 978-0-19-530035-2.

HOUSTON, Stephen D., Hieroglyphs and History at Dos Pilas: Dynastic Politics of the Classic Maya, University of Texas, Austin, 1993. ISBN 978-0292738553.

CHRISTENSON, Allen J., Popol Vuh: The Sacred Book of the Quiché Maya People, 2007, online, visited 15.11.2022 [www.mesoweb.com/publications/Christenson/PopolVuh.pdf].

KERR, Justin, Maya Vase Database, online, visited 2.11.2022 [research.mayavase.com/kerrmaya.html].

KETTUNEN, Harri, Uk'ay Ajbuj: Otherworldly Owls in the Mundo Maya, in Contributions int New World Archeology, Vol. 10, pp. 113-148, 2016.

KOVÁČ, Milan, Lacandon paths to the Underworld, in Contributions int New World Archeology, Vol. 10, pp. 43-54, 2016.

LEEMING, David, The Oxford companion to World Mythology, Oxford University Press, New York, 2005. ISBN 0-19-515669-2.

LIDDELL, Henry G., SCOTT Robert, A Greek-English Lexicon, online, visited 13.12.2022 [http://www.perseus.tufts.edu/hopper/text?doc=Perseus%3Atext%3A1999.04.0057%3Aentry%3Dyuxopompo%2Fs&fbclid=IwAR2E2JkQI-8wxCk2BZTU4\encez_HL7JicxciisSB9qvcTYSZsUJpgGDgZs48].

LOOPER, Matthew G., Lightning Warrior: Maya Art and Kingship at Quirigua, University of Texas Press, Austin, 2003. ISBN 978-0-292-79864-9.

MACRI, Martha J., LOOPER Matthew G., The New Catalog of Maya Hieroglyphs, Volume One The Classic Period Inscription, University of Oklahoma Press, Norman, 2003. ISBN 0-8061-3497-6.

MARTIN, Simon, Ancient Maya Politics: A Political Anthropology of the Classic Period 150-900 CE, Cambridge University Press, Cornwall, 2020. ISBN 978-1-108-48388-9.

MILBRATH, Susan, Star Gods of the Maya Astronomy in Art, Folklore, and Calendars, University of Texas Press, Austin, 1999. ISBN 0-292-75225-3.

Museo Popol Vuh, Arqueologia Maya - Arte Colonial de Guatemala, online, visited 14.11. 2022 [popolvuh.ufm.edu/index.php/Página_Principal].

PHARO, Lars K., The Ritual Practice of Time: Philosophy and Sociopolitics of Mesoamerican calendars, Brill, Leiden, 2014. ISBN 978-9004252356.

PRAGER, Christian, WAGNER Elisabeth, Year Book 2016 - 2017, Textdatenbank und Worterbuch des Klassischen Maya, Books on Demand, 2019. ISBN 9783749458646.

RATSCH, Christian et al, Bohové starých mayů (česky preklad Harantová Emílie), Volvox Globator, Praha, 1999. ISBN 8072072927.

SCHELE, Linda, FRIEDEL David, A Forest of Kings: The Untold Story of the Ancient Maya, William Morrow & Company, Inc., New York, 1990. ISBN 978-0688112042.

SCHELE, Linda, MILLER Mary E., Blood of Kings: Dynasty and Ritual in Maya Art, George Brayiller, New York, 1986. ISBN 978-0807611593.

SCHELE, Linda, Workbook for Sixteenth Maya Hieroglyphic Workshop at Texas, Department of Art History and the Institute of Latin American Studies, University of Texas, Austin, 1992.

SCHELLHAS, Paul, Representation of Deities of the Maya Manuscripts, Second edition, Peabody Museum of American Archeology and Ethnology, Harvard University, Cambridge, 1904.

STUART, David, More on the Paddler Gods, online, visited 13.12.2022 [https://mayadecipherment.com/2016/07/28/more-on-the-paddler-gods/] 2016.

STUART, David, Royal Auto-sacrifice among the Maya, v Res: Anthropology and aesthetics, Vol. 7-8, Issue Spring-Autumn, pp. 6-20, 1984. ISSN 0277-1322.

SULLIVAN, Francis A., Charon, the Ferryman of the Dead, v The Classical Journal, Vol. 46, No. 1 pp. 11-17, 1950. ISSN 00098353.

ŠPOTÁK, Jakub, Bohovia mayských kódexov, STIMUL, Bratislava, 2019, online, visited 10.11.2022 [https://fphil.uniba.sk/fileadmin/fif/katedry_pracoviska/kpr/ucebne_texty/FIF_JS_Bohovia_mayskych_kodexov.pdf].

TAUBE, Karl A., The Major Gods of Ancient Yucatan, Dumbarton Oaks Research Library and Collection, Washington, 1992. ISBN 0-88402-204-8.

The Met, The Met Fifth Avenue, online, visited 14.11. 2022 [https://www.metmuseum.org/].

THOMSON de GRUMMOND, Nancy, Etruscan Myth, Sacred History, and Legend, Philadelphia, University of Pennsylvania, 2006. ISBN 978-1-931707-86-2.

WICHMANN, Soren, NIELSEN Jesper, Sequential Text-Image Pairing among the Classic Maya, in The Visual Narrative Reader, Bloomsbury, London, 2016. ISBN 978-1-4725-7790-0.

ZUPANČIČ, Metka, Hermes and Aphrodite Encounters, Summa Publications, Birmingham, 2004. ISBN 1-883479-44-4.

# WOE AND PAIN: MAIZE GOD IN THE MAYA CODICES

Jakub Špoták [9]

**Introduction**

The Maize God has undergone a subtle transformation in the transition from the Classic to the Postclassic period, much like, for example, the Sun God or the Rain God. In Schellhas's classification he was assigned the letter E. (Schellhas, 1904) In the postclassic period he is a regular part of the codices and is also found in murals from the site of Tulum, or Tancah. (Taube, 1992, p. 41) In this study, however, I will focus only on the depictions on the pages in the Maya books - the codices. Thematically, I will focus on the misfortunes that befall the Maize god at specific moments. The reasons are often the action of other deities, such as the Sun God and the Rain God in the Dresden Codex, or various animals and insects in the Madrid Codex, to the general harm done to maize in the context of New Year prophecies in the Paris Codex.

In the hieroglyphic text, this section is usually identified by a logogram **YAJ** [10], which can be translated as misfortune or harm. ((Figure 52)) In Yucatecan, *yah*, or *yáah* means painful, or pain as such. (V. R. Bricker et al., 1998, p. 310) The **YAH** logogram is also discussed by Nikolai Grube in Research Note 17, which is based on the Textdatenbank und Worterbuch des Klassischen Maya project. It deals with the logogram T1078 and its variations from the Classic period. In many languages this term is associated with pain, injury, or misfortune. On pottery we encounter the term **SAK-ja-la YAH**, which can be translated as "white-becoming wound", or in Copán and Tikal we find

9 Comenius University in Bratislava.

10 T0172 (Thompson catalog), 1S5 (Macri & Vail catalog).

yahal, "place of the wound/place of pain" as supernatural toponyms. Grube also links the logogram T0172, found in the codices, with the complex symbol T1078va and T1078vs as a symbol of the obsidian knife. (Grube, 2020)

**Figure 52:** Logogram YAJ. (Drawing by Christian Prager.)

The logogram *yaj*, or *yah*, is not associated explicitly with the Maize God, but is part of many prophecies that are meant to tell us that misfortune is involved. Often a person (*yaj winik*), or a god (*yaj k'uh*), or even rulers (*yaj ajaw*), or entire cities (*yaj ch'en*, or *yaj ch'en nal*) are associated with misfortune or injury. In this study, I will focus on those depictions that represent misfortune or suffering for the Maize God where he is referred to in the hieroglyphic text as *yaj Ixiim* or *yaj Lem Ixiim*, respectively. If the hieroglyphic text is not found in the relevant sections, the iconographic aspect of the section in question will be discussed.

**Sources**

In this study, I use several primary sources. Foremost among them are the four preserved Maya codices - the Dresden, Madrid, Paris, and Maya Codex of Mexico [11]. I use colonial sources such as the Relación de las Cosas de Yucatán, or the Chilam Balam chronicles, as comparative and supportive material. The material used for production of codices was made of underbark fibers of a fierce fig tree. Subsequently, the long continuous strip was created. Both surfaces of the bark fiber are covered with a coating of lime plaster, which was probably originally white. In the codices, several colours were used. Most often, black was used for glyphs, and most of the pictures had bar-and-dot numbers. Red paint is used for other kinds of numbers or thick lines that form borders or subdivisions of pages. Another type of principal color is blue, or deep and brilliant blue (Bricker & Bricker, 2011, p. 4-5).

The Dresden Codex consists of 39 physical sheets which connect into one long strip. Each page is approximately 9.1 cm wide and 20.5 cm high, which means that the entire codex has the length of approximately 3.56m. It is

11 Formely known as Codex Grolier.

certain that different people painted or wrote different parts of the codex. Zimmermann recognised eight different scribes or hands in the Dresden Codex. (1956, Tafel 5). The codex includes a combination of what researchers call almanacs and tables. Almanacs refer to year-bearer ceremonies as well as astronomical tables, such as the Venus table or the eclipse table. There are also paired 'water' tables and the so-called Mars table (Macri & Vail, 2009, pp. 2–3). With the last one, I would disagree and will follow the hypothesis of Bruce Love about Mars tables in Dresden (see Love, 1995). There is a similarity with the Madrid Codex in that it contains similarly organised almanacs. The Dresden Codex is unique in being the only one that provides information for calculating Long Count dates (Macri & Vail, 2009, p. 27).

| Codex | Page | Register | Frame | Name (translit-eration) | Name (Tran-scription) | Text | Text only. | Note | Woe to Maize god | Theme |
|---|---|---|---|---|---|---|---|---|---|---|
| Dresden | 2 | c | 1 | **LEM-IXIM** | *Lem Ixiim* | **u-?-yu ya-AT-na LEM-IXIM TI´-WAJ-HA´** | | Weaving | | Sacrifice and clothing of gods |
| Dresden | 3 | a | 3 | **LEM-IXIM** | *Lem Ixiim* | **ya-AT-na LEM-IXIM TI´-HA´-WAJ SAK-AJAW-wa** | | Scene divided into four corners with sacrifice in center. | | Sacrifice and clothing of gods |
| Dresden | 6 | b | 3 | **LEM-IXIM** | *Lem Ixiim* | **tzu-nu u-chi-chi LEM-IXIM 3-?-?** | | | | Invocation of the gods |
| Dresden | 9 | a | 3 | **LEM-IXIM** | *Lem Ixiim* | **pe-ka-ja tu-chi-chi LEM-IXIM TI´-HA´-WAJ 3-?-? yo-?(k´in)-ni** | | | | Invocation of the gods |
| Dresden | 9 | b | 1 | **LEM-IXIM** | *Lem Ixiim* | **u-ku-chu ?-lo? IT-ZAMNA LEM-NIK-li LEM-IXIM TI´** | | Conversation with Itzamnaaj | | Invocation of the gods |
| Dresden | 11 | b | 2 | **LEM-IXIM** | *Lem Ixiim* | **pa-ta-ja LEM-IXIM TI´-HA´-WAJ tu-chi-chi** | | Bird headdress; Painted face; Mexican nasal motif | | Invocation of the gods |
| Dresden | 11 | c | 1 | **LEM-IXIM** | *Lem Ixiim* | **u-mo-lo LEM-IXIM TI´-HA´-WAJ 3-OK?-wa?** | | Bird headdress; Mexi-can nasal motif | | Invocation of the gods |
| Dresden | 12 | a | 1 | **LEM-IXIM** | *Lem Ixiim* | **OCH-tu-ku-ma? LEM-IXIM TI´-HA-WAJ LEM-NIK-li** | | Young deity without headdress - only maize feature without waj sign. Holding cacao plant. | | Invocation of the gods |
| Dresden | 12 | a | 2 | **LEM-IXIM** | *Lem Ixiim* | **OCH-ka-ka-wa K´AWIL LEM-IXIM 3-ok-wa** | x | Mentioned only in text - K'awiil is holding cacao product. | | Invocation of the gods |
| Dresden | 12 | c | 2 | **LEM-IXIM** | *Lem Ixiim* | **k´a-wa NIK´-TE´ 5-ITZAM-TUN LEM-IXIM** | x | As a augury for Pawa-jtun (Ho' Pawajtun) holding flower. | | Invocation of the gods |
| Dresden | 13 | b | 2 | **LEM-IXIM** | *Lem Ixiim* | **u-ma-k´a WAJ-hi-wa LEM-IXIM AJAW-wa** | | Bird headdress; Mexi-can nasal motif | | Invocation of the gods |
| Dresden | 14 | a | 1 | **LEM-IXIM** | *Lem Ixiim* | **NOHOL u-?-na u-pe LEM-IXIM** | | Bird headdress; Mexi-can nasal motif | | Invocation of the gods |
| Dresden | 16 | a | 2 | **LEM-IXIM** | *Lem Ixiim* | **?-ki u-? KAB-CHEL LEM-IXIM** | | Young moon goddess have burden of Maize god. | | Almanacs of the moon goddess |
| Dresden | 19 | c | 1 | **LEM-IXIM** | *Lem Ixiim* | **2-YAX-K´AN u-ku-chu LEM-IXIM TI´-HA´-WAJ** | x | Burden of young Moon goddess is Yax? K'an. Inside headdress is flower element - Female/moon aspect of Maize god? | | Almanacs of the moon goddess |
| Dresden | 20 | c | 2 | **LEM-IXIM** | *Lem Ixiim* | **LEM-IXIM u-ku-chu SAK-IXIK-KAB TI´-HA´-WAJ** | | Maize god is burden of Moon goddess | | Almanacs of the moon goddess |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Dresden | 22 | b | 4 | **LEM-IXIM** | *Lem Ixiim* | **NOHOL K´UH-CHOK-ja LEM-IXIM yu-tzi-li LEM-NIK-li** | x | Only as a text without iconography. | | Almanacs of the moon goddess |
| Dresden | 23 | b | 5 | **LEM-IXIM** | *Lem Ixiim* | **JOY-? LEM-IXIM ? u-pa?-CHAN?** | x | | | Almanacs of the moon goddess |
| Dresden | 24 | | | **LEM-IXIM** | *Lem Ixiim* | **YAJ LEM-IXIM** | x | Names of victims of Venus deity | x | Venus tables |
| Dresden | 25 | c | | **IXIM** | *Ixiim* | **tz´a-pa-ja CHAK-?-TE´ la-K´IN-ni CHAK-XAN-ni YAJ-IXIM K´IN-TUN-HAB** | x | Yearbearer prophecy. B'en years. | x | New Year Ceremonies |
| Dresden | 26 | c | | **K´AWIL-IXIM** | *K´awiil Ixiim* | **tz´a-pa-ja CHAK-?-TE´ NOHOL YAX-WAJ-HAB-li K´AWIL-IXIM** | x | Yearbearer prophecy. Etz'nab years. | | New Year Ceremonies |
| Dresden | 26 | b | | **ITZAM?-IXIM** | *Itzamnaaj? Ixiim* | **AJAW-wa K´IN-AJAW-wa ITZAM?-IXIM 3-ok-wa YAJ-CHAK-BOLAY TI´-WAJ-HA´** | x | Yearbearer prophecy. Etz'nab years. | | New Year Ceremonies |
| Dresden | 32 | b | 2 | **LEM-IXIM** | *Lem Ixiim* | **?-? WA´-la-ja CHOK-ki SAK-CHAK AJAW-le LEM-IXIM** | x | | | Farmer's almanacs |
| Dresden | 34 | a | | **?** | *?* | | | Decapitated Maize god on pyramid. Linked to yearbearer ceremonies. | x | Farmer's almanacs |
| Dresden | 36 | b | 2 | **LEM-IXIM** | *Lem Ixiim* | **LEM-IXIM-?-ja CHAK-ki K´IN-AK´AB-? NUK?-K´IN NUK?-AJAW?** | | Maize god is in canoe with Chaahk. | | Farmer's almanacs |
| Dresden | 37 | c | 3 | **KELEM-IXIM** | *Keleem Ixiim* | **u-CHAB-ya CHAK-ki ti-?-le KELEM-IXIM** | x | | | Farmer's almanacs |
| Dresden | 40 | b | 1 | **LEM-IXIM** | *Lem Ixiim* | **ta-CHAN-na CHAK-ki LEM-IX-IM TI´-WAJ-HA´** | x | | | Farmer's almanacs |
| Dresden | 40 | b | 3 | **IXIM** | *Ixiim* | **u-to-ko tzu-lu-CHAN YAJ-IXIM YAJ-CH´EN-NAL** | x | | x | Farmer's almanacs |
| Dresden | 42 | b | 3 | **LEM-IXIM** | *Lem Ixiim* | **AJ-?-WAJ-ja CHAK-ki K´IN-AK´AB-? LEM-IXIM TI´-WAJ-HA´ ?** | x | | | Farmer's almanacs |
| Dresden | 42 | c | | **LEM-IXIM** | *Lem Ixiim* | **NOHOL CHAK-ki K´UH-OK-ki LEM-IXIM K´IN-TUN-HAB-li YAJ?-IXIM?** | | Chaahk killing Maize god. | x | Farmer's almanacs |
| Dresden | 44 | c | | **LEM-IXIM** | *Lem Ixiim* | **wa´al-ja XAMAN K´UH-OK-ki CHAK-ki LEM-IX-IM TI´-HA´-WAJ** | x | Chaahk tying rope with Wind deity, catching turkey (ku-tzu) and fish (kay). | | Farmer's almanacs |
| Dresden | 45 | b | 1 | **LEM-IXIM** | *Lem Ixiim* | **CHAK-ka-ja ? YAJ-K´UH K´AK´-? AJ-KIMIL-la YAJ-LEM-IXIIM** | x | | x | Farmer's almanacs |
| Dresden | 45 | c | | **MUK-IXIM** | *Muk Ixiim* | **chi-K´IN-ni K´UH-OK-ki CHAK-ki MUK-IXIM K´IN-TUN-HAB-li ?-KIMIL** | x | Chaahk with torches riding on dying deer. | x | Farmer's almanacs |
| Dresden | 46 | a | | **?-IXIM** | *? Ixiim* | **? ? ? CHAK-EK´ ?-IXIM YAJ-CH´EN-NAL** | x | | x | |
| Dresden | 46 | b | | **IXIM** | *Ixiim* | **YAJ-IXIM** | x | Prophecies of action of Ha´al Chuwaj Chak Ek´ - Yaj Uh, Yaj Winik, u muk cha ?, Yaj Ixim, Yaj ? | | Venus tables |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Dresden | 48 | c | **LEM-IXIM** | *Lem Ixiim* | **K'AL-li-ja la-K'IN-ni ta-wi-si-ka-la CHAK-EK' LEM-IXIM u-lu u-mu-ka la-K'IN-ni tu-KAB-ba tu-CH'EN-na u-mu-ka CH'EN-NAL-WINIK** | x | x | Venus tables |

In the Dresden Codex, the Maize God is depicted, either in iconography or in text only, a total of 43 times. Of these, in the negative aspect of harming the maize a total of 13 times. The most frequently used name is Lem Ixiim, a total of 32 times. (Figure 53)

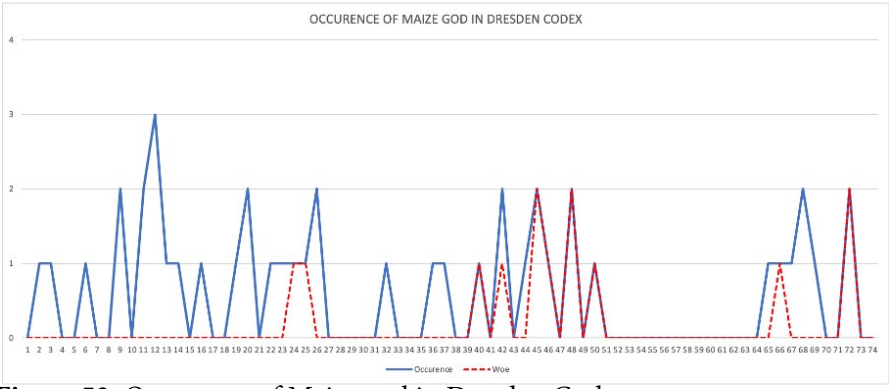


**Figure 53:** Occurence of Maize god in Dresden Codex.

For a long time, the Madrid Codex was divided into two parts, one of which was called Codex Troano and the other, Codex Cortesianus. In early 1880s, León de Rosny recognized that the Troano and Cortesianus codices were part of the same manuscript. It is considered the longest codex, as it is composed of 56 physical pages and it is painted from both sides. Together, it is 112 complete pages. Dimensions of one page are between 22.6 to 23.2 cm of height and 12.1 to 12.2 of width (V. Bricker & Bricker, 2011, pp. 19–21). Material for production of the codex was the same as in the case of the Dresden and Paris Codex, from the fierce fig tree (Ficus). The Madrid Codex differs from the Dresden in a few ways, including fact that it does not contain any astronomical tables. However, there are several almanacs that record astronomical events (Vail & Hernández, 2013, p. 4)This codex contains approximately 250 almanacs, which describe various things and events. Examples include rain ceremonies, agricultural activities, ceremonies to commemorate the end of

one year and the start of the next, carving deity images or beekeeping (Vail & Aveni, 2009, p. 5).

| Codex | Page | Register | Frame | Name (Transliteration) | Name (Transcription) | Text | Only text | Note | Woe to Maize god | Theme |
|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | 14 | a | 4 | **LEM-IXIM** | *Lem Ixiim* | **u-ta-k'a u-ch'a?-ch'a? K'UH LEM-IXIM** | | Sitting Maize god in front of temple. | | |
| Madrid | 15 | a | 1 | **LEM-IXIM** | *Lem Ixiim* | **? SAK-lu LEM-IXIM TI'-WAJ-HA'** | | Sitting Maize god in front of temple. | | |
| Madrid | 16 | a | 2 | **LEM-K'UH** | *Lem K'uh* | **OCH-na-na K'UH LEM-K'UH TI'-WAJ-HA'** | | Maize god sits in front of temple, holding HA'-WAJ sign. | | |
| Madrid | 20 | b | 1 | **LEM-K'UH** | *Lem K'uh* | **? LEM-K'UH TI'-WAJ-HA' ?-lu** | | Brown Maize god holding roof in the temple. | | |
| Madrid | 20 | c | 1 | **LEM-IXIM?** | *Lem Ixiim?* | **u-?-ya AJ-KIMIL ITZAMNAJ LEM-IMIX?** | | Blue Maize god holding bird with water flow full of shells. | | |
| Madrid | 21 | d | 2 | **LEM-K'UH** | *Lem K'uh* | **OCH-chi ni-ku-b'e LEM-K'UH TI'-WAJ-HA'** | | | | |
| Madrid | 22 | a | 3 | **LEM-K'UH** | *Lem K'uh* | **? ? LEM-K'UH Ti'-WAJ-HA'** | | | | |
| Madrid | 22 | b | 2 | **LEM-IXIM/ K'UH** | *Lem Ixiim/K'uh* | **? tu-? LEM-IXIM/K'UH TI'-WAJ-HA'** | | | | |
| Madrid | 24 | a | 2 | **LEM-K'UH** | *Lem K'uh* | **LEM-K'UH WAJ-?** | | | | |
| Madrid | 24 | c | 1 | **CHAK?/ki?-LEM-K'UH** | *Chak/? Lem K'uh* | **?-TUN WAJ-KIMI CHAK/ki-LEM-K'UH** | | Fiery dog above dead maize god with incense burner (rubber ball) | x | |
| Madrid | 24 | c | 2 | **?** | *?* | **AJAW-le ?-KAB ?** | | Fiery dog above maize god with incense burner (rubber ball) | x | |
| Madrid | 24 | d | 2 | **K´IN-K´UH** | *K´in K´uh* | **K'IN K'UH** | | Maize god is bitten/eaten by snakes. Sitting on kab sign - earth. | x | |
| Madrid | 24 | d | 3 | **none** | *none* | **SAK-CHAAK K'UH** | | Dead Maize god is bitten/eaten by vulture. Sitting on kab sign - earth. | x | |
| Madrid | 25 | c | 1 | **LEM-CHAAK** | *Lem Chaahk* | **AJAW-le ?-? LEM-CHAAK K'IN-WAJ** | | Dog with torch is flying above sitting Maize god in front of incesario. | x | |
| Madrid | 25 | c | 2 | **K'UH** | *K'uh* | **LEM-? ?-xa? K'UH ?** | | | x | |
| Madrid | 25 | d | 1 | **CHAK-ki** | *Chaahk* | **K'IN-ni-la CHAK-ki** | | | | |
| Madrid | 25 | d | 2 | **LEM-K'UH** | *Lem K'uh* | **LEM-K'UH CHAAK** | | Maize god is bitten/eaten by snake. | x | |
| Madrid | 25 | d | 4 | **CHAAK** | *Chaahk* | **CHAAK YAX** | | | | |
| Madrid | 26 | c | 1 | **LEM-K'UH** | *Lem K'uh* | **wa-AJAW-K'IN LEM-K'UH** | | Sitting Maize god with macaw on his head. | x | |
| Madrid | 26 | c | 2 | **LEM-K'UH** | *Lem K'uh* | **LEM-K'UH K'UCH** | | Sitting Maize god with vulture on his head. | x | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Madrid | 26 | d | 2 | **IK'-K'UH-NAL** | *Ik' K'uh Nal* | **IK'-K'UH-NAL IK'-CH'EN-NAL IK'-K'UH u-MUK** | Sitting Maize god is eaten by birds. Black colour is bad sign. First frame has Rain deity, which pouring water on growing maize - colour is k´an, yellow. | x |
| Madrid | 27 | a | 3 | **none** | *none* | | Maize god with numbers over his body. | |
| Madrid | 27 | c | 1 | **?-K'UH** | *? K'uh* | **?-K'UH** | | |
| Madrid | 27 | c | 2 | **LEM-K'UH** | *Lem K'uh* | **k'u-po ka-LEM-K'UH** | Maize god with macaw on his head. Another smaller Maize god is sitting behind them - *ka Lem K´uh* - two Maize gods. | |
| Madrid | 27 | c | 3 | **LEM-K'UH** | *Lem K'uh* | **?-KAB LEM-K'UH AJAW-le WAJ-HA'** | | |
| Madrid | 27 | d | 1 | **SAK-K'UH** | *Sak K'uh* | **u-?-KAB SAK-CH'EN?-NAL AJ-KIMIL SAK-K'UH** | Dead Maize god is bitten/eaten by snakes/worms. | x |
| Madrid | 28 | a | 1 | **none** | *none* | | Maize god with numbers over his body. | |
| Madrid | 28 | a | 2 | **none** | *none* | | Maize god with numbers over his body. | |
| Madrid | 28 | a | 3 | **none** | *none* | | Maize god with numbers over his body. | |
| Madrid | 28 | a | 4 | **none** | *none* | | Maize god with numbers over his body. | |
| Madrid | 28 | c | 1 | **SAK?-K'UH** | *Sak? K'uh* | **?-?-ja SAK?-K'UH K'UCH MUK-ka** | Dead Maize god is bitten/eaten by vulture. Sitting on kab sign - earth. | x |
| Madrid | 28 | c | 2 | **none** | *none* | **?-KAB ?-KAB-ja-? WAJ ?-K'ABA-WAJ** | Maize god is bitten/eaten by dog. | x |
| Madrid | 28 | c | 4 | **CHAAK** | *Chaahk* | **YAX-KAB CHAAK AJAW TI'-WAJ-HA'** | Maize god is holding waj sign. | |
| Madrid | 28 | d | 1 | **LEM-K'UH** | *Lem K'uh* | **AJ?-CHAAK LEM-KIMIL-ki LEM-K'UH AJAW-le** | | |
| Madrid | 28 | d | 3 | **LEM-K'UH** | *Lem K'uh* | **AJ?-CHAAK K'UH?-IK-ki LEM-K'UH ?-?** | | |
| Madrid | 28 | d | 4 | **YAX-K'UH** | *Yax K'uh* | **AJ?-CHAAK K'UH?-IK-ki YAX-K'UH AJ-KIMIL** | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Madrid | 29 | b | 1 | **LEM-K'UH** | *Lem K'uh* | **LEM-K'UH WAJ-HA' AJAW-le LEM-CHAAK AJ-KIMIL LEM-CHAAK LEM-K'UH YAX-CHAAK LEM-K'UH AJ-KIMIL ? MUK** | Three Maize gods on left, right hand and on right foot of Death god. | | | |
| Madrid | 29 | c | 1 | **LEM-KUH-HA'-WAJ** | *Lem K'uh Ha'waj* | **KAB-ba CH'EN-? KAB-ba-CH'EN-? LEM-K'UH-HA'-WAJ AJ-KIMIL-LEM** | Maize god is sitting on tree with dog, Rain god and another dead Maize god. | | | |
| Madrid | 29 | d | 1 | **none** | *none* | | Two Maize gods sitting on feet of Death god. | | | |
| Madrid | 33 | a | 1 | **none** | *none* | | Maize god under skyband in the rain. | | | |
| Madrid | 34 | b | 1 | **none** | *none* | | Head of Maize god - Yearbearer ceremonies. | | | New Year Ceremonies |
| Madrid | 34 | b | 1 | **none** | *none* | | Sitting Maize god on Haab sign. Yearbearer ceremonies for Kawak year. | | | New Year Ceremonies |
| Madrid | 35 | a | 1 | **LEM-K'UH** | *Lem K'uh* | | Mentioned in the text of Yearbearer ceremonies - K'an years. | x | | New Year Ceremonies |
| Madrid | 35 | b | 1 | **none** | *none* | | Sitting Maize god on Haab sign. Yearbearer ceremonies for K'an year. | | | New Year Ceremonies |
| Madrid | 36 | a | 1 | **LEM-K'UH** | *Lem K'uh* | | Mentioned in the text of Yearbearer ceremonies - Muluc years. | x | | New Year Ceremonies |
| Madrid | 36 | b | 1 | **none** | *none* | | Sitting Maize god on Haab sign. Bird is eating tamale. | | | New Year Ceremonies |
| Madrid | 37 | a | 1 | **LEM-K'UH-na** | *Lem K'uhuun?* | | Mentioned in the text of Yearbearer ceremonies - Ix years. | x | | New Year Ceremonies |
| Madrid | 37 | b | 1 | **none** | *none* | | Sitting dead Maize god on Haab sign. Yearbearer ceremonies for Ix year. | | x | New Year Ceremonies |
| Madrid | 38 | c | 2 | **?-?-na** | *Itzamnaaj* | **?-ch'u to-ko ?-?-na LEM-NIK/BOK/SAK-li** | Maize god with stick. He is named as Itzamnaaj. | | | |
| Madrid | 51 | b | 1 | **none** | *none* | | Maize god in the temple (KAB-ta). Scattering ritual. | | | |
| Madrid | 58 | a | 2 | **?** | *?* | | | | | |
| Madrid | 59 | b | 3 | **none** | *none* | | Maize god lying under wooden structure. Rain god is above him. | | | |
| Madrid | 60 | b | 3 | **LEM-?** | *Lem ?* | **tza-pa-ja ?-na LEM-? TI'-WAJ-HA'** | | | | |
| Madrid | 61 | b | 1 | **LEM-K'UH** | *Lem K'uh* | **(yu)-K'UH LEM-K'UH TI'-WAJ-HA' 3-OK-wi?** | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Madrid | 61 | c | 1 | **LEM-K'UH** | *Lem K'uh* | **LEM-K'UH K'UH TAN-li ma-?-YAX?** | | | |
| Madrid | 62 | a | 1 | **LEM-K'UH** | *Lem K'uh* | **u-KAB-ba AJAW-le LEM-K´UH TI´-WAJ-HA´** | x | | |
| Madrid | 62 | a | 2 | **LEM-K'UH** | *Lem K'uh* | **3-ok-wa ka-KAB-ba LEM-K´UH TI´-WAJ-HA´** | x | | |
| Madrid | 62 | b | 2 | **SAK-K'UH** | *Sak K'uh* | **SAK-K'UH NAH-K'UH** | | | |
| Madrid | 65 | b | 2 | **LEM-K'UH** | *Lem K'uh* | **K'AL-ni LEM-K'UH YAX-YAX? KELEM yo-K'IN-ni YAX-NAL-ja** | | Chaahk is holding head of God C with vegetation on head - variant of Maize god. | |
| Madrid | 68 | a | 1 | **LEM-K'UH** | *Lem K'uh* | **?-AT-wi? LEM-K'UH 3-HAAB-li TI'-WAJ-HA' a-AJAW YAX-NAL-ja** | | | |
| Madrid | 73 | a | 1 | **LEM-K'UH-hi** | *Lem K'uh* | **LEM-K'UH u-K'UH-hi** | | Yellow Maize god with numbers through his body. | |
| Madrid | 73 | a | 2 | **LEM-K'UH** | *Lem K'uh* | **LEM-K'UH K'UH** | | Maize god with numbers through his body. | |
| Madrid | 74 | a | 1 | **LEM-K'UH** | *Lem K'uh* | **LEM-K'UH K'UH** | | Black-white Maize god with numbers. | |
| Madrid | 74 | a | 2 | **LEM-K'UH** | *Lem K'uh* | **LEM-K'UH K'UH** | | White-blue Maize god with numbers. | |
| Madrid | 74 | a | 3 | **NAH-K'UH** | *Nah K'uh* | **NAH-K'UH K'UH** | | Blue-white Maize god with numbers. | |
| Madrid | 74 | b | 1 | **none** | *none* | | | Maize god with hand in big jar. | |
| Madrid | 79 | b | 3 | **NAH-IXIIM** | *Nah Ixiim* | **5-KAB-ba NAH-IXIM TI'-WAJ-HA' ?-?** | | Maize god lying on earth (KAB sign) and smoking cigar. | |
| Madrid | 80 | a | 1 | **none** | *none* | | | Maize god is tied with rope by God M. | x |
| Madrid | 81 | b | 2 | **LEM-K'UH** | *Lem K'uh* | **?-ni k'u LEM-K'UH K'UH** | | Maize god holding stone block. | |
| Madrid | 81 | c | 2 | **LEM-K'UH** | *Lem K'uh* | **OCH-YAX-li K'UH LEM-K'UH NIK-li-LEM** | | Maize god with turtle holding stingray spine. | |
| Madrid | 86 | b | 2 | **LEM-K'UH** | *Lem K'uh* | **OCH-K'UH LEM-K'UH TI'-HA'-WAJ AJAW-le** | | Maize god with tools for blood sacrifice. | |
| Madrid | 86 | b | 3 | **LEM-K'UH/ IXIM** | *Lem K'uh/Ixiim* | **?-AK'AB 3-OK-wa? LEM-IXIM TI'-WAJ-HA'** | | Maize god is sitting and smoking cigar. | |
| Madrid | 89 | a | 3 | **none** | *none* | **XAMAN ?-? ITZAMNA LEM-NIK-li** | | Itzamnaaj is holding Maize god on north side. | |
| Madrid | 89 | b | 1 | **LEM-K'UH LEM-IXIM** | *Lem K'uh Lem Ixiim* | **?-UH-? LEM-K'UH LEM-IXIM TI'-WAJ-HA'** | | | |
| Madrid | 89 | c | 1 | **LEM-IXIM** | *Lem Ixiim* | **CHAK-KAB LEM-IXIM** | | Maize god is cutting tree. | |
| Madrid | 90 | b | 6 | **K'UH** | *K'uh* | **K'UH u-? WAJ-HA' K'IN** | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Madrid | 90 | c | 4 | **K'UH** | *K'UH* | **? K'UH** | |
| Madrid | 91 | c | 2 | **none** | *none* | **?-? la-uh ka-AJAW-wa ? Xa-?-na na-K'IN** | Maize god sitting on mat and holding tamale. |
| Madrid | 92 | b | 1 | **LEM-?** | *Lem ? (K'uh)* | **xa-? Xa-? LEM-? AJAW-le** | Maize god sitting on mat and holding HA'-WAJ |
| Madrid | 92 | b | 2 | **LEM-K'UH** | *Lem K'uh* | **xa-?-na AJAW-le LEM-K'UH HA'-WAJ** | Maize god sitting on mat and holding HA'-WAJ |
| Madrid | 93 | b | 2 | **LEM-?** | *Lem ?* | **LEM-NIK-li AJAW-le LEM-? TI'-WAJ-HA'** | Maize god holding spike |
| Madrid | 96 | d | 3 | **LEM-K´UH?/ IXIM?** | *Lem K´uh/Ixiim* | **?-K'IN-na u-lo-po LEM-? TI'-WAJ-HA'** | Maize god is making wooden mask |
| Madrid | 97 | b | 3 | **LEM-?** | *Lem ?* | **CHAK-UH-ka ?-? LEM-? TI'-WAJ-HA'** | Maize god is making wooden mask |
| Madrid | 97 | d | 1 | **?** | *Itzamnaaj* | **ni-la-K'IN ?-?-na 3-OK-wa ka-K'IN-AJAW-wa** | |
| Madrid | 99 | a | 2 | **LEM-K'UH** | *Lem K'uh* | **?-? ? LEM-K'UH AJAW-wa-le** | |
| Madrid | 100 | b | 4 | **LEM-K'UH** | *Lem K'uh* | **tu-K'IN-ni IK'-?-na LEM-K'UH TI'-WAJ-HA'** | |
| Madrid | 100 | c | 1 | **K'UH** | *K'uh* | **TAN-ta K'IN-AJAW-wa K'UH TI'-WAJ-HA'** | |
| Madrid | 101 | a | 1 | **LEM-K'UH** | *Lem K'uh* | **IK'-? 3-OK-wa LEM-K'UH AJAW-le** | Maize god sitting in the temple. Mummy is in front of temple. |
| Madrid | 101 | b | 1 | **LEM-K'UH** | *Lem K'uh* | **ka-bi tu-TUN LEM-K'UH TI'-WAJ-HA'** | Maize god is making stone mask. |
| Madrid | 102 | a | 1 | **?** | *?* | **? ? ? TI'-WAJ-HA'** | Maize god sitting in the temple. Mummy is in front of temple. |
| Madrid | 102 | a | 2 | **LEM-K'UH** | *Lem K'uh* | **tu-K'IN-ni 3-OK-wa LEM-K'UH TI'-WAJ-HA'** | Maize god sitting in the temple. Mummy is in front of temple. |
| Madrid | 104 | c | 2 | **LEM-K'UH/ IXIM** | *Lem K'uh/Ixiim* | **k'u-la u-KAB-ba LEM-K'UH/ IXIM TI'-HA'-WAJ** | Maize god with honey product. |
| Madrid | 105 | a | 1 | **LEM-K'UH/ IXIM** | *Lem K'uh/Ixiim* | **u-bi-na K'UH LEM-K'UH/IXIM TI'-HA'-WAJ** | |
| Madrid | 107 | c | 5 | **LEM-K'UH/ IXIM** | *Lem K'uh/Ixiim* | **?-?-li ?-?-li LEM-K'UH/ IXIM TI'-HA'-WAJ** | |
| Madrid | 108 | b | 1 | **LEM-K'UH/ IXIM** | *Lem K'uh/Ixiim* | **?-li LEM-K'UH/IXIM TE'-TUN ?-li TI'-WAJ-HA' u-?** | Maize god standing in front of incesario. Sun god is sitting next to him. |
| Madrid | 110 | c | 1 | **none** | *none* | **u-KAB-ba k'u-li** | |
| Madrid | 111 | a | 1 | **SAK-K'UH** | *Sak K'uh* | **?-? ? ?-le-? SAK-K'UH** | |
| Madrid | 111 | b | 3 | **LEM-K'UH/ IXIM** | *Lem K'uh/Ixiim* | **yo-OT-chu u-KAB-ba LEM-K'UH/ IXIM TI'-WAJ-HA'** | Maize god is holding rattlesnake over bee and honey. |

In the Madrid Codex, the Maize God is depicted a total of 96 times, with only 15 times in the negative position. In the case of names, frequent variations appear in the Madrid Codex, with the Lem K'uh used as the main name (33 times), while the more established Lem Ixiim, or conflation of Ixiim+K'uh, is used only 8 times in total. (Figure 54)


**Figure 54:** Occurence of Maize god in Madrid codex.

The Paris codex consists of 11 physical folios, the dimensions of which are not always identical. However, on average they are 24.9cm in height and 12.7cm in width. It is the second shortest codex, measuring approximately 1.4m when unfolded. (V. Bricker & Bricker, 2011, pp. 11–12) The Paris codex consists of 11 physical folios, the dimensions of which are not always identical. However, on average they are 24.9cm in height and 12.7cm in width. It is the second shortest codex, measuring approximately 1.4m when unfolded. (V. Bricker & Bricker, 2011, pp. 11-12) The Paris Codex is the most destroyed of all. Moisture has seeped in between the sides of the codex from the corners and sides, causing the fine limestone surface to crumble over time. Only the middle parts of the pages remain. The Paris Codex is divided into several sections. The largest part is taken up by the so-called k'atun pages, i.e. the divinations for the individual 20-year cycles. Next are the God C pages, Yearbearer pages, Otherworld and constellation pages.

| Codex | Page | Register | Frame | Name (Transliteration) | Name (Transcription) | Text | Only text | Note | Woe to Maize god | Theme |
|---|---|---|---|---|---|---|---|---|---|---|
| Paris | 2 | a | 2 | **?** | *?* | | | Maize god sitting on AJAW-HAAB sign. | | K'atun pages |
| Paris | 3 | a | 1 | **?** | *?* | | | Maize god sitting on AJAW-HAAB sign. | | K'atun pages |
| Paris | 3 | a | 2 | **?** | *?* | | | Maize god sitting on AJAW-HAAB sign. | | K'atun pages |
| Paris | 4 | b | | **?-IXIM** | *? Ixiim* | | x | | | K'atun pages |
| Paris | 5 | a | 1 | **?** | *?* | | | Maize god in the temple on AJAW-HAAB sign | | K'atun pages |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Paris | 5 | c | | **LEM-IXIM** | *Lem Ixiim* | **u-TZ'AK LEM-IXIM** | x | Conjuring of Maize god | | K'atun pages |
| Paris | 5 | c | | **LEM-IXIM** | *Lem Ixiim* | | | Maize god sitting on AJAW-HAAB sign. | | K'atun pages |
| Paris | 6 | a | 2 | **?** | *?* | | | | | K'atun pages |
| Paris | 6 | c | | **LEM-IXIM** | *Lem Ixiim* | **NIK LEM-IXIM TI'-WAJ-HA'** | x | | | K'atun pages |
| Paris | 7 | c | | **LEM-IXIM** | *Lem Ixiim* | | x | | | K'atun pages |
| Paris | 8 | a | 2 | **?** | *?* | | | Dead Maize god is sitting on AJAW-HAAB sign. | x | K'atun pages |
| Paris | 8 | c | | **LEM-IXIM** | *Lem Ixiim* | | x | | | K'atun pages |
| Paris | 9 | c | | **LEM-IXIM** | *Lem Ixiim* | | x | | x | K'atun pages |
| Paris | 9 | c | | **LEM-IXIM** | *Lem Ixiim* | | x | | x | K'atun pages |
| Paris | 9 | d | | **LEM-IXIM** | *Lem Ixim* | | x | | | |
| Paris | 10 | d | | **LEM-IXIM** | *Lem Ixim* | | x | | | |
| Paris | 10 | c | | **none** | *none* | | | Mostly eroded - only headdress preserved. | | K'atun pages |
| Paris | 11 | c | | **LEM-IXIM** | *Lem Ixiim* | **AJ-KIMIL-la AJAW-wa AJ-KIMIL-la LEM-IXIM AJ-KIMIL-la YAX-e-TE' YAJ-HAB-li** | x | | x | K'atun pages |
| Paris | 19 | a | | **none** | *none* | | | Maize god with elaborated headdress. Lamat yearbearer. | | Yearbearer pages |
| Paris | 19 | b | | **none** | *none* | | | Dead Maize god with rope/intestines went out from his belly and anus. B'en yearbearer. | x | Yearbearer pages |
| Paris | 19 | b | | **none** | *none* | | | Mostly eroded - above is bird. B'en year-bearer. | | Yearbearer pages |
| Paris | 20 | a | | **none** | *none* | | | Maize god sitting on AJAW-HAAB sign with hand on his forehead - impend-ing death. Etz´nab yearbearer. | x | Yearbearer pages |
| Paris | 20 | a | | **none** | *none* | | | Mummy Maize god with stick. Etz´nab yearbearer. | x | Yearbearer pages |
| Paris | 20 | a | | **none** | *none* | | | Maize god - eroded, only headdress preserved. Etz´nab yearbearer. | | Yearbearer pages |
| Paris | 20 | a | | **none** | *none* | | | Maize god - mostly eroded. | | Yearbearer pages |
| Paris | 20 | b | | **none** | *none* | | | Maize god with hand on his forehead - impending death - jaguar is attacking. Ak'bal yearbearer. | x | Yearbearer pages |
| Paris | 20 | b | | **none** | *none* | | | Maize god with hand on his forehead - im-pending death. Ak'bal yearbearer. | x | Yearbearer pages |
| Paris | 23 | a | | **IXIM-LEM** | *Lem Ixiim* | **u-MUK-ka LEM-IXIM** | x | Mirrored text. | x | Constellation pages |

The Maize God is mentioned or depicted a total of 26 times. In the negative position, the Maize God has been depicted 10 times. The name used in this codex was probably just a variant of Lem Ixiim. (Figure 55)

In colonial sources, we can include several stylistically different works. First, there are the Books of Chilam Balam. Another very valuable source is *Relación de las cosas de Yucatan* from the Franciscan Diego de Landa. The third significant source is chronicles, such as the Chronicle of Oxcutzcab. The fourth source is Ritual of the Bacabs. Last, but not least, we can include there also Popol Vuh.

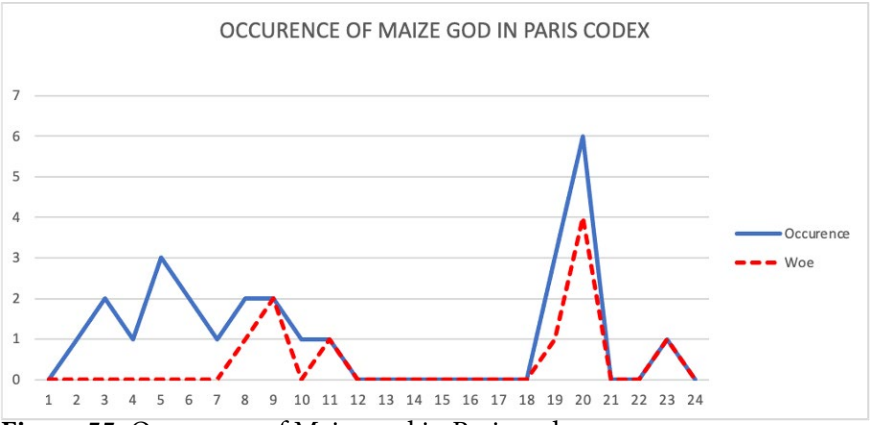


**Figure 55:** Occurence of Maize god in Paris codex.

The Books of Chilam Balam were named according to the name of a community or a village, in which they were discovered. They were Chumayel, Ixil, Kaua, Maní or Tizimín, and others (Vail & Hernández, 2013, p. 6). The priest Chilam Balam became famous by the fact that in the pre-Conquest period he predicted the arrival of Spaniards. *Chilam*, or *chilan*, is the title, which means something like "interpreter of the gods". Balam is a traditional name, which widely spread in that period in the area of Yucatan. It is very probable that those texts had their basis in hieroglyphic books. As the subject matter of the Books of Chilam Balam is historical, calendrical, astrological, prophetic, medical and religious. There is also, however, an admixture of European content that can be problematic (Paxton, 1992, pp. 216–217). Records, which are present in the Books of Chilam Balam, are full of metaphors, and sometimes, it is very difficult to understand them. They contain, however, a huge amount of data about Maya history, cosmovision or calendars. Ap-

parently, the best-known book of Chilam Balam is the one from the village of Chumayel. It is considered as the most valuable one (Kovac, 2010, p. 33). One of the most remarkable works we can consider is the text, which the translator Ralph Roys named as the Ritual of the Bacabs. It represents the collection of more than 40 enchanting songs, which were used for magical healing (Kovac, 2010, p. 35).

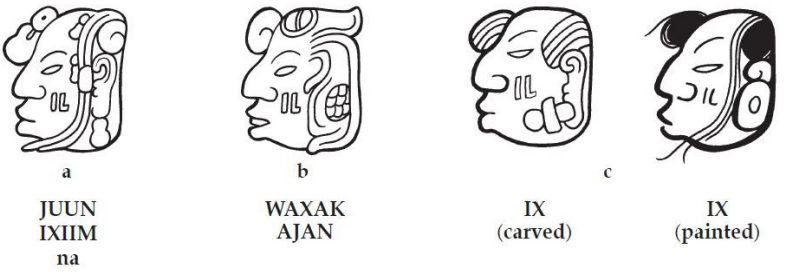


**Figure 56:** Three portrait glyphs. (Drawing Marc Zender, 2014, Figure 1)

**Name of Maize god**

Deciphering the names of the Maya deities has been one of the most difficult tasks since the beginning of Maya studies. Paul Schellhas, in studying the Maya codices, made a very good analysis for his time, but deciphering the names was beyond him. So he assigned letters to all the gods, ranking them in order of frequency. (Schellhas, 1904) Over time and with the help of ethnographic sources, the names for individual gods have been suggested, mainly from the postclassic period. (Taube, 1992) The names of some of the Classic Maya gods escape decipherment practically to this day. This is partly because few names are also written down phonetically, which makes decipherment even more difficult.

**Figure 57:** Name of Maize god from Dresden codex.

Among the important studies that do dissect the name of the maize god is clearly that of Marc Zender, where he even distinguishes between two possible names - Ixiim and Ajan. (Zender, 2014)

Many scholars have referred to the god E in codices as Nal. In fact, in

many Mayan languages, nal is understood as an ear of corn. (Macri & Vail, 2009, p. 103) Some scholars still using this name for Maize god. (Vail & Hernández, 2007, p. 126) The prevailing view today is that both the classic and postclassic maize god bore the name Ixiim. This term has been used as a name for maize and the maize god, for example, by David Stuart, who is supported by evidence that ixi'm is the most common name for maize in Maya languages, and the logogram of the maize god's head is accompanied by the prefix i-in two instances-on pottery K3120 and K791. (Stuart, 2006, p. 197) Thus, the name of the maize god from Classic Maya mythology is Juun Ixiim. Peter Biró promotes the name of the Maize God not as Ixiim, but rather as Ajan. (Bíró et al., 2020, p. 132)

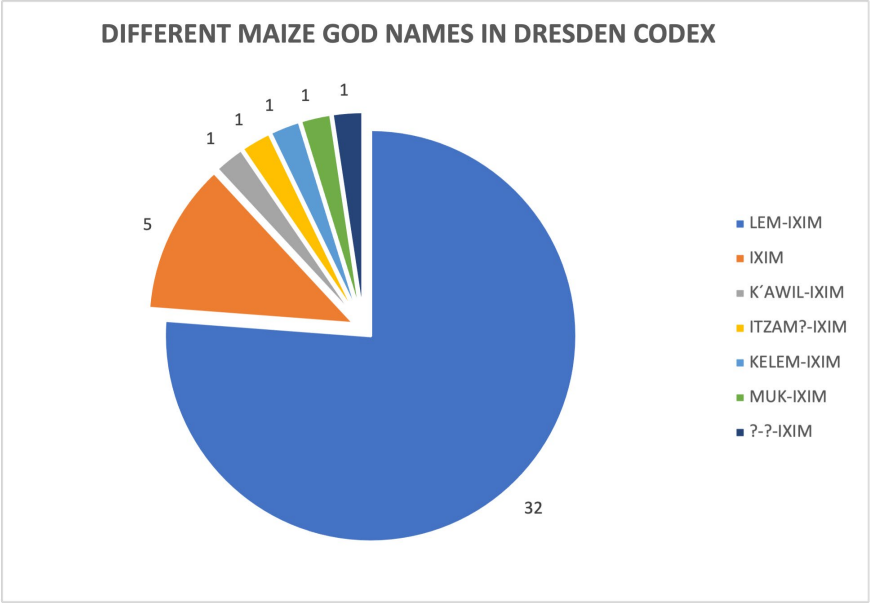


**Figure 58:** Different names of maize god in Dresden codex.

However, if we look at the most widely used hieroglyph in the codices, the main glyph, the head of the maize god, is often preceded by a prefix - T0024. As a syllable, this glyph stands for li, but in this case it is clearly a logogram. Macri and Vail in their catalogue identify this glyph as na/nahil/nah, which they translate as honored, first, or foremost. (Macri & Vail, 2009, p. 209) Most likely, however, this is the logogram LEM, which Stuart translates as celt (Stuart, 2007), or some kind of shiny object - mirror, glass, polished

stone. It is also used as a form of lightning bolt - for lem Chahak - lightning bolt, or literally "Chaahk's flash." (Stuart, 2010, p. 291) The connection of the logogram LEM and the name of a deity appears in the codices in only two instances - for god A and for god E. In the classic period, we have evidence that the logogram LEM may also have been part of the name of the god K'awiil - Lem/Lelem K'awiil. (Haines & Helmke, 2016, p. 123) Thus, it is quite possible that LEM as a prefix was read at the names of the god of death and the Maize god. In that case, it would be Lem Kimi/Lem Kimil and in the case of the Maize God it would be Lem Ixiim. (Figure 57) On the famous Dallas bone we have the corn god depicted and above him is the text 5-K'AN TI'-HAAB YAX-K'IN-ni K'AL-ja ?'-HU'N-na tu-BAAH-hi LEM?-? IXIIM, which can be translated as "on the day 5 K'an the "end" of Yaxk'in, the ? headdress is fastened upon the head of Shiny ? Maize. (Stuart, 2007a) There is also a mutual confusion or conjunction of two gods, such as K'awiil Ixiim, or K'awiil Ajan. (Boot, 2008, p. 26, 2011, p. 55) This sort of thing is also called theosynthesis, which has been elaborated on by Simon Martin in the case of the old gods. (Martin, 2015, pp. 210–211)

We can even see the connection between the gods K'awiil and Lem Ixiim in the Dresden Codex on p. D.26c (tz'apaj yax ? te' nohol yax waj haabil K'awiil Ixiim), or on p. D.12a, where K'awiil is depicted with a bowl of cocoa beans (ochkakaw K'awiil Lem Ixiim ox wi'il).

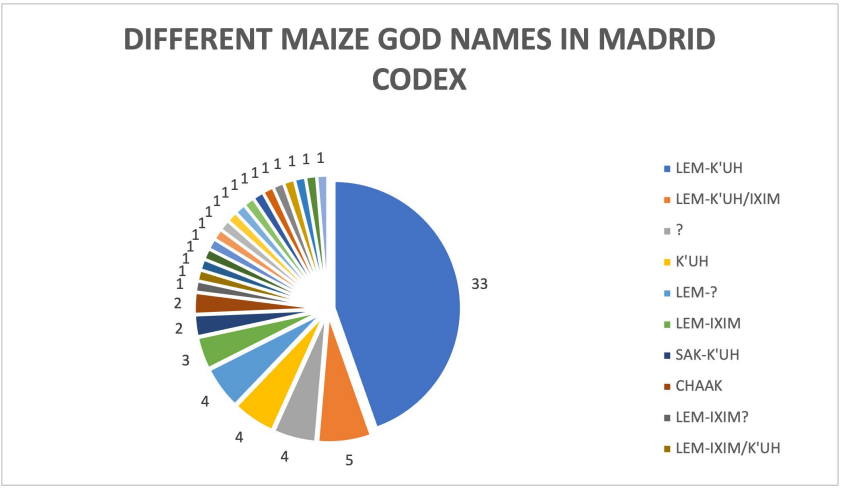


**Figure 59:** Different Maize god names in Madrid codex

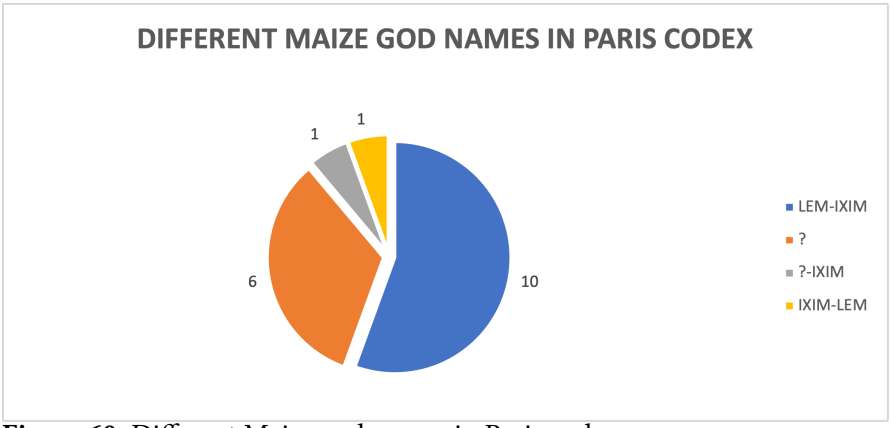


**Figure 60:** Different Maize god names in Paris codex.

## Iconography of Maize god

Visually, we can divide the corn god into three groups that represent different types of depictions of this god. The first group is the depiction of the young maize god. The second group is the old maize god and the third group is all other atypical depictions. Among the typical features by which we identify the maize god are his almond-shaped eyes, headdress with plant elements - maize leaves, logogram WAJ. He does not hold any specific objects, but often waves symbols for water and tamale - ha' and waj, which are symbols for feasting.

**Figure 61:** Young Maize god from Dresden codex.

Young maize god (Figure 61) is often found in the Dresden and Madrid codices, and in one case in the Paris codex. He has almond-shaped eyes and a youthful mouth. The head is often elongated into a plant element that we can associate with maize. Such a representation can be seen, for example, on page D.36b, or D.68a, or in the Paris Codex on page P.5a. The Madrid Codex is very specific in its artistic component. The maize deity here does have elements of a young man, but he is often stark naked and his body evokes the maize itself. We can see this, for example, on page M.24d, or M 51b.

Another variant of the maize god can be seen, for example, on pages D.11b, or D.13b, or almost all the depictions in the Paris Codex. These are not explicitly old generation gods, but clear differences from the young maize god are evident. This variant, for example, has a nasal motif that is typical of central Mexico, and instead of a deformed head that grows into the corn, the headdress often has a WAJ glyph and a bird emerging from the headdress. (Figure 62)It is strikingly reminiscent of its Aztec counterpart Cinteotl, who is the Maize god and combined with the female goddess Chicomecoatl, who represents the goddess of agriculture and is thus the feminine aspect of the maize.

**Figure 62:** Mexicanized Maize god from Dresden codex.

Various different types of depictions can be seen especially in the Madrid Codex. This is of course due to the different authors of this codex. However, something similar can also be seen in the Dresden Codex. Within the Venus pages we see an atypical depiction of the maize god, if we were to compare it with the other depictions from this codex. It is found on page D.48c as a sacrifice to Venus (a deity apparently native to central Mexico - Tawiskal). (Figure 63) The same god is also depicted on page D.50a in conjunction with the god S (Jun Ajaw) holding a krchah in his hand. This is the type of maize god that is often depicted in the Madrid Codex - naked and with strong vegetation on his body.

**Maize god and almanacs or tables in codices**

Almanacs are an inseparable part of all three preserved Maya codices. At the same time, they represent the significant part related to the content of these codices. The conventional term "almanac" has been used to describe each of the temporal instruments that comprise the pages of codices (Aveni, 2011, p. 2011). The sets of almanacs in codices are prognostications as to the results of actions on particular days (Barnhard, 1995, p. 1). Almost all almanacs in the codices have a length of 260 days or represent multiples of 260 days (V. Bricker & Bricker, 2011, p. 101). Almanacs have the same format, so they are divided into a series

of frames that include a hieroglyphic text, numbers, and a picture. The initial date of an almanac within the *tzolk'in* calendar is determined by the column of day glyphs to the left of the frames. Most almanacs have either 4, 5, or 10 day glyphs in the introductory column (Vail & Aveni, 2009, pp. 137–138). It means that we can have a 4x65 day structure, 5x52 day structure, or 10x26 day structure. Each almanac's frame is associated with a series of dates in the 260-day calendar that can be used for determining an appropriate day for the activity represented in that almanac. An alternate way of interpreting almanacs includes a series of frames with repetitive iconography, where the activity remains the same but the deity changes (Vail & Aveni, 2009, pp. 140–144). Besides standard format of almanacs, we know also their variations. We can find three kinds called circular, crossover, and *in extenso* almanacs. *In extenso* refers to almanacs that represent all 260 days of the *tzolk'in* rather than just a highlight of certain ones (Vail & Aveni, 2009, p. 142).

**Figure 63:** Maize god from Venus pages from Dresden codex.

Texts of almanacs are not always grammatically identical. They consist of four to six glyphs, while the first glyph often represents the verb, which is followed by the object of the verb. The third glyph is name of the figure in the picture. The fourth block represents augury—for example good, bad, rain, drought, or hunger (Love, 1993, p. 64).

**Interaction with other deities**

The maize god is often associated with various deities, such as K'awiil, or more commonly the rain god Chaahk. In the first case, the connection is with the principle of abundance and excess of food. In the latter case, the connection is with natural cycles and conditions. Successful maize cultivation depended on a few basic conditions, one of which was a sufficiently heavy rainy season. Positive depictions can be seen, for example, on page D.36b, where the god Chaahk carries a young corn god in his canoe, or on page D.37c the corn god is in conjunction with the maize god as a youngling - u-CH'AB-wa CHAK-ki ti-? KELEM-IXIM. There are also instances, however, where heavy rains are the result of misfortune or injury to the maize god, as we see, for example, on page D.72b, where the text reads ta-HA'-la K'IN-ni-la yaj IXIIM. Of course, this can also be interpreted as symbolism for drought - in the hot rain, damage to Maize god. Or in another register we can read mu-ku-NAL mu-ka LEM-IXIM, i.e. "burden for maize/place, burden of Maize god". Often with the prophecy of yaj Ixiim, or yaj Lem Ixiim, comes the prophecy of k'intuun haabil, or the year of the hot/sun stone, which represents drought. This prophecy is often associated with the sun god, K'in Ajaw, which makes sense since this god brings drought. However, there are cases where the originator of the bad for the maize god is the very thing that is supposed to bring the rain.

On pages D.42-D.45 are registers c dedicated to the god Chaahk. This is a type of almanac that is connected to the cardinal points. The hieroglyphic text always begins with information about the cardinal points - D.42c - nohol, D.43c - lak'in, D.44c - xaman, D.45c - chik'in. Two of these pages are positive and two are explicitly negative in position to the maize god. The positive side is D.43c, which is linked to the east. We see the god Chaahk paddling a canoe, with what is presumably fish caught in his net. Behind him is a sacrifice - a tamale waaj, on which lies an iguana. This means that it is a

tamale with meat from the iguana. The prophecies for these days oriented to the east side are ox wi'il, itzam ch'en nal, ti' waj ti' ha'. The second positive action of the rain god Chaahk is on page D.44c, where he and the wind god catch fish and turkey in a net [12].

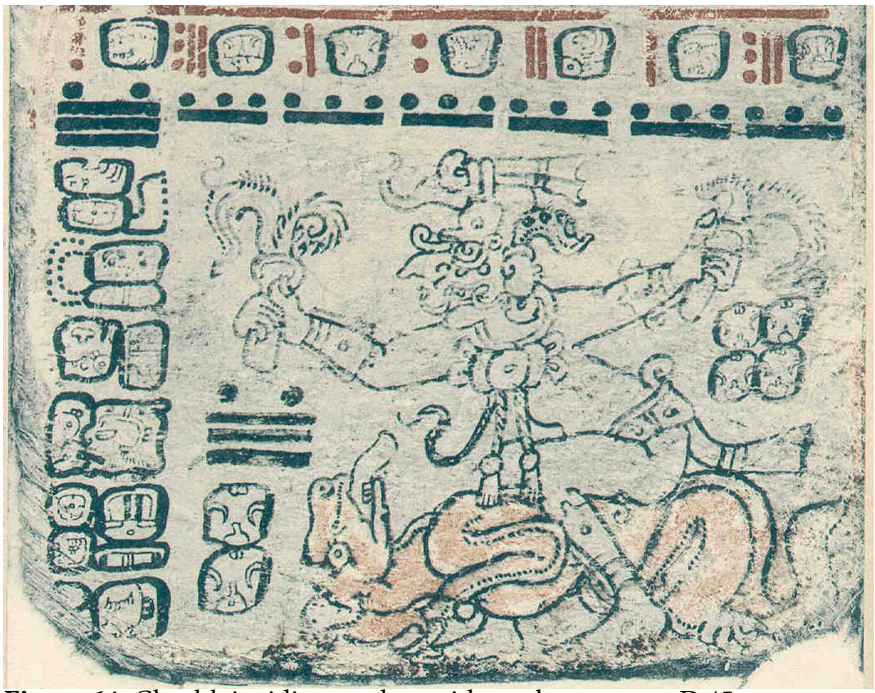

**Figure 64:** Chaahk is riding on deer with torches on page D.45c.

The second positive action of the rain god Chaahk is on page D.44c, where he and the wind god catch fish and turkey in a net . The cardinal direction here is north. The hieroglyphic text contains the following - ?-j xaman k'uhul ook'? Chaahk Lem Ixiim ti' waaj ti' ha'. The first part is unclear, but the second connects Chaahk with the maize god, and the whole text concludes with a very positive oracle of food abundance. The negative action of Chaahk is recorded on page D.45c, which is associated with the west. (Figure 64)The text says the following - lak'in k'uhul ook' Chaahk Muk Ixiim k'intuun haabil i kimil, which can be translated as - on the west, there is godly Chaahk, Ixiim is buried, year of hot stone (drought), death. The god Chaahk is even sitting

12 It is recorded hieroglyphically as ku-tzu, probably for the practical reason of saving space in the codex.

here on a captured deer, which is painted with a red line. It has a lolling tongue, which may be a symbol of a dried up mouth craving for water. The god Chaahk holds torches with fire in his hands, a common symbol for drought in the codices. A very similar depiction is found in the Madrid Codex on page M.24c, where we see two almanacs with the same iconographic scene. The central figure is the Maize god, who is seated in front of the incesario. Above him flies a dog with a fiery tail holding two burning torches symbolizing drought. In the first almanac, the corn god is even dead and bound. The text mentions waj kimil - dead tamales. In the next register (M.24d) the maize god is again found in negative prophecies, where he is eaten by worms, or in the next frame by birds.

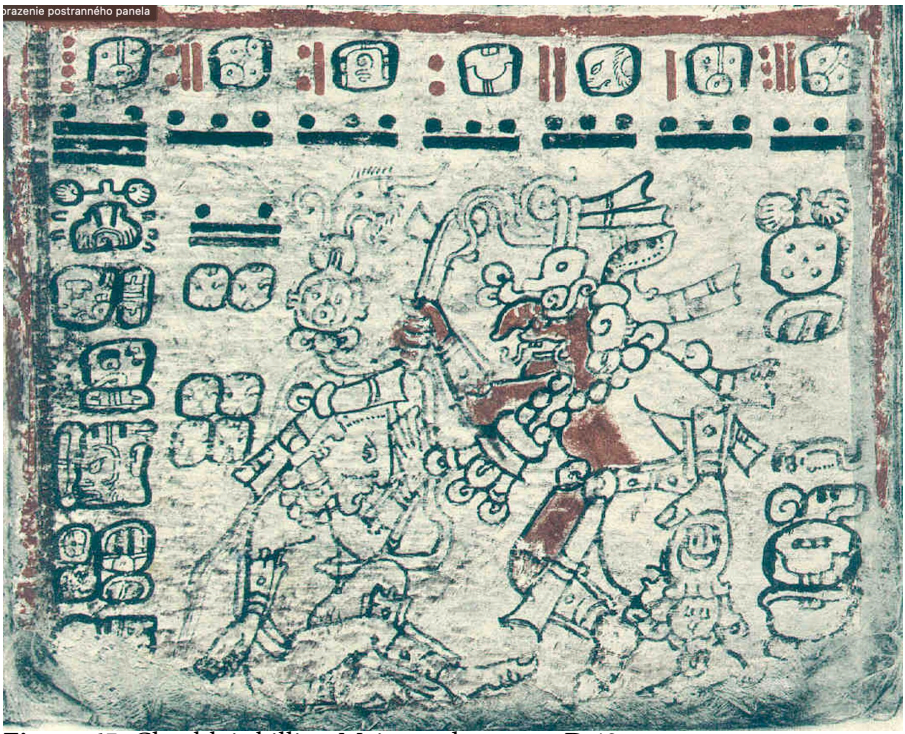


**Figure 65:** Chaahk is killing Maize god on page D.42c.

However, we consider among the most important illustrations the one on page D.42c. (Figure 65) It is associated with the south side and the text mentions the following - nohol Chaahk k'uhul ook' Lem Ixiim k'intuun haabil kimil? Ixiim, which can be translated as - 'the southern god Chaahk, the maize god is asso-

ciated with drought, dead? Maize god. The iconographic scene describes virtually the same thing that is found in the hieroglyphic text. The god Chaahk is depicted here as a standing figure and is painted in red. In his hand he holds his axe in an attacking position and in his other hand he holds an instrument of sacrifice. In front of him sits the maize god, who has his hand raised in front of his face. However, this is not an act of self-defense, but rather a symbol of the coming death, which we have seen several times in the Paris Codex. One of the most important elements of this depiction is the symbol that floats over the body of the dying maize god. This is the symbol of the face associated with the logogram for the tzolk'inu ajaw sign of the day. However, the reading is somewhat different. It is a logogram that can be read as NIK, BOK, or SAAK. It used to be associated with the hieroglyph for death - sak ik'nikil - white flowery breath. However, it can also be a term for odor - bok, or even SAAK, like pumpkin seeds. However, the interpretation of this symbol is clear - it is a representation of life energy, or what we would call the soul in Christian terms. This symbol, topped with the plant element of maize, has two cords at its base that encircle the Maize God, one of which comes out of his dismembered abdomen. This means that after the injury that Chaahk inflicted on the Maize God, his life energy comes out of his wounded body and the Maize God dies. This can be interpreted as a negative aspect of Chaahk, which in contrast to the rain brings drought, killing the maize god and thus the maize itself. Even the sacrifice behind these figures contains the glyph wa-WAJ, above which floats the logogram YAJ, which we translate as misfortune or injury. In a more positive sense, we can find a similar connection to the life essence and the corn god. We find this on page D.16a, where the main figure is the young aspect of the moon goddess, Kab Chel. Here she carries a load, a package containing the glyphs HA'-WAJ (ti' ha' ti' waaj) and on top of this load is the glyph NIK/BOK/SAAK, which represents the life essence of the maize god. A few pages later (D.20c) we see again the female moon goddess (Sak Chel), whose cargo is the young maize god Lem Ixiim - Lem Ixiim u kuch Sak Chel ti' waj ti' ha'.

On page D.66a we see again the linking of the maize god and the rain god in a negative sense. (Figure 66) In the hieroglyphic text, the beginning of which is unfortunately destroyed, we find the prophecy yaj Ixiim, that is, misfortune for the maize god. On iconographic analysis, we can see Chaahk

with his axe, holding a shield in his other hand, through which a pebble passes. This is thus the martial aspect of Chaahk, which is reflected in the misfortune for the maize.

**Figure 66:** Chaahk with shield causing harm to Maize god.

We also see a negative association with the maize god on the pages with the planet Mars in the Dresden Codex - D.43b-D.45b. With high probability the Square-nosed beastie does not represent the so-called Mars beastie, but it is one of the aspects of the rains, linked to the rain god Chaahk. We can see this, for example, in the Madrid Codex page M.2a. On the pages in the Dresden Codex it is mainly negative divinations that end in misfortune also for the maize god. For example, on page M.45b we see a Square-Nosed Beastie hanging from the celestial belt and the hieroglyphic text reads - ch'akaj SQUARE-NOSED BEASTIE yaj k'uh, k'ahk ? i kimil yaj Lem Ixiim, which we can translate as - "chopping SQUARE-NOSED BEASTIE means misfortune for the god, fiery ? Death and misfortune for the maize god". Not all the almanacs where Square-nosed beastie and the maize god are found are explicitly negative. on page D.68a there is a seated maize god holding the glyphs WAJ-HA', which symbolize the often used collocation ti' waj ti' ha', which can be translated as excess of food. Above the seated figure of the maize god is a skyband from which hangs a square-nosed beastie. At the same time, it is raining from the celestial belt, which is symbolized by a turquoise stream of water. The hieroglyphic text reads as follows – **CHAN-na-ja SQUARE-NOSED BEASTIE LEM-IXIM CHAK-ki K'IN-AK'BAL-ji? TI'-WAJ-HA'**.

In addition to the almanacs, the maize god is also found in the tables in the Dresden Codex. These are mainly the so-called Venus Tables, which can be found on pages D.24, D.46-D50. On the first-named page there is a hieroglyphic text which practically summarizes what happens on the other five. The text concludes by mentioning all the sacrifices of the god Venus. In addition to the names, sat u also finds the prefix YAJ, which means misfortune or harm - yaj K'awiil, yaj Chak Bolay, yaj Ixiim, yaj ?, yaj ?. The last two unknown names probably have their origin in the Central Mexican area. The actual injury to the maize god occurs on page D.48, where he is pierced by the Middle Mexican god Tawiskal (ta-wi-si-ka-la), apparently representing Tlahuizcalpantecuhtli.

**Figure 67:** God l is attacking on K'awiil causing harm to Maize god.

On page D.46 is the attacking god L (Ha'al Chuwaj), who attacks with the weapon atl-atl. The text says - k'alaj lak'in Ha'al Chuwaj Chak Ek' K'awiil

uhul yaj uh yaj winik umuk 2 ? yaj Ixim yaj Ajaw?, which can be translated as follows - from the east comes Ha'al Chuwaj, the great star that pierces K'awiil. This results in harm for the moon, harm for the people, burden is ?, misfortune for the maize god, misfortune for the lords.

**Yearbearers and New Year ceremonies**

Yearbearers are an important part of Maya and Mesoamerican cultures. Despite we have direct evidence about them, mainly from post-Classic codices, they surely existed also in Classic Period. This is another proof of coherence and combination of their calendars, and mainly their strict approach to symbols, which find their starting point in those combinations.

A permutation of two calendars, *tzolk'in* [13] and *haab* [14], resulted in an 18,960-day period, which corresponds to 52 years. Because of the inequality in the number of days of these two calendars, we get to a specific day in the *haab* with four possible characters of *tzolk'in*. This means that the first day of the Maya year, 0 Pop, can be combined with only four specific days of *tzolk'in*. The names of these days we use for naming the yearbearers. During the Classic Period these days were Ik', Manik', Eb, and Kaban. Bowditch suggests that yearbearers simply did not exist in the Classic Period (Bowditch, 1910, p. 81). Thompson noted,, that if they did, they did not have to necessarily be mentioned in monumental inscriptions (Thompson, 1950, p. 128). These statements leads from limitation of data source of Bowditch and Thompson era.

David Stuart associated the hieroglyphic inscriptions on Stela 18 from Naranjo with a pile of stones, which Landa says are shown on pages in the Dresden Codex. We can see other illustrations of yearbearers in Classic inscriptions at Copon Altar U, or even on Lintel 2 at Tikal temple 4. The gods mentioned in these texts are called "four young men" or "four lords." This is most likely the *Pawajtuns* (Stuart, 2004, pp. 2–4). Alternative days were Ak'bal, Lamat, Ben, and Etz'nab, which were used in the western part of the Maya area. It was made by shifting one day in tzolk'in forward, but not in haab. A third alternative were the days K'an, Muluk, Ix and Kawak, which were the result

13 260-day calendar.

14 365-day calendar.

of shifting one day in both tzolk'in and haab. This group was used in the north of the Yucatan in the Post-Classic Period (V. Bricker & Bricker, 2011, pp. 69–70).

In codices these days are part of the rituals, which we call Haab rituals, since they are linked to the haab calendar system. Diego de Landa describes these rituals in his *Relación de las Cosas de Yucatán*. Besides these yearbearers, we count among these rituals and ceremonies the hunter's ceremony, making and dressing the wooden statues, and so on. There are also several almanacs that may be linked with the iconography rituals of yearbearers, such as the seated figure in a house, which is surrounded by food and sacrifices (Vail & Aveni, 2009, p. 219).

**Figure 68:** New year ceremonies in Dresden codex on page D.25c.

What does Diego de Landa say about yearbearers? First, he describes the Maya calendar as 360 days long, divided by twenty letters or characters, thus months. The remaining five days apparently could not be named because

they were considered unfortunate and bad. These days were called *xma kaba k'in* (nameless days). He describes the gods "which they specifically honor" and calls them Bakabs. *„They were four brothers whom God appointed to the four cardinal points, which supported the sky.*" (Kovac, 2010, pp. 202–203). The word *bakab* can be translated as "the first on earth." The word is also used as a title of rulers in the Classic period. According to Karl Taube, Bakabs are epithets of Pawajtuns (Vail & Hernández, 2013, p. 71). In Chapter XXXIV. of Landa's *Relación de las Cosas de Yucatán*, he describes how the Maya chose from the day signs, of which there were twenty, selecting the first four from a group of five. Each of them served as a "dominical letter". He describes the already mentioned Bakabs, which were specific signs of the years. They carried with them the signs of bad and good periods, which in that year had to occur.

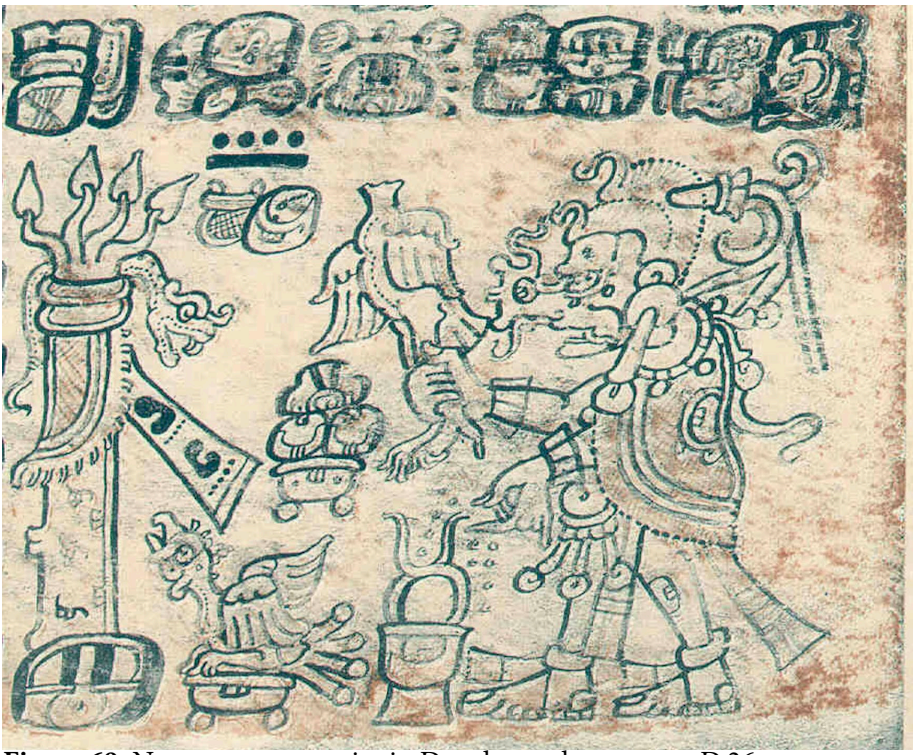

**Figure 69:** New year ceremonies in Dresden codex on page D.26c.

It was necessary to identify ways of worship and sacrifice to protect the Maya from harm. Landa's yearbearers were the days *K'an*, which were associated with the south. The second character was *Muluk*, marking the east. The third was the sign *Ix* associated with the north and lastly was the sign *Kawak*, associated with the west. They were associated with ceremonies in honor of these gods, which included casting out "demons". The ceremony took place just before the New Year (0 Pop), during the five unlucky days. Along with the individual Bakabs were mentioned gods with the names *Kanuuayayab*[78], *Chacuuayayab*, *Zacuuayayab* and *Ekuuayayab* (Kovac, 2010, pp. 203–205). He also mentions the position of piles of stones at the cardinal points, which represented an improvised altar, where statues of gods were placed during the ceremony.

Landa also mention different outcomes from yearbearer ceremonies. Every yearbearer hold positive or negative symbolism. K'an yearbearer is considered as good year – "*…they looked on the coming year as a good one, because it was ruled by the character* ***Kan*** *and the bacab* ***Hobnil****; and of him they said that in him there was no sin as in his brothers, and because of that no evils would come upon them.*" (Landa & Gates, 1978, p. 62) But some other yearbearers are caring only negative prognostications, especially yearbearer Ix – "*The evils the Indians feared for the ensuing year if they were negligent in these ceremonies were loss of strength, fainting and ailments of the eyes; it was held a bad year for bread and a good one for cotton. And this year bearing the dominical* ***Ix****, and which the Bacab* ***Sac-sini*** *ruled, they held an ill-omened, with many evils destined to occur; for they said there would he great shortage of water, many hot spells that would wither the maize fields, from which would follow great hunger, and from the hunger thefts, and from the thefts slavery for those who had incurred that penalty therefor. From this would come great discords, among themselves or with other towns. They also said that this year would bring changes in the rule of the chiefs or the priests, because of he wars and discords.*" (Landa & Gates, 1978, pp. 65–66). Landa's descriptions of yearbearers consist of preparations for ceremonies and prognostications. In some cases he mention bad omens for maize, water, people, or land, which is connected to some parts of yearbearer ceremonies in Maya codices.

*Yearbearer pages in the Dresden Codex (D.25 – D.28)*

The link between the "wayeb ceremonies", which were described by Diego de Landa, and their representations in the Maya books, is most noticeable in the Dresden Codex on pages D.25 - D.28. There are illustrations of gods who are in the position of priests and perform offerings. There are three registers on every page. On left column we can see list of tzolk'in daysigns. Upper daysigns (approximately to 1/3 of every page) we can see Eb, Kaban, Ik' and Manik, which are connected to 0 Pop. Lower part consists of B'en, Etz'nab, Ak'bal and Lamat, which are dates by one day later – 1 Pop. In general, pages 25-28 in the Dresden Codex consists of three registers but compared to those in the Paris Codex they are different. It shows more like process of ceremonies during at least two days. First register consists of standing opossum figure, identified as Mam (Vail & Hernández, 2013, p. 107), with different deities on their backs as cargo. Middle register shows sitting deity in temple in front of incesario with offerings. Lower section shows standing deity, which is making offering to incesario next to tree rising from haab sing for a year. Hieroglyphic text in middle and lower register is in a form of predictions and prophecies. For example on page D.25, register b, we have K'awiil, who is lord, which is burden for deer (**u-MUK-ka chi-ja**) and it is misfortune to cave place (**YAJ CH'EN NAL**).

In the hieroglyphic text in register C on page D.25 appears the glyph *k'intun haab* (**K'IN-TUN-HAAB**), which means drought. (Figure 68) This glyph is preceded by the collocation *yaj Ixim*, representing misfortune for maize, or more precisely the Maize God. It is therefore clearly an expression of misery for the harvest on the following year, which is associated with a specific year-bearer, in this case the year Eb'. On the next page appear ceremonies beginning with the sign *Kaban*, can be seen in the text to be a positive prediction for maize (V. Bricker & Bricker, 2011, pp. 124–131). [15] On page D.26 we can also see two strange types of Maize god names – Itzam? Ixiim (register B), who is connected to positive prophecy (*ox wi'il yaj Chak Bolay ti' waj ti' ha*) and as K'awiil Ixiim (register C), where is prophecy *yax waj haabil* – year of first/fresh tamale. (Figure 69)

*Yearbearer pages in the Madrid Codex (M.34 – M.37)*

15 For more information, see Chapter 4 in Vail & Hernández, 2013.

On the other hand, Landa's description of the new year celebration also agrees with the image in the Madrid Codex on pages 34 to 37, which was also known as the "New Year Almanac." Furthermore, Landa's description also agrees with the grouping of yearbearers, thus *K'an*, *Muluk*, *Ix* and *Kawak* and they are also linked to the cardinal points. The Brickers indicated in their study that these days most likely do not represent Wayeb ceremonies, or the first day of the New Year, but are more likely a kind of "chronicle", which records several events during the year (Bricker & Bricker, 2011, pp. 138–139). This kind of representation corresponds with the yearbearer pages in the Paris Codex.

The pages with the yearbearers in the Madrid Codex include several drawings of rituals associated with the celebration of the New Year, but also other events that are associated with the corresponding year. On page M.37b is *K'inich Ajaw*, the Sun god who sits facing the Maize God. He is pictured with *kimi* (death) eye, which symbolizes that he is dead. Both are sitting on the tun symbol, which means that they represent fate, or prediction for the next year. The total prediction therefore means that the Sun god will bring severe drought, which will lead to the death (of the Maize God) and destruction of maize (Vail & Aveni, 2009, p. 224; Vail & Hernández, 2013, p. 360).

*Yearbearer pages in the Paris Codex (P.19-P.20)*

Yearbearer pages from Paris codex are very important part of this study. Unfortunately, there is no hieroglyphic text, so reading is based only by interpretation of figures. From a technical point of view, both pages are divided into four parts separated by vertical columns of *tzolk'in* signs. Unlike other pages in the Paris Codex, the yearbearers are clearly defined scenes separated by colors. Alternately it is red and black, which form the background. This also appears on page 20 (P.20a, P.20b). A significant part of the limestone surface is permanently destroyed. Therefore, only the central portion of the oval shape is preserved. The yearbearer pages begin on the date 5 Lamat, which, as the beginning of a 52-year cycle, could correspond to the year 1482 in our calendar and could last until 1534 (Love, 1993, pp. 70–75).

Page 19 consists of two parts separated by vertical calendrical data. From the context, it is evident that the left edge of the letter is a vertical strip of the same calendar sign, which is preserved in the middle of the page. It is

indicated by a very small remnant of painted limestone substrate on an otherwise completely eroded section. It is clear that this is a character representing the calendar day *tzolk'in*, which, based on reliable calculations, can be identified as Lamat. Middle column of daysings consist of B'en days. Page 20 therefore should have Etz'nab and Ak'bal days which fits with postclassic set of yearbearers.


**Figure 70:** Yearbearer page P.19 from Paris codex.

On page 19, register a, we can see a seated figure, probably on the roof, and part of this is the so-called skyband. An element which forms the headdress of the Maize God is sticking out from the bottom of the roof. As noted by Bruce Love, the seated figure is the Skeletal death god, with a typical bare skeleton and even its lower skeletal jaw is visible (Love, 1993, p. 74).


**Figure 71:** Yearbearer page P.20 from Paris codex.

The dead god is depicted with a blanket or jacket, similar to the yearbearer gods from the Dresden Codex (D.25c) or even from other pages of the same codex (D.41b). Deity in this position on the roof would be a sort of main god / sign for the year, which also has an impact on the other prophecies. This would be the same as Diego de Landa's God being a sign for that year. The second figure is a bird. Specifically, it is a kind of vulture called *k'uch* in Maya. Its representation is similar to many depictions of vultures in the codices, like on pages D.8a, D.13c, M.22c. The vulture was often portrayed as an evil, negative sign. Probably even in this case it is nothing more than a bad omen for the year. A similar representation in the Paris Codex is found on page 16, in the almanac. Despite considerable erosion, we can identify this particu- lar vulture as a torch bearer that represents a drought for the specific period. Also Landa mention this in his Relación – "After this they took the image on a standard called **yax-ek**, placing on the back of the image a skull and a corpse, and on top a carnivorous bird called **kuch**, as a sign of great mortality, since they regarded this as a very evil year." (Landa & Gates, 1978, pp. 66–67) A third iconographic element in this section shows us an anthropomorphic figure, which we can easily identify as the Maize God. As we find out later, generally on both yearbearer pages, we can see that the Maize God is depicted a minimum of nine times. Here his headdress unusually drawn, as Bruce Love also noted (1993, p. 74). We can clearly see that the Maize God is sitting on a *haab ajaw* throne. This means that he is a sign or a lord of the year (*haab*). The over-decorated headdress of the Maize God is either a positive sign for the year Lamat, or the great decoration is symbol of mature, blooming maize that is ready for harvest.

The fourth iconographic element is a jaguar that apparently eats humans. The human depicted here is almost complete eroded, but we can identify it as a dead man because of the closed eyes. The Paris Codex seems to imply that the jaguar is a bad sign for humans because it eats them. Therefore, it could be the iconographic representation of a poor prediction for the people (yaj winik). On right part of page 19, whi can see figure which survived quite complete. We can clearly identify him as the Maize God, but he is naked and dead, indicated by his closed eye. Two "ropes" comes out from his body. Bruce Love says that it is his entrails that are coming out from his anus and a gash in his abdomen (Love, 1993, p. 74). It may also be a rope with obsidian spines, which is passing through his body. Anyhow, the implication of this representation can have two options: a poor, almost catastrophic year for the

Maize God, and therefore for maize in general, or it is symbol of germination of maize seed, which refer to first stage of reborn of Maize god. [16] Second figure is a black bird, often referred to as a vulture. To review in detail, we can see that this bird is holding something in its beak. A comparison of colors can lead to the hypothesis that it is like a rope (or entrails) or stem of seed, which is based on the rope/entrails/germination of the Maize God shown above. It can represent bad prophecy for Maize god – birds will eat maize.

One of the few completely preserved figures on page 20 is the Maize God sitting on the *haab ajaw* throne, and thus it is a symbol for the fate of the year. The position of his hand indicates his impending death. Bruce Love talks about an impending disaster (Love, 1993, p. 74). This representation is of a bad year for maize and Maize god. The figure which looks like mummy is very interesting and detailed. Bruce Love considers this figure to be straw effigy, carrying maize and holding a planting stick, while her left hand is in the position of a sow (1993, p. 74) A very viable hypothesis is from Gabrielle Vail and others (The Maya Hieroglyphic Codices), where this figure is associated with the Mexican deity *Itztlacoliuhqui*, which is depicted in the Mexican codices with a covered face, as in the Paris Codex. It is associated with the cold and the north, which would correspond to the cardinal point connected with the yearbearer Etz'nab. Due to inaccurate identification, it is difficult to determine the significance of this figure over the displayed date.

Standing figure in the middle of page is the Maize God with a bright necklace. Apparently, he is depicted as naked. According to position of his hands, this deity will die soon, or waiting for disaster. That means another bad prophecy for Maize god. As the last figure on bottom of the page, we can clearly see the Maize god with the same hand gesture as previous figures. As with those, impending death is implied.

The whole doublepage represents a full 52-year cycle, built on the basis of predictions and prophecies. The Maya priest who read these pages could therefore, at the beginning of their New Year, look for predictions. It is also assumed that these predictions were used in conjunction with other special predictions and almanacs for specific information. Bruce Love (1993, pp. 74–75) already noted that the Maize God, plays a major role in these pages.

16 Idea of similarity to germination of seed comes from Jakub Adámek during conversation.

Their representations, whether good or bad, made a direct impact on the lives of Maya society, because maize held a dominant position in the religious, cultural, and practical life of the Maya people. Almost all figures of Maize god can be interpreted as misfortune to maize, or to Maize god – yaj Ixiim.

**Maize god on K'atun pages P.2-P.11**

The k'atun pages represent a basic part of the entire Paris Codex. The page can be divided into four registers. The first, Register A, includes the so-called tun- winal series. Lower three registers represent the compact part, which can be called the k'atun prophecies. Register B represents three columns of hieroglyphic text, which directly relates to pictured iconographic scene. Register C is composed of two rows of hieroglyphic text, but the bearing part is formed by iconographic scene of the power takeover or govern over the oncoming k'atun. Register D consists of three rows of text, while iconographic features are highly eroded. However, it is assumed that they had the similar character as the tun- winal series at the top of the page.

K'atun ceremonies, or prophecies, represent the typical part of hieroglyphic books and colonial sources such as Chilam Balam.[20] A k'atun, in the Classic Period, also called the *winikhaab*, represents the time unit of twenty tuns or 360 days "years." A k'atun cycle consisted of thirteen k'atuns, or approximately 260 years.[21] This cycle always ended with the day Ajaw. Therefore, the Maya called these time pe- riods "K'atun X Ajaw," in which X represents a coefficient from 1 to 13. Except the fact that for every k'atun cycle existed ceremonies by its ending, or start, predictions and prophecies were also an inseparable part, which were many times mixed with historical facts (Paxton, 1992, p. 219). In the Paris Codex, we can see such k'atun cycles with prophecies, which directly influenced the functioning of Maya society.

Register B represents three columns of hieroglyphic writing, and it used to be a rule that the first glyph in Column C (or C1) represents the name of god, which is pictured in the iconographic scene with the head of god *K'awiil* in his hands. Before the glyph with this name always stands the verb *tz'ak ajaw*, which can be translated as „oncoming lord (is)". Or just simply ajaw. [17] Register C is a bearing part of each page of k'atun prophecies. Be-

17 Personal communication with Albert Davletshin, 2019.

sides the fact that it contains two rows of hieroglyphic writing, each with eight columns, which is apparently understood as prophetic text (Love, 1993, p. 30), lower, we can see the dominant iconographic scene. There, we can see two anthropomorphic characters, one of them sits on the right side on a throne with a skyband and a "pad" from a tied crocodile. Standing deity holds the head of the god *K'awiil*. It has great symbolic meaning because in the Classic Period we can see on many places the ruler, holding in one hand the small statue of god with one serpent leg, of which name is *K'awiil*. Thus, it is a significant symbol that represents the governing power of the person holding it. Gods from the Paris Codex who hold the head of *K'awiil* represent actual rulers in the time cycle.

Maize god is mentioned only few times on these pages. We can see his as a main deity sitting on haab ajaw sing on pages P.2a, P.3a (two times), P5a, P.6a, and P.8a. The only negative prophecy is connected to Maize god on the last mentioned page. He is sitting on haab ajaw sign with crossed legs and hands [18] and closed eye, which clearly symbolize death. That means bad year for maize. Prophecies in the hieroglyphic text of register b and c mention Maize god several times. There many bad prophecies, for example on page P.5c – *muk haab(il), kimil haabil, mukal haabil, yaj ch'en yaj kab, yaj ch'en ajaw, yaj winik?, sakpakal haabil*, which can be translated as "burden year, death year, burden? year, woe to cave, woe to land, woe to lord of cave, woe to people, it will be year of white shield." Very bad prophecy connected directly to Maize god is mentioned on page P.11c, which we can read as *kimil ajaw, kimil yax te', kimil Lem Ixiim, yaj haabil*. It can be translated as follows: "death to lord, death to first tree, death to Maize god, woe to year."

REFERENCES

Aveni, A. (2011). Maya Numerology. *Cambridge Archaeological Journal*, *21*(2), 187–216.

18 Probably position prepared for funeral.

Barnhard, E. (1995). Groups of Four and Five Day Names in the Dresden Codex Almanacs: The First Twenty-three Pages. *Texas Notes on Precolumbian Art, Writing, and Culture*, *72*, 1–5.

Bíró, P., MacLeod, B., & Grofe, M. (2020). Hidden in Plain Sight: The Codical Sign T648 and its Forerunner T694 in Three Classic Period Contexts. *Estudios de Cultura Maya*, *55*, 121–150. https://doi.org/10.19130/IIFL.ECM.2020.55.1017

Boot, E. (2008). At the Court of Itzam Nah Yax Kokaj Mut Preliminary Iconographic and Epigraphic Analysis of a Late Classic Vessel. *Maya Vase* .

Boot, E. (2011). Mesoamerican Maize God Mythology: The "Enano de Uxmal" Folktale. In *The Maya in a Mesoamerican Context: Comparative Approaches to Maya Studies*.

Bowditch, Ch. (1910). *Numeration, Calendar Systems, and Astronomical Knowledge of the Mayas*. Harvard University Press.

Bricker, V., & Bricker, H. (2011). *Astronomy in the Maya Codices. Memoirs of the American Philosophical Society: Vol. volume 265*. American Philosophical Society.

Bricker, V. R., Po'ot Yah, Eleuterio., & Dzul de Po'ot, Ofelia. (1998). *A dictionary of the Maya language : as spoken in Hocabá, Yucatán*. University of Utah Press. https://books.google.com/books/about/A_Dictionary_of_the_Maya_Language.html?hl=sk&id=ObNkAAAAMAAJ

Grube, N. (2020). A Logogram for YAH „Wound". *Research Note 17*. https://mayawoerterbuch.de/a-logogram-for-yah-wound/

Haines, H., & Helmke, C. (2016). Painted Hieroglyphs from Tomb FA-6/1 at Ka'kabish, Belize. *Mexicon*, *38*(5), 120–126.

Kovac, M. (2010). *Sprava o veciach na Yucatane, ktoru napisal brat Diego de Landa z radu sv. Frantiska v roku Pana*. SAHI.

Landa, D. de, & Gates, W. (1978). *Yucatan Before and After the Conquest*. Dover Publications. https://books.google.com/books/about/Yucatan_Before_and_After_the_Conquest.html?hl=sk&id=92loAAAAMAAJ

Love. (1995). A Dresden Codex Mars Table? *Latin American Antiquity*, *6*(4), 350–361.

Love, B. (1993). *The Paris Codex: Handbook for a Maya Priest*. University of Texas Press.

Macri, M., & Vail, G. (2009). *The New Catalog of Maya Hieroglyphs, Volume Two: The Codical TextsNorman: Oklahoma Press*. Oklahoma Press.

Martin, S. (2015). The Old Man of the Maya Universe: A Unitary Dimension to Ancient Maya Religion. In C. Golden, S. Houston, & J. Skidmore (Eds.), *Maya Archaeology* (Vol. 3, pp. 186–227). Precolumbia Mesoweb Press.

Paxton, M. (1992). The Books of Chilam Balam: astronomical content and the Paris Codex. In Anthony Aveni (Ed.), *The Sky in Mayan Literature* (pp. 216–246). Oxford University Press. https://ui.adsabs.harvard.edu/abs/1992sml..conf..216P/abstract

Schellhas, P. (1904). *Representation of Deities of the Maya Manuscripts*. Peabody Museum Press.

Stuart. (2004). New Year Records in Classic Maya Inscrtiptions. *The PARI Journal*, *5*(2), 1–6.

Stuart, D. (2006). The Language of Chocolate: References to Cacao on Classic Maya Drinking Vessels. In *Chocolate in Mesoamerica* (pp. 184–201). University Press of Florida. https://doi.org/10.5744/FLORIDA/9780813029535.003.0009

Stuart, D. (2007a). *The Dallas Bone*. Maya Decipherment. https://mayadecipherment.com/2007/12/27/the-dallas-bone/

Stuart, D. (2007b). *The Michol Celt*. Maya Decipherment: A Weblog on the Ancient Maya Script.

Stuart, D. (2010). Shining Stones: Observations on the Ritual Meaning of Early Maya Stelae. In *The Place of Stone Monuments: Context , Use and Meaning in Mesoamerica's Preclassic Tradition* (pp. 283–298). Dumbarton Oaks Pre-Columbian Symposia and Colloquia. https://www.academia.edu/2646062/Shining_Stones_Observations_on_the_Ritual_Meaning_of_Early_Maya_Stelae

Taube, K. A. (1992). *The Major Gods of Ancient Yucatan*. Dumbarton Oaks. https://archive.org/details/taube-the-major-gods-of-ancient-yucatan

Thompson, J. E. S. (1950). *Maya Hieroglyphic Writing: An Introduction*. Carnegie Institution of Washington.

Vail, G., & Aveni, A. (2009). *The Madrid Codex. New Approaches to Understanding an Ancient Maya Manuscript*. The University Press of Colorado.

Vail, G., & HernÁndez, C. (2007). Human Sacrifice in Late Postclassic Maya Iconography and Texts. In *New Perspectives on Human Sacrifice and Ritual Body Treatments in Ancient Maya Society* (pp. 120–164). Springer Nature. https://doi.org/10.1007/978-0-387-48871-4_6/FIGURES/20

Vail, G., & Hernández, Ch. (2013). *Re-Creating Primordial Time. Foundation Rituals and Mythology in the Postclassic Maya Codices*. The University Press of Colorado.

Zender, M. (2014). On the Reading of Three Classic Maya Portrait Glyphs. *The PARI Journal*, *15*(2), 1–14.

Zimmermann, G. (1956). *Die Hieroglyphen der Maya-Handchriften. Abhadlungen aus dem Gebiet der Auslandskunde*. Cram, de Gruyter.

# CONTEMPORARY MAYA & NAHUAS

# THE ROLE OF THE GOURD IN EARLY MAYA MYTHOLOGY ABOUT THE CREATION OF PEOPLE AND THE WORLD

Milan Kováč [19]

A well-known scene from the oldest Maya mural in San Bartolo, dating back to the first century BCE, shows us the birth of the first humans from a gourd. It is a rather surprising scene, as we do not find too many parallels to it in later dates from the Classic and Postclassic periods. And yet it must have been extremely important since it occupies such an important place. Moreover, it must have occupied a central place in the ancient Maya anthropogony - the idea of where the first humans came from on earth. In the same painting, the maize god, who was unquestionably the central deity of fertility and agriculture in those times, appears as a central figure. On his head, however, he carries not a maize but a gourd, apparently the same one that would later give birth to mankind. The role of the gourd in Maya mythology is little explored and unfairly marginalized at the expense of the great maize mythology. In this paper, I will attempt to show what role it may have had in the past by comparing it to contemporary Lacandon mythology as well as other regional parallels.

Among the Lacandon I have done some long-term field research and collected many myths. Of these, I was intrigued by the theme of the pumpkin and its similar fruits, which stands out quite dominantly. Since the gourd is

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also found at some crucial point in the Popol Vuh, the sacred book of the Quiché, I concentrated on presenting Lacandon mythology in a comparative aspect and tried to show how deep and archaic meanings this crop carried in Maya thought.


**Figure 72:** The birth of the first humans from the bottle gourd chuj, a cut-out from a mural in San Bartolo.

Lacandon mythology has already demonstrated its comparative plausibility, in many cases preserving symbols and images that can be identified without much difficulty with the earliest Maya ideas. They are certainly modified in many ways, but they nevertheless preserve a core, transmitted across generations as a precious ancestral legacy, even if it was not much understood by his contemporaries. In adequate circumstances, it can help us to illustrate the whole mythological context of the image from San Bartolo, where the existence of mankind begins with the birth from a gourd.

**Figure 73:** One of the Lacandon storytellers

**Pumpkin stories from Lacandon myths**

***Pumpkin daughter***

One of the recorded Lacandon myths says:

"Old Chan K'in said that the vultures were used to the people. He said a man had gone to the lake and found the vultures there. They looked like people. They were all women and were bathed in water. He looked at them for a moment, then went back home. His father, who was older and more experienced, asked him if he had seen anything there. He replied that he saw nothing at all. Then the man returned to the lake and watched the vultures. They turned into beautiful women and bathed naked in the lake. If he could get close to them, they would quickly turn into vultures and fly away. So the man decided to get to them without anyone noticing. He took off his clothes and slipped into the lake. Unseen, he swam underwater towards the women and grabbed one of them by the leg. At that moment, the others turned into

vultures and flew away. However, the woman he caught flapped her wings in vain. When she was caught, the man took the clothes and took her home. The man began to live with her in his house. He worked in milpa and she worked at home. But the man could not get used to one thing. The woman did not cook him food or make him tortillas. She always presented him with rotten and smelly meat. She herself did not feel the smell and liked the food, but the man did not want to live like that and found it hard to bear. However, he unwittingly followed the woman. They lived like this until the man's wife died. But before she died, she said to the man, "When I die, take my fingers and sow them." So when she died, the man planted his fingers. Then pumpkins came out of them. It was the pumpkin that sprouted from those fingers. "

A continuation of the myth I found in another narrator:

"One day the man returned home from milpa and was surprised to see that everything was cooked at home and everything was ready. The tortillas were prepared on the table and everything that goes with it. He went into the house and said in amazement, "Who could have prepared the food for me, I don't know who it could have been, because everything is ready". The next day he went to the milpa again and when he returned everything was ready again. It was clean, boiled and ready. He was even more surprised. The third time he went to milpa, he didn't make it. He told himself he would hurry back and wait for someone to make him tortillas when he wasn't there. "I have no idea who it could be," he said, secretly hoping. Suddenly he saw a young woman who was quite naked, with no dress on. She came into the kitchen and started making tortillas and getting everything ready. The man then jumped up and shouted, "So you come here to make me tortillas." "The pancakes are pretty much like my wife who died," he took a good look at the girl, and added, "but I see she's alive." Then the man took a tunic called a hach xikul, as the Lacandones used to wear, and covered the girl with it. When she was dressed, he asked her where she came from. She answered that it came from her mother, who had grown up outside of her. It was then that the man realized that the girl was the gourd that had grown from his wife's fingers. He understood that it was his daughter. He rejoiced and told her she could stay with him forever. The girl was different from her mother, she could not turn into a vulture and did not eat rotten things. She returned as a human. "

Lacandon often refer to their ancient ancestry from the great-grandmother dog, which is also commonly known in Mexico and is believed to have originated from Chichimecas. However, they also have parallel ideas about a kind of vulture great-grandmother. The latter, however, in none of the myths could have become a real human. After her death, however, she gave life to a gourd, and from the gourd was born her daughter, who was already a full-fledged human being. It was she who became the foremother of all humans.

**Figure 74:** According to the descriptions and the colour, in the myth it discusses the king vulture (Sarcoramphus papa), called Usil by the Lacandon.

***Twin girls born from a pumpkin***

This is another story from another storyteller with a similar theme:

"There used to be many vultures in the world and those vultures could become human. They were the same women, but only one of them had what women have between their legs. The others had nothing there. A man once saw a woman's vultures bathing, he dived into the water and approached them completely. They were white, all beautiful white, those were their clothes, but when they bathed, they took them off and looked like women. When the man pulled them out from under the water, they quickly got dressed and flew up into the sky. There they had their place where they lived. But the man looked for the vulture woman, who was the only one who had what women have between their legs. He grabbed her to take her home and made her his wife. When the vulture woman saw that she had no help, she said to him,

"Leave my clothes here, my older brother will take them." The man left the dress there and took her home naked.

"Give me some clothes so I won't stay naked," she said, and the man gave her clothes so she would look like a Mayan woman. She stayed with him, but not for long. One day she said, "I'm going back to mine, I'm going to see my brother. I ask for nothing, just plant these seeds," she said, leaving the man the pumpkin seeds. The woman went away forever and the man did as she preached. He planted those seeds in the ground and from them grew two large pumpkins. When he picked them from the field, he placed them in the kitchen under the oven, where the tortillas were made. He left them there.

**Figure 75:** Bottle gourd (Lagenaria siceraria) called chuj in Lacandon.

However, the man began to find freshly made tortillas every day in that oven. The tortillas were still smoking, still warm. Whenever he came home, the tortillas were ready. He wondered who could make them for him, and once he was preparing for the milpa, he didn't really leave, but after a while he secretly returned and hid in the house. He hoped to finally see who was making the tortillas.

**Figure 76:** Bottle gourd (Lagenaria siceraria) called chuj in Lacandon.

Then he saw two girls appear in the kitchen and immediately started making tortillas. They grew from where the chuh pumpkins were stored. The man approached them and they shouted, "Our father is coming." The man understood that it was his daughters that the vulture had left him. They sat down quickly because they were naked and ashamed of their father. "Give us clothes," they told him. They were already quite young women. The man gave them clothes and they continued making tortillas. In the meantime, the man took both gourds named *chuh* from which they were born and carried them into the forest. There he left them in a tree. They looked like eggshells from which his daughters were born, but they were pumpkins.

Later, the girls helped their father in the house and made tortillas. Later they married the Lacandon. However, the man did not remarry. There were very few women at that time, so it was not even possible. After a while, he went to visit the vultures again to see if he could recognize his wife among them, but she was gone forever. She was no longer a real woman among the other vultures. "

In this case, it wasn't fingers, but a gift of pumpkin seeds from a vulture that was gone forever. Two twin daughters were then born from those seeds. As if a counterpart to the much-celebrated male twin (Hunahpu and Ixbalanque) founders of the cosmic order, there were apparently female twins as well. And they weren't just any twins. They were born from pumpkin seeds, and this time we also have her specific name, *chuj* (which is the Maya name for a bottle gourd). Although it's not told in the story, these female twins apparently became the founders and foremothers of humanity.

**Figure 77:** Lacandon gourd for making bowls and kitchen utensils called lek.

***A dog woman, her crocodile son and the pumpkin daughter***

The next story is complicated, perhaps created by combining several independent myths into one, but it may be the best-preserved original:

"My grandmother told me...that a man lived alone in his house, he didn't have a wife, he just lived there. He worked in the milpa and went to the milpa every day. The man would always say, "Uuh, I'm tired, there's no one there. And there was his dog in the house, happy...a dog like that, a very common type in those days. The dog was asleep downstairs on the table there. But the

man found that every time when he comes to the house on the table waiting for him were warm tortillas and his pozol. "But why is there pozol, is there tortilla? Who brought it? Maybe it's my mom. And each time he would arrive and find his tortilla warm. And there was always a dog he has waiting for him. He says that he has a lot of dogs, but they were always with their owner, and only this dog stayed in the house alone. Then he says, "How many times does this dog not go with me anymore? Then he says that the man goes and goes and goes. And when he arrives everything is ready. And the man does not suffer, but only arrives tired. And he says that he began to be very curious what happens in his house and who brings his tortillas and his pozol. "It will be that someone is coming in my house, I am going to see him what thing is in my house. how my food is coming?" He says he left, he lied that he is going to the milpa. He didn't even say what time he was coming. Suddenly he returned home and was surprised to see that his dog was not there. In her place was a naked woman, very pretty. A woman, a human being like me...and naked she was. That was his dog. When the owner left, she always quickly removed the skin she had. From there she remained in the form of a naked woman and began to grind and make tortillas. Then she put her skin back on and went back to the dog. But when his owner returned, he still wasn't expecting him. He came "pum", he says and saw how she was there, standing still making her tortillas. The owner was surprised and asked "why are you here, where are you coming from and why don't you have any clothes on?" and took his tunic giving it to the woman and says "put it your clothes". She replied that it is her little dog, the same one she always lies downstairs asleep. The man said "thank you for what you did to me all...but why didn't you tell me?" The man was very touched and very happy. Then "it's you," he said, the woman was very pretty. Because she didn't have, just quickly covered her private parts when she saw that she came. But when she put on her robe she could no longer put on her doggy skin. There it hung there and dried. It was no longer possible to wear it and the woman remained human forever. The man said, "Now you are not going to escape, now you are going to be here. I am going to work in the cornfield and you are going to make tortillas, we are going to live together, you are not going to go, you are not going to escape." The woman answered "don't worry, I will make your tortillas and your pozol, you will never die of hunger". They got married, the man always went out looking for food and the woman ate well, being in the house and making tortillas there. "

Therefore, the myth practically copies the widespread, originally probably Chichimeca version of the myth about the dog's ancestor, spread throughout Mesoamerica. We know it from all corners of Mesoamerica. However, what is remarkable is its continuation. It is either a uniquely preserved fragment of an originally complex myth, or a Mayan adaptation that organically connected three independently existing Lacandon mythological motifs (Dog Woman, Crocodile Child of Ah Xok's Wife, and Pumpkin Daughter). However, they are actually logically connected and create a very complex origin myth. It doesn't matter in which period and how it was created, it doesn't change its informative value. So the story continues:

**Figure 78:** The pre-Columbian native dog Xoloitzcuintle may have represented a prefigurement of the mythological heroine and foremother.

"Then the woman got pregnant and gave birth to a crocodile baby. When the baby was born, it looked a lot like a crocodile. And the man began to panic, "but why?" he said. And the Lord (god) told him "don't be afraid, because that's normal" - "but how?", it didn't seem normal to him. When the crocodile was born they released it and it went into the water. And the mother died soon. She died, she couldn't take it anymore. The man started to cry and cry. He kept his other son, a little dog, but that's how dogs are. Just the dog, no longer transformed, no longer a human being. The crocodile visited the man and every time he left there his excrement. In his excrement appeared a seed. Pumpkin seed that we call *lek*. It is from the gourd where we keep tortillas. The man had doubts, "but what for?" They say that suddenly the

Lord (god) spoke to him: "Choose it, go and sow it". And he went to sow. And it was beautiful, the *lek* pumpkins are big. Every time he went to see how it grows, how it is getting bigger and he took good care of it. *Lek* got his fruit quite big. "Oh, how nice," he said. When the pumpkin ripened, it turned yellow. The man harvested it, took it to the house and there it turned to a woman. That story, I don't know if it's true, my grandfather told me this. When the pumpkin dried up, he opened it and gathered the seeds. He sowed the seeds again. But even before that, the woman appeared. She came back, the daughter came back, it was not his wife, the daughter arrived. The mother did not come back. The daughter came and they say that she came out of the *lek* gourd. The man understood that this woman is his daughter, "that's the one I sowed," he said. The women before were born just like that, from the gourds, the grandparents say. "

**Figure 79:** Papaya, the indigenous Mayan crop (Carica papaya), called put, possesses many seeds.

The birth of a dog son who could not have been a human is not surprising (Boremanse 2006), but the birth of a crocodile son is a surprise. We have

previously only encountered it in the wife of the water lord Ah Xok (Kováč 2013). However, if this is a primordial event at the very beginning of the world, it shouldn't be such a surprise. The crocodile is born from a primordial mother, which is not the nature of the primordial mother of mankind, but of the world. Then the crocodile makes sense, in the Maya conception it was the Earth itself as Kab´ Ain. So the foremother and forefather beget a single viable being and that is the Earth. The foremother then dies, but from the excrement of their son, the Earth, the forefather picks up the seeds. They are clearly the seeds of life, and not coincidentally, they are pumpkin seeds. He plants them, and instead of a crop starting to grow, something much more substantial is born from them. A true primordial mather. The daughter of a dog woman who couldn't have come from it directly. The pumpkin seeds are of a different kind this time, the one Lacandon call *lek*, and it is also (derived from this pumpkin) the generic Maya name for a bowl or vessel. These are very large pumpkins, but they are inedible, the essential thing being their very hard rind. This makes them not change shape when dried and they become containers for food, but most often for storing that most precious of foods, tortillas. The seeds of life from the excrement of the crocodile are a completely new mythological motif that fits into the whole puzzle of what we knew about the meaning of the crocodile and *saak*, the seeds of life. In this case, the materialized fertility of future humanity is born from them - the first mother, whose origin we already know in this way from previous stories.

### *Papaya's daughter*

Pumpkin daughter stories also have their alternative in fragments of papaya daughter stories. What unites them is quite obvious, the number of seeds inside that symbolize fertility:

"And right there the papaya, which we call *put* and that papaya gives daughter, sends her a baby. So human being. And there was already there a girl. And to be human already, a pretty girl, a woman grew up. And so they started to be, already people got used to it, the old ones, "there she is going to carry." "And when you see your yellow papaya, go clean. To have a baby there, if you want," he says. And yes, that's how it was, my grandfather says, that's how it was before. That's why some say I was born in the flower, but it wasn't, it was born in the papaya.... from the trunk of the papaya. And before, women didn't suffer to give birth to their babies. Not like that, when they found it there. When they wanted a baby,

they would call for it to be born, and they would just go and pick up the baby... in the trunk of the papaya. "

Papaya, in maya language - *put* resembles in its form quite similar to cacao fruit, it is also a fruit that grows from the trunk, not from the branches and also has many seeds. That is why we could propose that its ritual or mythological function could be similar. In this case, cacao would be a vital drink, that is, a drink of the reproduction of life.

The same could be assumed for drinks and sauces made from pumpkin seeds. They represent so far a ritual food, as for example among the Maya of Guatemala the *pepián* (García Patzán 2022).

**Figure 80:** The fruit of the cacao tree, the Lacandon cacaw is quite loaded with highly prized seeds.

Comparative perspective

Looking at the images of the classic, we cannot omit that the expression for the son *mihin* (son) is based on the image of a germinating pumpkin seed. The same

we can observe in case of word *saak* (sign of life), that further represented all the potential of future life, becoming an especially sacred symbol.

The head after Hun Hunahpu's decapitation became *r uq u vach tzima* - like the fruit of gourd tree.

His sons Hunahpu and Ixbalanque offered to a rat that helped them *zaqil - zaq* (*saak*) gourd seeds.

When the bat Kamazotz decapitated Hunahpu's head, it was replaced by *q'oq'* (the gourd).

*Chi puqabin ri q'oq'x qah pa hom, zaqiram q'u, Ri'u zaqilal chi ki vach.*

"The gourd burst and fell on the court, and splashed, its seeds on their faces."


**Figure 81:** One of the most common forms of the Maya hieroglyph SAAK, which most epigraphists agree represents a pumpkin seed used as a sign of life.

It is noteworthy that despite its widespread use, and the fact that the seed is distinguished precisely because it can be stored, the pumpkin does not appear among the products taxed to the Triple Alliance (Aztecs). The explanation for this absence perhaps lies in the fact that the pumpkin is a particularly noble plant in terms of its reproduction under favorable conditions, such as those of the Central Highlands, and then local production was sufficient.

Some Mexican tribes believe pumpkin seeds give exceptional energy and endurance to the people that eat them, and the Cocopa tribe of Arizona considers pumpkin seeds protection against the cold. Pumpkins are also a clan symbol in some Native American cultures. Tribes with Pumpkin Clans include the Navajo,

Hopi, and Pueblo tribes. Some Pueblo tribes also have a Pumpkin Flower Dance among their tribal dance traditions.

According to Tainos mythology sons of Atabex, the mother of all the gods were twins Jucahú and Juracán looked for promised land that was called Mountain of the Giant Gourd. After several adventures they found it. They climbed the mountain, where they were attacked by several animals.

Upon colliding with one of the mountain peaks, the gourd broke open. With its belly broken, water, fish and animals began to gush out of its interior. The gourd covered the entire land. Thus were born the islands of Cuba, Haiti and Boriken, Ay-ay, Bieque and Amona. The continents, the seas and the oceans....

**Figure 82:** Pumpkin seeds have represented fertility since the beginning of the American Neolithic, and early Maya mythology developed this symbol into many sophisticated forms.

Another Tainos story tells that hero Yaya killed her son Yayael and kept his bones in a gourd. One day four sons of a woman named Itiba Cahuaba who died in childbirth came to the house, her four sons - twins - remained, the most curious of them was Deminán Caracacaracol. He opened the gourd where Yaya kept the bones of her son. The gourd fell and broke on the ground and out of the gourd came the sea and all the fish of the world.

**Conclusions**

Paleobotanical data indicate that squash was domesticated about 2000 years before the maize. For ancient American cultures, then, the gourd played an important role in cosmology and anthropogony, before the domestication of maize and the related mythological cycles. The Lacandon myths of the daughters of the gourd teach us that the mythology of the ancient substratum was not forgotten or abandoned, but added to the adstrate of the mythology of the maize god cycle. It seems to represent a strong feminine element and primordial fertility through the creation of the first women or giving birth to all mankind.

We should expect that the vegetation myths of the Maya have at least two layers that are very archaic in origin. The first one can be called the substrate, and these are precisely the myths based on the fertility of the pumpkin and its symbolism. Beings born from a pumpkin or directly personifying a pumpkin appear there (at least in the pre-classic period, for example, in the Colima culture). The depth of this substrate must go back to the domestication of the pumpkin, which took place approximately 9000 years ago. Myths about the pumpkin progenitor certainly arose among the first farmers, because her role as the mother of all crops was obvious. The huge number of seeds inside the crop enhanced its roles as a symbol for fertility in general. Its identification with the progenitor of mankind must have been completely natural. The only thing that is surprising is that this mythological line survived until today. The explanation can be, it had to be so substantial that its lifespan was predetermined by its deep and structural meaning. On the other hand, we have maize myths that appear to be dominant in Maya culture. Maize was domesticated 2,000 years later, aproximately 7,000 years ago, when the pumpkin had reigned for 2,000 years in both the agricultural and metaphysical realms. However, the importance of maize grew rapidly, and the maize god (due to the phallic shape of the ear acquired naturally masculine features).

We can therefore speak of a mythological adstratus that was superimposed on the original pumpkin symbolic complex. Amazingly, we can still see both layers in contemporary Maya mythology, just as we see them complementary in the San Bartolo murals. While the pumpkin mothers and goddesses were gradually pushed into the background by the maize god, he himself took on androgynous features to substitute the missing balance to which the Maya religion is sensitive. Even in the classic period, however, various residues remained here. Apart from later mentions in the Popol Vuh and other myths and depictions, they were primarily *saak* pumpkin seeds. It was the pumpkin seed that became a symbol of life. In the classic period, it is worn on the heads of the gods, who create the world on the so-called Vase of the Seven Gods, but are important in almost all ritual scenes. Static or germinating, they have become a symbol of life par excellence.

REFERENCES

Boremanse, Didier (2006)

*Cuentos y mitología de los lacandones*. Ciudad de Guatemala: Acacdemia de Geografía e Historia de Guatemala.

Hofling, Charles A. (2014)

*Lacandon Maya-Spanish-English Dictionary*. Salt LakeCity: The University of Utah Press.

Kosiba, Steve (2020)

The Nature of the World, the Stuff of Politics. Exploring Animacyand Authority in the Indigenous Americas. In Steve Kosiba, John Wayne Janusek, and Thomas B. F. Cummins (eds.):

*Sacred Matter. Animacy and Authority in the Americas*.Washington, D.C.: Dumbarton Oaks Research Library and Collection, pp. 1-35.

Kováč, Milan (2022)

*Mitos y cuentos lacandones*. Trillas, Mexico City.

Kováč, Milan (2016)

Lacandon Paths to the Underworld. In *Contributions in New World Archaeology*, Vol 10. Special issue: Into the Underworld: Landscapes of Creationand Conceptions of the Afterlife in Mesoamerica (edited by Jaroslaw Zralka andChristophe Helmke), pp 43-53.

Kováč, Milan (2013)

Ah Xok, Transformaciones de un dios acuático: Del tiburón olmeca a la sirena lacandona. In *Contributions in New World Archaeology*, Vol 5.Special issue: Water Management in Ancient Mesoamerica (edited by Jaroslaw Zralka and Christophe Helmke), pp. 151-164.

Kováč, Milan (2004)

Život a smrť ceremoniálnych nádob u kmeňa Lacandóncov.In Eduard Krekovič, Tatiana Podolinská (eds.): *Kult a mágia v materiálnej kultúre,* Bratislava, Ústav etnológie SAV, Slovenská archeologická spoločnosť pri SAV, Bratislava, pp. 95-99.

McGee, Jon R. (1990)

*Life, Ritual, and Religion Among the Lacandon Maya*. Belmont:Wadsworth Publishing Company.

McAnany, Patricia, A. (2020)

Soul Proprietors. Durable Ontologies of Maya DeepTime.In Steve Kosiba, John Wayne Janusek, and Thomas B. F. Cummins (eds.): *Sacred Matter. Animacy and Authority in the Americas*. Washington, D.C.: DumbartonOaks Research Library and Collection, pp. 71-104.

Perera, Victor – Bruce, Robert D. (1985)

*The Last Lords of Palenque. The Lacandon Mayas of the Mexican Rain Forest*. Berkeley, Los Angeles: University ofCalifornia Press.

Palka, Joel W. (2014)

*Maya Pilgrimage to Ritual Landscapes*. Albuquerque: Universityof New Mexico Press.

# FERTILE CLOUDS OF THE MOUNTAINS: RAINMAKING RITUALS OF THE NAHUAS IN CENTRAL MEXICO

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Mesoamerica as a cultural area is characterized by diverse natural conditions which, in this respect, take it out of the definition of a cultural area based primarily on at least approximately the same natural conditions (i.e. geography), which in turn influence the culture of the societies living in that area. It is not the purpose of this chapter to discuss the theory of cultural areas developed a century ago by the American anthropologist Clark Wissler [21], with this brief introduction I merely wanted to point out that the natural conditions of Mesoamerica are so diverse that virtually all climatic zones and vegetation zones associated with them are found there. This fact has fundamentally influenced the shape of Mesoamerican cultures, which have developed in different climatic zones but have been constantly interconnected politically, economically, culturally and religiously. It is thanks to this interconnectedness that the ancient Mesoamericans overcame the heterogeneity of natural con-

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21 Theory of cultural areas reflects the correspondence between a certain geographical area and a group of societies (tribes, as Wissler, who developed his theory primarily for North America, calls them, author's note) living there, which are characterized by common cultural elements. Many societies and therefore cultures can be found in each area, but they belong to the same cultural type, so the culture area defines the range of the culture type (Wissler 1923: 55-56).

ditions and created a homogeneous cultural area that has largely withstood the onslaught of Hispanicization and Christianization in the post-conquest period and has persisted to the present day.

**Figure 83:** Map of Mesoamerica – red frame highlights central Mexico.

This chapter focuses on a particular sub-region of Mesoamerica, namely central Mexico, predominantly inhabited from the perspective of indigenous ethnic groups by the Nahuas. It is a densely populated and high altitude area since pre-Hispanic times, characterized in terms of landscape features by the presence of majestic mountain ranges separated from each other by wide valleys. The landscape is mainly dominated by volcanoes, with the three highest (Pico de Orizaba, Popocatepetl and Iztaccihuatl) reaching an altitude of more than 5,200 m above sea level. The landscape is complemented by mountains of lower elevation. It is the altitude and location in a tropical climate zone (all of Mesoamerica is south of the Tropic of Cancer) that have a major influence on the region's weather, particularly the distribution of rainfall. Although central Mexico (and all of Mesoamerica) lies in the tropics, natural barriers in the form of the Sierra Madre Oriental, Sierra Madre Occidental and a whole chain of mountains deeper inland prevent

the year-round flow of moist air from the Gulf of Mexico into the interior, with the result that rainfall is restricted to a certain period of the year, So the year is therefore divided into two basic seasons – the dry season and the rainy season. The subsistence activities of indigenous ethnic groups, whose agriculture-based economy has been directly dependent on the regular alternation of the two seasons, have had to adapt to this natural cycle over the millennia. ((Figure 83))

The high valleys between the mountain ridges have been densely populated since time immemorial, despite the lack of rainfall for most of the year. This is due to the more pleasant climate (it is much warmer on the coast), but the very high quality of the soil is also important, the high fertility of which is directly due to the fact that this is a volcanic zone, which is also still active. The risk of a potential natural disaster caused by a volcanic eruption [ 22 ] s offset precisely by the high fertility of the soil, which, with proper irrigation, has given, and in some places still gives, two harvests a year, irrespective of rainfall, as we shall discuss later.

The mountains, especially (but certainly not only) the three highest ones, with their white caps of snow and the remnants of glaciers on their peaks, not only visually dominate the landscape, but also greatly influence the distribution of rainfall and are the headwaters of streams and rivers that supply the landscape with water during the dry season. It is for this reason that mountains and hills in general have not only become important in the daily lives of indigenous peoples, but are also a key element in how they conceptualize the space in which they live. Regardless the physical fact that the mountains really retain the water in their interior native inhabitants of Central Mexico (but not only) incorporated the hills and mountains located in their territories into their religion, more precisely into their ritual landscape and rituals focused on the fertility and rainmaking. The belief in the mountains as the reservoirs of water became very common and as such, they started to be considered not only alive, animated supernatural beings, but protectors of native communities, too. Given this fact, and the fact that the natives had always been primarily farmers who depended heavily on the rains, the mountains became a central and sacred part of their space (and worldview, as we will explain below), which was perceived as sacred in general. Based

22 To volcanic activity must be added seismic activity. Earthquakes are much more frequent and historically more destructive in the area.

on a natural cycle based on the regular alternation of rainy and dry seasons, the Nahuas of central Mexico have developed their own cycle, linked to both nature and culture (economy and religion), which we call the agrarian cycle. Its economic/subsistence side is not the subject of this chapter, the religious side is, which has been the focus of my research for years in Nahua communities in the Mexican states of Puebla and Morelos [23]. However, the collected ethnographic data, supplemented by published results of other authors, form only a part of the present text. The second is a historical excursion into pre-Hispanic times, in which I will present the Aztec agrarian cycle, about which we have the most information thanks to sources from the post-conquest period (16th century). Because the Aztecs and neighboring Nahua groups inhabited essentially the same territory as the contemporary Nahuas, the natural conditions that influenced their agrarian cycle were the same as those that influence the agrarian cycle of the contemporary Nahuas. This fact allows us to compare the two cycles and to point out that many elements that were characteristic of the Aztec agrarian cycle have persisted in syncretic form to the present day.

## Natural Conditions of Central Mexico

At the beginning of this paper, I already indicated some geographical and climatic characteristics of central Mexico, which have determined the lives, subsistence, and worldview of Nahua people living in the area. Here I am going to present in more detail those of them that are related to the discussed topic.

As indicated above, it is an inland area characterized by large valleys separated by high mountain ranges. Therefore it is also known by the names of Central or Mexican Altiplano. It consists of four principal valleys – Valley of Mexico, Puebla-Tlaxcala Valley, Toluca Valley and Morelos Valley – with altitudes ranging from 2,000-2,500 m above sea level. The only exception confirming the rule is the last-named valley, which is located at an average altitude of 1400

23 In the case of Puebla, this is mainly the area of the Sierra de Tentzo in the central part of the state, and in the case of Morelos, it is the Highlands of Morelos (*Los Altos de Morelos*; part of the Sierra Nevada, which includes the landmarks of Popocatepetl, Iztaccihuatl and Tlaloc) in the north-eastern corner of the state. As this is a border area with the state of Puebla, I also work in communities on the Puebla side, seeing them as part of the same micro-region.

m. The mountain ranges separating them normally exceed 3,500 m above sea level and the three iconic volcanoes mentioned above exceed 5,200 m above sea level. The Sierra Madre Oriental and Sierra Madre Occidental isolate the area from both oceans, preventing year-round rains from penetrating, which, together with the mountain ranges inside the area, have a major impact on the climate and rainfall. It follows that this is a vertical world and that altitude has a significant influence on both the climate and the vegetation, which ranges from semi-desert succulent vegetation (e.g. cacti) through deciduous (oaks) and coniferous (spruces, firs, pines) forests up to the alpine meadows area (about 4,000-4,300 m). Higher up, there are only inhospitable rocky zones, which, despite climate change, are still covered by snow and glaciers, at least on the northern side, at an altitude of more than 5,000 m above sea level. By analogy, the climatic zones in the area range from tropical to subtropical and temperate to subarctic and arctic at high altitudes.

The nineteenth parallel of north latitude, which represents the imaginary axis of the area, evokes a tropical climate zone, but in combination with the altitude it creates a varied palette of ecological niches, complemented by deep river gorges, representing a green and humid world all year round. It is significant that these niches are very often not very far from each other, on the order of tens of kilometers and even tens of meters in the case of ravines.

The aforementioned nineteenth parallel is also the axis along which the Trans-Mexican Volcanic Belt (*Eje Volcánico Transversal Mexicano*) stretches what is a 20-150 km wide and 1200 km long zone extended in west-east direction across whole Mexico from Nayarit to Veracruz (de la Cruz Reyna 2009: 35-38). This belt is part of the so-called Pacific Ring of Fire and in practice this means, as mentioned above, that it is a volcanically and seismically highly active area where both volcanic activity and earthquakes are common. In central Mexico we can indeed find many volcanoes that are both active (Popocatepetl) and dormant (Pico de Orizaba) or extinct (Xihuingo). In addition to the aforementioned volcanoes more than 5,200 m high, it is also necessary to mention the dominant volcanoes such as Nevado de Toluca, La Malinche, Sierra Negra, Cofre de Perote and Ajusco, which, with the exception of the last-named, reach a height of more than 4,000 m above sea level. ((Figure 84)) They are complemented by a countless number of lower hills (not always volcanoes), suggesting that volcanoes and hills/mountains as such not only give the landscape its specific shape, but also play a signif-

icant role in local and regional indigenous cults and worldviews. This role is based on the fact that they attract and retain clouds, and therefore water, and thus have a direct impact on the lives of native farmers.

**Figure 84:** Popocatepetl and Iztaccihuatl from La Malinche (Radoslav Hlúšek 2010).

As far as the seasons of the year are concerned, the inhabitants of central Mexico, although they often speak of spring, summer, autumn and winter, primarily recognize two basic seasons – the dry season and the rainy season – thanks to the specific natural conditions of the country in which they live, which is not surprising in view of what has already been said in this chapter. Naturally, the rainy season represents a crucial phase of the year on which the livelihoods and survival of native communities depend. It lasts from June to September, and the timely arrival of the rains, as well as their timely end, together with their adequate rate (an excess is as destructive as a lack), determines the agrarian cycle, that is, the year-round cycle of the work in the fields and associated ritual activities. It is the regular alternation of these

two seasons that causes the native peoples of (not only) central Mexico to be almost obsessed with controlling the rains and the weather, and this obsession has been and is a defining attribute of their religious and, within them, ritual practices aimed precisely at controlling and managing the weather (Broda 2016: 18). As I will show in the following lines, using the Aztecs as an example, the division of the year into these two periods governed the religious life of native Mesoamericans as early as the pre-Hispanic era, and the ritual practices associated with it were incorporated into Catholic Christianity [24], during the colonial period, which was brought to Mesoamerica by the Spaniards in the 16th century. Their transformation under the influence of Catholicism, as well as the adaptation of Catholicism to Mesoamerican conditions, have enabled their survival to the present day, with the rituals in question often being performed in the same places as in the pre-Hispanic period.

## The Aztecs

From the central Mexican region, we have a few written sources dating from the 16th century that provide information on the Aztec agrarian cycle, and it must be added that we do not have such detailed information for other cultures and ethnicities. The works of two authors in particular stand out among them – the Franciscan Bernardino de Sahagún and the Dominican Diego Durán. General History of the Things of New Spain (*Historia general de las cosas de Nueva España*) by Sahagún and History of the Indies of New Spain and Islands of the Mainland (*Historia de las Indias de Nueva España e Islas de la Tierra firme*) by Durán are voluminous and extensive chronicles that detail Aztec history, social organization and culture, including religion [25].

24 Although in these contexts authors (and I am no exception) commonly use the generic term Christianity and Christianization, it is important to remember that this was Catholic Christianity (and Catholicization), since Spain (and Portugal) was a bastion of Catholicism in which other faiths were not tolerated. Luther's or any other Reformation was not allowed into Spain or its overseas colonies (Kováč and Hlúšek 2015: 15).

25 These are the most important written sources relating to Aztec culture and history, but not the only ones. For the purposes of this chapter, for example, I was also helped by the work of the Franciscan Toribio de Benavente, whom the Aztecs called Motolinia (literally, the one who is poor) because of his appearance

The information contained therein can also be supplemented by codices, e.g. Codex Borbonicus from the same century, as well as by archaeological findings.

*Xiuhpohualli, Xopan and Tonalco*

As everywhere in pre-Hispanic Mesoamerica, the Aztecs had two calendars – civil 365-day (*xiuhpohualli* – count of years) and sacred 260-day (*tonalpohualli* – count of days). The agrarian cycle was governed by the civil calendar, which was divided into 18 months of 20 days. They were supplemented by the final five days, which were considered unfortunate. Since (not only) the Aztecs did not use a leap year, the beginning of the new year gradually shifted from the real solar year, and the calendar data recorded by Durán, and especially by Sahagún in the second book [26] of his General History, reflect the situation in 1519, on the eve of the conquest [27]. To make matters worse, Sahagún correlates the particular Aztec months, in which the religious festivals and sacrifices associated with the agrarian cycle took place, with the Julian calendar, or, as he says, with the Roman calendar (Sahagún 2000, Tomo I: 135). However, by the 16th century it was already ten days behind the real solar year, which was only resolved by Pope Gregory XIII's reform of 1582. Although Sahagún was still alive at that time (he died in 1590), he could not take this into account in his work, which he had completed earlier. But the dates I give in the following lines already correspond to the Gregorian calendar.

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and behaviour, entitled History of the Indians of New Spain (*Historia de los indios de la Nueva España*).

26 Its title is (Book two), which Deals with the Feasts and Sacrifices with which These Natives Honored Their Gods in the Time of Infidelity (/Libro segundo/ *que trata de las fiestas y sacrificios con que estos naturales honraban a sus dioses en el tiempo de infidelidad*) (Sahagún 2000, Tomo I: 133).

27 In 1519, the shift from the actual solar year was 209 days, which means a shift of one day every 4 years. 682 A.D. was the year when the civil calendar of the Aztecs (but also of the Maya and other Mesoamerican ethnic groups) last coincided with the real solar year (Graulich 2008: 51, 53).

| Months in *xiuhpohualli* | Correlation with the Gregorian calendar |
|---|---|
| I *Atlcahualo* | February 12[28] – March 3 |
| II *Tlacaxipehualiztli* | March 4 – March 23 |
| III *Tozoztontli* | March 24 – April 12 |
| IV *Huey tozoztli* | April 13 – May 2 |
| V *Toxcatl* | May 3 – May 22 |
| VI *Etzalcualiztli* | May 23 – June 11 |
| VII *Tecuilhuitontli* | June 12 – July 1 |
| VIII *Huey tecuilhuitl* | July 2 – July 21 |
| IX *Tlaxochimaco* | July 22 – August 10 |
| X *Xocotlhuetzi* | August 11 – August 30 |
| XI *Ochpaniztli* | August 31 – September 19 |
| XII *Teotleco* | September 20 – October 9 |
| XIII *Tepeilhuitl* | October 10 – October 29 |
| XIV *Quecholli* | October 30 – November 18 |
| XV *Panquetzaliztli* | November 19 – December 8 |
| XVI *Atemoztli* | December 9 – December 28 |
| XVII *Tititl* | December 29 – January 17 |
| XVIII *Izcalli* | January 18 – February 6 |
| *Nemontemi* | February 7 – February 11 |

(Sahagún 2000, Tomo I: 135-169).

28 Sahagún thus states February 2 (Sahagún 2000, Tomo I: 135).

**Figure 85:** Effigy of Tlaloc on the Pyramid of Quetzalcoatl in Teotihuacan (Radoslav Hlúšek 2014).

Although the Aztec agrarian cycle reflected the natural cycle, the religious festivals associated with it were incorporated into the particular 20-day months. Based on natural conditions, the Aztecs divided the year into two basic – *xopan* (Green Time – rainy season) and *tonalco* (Heat of the Sun – dry season). The first covered the period from the beginning of month of VI *Etzalcualiztli* to the end of month of XIV *Quecholli,* the second began with month of XV *Panquetzaliztli* and lasted until the end of month of V *Toxcatl*. The rainy season was associated with Tlaloc, the god of water, fertility and harvest, as well as with the night, the moon, Venus, the stars, and the dead and the underworld. ((Figure 85)) Corn was growing and ripening at this time. The dry season, on the other hand, was associated with the sun god Huitzilopochtli, with light and day. At the same time, the harvest was ending and the next sowing was beginning (Broda 2004a: 55-56).

*Two partial cycles*

It is important to note that the harvest and sowing mentioned above was related to the so-called rain cycle. In the case of the works in the field the Aztecs practiced irrigation during the dry season, which allowed them to have two harvests a year - one due to irrigation during the dry part of the year, the other due to the rainy season. They therefore distinguished two partial cycles in their agrarian cycle, namely the aforementioned rainfall cycle and the irrigation cycle (Broda 2013: 56).


**Figure 86:** A beggar walking on the streets during VI Etzalcualiztli festival – Tovar Calendar, plate XII (https://commons.wikimedia.org).

Although they followed directly from the *xopan* and *tonalco* periods, they did not correspond exactly in time, due to the fact that sowing and harvesting always intervened in the second period of the year. In the irrigation cycle, sowing took place in January (XVIII *Izcalli*) or February (*I Atlcahualo*) and harvesting in June (VI *Etzalcualiztli*) or even in July (VII *Tecuilhuitontli*), in the rainy cycle, sowing lasted from the end of April (IV *Huey tozoztli*) to the beginning of June (VI *Etzalcualiztli*) and harvesting from the end of October (XIII *Tepeílhuitl*), in November (XIV *Quecholli*) and possibly also in December (XV *Panquetzaliztli*) (Broda 2004a: 44). These months thus bounded the two partial cycles and, as is evident, these cycles overlapped and were intertwined. Perhaps this interconnectedness is most evident in month of *VI Etzalcualiztli*, when harvesting was taking place in the irrigation cycle, but at the same time sowing was ending in the rain cycle [29]. During the festivities associated with the first harvest of the year, a meal called *etzalli* was eaten, which were boiled balls of corn dough and beans (Durán 2006, Tomo I: 259). They sym-

29 Although it is nowhere explicitly stated, it follows from the above that the Aztecs seem to have had separate fields set aside for the two cycles, at least in part.

bolized the coming prosperity and abundance of food from the irrigation cycle and also foreshadowed the abundance of the future (second) harvest of the just planted corn of the rainy cycle. At the same time, the rains were also coming in this month, further adding to its importance. People danced and sang in the streets, and some men dressed in clothes with Tlaloc insignia and went from house to house as beggars, asking for *etzalli* and being seen as bringing prosperity to the houses (Durán 2006, Tomo I: 171-172, 261; Sahagún 2000, Tomo I: 204). ((Figure 86))

As for the rain cycle, which was more important because it was on it that the survival and prosperity of the Aztecs depended, within it we recognize several specific festivals tied to specific months. In the first half of September, when it is still raining, corn begins to ripen. Its cobs are still green (hence the husk has not yet got dried) the grain is soft and sweet [30], but these are the first fruits of the rainy cycle, and their harvest fell in the month of XI *Ochpaniztli*. According to the Austrian-born Mexican historian Johanna Broda (2004: 51) the Aztecs celebrated the ritual wedding of the mother goddess of the earth and the sun god. From their union the god of the corncob Cinteotl was born. Broda does not give the names of the two deities, but Sahagún (2000, Tomo I: 231) identifies Cinteotl's mother as the goddess Toci, whom Durán (2006, Tomo I: 275) refers to as the Heart of the Earth. However, the month of XI *Ochpaniztli* was not yet a month and not even a harvest festival, as it might seem at first glance. It was the sacrifice of the first fruits and the feast of the good ripening of the corn. The corn itself is still soft (*elote*) at that time, and although it can be eaten (and was very popular then as it is now), it needs to ripen and harden before it can be harvested and stored. Moreover, it is still raining, which makes harvesting impossible. So there are still about two Aztec months to go before the harvest itself (Broda 2013: 59), which means that it took place in the months of XIII *Tepeilhuitl*, when at the same time the dry season begins, and XIV *Quecholli*.

*Three groups of festivals*

30 In Nahuatl it is called *elotl* or *xilotl* (green ear of corn, soft corn). In Mexican Spanish, young and soft corn is still called *elote*. *Elote* is not to be confused with *jilote*, which is a corncob that is just beginning to form, what happens in August.

Throughout the year, the Aztecs celebrated a number of festivals associated with the agrarian cycle (within it with the two partial cycles mentioned above), water, rain deities, and corn. These festivals can be divided into three groups and those belonging to the first two being were closely associated with agricultural activities and with water deities in general. The first group was related to the dry season and can be delimited by the months of XVI *Atemoztli* and IV *Huey tozoztli*. During this period, the rituals of sacrifice of children took place mainly in the Valley of Mexico, but it also included the beginning of the Aztec New Year, that is, the month of I *Atlcahualo*, which on the eve of the conquest, according to Sahagún (2000, Tomo I: 135), began on February 2, that is, on February 12 according to the Gregorian calendar. The month of IV *Huey tozoztli*, in which the last sacrifice of children took place, also the sowing of the rainy cycle began, at the same time began the second group of festivals, related to the sowing and growth of corn in the rainy cycle. This period was bounded from the other side by the month of XII *Teotleco*, during which the sowing festivities in the month of IV *Huey tozoztli* took place, as well as the aforementioned festivities in honour of the arrival of the rains, the harvest of the irrigation cycle and the end of the sowing of the rainy cycle in the month of VI *Etzalcualiztli*, and the celebration of the first fruits of the corn and its good ripening in the rainy cycle in the month of XI *Ochpaniztli*. In addition, on the last day of the month of VI *Etzalcualiztli* the human personifications called *tlaloque* [31], which were the helpers of Tlaloc having a dwarf form [32] were sacrificed. Their hearts were then thrown into the Pantitlan whirlpool on Lake Tezcoco (Sahagún calls it Lake Mexico) east of Tenochtitlan (Sahagún 2000, Tomo I: 145-146, 207). Motolinia (1995: 33) Motolinia writes in this connection that at the beginning of the month a man and a woman were chosen from among the slaves who personified the rain god and his wife for the whole month (i.e. 20 days), to be sacrificed at midnight at the end of the month. This divine couple is usually identified with Tlaloc and Chalchiuhtlicue (the female counterpart or partner/wife of

31 *Tlaloque* is the plural form of Tlaloc, and in the sources they are always referred to in the plural as the gods of rain or water and as the helpers or companions of Tlaloc (e.g. Sahagún 2000, Tomo I: 120, 176).

32 The fact that the *tlaloque* took the form of small, deformed and short-legged dwarves who could hardly walk is probably the reason why children were sacrificed to Tlaloc and the *tlaloque* (Graulich 1992: 32).

Tlaloc), to whom the month of VI *Etzalcualiztli* was dedicated (Graulich 1992: 42). In the Aztec understanding, it was a sacrifice of the deities themselves, by which the dry season was ended definitely. At the same time, this points to the fact that the Aztecs were not only sacrificing in honour of the gods, but were sacrificing the gods themselves, or that the gods themselves sacrificed themselves for the benefit of the people, thus directly participating in the agrarian cycle (Broda 2009a: 59). In the month of VII *Tecuilhuitontli* a festival was celebrated in honour of Huixtocihuatl, the goddess of salt and salt water, pointing to the importance the Aztecs attributed to the sea as an absolute symbol of fertility (Broda 2009b: 49). The third group of festivals was associated with the harvest, the beginning of the dry season, and above all with the deified hills, which were (and still are) seen as sources of water and abundance. Water from the just-ended rainy season would collect inside them, and then Tlaloc would release it again in the next rainy season. These festivals primarily concerned the month of XIII *Tepeilhuitl*, but also the month of XVI *Atemoztli*, which circumscribed the period. In essence, it was the completion and fulfilment of the agrarian cycle. In month of XIII Tepeilhuitl, the Aztecs made miniature models of hills and rain deities out of dough in which they mixed ground amaranth and corn to serve as offerings to these deities (Durán 2006, Tomo I: 165). This was repeated in the month of XVI *Atemoztli*, when reverence for the gods was joined by reverence for the dead, whose role in the successful fulfillment of the corn cycle was seen as fundamental. Primarily these were deceased children who were sacrificed during the dry season and who, after death, went to Tlalocan – Tlaloc's paradise ((Figure 87)) to return to the earth at harvest time. The sacrificed children were thus identified with the corn itself, more precisely with its corncob. Sahagún (2000, Tomo I: 164, 239-240, 254-255) adds that these models or statuettes of the hills were dressed as rain deities, and that in both of these months they were symbolically sacrificed and eaten in honor of Tlaloca and *tlaloque*. At the same time the Aztecs sacrificed four women and one man in the month of XIII *Tepeilhuitl*. It was exceptional case in which adults, not children, were sacrificed in connection with the agrarian cycle [33].

33 It also happened e.g. in the month of I *Atlcahualo* (Sahagún 2000, Tomo I: 135).

In the month of XVI *Atemoztli* the rituals of sacrifice of children for the purpose of petitioning for rain began again, and the whole cycle could be repeated again (Broda 2009a: 61-62).

**Figure 87:** Tlalocan – Paradise of Tlaloc in Tepantitla Palace in Teotihuacan (Radoslav Hlúšek 2010).

*Sacrifices of children*

The sacrifices of children in honor of Tlaloc, *tlaloque* and Chalchiuhtlicue, which was the goddess of water already on earth [34] (Tlaloc was associated with water falling from the sky, i.e. rain), already mentioned several times, were carried out in the Aztec environment from the month of XVI *Atemoztli* to the month of IV *Huey tozoztli*. Sacrifices of children were essential to the success of the agrarian cycle and the agrarian cycle was an exceptional case when the Aztecs sacrificed children. In some cases, e.g. in month of I *Atlcahualo*, even infants were involved, and these were explicitly bought from

34 Rivers, creeks, lakes.

their mothers. (Sahagún 2000, Tomo I: 176). In other cases, the children were older, e.g. aged 3-6, and in some cases came from the ranks of the aristocracy, in others from the ranks of slaves (Benavente Motolinia 1995: 35-36). This kind of sacrifice, as can be deduced, was realized in the irrigation cycle, that is, in the dry season, but it also applied to the rainy cycle, especially in the month of IV *Huey tozoztli*, which I will discuss below. In this month, sowing in just the rainy cycle was beginning, and it was necessary that the rains come on time and in sufficient (neither too little nor too much) quantity. The sacrifices of children in this month had the aim to manage and control the weather and the proper arrival and amount of rains.

According to Motolinia (Ibid: 36), the custom of sacrificing children came from a time when it had not rained for four years, the people were starving, and so they offered four children as a sacrifice to Tlaloc to appease his anger. These had to guarantee that it would start raining again. There are also several myths justifying this practice. They date back to Toltec times, more precisely to their end, when a great famine lasting seven years forced the Toltec ruler Huemac to sacrifice his own children to the *tlaloque*, as it is written in the Annals of Cuauhtitlan (*Anales de Cuauhtitlan*) (Feliciano Velázquez 1992: 13). According to Legend of the Suns (*Leyenda de los Soles*) , the famine lasted four years and was caused by Huemac himself, who, after defeating the *tlaloque* in a ball game, demanded jade and precious quetzal feathers from them in return for victory, and refused the *elote* and the precious green leaves (husks) of the corn in which the *elote* grow. After four years the *tlaloque* returned, bringing with them elote, but no longer for the Toltecs, to whom they announced the end of their era, but for the Aztecs, whose era began by this way and to whom the corn has belonged ever since. In exchange, however, the Aztecs had to sacrifice Quetzalxotzin, the daughter of their ruler who was still a child, in the Pantitlan whirlpool (Ibid.: 126). Huemac thus brought about the extinction of his people by his arrogance, while the Aztecs, by acquiring the corn, also took over Toltec power and became the successors of the Toltecs in the Valley of Mexico. At the same time, these myths explain and justify the practice of child sacrifice in relation to the agrarian cycle, corn and rain deities.

Durán (2006, Tomo I: 287) writes that in the month of XVI Atemoztli, rain-making rituals began to be performed and that ritual self-sacrifice occurred

in which participants [35] pierced their tongues, ears, genitals, arms, calves, and breasts. He also adds that the Aztecs at that time "pretended" that a child they called Water descended from the skyand this child gave the name to the whole month (*atemoztli* means descent of water) (Ibid.). There is no mention of sacrifices of children in this month in Durán´s chronicle and neither Sahagún´s. Motolinia (1995: 35-36) , however, says that from Mexico City (i.e., Tenochtitlan) a procession in boats set out for the lake at that time, one of which carried a small boy and a small girl, who were sacrificed by drowning in the middle of the lake (they were drowned along with the boat).

Then again Durán (2006, Tomo I: 292) speaks of self-sacrifice as well as the sacrifice of a boy and a girl in honour of the mountains of Tlaloc and Matlalcueye (La Malinche), personifying the eponymous deities, in the month of XVIII *Izcalli*. In the case of the latter, it was a Tlaxcaltec ceremony, as it was on their territory, but both Aztecs and Tlaxcaltecs came to Mount Tlaloc to sacrifice children.

We have much more data on the sacrifice of children in the month of I Atlcahualo, when, according to Sahagún (2000, Tomo I: 135-136, 176-178), the Aztecs sacrificed adult captives, but especially a large number of infants bought from their mothers. It took place in seven places in the Valley of Mexico, six of them were hills, the seventh was the Pantitlan whirlpool, already mentioned several times. It was just in this whirlpool where they sacrificed a girl they called Quetzalxoch (Quetzalxotzin) as a reminder of the ancient times when they took power in the Valley of Mexico from the Toltecs. It was a good omen when the children cried after arriving at the site, because according to the Aztecs it meant early and heavy rains.

Durán (2006, Tomo I: 247) also discusses the sacrifice of children ranging in age from infants to twelve years in the month of III *Tozoztontli*, Sahagún does not specify their ages, but notes that the children who were sacrificed in the first four months of the year, thus confirming that sacrifices of children were carried out every month in the height of the drought, were all bought from their mothers in the month of I *Atlcahualo* (2000, Tomo I: 141-142).

35 Durán does not specify whether they were priests or nobles, but based on widespread Mesoamerican custom, it can be assumed that they were both.

**Figure 88:** Temple of Tlaloc on the top of Mount Tlaloc (Broda 2015: 76).

Durán goes on to give us detailed information about the month of IV Huey tozoztli, when the sacrifices of children peaked and ended, as it was the month when the sowing of the rainy cycle began. As I have indicated above, in relation to the sacrifice of children to the rain deities, this was probably the most important time of the year, as the rainy season was only about two Aztec months away (i.e., about 40 days) and it was vitally important that the rains came on time and in the right amount. The ritual of sacrifice had a specific form and content and took place on Mount Tlaloc (4120 m above sea level), located east of Tenochtitlan in the northern part of the Sierra Nevada massif, directly above the city-state of Tezcoco, which, together with Tlacopan, was an ally of Tenochtitlan. These three city-states formed the Aztec Triple Alliance in 1428 [36] Aztécky Trojspolok (Carrasco 2014: 191), which is behind the emergence and rise of the Aztec empire. Mount Tlaloc is located on the border of the Valley of Mexico and the Puebla-Tlaxcala Valley, which means that in pre-Hispanic times it was also the border between two hostile city-states (Aztec and Tlaxcaltec) and their allies. The ruins of the Temple

36 The date of the formation of the Triple Alliance is not entirely clear-cut; several authors are inclined to believe that it was a process of several years, culminating in 1433 with the defeat of Azcapotzalco, until then the hegemon in the Valley of Mexico. For more on the issue, see Battcock 2011: 7-30.

of Tlaloc can still be found at the top of the mountain and it is the highest building structure in pre-Hispanic Mesoamerica. It existed long before the Aztecs [37], who incorporated it into their ritual landscape after dominating the Valley of Mexico [38]. However, this temple and the mountain itself did not belong only to the Aztecs. Being on the border of two hostile powers, the Tlaxcaltecs, as mentioned above, considered it theirs as well. ((Figure 88)) Durán (2006, Tomo I: 83) mentions that in month of IV *Huey tozoztli*, processions from Tenochtitlan, Tezcoco, Tlacopan, and Xochimilco [39] came to the mountain from one side, and from Tlaxcala and Huejotzinco from the other. It is clear that at this time there was a lull in the arms, but processions from either side tended to be organised so that they did not meet at Tlaloc. At least so it appears from Durán (Ibid.: 85), who adds that the Aztecs left a hundred soldiers there after the ceremony was over to guard the offerings, lest they should be stolen and destroyed by the enemies of Tlaxcala and Huejotzinco. It is possible, however, that the most important ceremonies on Mount Tlaloc were jointly attended by the inhabitants of the two hostile states (Iwaniszewski 1994: 161).

Even more important mention, however, is the one that the participants in these processions were exclusively rulers and members of aristocracy (Durán 2006, Tomo I: 83), who sacrificed a boy in the sanctuary and then a girl in

37 Perhaps as early as in Teotihuacan times, i.e. the Classic period, but about 80% of the surface pottery date from the 15th and 16th centuries (Iwaniszewski 1994: 165).

38 It is the landscape transformed culturally and incorporated into cultural and social framework. It connected political centers with rural and natural localities where shrines of lesser importance have been situated (Broda 2001: 296). In pre-Hispanic era the political centers were represented by great temples – pyramids, after the conquest by Catholic churches that replaced former temples, the shrines of lesser importance but mostly also of pyramidal shape were replaced by chapels and crosses. Ritual landscape can be viewed as a something like humanized space (Hlúšek 2020: 40).

39 This city-state in the south of the Valley of Mexico belonged to the Aztec domain of power, but was neither a founder nor a member of the Triple Alliance, but a taxpayer, but at the same time an ally.

the Pantitlan whirlpool on Lake Tezcoco (Ibid.: 83, 88). The exclusive participation of the social and political elites points to both the specific meaning and importance of the month of IV *Huey tozoztli* and Mount Tlaloc. It also suggests that it was on this occasion that the children of the aristocracy were most likely sacrificed, thus emphasizing the role of representatives of the Aztec state in the agrarian cycle and their responsibility for the well-being and prosperity of its inhabitants (Broda 2001: 299-300).

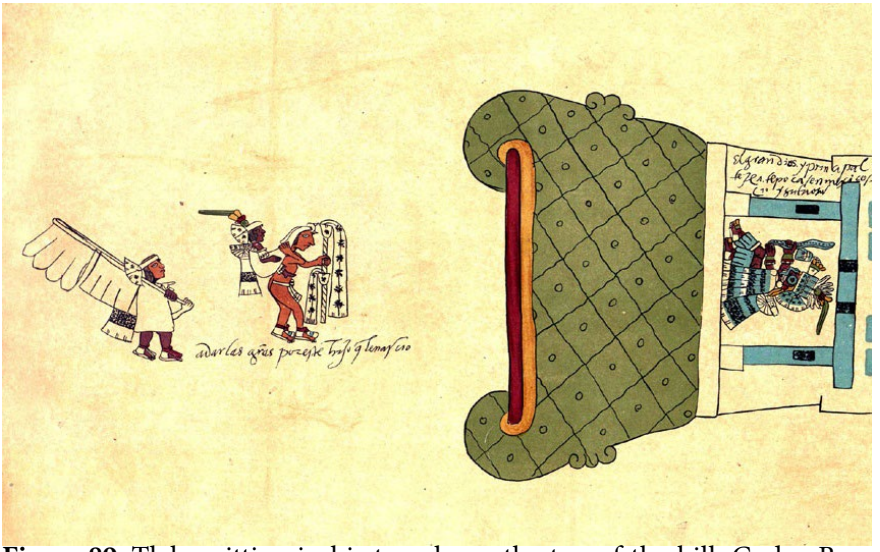

**Figure 89:** Tlaloc sitting in his temple on the top of the hill. Codex Borbonicus (http://www.famsi.org/research/loubat/Borbonicus/images/Borbonicus_25.jpg).

The scene depicting the sacrifice of children in the month of IV Huey tozoztli on Mount Tlaloc is also given to us by Codex Borbonicus. It shows two Aztec priests making their way to the interior of the mountain on whose summit Tlaloc sits in his temple. The first of them carries a child on his back. ((Figure 89)) The Aztecs understood the sacrifices of children as a covenant between humans and rain deities through which they obtained water for corn. Therefore, they called it *nextlahualli*, meaning debt paid. Because of this concept, the sacrificed children were seen as a force that participated with the gods in releasing the water from Tlalocan, so it was not just an act of reverence to the gods (Broda 2001: 299). The practice of sacrifice, regard-

less of the type of sacrifice, also shows that the religion of the Aztecs and all Mesoamericans was focused on life here on earth, not the afterlife, and operated on the principle of reciprocity, that is, offerings were made to help win the affections of supernatural beings controlling the forces of nature. This was done through rituals designed to enlist and channel these forces for the benefit of the people. As the reader will see below, in the case of central Mexico (but, understandably, also of all Mesoamerica and not only there) the principle of reciprocity embodied in rainmaking rituals and offerings has remained present to this day.

*Worldwiew*

In discussing the Aztec (and contemporary) agrarian cycle, one cannot avoid mentioning Mesoamerican worldview, it means the way the ancient Mesoamericans perceived the world around them. This is due to the fact that rainmaking rituals were (and are) performed primarily on mountaintops or other prominent places in the mountains. And it is the mountains and the ritual landscape that constitute the cornerstone of Mesoamerican worldview. Mexican anthropologist Alfredo López Austin (2015: 44) understands it as "... a historical reality, a product of mental processes immersed in the passage of time of very long duration. Its result is a relatively coherent systemic whole created by a collective network of mental acts. Through worldview, the social unit at a given historical moment seeks to understand the universe in its totality". The above definition thus implies its historical, social, systemic and holistic nature (Ibid.: 44-46). He adds that it is an interconnected structure, not just the sum of its components (López Austin 2016: 20), and considers worldview to be one of the greatest creations of culture (Ibid.: 16). Its key characteristic is longevity, which makes it more resilient than other components of culture and is passed on from generation to generation (Velasco-Lozano 2009: 118). However, it is certainly not static and unchanging, but emerges in historical and social contexts under the influence of various circumstances (Good Eshelman 2015: 141). Davíd Carrasco (2014: 14-15), the American historian of religion and anthropologists, who prefers to use the term cosmovision instead of worldview says that "cosmovision means a worldview that is charged with religious forces, stories, divinities, and

ancestors who created the world and assist in its maintenance and renewal". He also states (2014: 69) that "the term points to the ways in which cultures combine their cosmological notions relating to time and space into a structural and systematic whole".

López Austin (2016: 23) stresses that within the worldview there is a so-called core part (*núcleo duro*), which represents „ the fundamental and most stable part of the cosmovision, the organiser of the system components, which adapts to innovations and restores the system after it has been weakened. But its resilience does not mean immobility. Changes exist, but they take a very long time". The core part is able to accept and adapt to new cultural elements, which allows it to withstand the pressures of the environment that occur under the influence of historical events (e.g. conquest). As far as Mesoamerica is concerned, the core part is represented by the conceptualization of space, i.e. the ritual landscape, sacred mountains and ritual practices related to mountains, fertility, the agrarian cycle, petitions for rain, and control of the weather.

The Mesoamerican worldview thus consists of a unified and stable core part and other parts that are diverse (different ethnic origins, different languages, natural environments and histories) and less stable and resistant to change (López Austin 2016: 41-42).

**Colonial period**

Although the Christianization initiated by the Spanish friars in the 16th century touched all parts of the worldview the core part resisted and has remained present in indigenous Catholicism to the present day. Also thanks to it, Christianization was a two-way process in the course of which not only were Mesoamerican religions Christianized (Catholicized), but at the same time Catholicism was Mesoamericanized (in our case, Nahuatlized) (Hlúšek 2019: 99).

The result is the well-known religious syncretism, i.e. the mixing of Mesoamerican religions with Catholicism, where two different sources have given rise to something new, a third, which bears the characteristics of both but

does not fully coincide with either [40]. Thus, Catholic Christianity did not so much replace the original religions as it was incorporated into them in a transformed form (Hlúšek 2014: 51). Within this long-lasting process, the core part of pre-Hispanic Mesoamerican worldview proved to be resilient, and it was this part that allowed indigenous religious ideas and ritual practices (linked to ritual landscapes, sacred mountains, rain rituals, and the agrarian cycle) to persist in the new syncretic worldview of the native Mesoamericans (López Austin 2016: 42).

The agrarian cycle was incorporated into Catholicism primarily through the cult of the saints, which largely enabled the persistence of polytheism dressed in a new clothes, since it was the saints [41] who took on the attributes of the ancient deities, both those who were the patrons of particular city-states or communities, and those who were associated with natural phenomena and the agrarian cycle [42]. It is in the cult of the saints that the continuity of the pre-Hispanic agrarian cycle can be demonstrated under new conditions, since in popular native Catholicism there has been a fusion between Catholic festivals and the indigenous tradition of agrarian ritualism. There

40 Religious syncretism can be defined as „a process in which people pick and choose elements of their Indigenous culture and mix them with elements of the invasive culture to create a new combination. It is the process of mixture and hybridity" (Carrasco 2014: 155-156).

41 No other aspect of Catholicism had such a far-reaching impact on the religious activities of the natives in the post-conquest period as the cult of the saints (except perhaps for death-related cults). Documents from this period show that their religion was centerd around saints, whose cult reached such proportions that entities such as the cross and even Jesus himself came to be regarded as saints (Lockhart 1992: 235).

42 Because of the association with water, we find among the saints who have acquired the attributes of deities of rain and the agrarian cycle, e.g., St. John the Baptist (because of the baptism of Jesus in the Jordan River), St. Peter (because he wept after denying Jesus three times), St. Isidore de Labourer (because of his occupation as a peasant), St. James the Great (because of his association with thunder), and St. Michael the Archangel (because of his association with caves) (Merlo Juárez 2009: 64-68).

was a symbolic reinterpretation as well as a configuration of new traditions, preserving ancient elements that found their new expression in Catholicism (Broda 2004b: 63). The official religions of the pre-Hispanic city-states were banned in the process of Christianization, and their priestly apparatus as well as the organization of rituals, i.e. something like the pre-Hispanic liturgical year, ceased to exist (Báez-Jorge 2008: 256). The popular classes, who in the process lost their priestly leaders and the established cycle of year-round rituals, quickly reoriented themselves after the short-lived vacuum, however, and steered their own piety in a new and officially the only possible direction. The way they did so, however, was no longer under the control of the Spanish friars. Popular cults emerged as a response and a kind of alternative to Christian catechesis, syncretizing with Catholic "deities" (Ibid.). The formal acceptance of the symbols belonging to the new religion, as well as the deeply subsurface loyalty to the original cults, were characteristic of this process (Ibid.: 258). The saints who came to be inevitably venerated in native communities were thus understood in connection with ancient and indigenous sacred entities (not only deities, but also mountains, celestial bodies, etc.) that controlled both the cosmic and terrestrial order. In this way, celestial bodies, atmospheric phenomena, rain, earth, hills and corn were directly associated with the cult of the saints (Ibid.: 168) [43].

Rituals related to the agrarian cycle, water, and mountains were performed by priests within the official religions of city-states in the pre-Hispanic period, as I described in the previous section of this chapter. However, these were replaced by Catholic Christianity, with the result that state and priestly-con-

43 The adaptation of the cult of the saints was not only due to the nature of the original polytheistic religion, but also to the nature of the cult itself, which was very similar to native ideas. It was often tied to a particular region, town or social group, and each saint, protecting a particular social or settlement unit, was attributed specific characteristics and attributes that were transferred to his image or statue in the beliefs of the common Spaniards. And exactly the same principle is exhibited by the colorful pantheon of specialized Mesoamerican gods. A certain general rule of Spanish-native interaction emerges, based on the fact that, insofar as the two cultures were similar in some sphere, the Indians were quick to adopt its corresponding Spanish form, without, however, abandoning its original native content (Lockhart 1992:243).

trolled agrarian rituals ceased to exist. However, they remained present in the popular cult in particular native communities, but they had to be withdrawn from the public space (the village) and their performance became secret. At the same time, they moved definitively into the mountains, where their eventual detection was less likely. Before the conquest, the mountains, or in the lowlands other remote corners of particular territories, were of course also an integral part and place of the agrarian cult, as I have demonstrated with the example of the Aztecs. In the colonial period, however, it became its only place and has remained so ever since. In the native villages, at least outwardly, a Catholic cult centred mainly on saints prevailed, but even this became strongly intertwined with the agrarian cycle, corn and water in the process of syncretism (Chávez y Peniche 2011: 191-192). Thus the rainmaking rituals performed in secret in the mountains by ritual specialists now called in Spanish *tiemperos*[44], *graniceros*[45], *pedidores de lluvia*[46], *trabajadores del tiempo*[47] or in Nahuatli *quiotlazque*[48], and the agrarian cycle linked to the cult of the saints, represent two distinct, albeit related and interconnected, things. For the same reason (the secrecy of the one and the Catholic clothes of the other), records of water and mountain worship in the colonial well are fading away, or are sparse and fragmentary (Ibid: 189). These ritual practices were only rediscovered by Mexican anthropologists in the second half of the 20th century, with 1968 being considered something of a turning point, when the first study based on ethnographic research was published on the subject. The author is Guillermo Bonfil Batalla, he conducted his research the year before and the study is titled Those Who Work with the Weather: Ethnographic Notes on the *graniceros* of Sierra Nevada, Mexico (*Los que trabajan con el tiempo: Notas etnográficas sobre los graniceros de la Sierra*

44 From *tiempo* (weather), so those who work with the weather.

45 From *granizo* (hail, hailstorm), so those who prevent the hail or hailstorms.

46 Rain supplicants.

47 Weather workers.

48 From *quiahuitl* (rain), *otlaza* (to take a shortcut) and *queh/que´* (substantive suffix in plural meaning the persons who do the verb, in this case who take a shortcut), so those who take a shortcut of/for the rain.

*Nevada, México*). It is the first paper written on the base of ethnographic research (Lorente Fernández 2009: 208).

**Figure 90:** Hosepipes Hadice in Hueyapan, Morelos (Radoslav Hlúšek 2010).

Although the colonial period is sparse for information on this subject, there is no reason to believe that the agrarian cycle and rainmaking rituals associated with them, as we have known them for the last half-century, are something new, or that they originated in the colonial period and have no connection with their pre-Hispanic predecessors. Although they are intertwined with the cult of the saints and with the Catholic liturgical year, in the context of the agrarian cycle it is those saints whose feast day falls on dates corresponding to those times of the year that are important in the agrarian cycle and that correspond to the preparations for sowing, planting, ripening, and harvesting of corn that have become significant. The Aztec calendar was replaced by the Christian calendar in central Mexico, but the natural conditions and the resulting agrarian cycle remained the same, and the Catholic festivals and the cult of the saints were, figuratively speaking, grafted onto it. Thus, the

pre-Hispanic festivals and rituals of the Aztecs found their reflection in the new religion. The natural conditions in Spain and in central Mexico (and in Mesoamerica as a whole) are simply different due to the different geographical location, climate and altitude, and the agrarian cycle in Spain is thus different from that of central Mexico. It falls in different months, which makes it correspond to different times of the liturgical year and different saints than in central Mexico. The saints and their feasts associated with the agrarian cycle in Mesoamerica today can thus be seen as evidence of an unbroken continuity between the pre-Hispanic period and the present.

**Contemporaneous Nahuas**

Since the publication of Bonfil Batalla's groundbreaking study, Mexican anthropologists and historians (and not only them) have begun to focus on the agrarian cycle and the cult of mountains, water, and maize in contemporary indigenous communities of central Mexico and Mesoamerica in general with great intensity. These efforts do not cease even today, quite the contrary. This is due not only to the popularity of the issue, but also to the fact that the modern age poses a greater danger to agrarian ritualism than did the colonial period. As a result, these practices are gradually disappearing in many places, further encouraging researchers to capture them before they disappear altogether. Although the Spanish friars tried their best to create a pure church in Mesoamerica after the model of the early Christians, untainted by medieval heresies or the Reformation, their efforts were unsuccessful and they could not prevent syncretic processes. They were aware of them, but they could not do much about them. Indeed, even Sahagún himself, who lived to be 90 years old, and survived 60 of them among the Nahuas after arriving in the New World, remarked near the end of his life in 1585 that the natives, though "disposed to accept the god of the Spaniards as their god, were not disposed to abandon their old ones". He also adds that "this new church was founded on falsehood and .... is ... wounded and ruined" (León-Portilla 1999: 188). Dressed in Catholic clothes, but above all performed in secret in the mountains rainmaking rituals survived the first spiritual conquest, as the missionary activity of the Spaniards in the 16th century is called [49], and

49 The so-called second spiritual conquest is a matter of the last 70 years or so, and is linked to Protestant missions, primarily from the USA, which have been

have endured to the present day. Paradoxically, it is the modern era, which no longer threatens prohibitions and persecution, that poses a greater threat to these rituals, due to the opening of Indian communities to the outside world, access to information, migration and the associated liberalism. The younger generations often consider themselves modern Mexicans and consider the spiritual world of their ancestors as something that is outdated, outmoded, something that belongs to the past and that they no longer believe in. Scholars see their research in recent decades as rescue, and so do I see mine. I see for myself how in some localities these ritual practices have already disappeared and how in others they are not far from disappearing. Yet, as part of the core part of Mesoamerican worldview they continue to survive. But as the Mexican anthropologist Julio Glockner Rossainz, whom I talked to in January 2018 in the Nahua village of Hueyapan in the Highlands of Morelos, where these practices have not yet disappeared, optimistically told me, „this tradition has survived the process of Christianization, it will survive the process of modernization, too, and as the Catholic religion was incorporated into the native worldview, modernity will be, too". From a purely subjective point of view, I hope that my Mexican colleague and friend is right and that I will continue to participate in rainmaking rituals, at least in this area, as a researcher, and not just collect memories about them from eyewitnesses and stories from descendants, as I do in the Sierra de Tentzo area.

*Catholic calendar*

Before turning to the agrarian cycle of the Nahuas of today and its comparison with that of the Aztecs, I must point out that I will no longer divide the present cycle into the irrigation and the rain cycle. This is due to the fact that irrigation has been almost completely lost in the plane of religion and ritualism over the centuries, and the cycle that governs today's Nahua communities in central Mexico is almost exclusively linked to the rainy season and thus to the rain cycle. This is not to say that contemporary native farmers are any more backward than their pre-Hispanic predecessors and

working throughout Latin America to convert indigenous Catholics, whom they consider pagans, to their faith. For the more on the issue, see Kováč and Hlúšek 2015: 31-50.

that they do not know or practice irrigation. This is not the case; irrigation, as far as hydrological conditions, technical conveniences and financial possibilities allow, is a common practice even today, and even today not a few native communities have two harvests a year. However, irrigation systems are not a simple and inexpensive matter and need to be not only built but also maintained. My own experience in the aforementioned Hueyapan is that although there is plenty of water all year round in this mountain village at the southern foot of the Popocatepetl volcano, where the difference in altitude between the upper and lower parts is about 500 meters, it flows in deep valleys and ravines, so that there is no way to reach the fields. The local Nahuas have solved this situation by stringing dozens of kilometers of thick hosepipes across their territory, which crawl up slopes and commonly cross valleys and ravines tens of meters above the ground. These hosepipes are connected to watercourses in their upper reaches, often up to 10 km from the village, from where water flows down to the fields and the village itself using gravity. However, this solution is only recent, dating back only to the 1990s. Until then, there was no irrigation in Hueyapan, people depended only on the rainy season and had only one crop a year. ((Figure 90)) Other zones that are on the plain either have the same problem (e.g., the Atoyac River in central Puebla flows in a deep gorge) or the lack of groundwater makes it unprofitable to dig wells, so irrigation canals either fall into disrepair or are not even built. There was plenty of water in these zones a few decades ago, but climate change has caused it to disappear from many villages and the wells have dried up [ 50 ]. The dependence on the rainy season has thus been exacerbated. In religious and ritual terms, therefore, the irrigation cycle is no longer significant today, and the fact that it was significant for the Aztecs is

50 For example, in Santa Clara Huitziltepec in central Puebla, which is the village I know best, there was plenty of water until about 40 years ago. Today, with a few exceptions, the wells are dry and water has to be brought in by tankers. Irrigation is limited to a single water source (well), but its capacity is limited and far from sufficient to meet the demands of even half the community. Consequently, corn production has also declined and seems to have been definitively replaced by the cultivation of domesticated cacti, especially pitaya, pitahaya, xoconoxtle and nopal. These have always been cultivated there, but today, due to the lack of water, they predominate.

due, among other things, to the fact that the Valley of Mexico, to which our information relates and which was the core of the Aztec domain, is flat and the lake system, of which only tiny remnants exist today, provided sufficient water for irrigation. However, even for the Aztecs, as I have already noted, the rain cycle was more important in religious terms than the irrigation cycle. Today's cycle, with few exceptions (e.g. Virgin of Candelaria), reflects virtually only the rainy season.

**Figure 91:** Altar of petition on top of Chiguinqiuhuitl, Hueyapan, Morelos (Radoslav Hlúšek 2014).

Of course, this does not mean that today's cycle has narrowed down in time to just the roughly four months (June-September) during which it rains. This was not the case of the Aztecs, and it is not the case of the present-day Nahuas. The important festivals corresponding to the calendar of saints´ days extend beyond the rainy season, but the preparation for sowing, which is the beginning of the cycle, the sowing, ripening and harvesting of corn are closely linked to the rainy season. Basically, these are the four basic dates in the calendar of saints´days: 1) Virgin of Candelaria (*Virgen de la Candelaria*

or *Día de la Candelaria*) – February 2, preparation for sowing, beginning of the cycle; 2) Day of the Cross (*Día de la Cruz*) – May 3, rainmaking rituals, beginning of sowing; 3) Assumption of Mary (*Asunción de la Virgen*) – August 15, growth of corncobs (*jilote*); 4) Day of the Dead (*Día de Muertos*) – November 1-2, thanksgiving for the harvest, the beginning of the harvest and the closing of the cycle (Broda 2004a: 57-59). It is these four dates, or parts of the year, that have always determined the agrarian cycle linked to corn in central Mexico, and it is therefore the festivals of these saints, as they correspond to these parts of the year, that have become the main axis of agrarian ritualism in this region. (Broda 2013: 60-61). These dates and holidays are supplemented, depending on local conditions, by several others, of which there are also not a few, as will be seen in the following lines. At the same time, unless otherwise stated, in listing the individual festivals belonging to the contemporary Nahua agrarian cycle in the region in question, I draw on Broda (2000b: 66-75), At the same time, unless otherwise stated, in listing the individual festivals belonging to the contemporary Nahua agrarian cycle in the region in question, I draw on Broda (2000b: 66-75), which provides an exhaustive chronology of the particular festivals. I also point out that in the sense of the principle of reciprocity, which was already a characteristic feature of pre-Hispanic religions and which has persisted in contemporary native Catholicism, none of the festivals listed below can do without offerings. These are brought by *tiemperos* and other participants to ritual places called altars of petition (*altares de petición*) or calvaries (*calvarios*) ((Figure 91)), which are located either on hilltops or, in the case of high volcanoes, in some prominent places (caves, waterfalls, cliffs), but often at high altitudes (4,000 m above sea level or more). They are full of crosses, which, according to the Nahuas, represent springs, and are oriented in the direction they wish the water to flow, that is, towards their fields and villages. The offerings consist of flowers, food, beverages (including alcoholic), cigarettes, and possibly clothes or shoes, and their purpose is to incline the mountains in question and their personifications to give the optimum amount of water to the people (Hlúšek 2017: 23). ((Figure 92))

Among the festivals that begin the agrarian cycle of today's Nahuas is first the festival of the Virgin of Candelaria, during which the seeds of corn and other plants to be sown are blessed in several communities of central Mexico.

Based on my research, I believe that this festival bears traces of the ancient irrigation cycle of the Aztecs, because where irrigation is still practiced today, the first sowing takes place in February, which corresponds to the Aztec month of I *Atlcahualo*, which was the time of sowing in the irrigation cycle. The blessing of the seeds today applies both to those that will go into the ground as early as February and to those that will be planted in May, before the rainy season begins. At the same time, the attentive reader certainly have noticed that on February 2, on which falls the festival of the Virgin of Candelaria, at the same time, according to Sahagún (2000, Tomo I: 135), who still followed the Julian calendar, began not only the month of I *Atlcahualo*, but also the Aztec New Year, which only reinforced the significance of the introduced Catholic festival [51]. Despite the fact that the Broda lists this holiday first, and in most cases it does, my research in the Highlands of Morelos shows that on New Year's Day (January 1) the *tiemperos* go to the surrounding hills to greet them.

In the Sierra Nevada area, the Feast of St. Gregory, which falls on March 12, is also significant. Don Gregorio, or don Goyo in short, is the name by which nowadays not only Nahuas, but also non-natives commonly address the volcano Popocatepetl. Don Goya should be understood as the personification of a volcano. The celebration of his birthday falls on this day, just as August 30 is the birthday of doña Rosita, which is another name for his wife, or lover, or simply partner, the ideas of their relationship vary. This is none other than the Iztaccihuatl volcano (Juárez Becerill 2009: 331-332), This is none other than the Iztaccihuatl volcano (Juárez Becerill 2009: 331-332), which took its name after St. Rose of Lima. Despite the fact that her festival falls already in the period of the growth of the jilote, that is, the corncobs, the birthdays of don Goyo and doña Rosita form an interconnected whole, for which reason I have already mentioned it in this place.

51 The festival of the Virgin of Candelaria also marks the end of the Christmas season, because it is the day on which the Virgin Mary brought the baby Jesus to the temple in Jerusalem – Presentation of Jesus at Temple in Jerusalem, as the evangelist Luke (2011: 1356) writes about in the second chapter of his Gospel. For the Nahuas (and not only for them), therefore, this holiday has twice as big meaning.

Easter (a movable feast falling in March or April) also belongs to this group of feasts, because Christ's tomb is associated with fertility due to death and soil. The carnivals that precede the Lenten season also carry agrarian and sexual symbolism associated with fertility and corn.

**Figure 92:** Alar of petition called Divine Face of Popocatepetl (Divino Rostro de Popocatepetl) – crosses and offering (Radoslav Hlúšek 2014).

The turn of April and May, which heralds the end of the drought and the beginning of the rains, is marked by rain-making rituals in the Nahua communities of central Mexico. These are to ensure that the rains arrive on time and in the optimum amount and are aimed at petioning for rain. In Hueyapan and the surrounding villages in the Highlads of Morelos, they are called opening the water (*abrir el agua*). The rituals at this time of year mirror those performed by the Aztecs in the month of IV *Huey tozoztli* and represent one of the most important (if not the most important) points of the agrarian cycle. The most important Catholic holiday associated with these rituals in central Mexico is the Day of the Cross (*Día de la Cruz*), May 3. However, it is preceded by the festival of St. Mark (*Día de San Marcos*), which is celebrated on April 25, nine days before the Day of the

Cross [52]. The Day of the Cross is crucial for a successful agrarian cycle, the rains giving moisture to the corn, which is sown in May, about a month before the rains are expected to arrive, depend on it. On this day, which is not a condition, the *tiemperos* ascend the altars of petition, begging for rain and a good harvest. However, where there are no *tiemperos* anymore and the rainmaking rituals have died out, also on this day the Nahuas climb the mountains in their area to place offerings at the crosses that stand there and ask the mountains to do the same. The inhabitants of Atoyatempan in central Puebla climb the Sierra de Tentzo, the landmark of the micro-region, accompanied by a priest who celebrates a mass there for rain and good harvests. However, they no longer perform any rainmaking rituals and the *tiemperos* are no longer in the area.

The Day of the Cross marks the beginning of the sowing season, after which sown seeds begin to germinate and corn and other crops begin to grow. Within it, calendar of saints' days features two popular saints associated with the agrarian cycle and with water. The first is St. Isidore de Labourer, whose festival falls on May 15 and who is popular because he was dedicated to working in the fields, making him the patron saint of farmers. The drought peaks in mid-May, so in some communities, especially those that have this saint as their patron saint, rainmaking rituals, or just prayers or mass, are performed on the festival of this saint. The latter is St. John the Baptist, whose feast day on June 24 not only falls during the rainy season, but also coincides with the summer solstice.

The final period of the agrarian cycle begins in August, when the jilote appear on the growing corn, and the harvest, or the beginning of the harvest, ends this period. Broda, as I state above, puts the emphasis on August 15, when the feast of the Assumption of Mary is celebrated, but she herself (2004: 74) adds that this is especially so in the state of Guerrero. In my research areas in Morelos and Puebla, the importance of this feast to the agrarian cycle was not confirmed; in the Sierra Nevada region, in both Puebla and Morelos,

52 For example, in the Guerrero Mountains (*Montaña de Guerrero*) region, St. Mark is seen as the god of rain and the civilizing hero who gave people corn. His feast day is closely linked to the Day of the Cross, that is, to rainmaking rituals, rain, fertility and corn. For more on the issue, see Villela Flores 2009: 69-72.

the feast of St. Michael the Archangel on September 29 is perceived as more important. As commander of heaven's armies in the battle against the forces of hell, St. Michael protects the cornfields and the ripening corn (*elote*) against the devil. This one, according to local belief, arrives on August 24 (Day of St. Bartholomew), i.e. at the height of the summer heat [53], in the fields and villages through which it passes for over a month until it is chased away by St. Michael on the day of its feast. On the eve of his festival, people place crosses made of the *pericón* flower (Mexican marigold, *tagetes lucida* in Latin) in the four corners of the fields as well as on the doorways. ((Figure 93)). This wild plant has the power to ward off evil, and with its help, St. Michael triumphs over the devil. It is also the time when the first elote is harvested, which is used to make a popular sweet delicacy called *elote* bread. (*pan de elote*). Harvesting elote also means that the corncobs have already grown and just need to ripen. They still have about a month to mature. By the end of October, the rains are expected to be over and it is also the task of the *tiemperos* to ensure that they do not last too long. In that case, the harvest could go to waste. The end of the cycle is associated throughout central Mexico with the Day of the Dead (November 1-2), a popular holiday during which the souls of the deceased return to their homes and relatives, but the dead, in association with the earth, also contribute to a good crop and a successful harvest. Day of the Dead marks the beginning of the harvest, which can last well into January. *Tiemperos* then ascend the altars of petition to give thanks for a successful cycle, so in this case it is not rainmaking rituals, but thanksgiving rituals. In already several times mentioned Hueyapan, where I have done most of my research on this topic, but also in surrounding communities in the area, these rituals are called closing the water (*cerrar el agua*), and by performing them, the agrarian cycle is closed.

The new cycle begins again on February 2 on the festival of the Virgin of Candelaria, when the harvest is over everywhere in central Mexico and new corn kernels can be blessed so that corn and other crops can be planted again in May and, where irrigation is practiced, in February.

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53 I point out that this does not mean drought, because the rainy season is still ongoing. It is therefore a typical summer heatwave, which is most noticeable when the sky clears up.

**Figure 93:** Cross of pericón in Hueyapan, Morelos (Radoslav Hlúšek 2010).

Within and outside the above-mentioned agrarian cycle, there are also saints to whom the church of a particular community, or the church or chapel of its individual neighborhoods, is dedicated. For just as in pre-Hispanic times the natives identified with their divine patron, so since colonial times they have identified with their saint, who, in the process of Christianization, has become the patron of their village and neighborhood, and is understood not only as the patron, but even as the father of his people and the owner of the territory belonging to the community over which he holds a protective hand (Lockhart 1992:235-237). His festival is the most important festival of any community, perhaps only equaled by the festival of the Apparition of Our Lady of Guadalupe. Therefore, regardless of the date, not only processions are organized in his honor, but also offerings of crops are made in his honor, the purpose of which is to ensure that the patron saint continues to keep a protective hand over his people and to ensure their well-being in the form of a bountiful harvest.


**Figure 94:** Concrete cross torn down on the top of Sierra de Tentzo, Puebla (Radoslav Hlúšek 2018).

## Conclusion

The agrarian cycle in the present-day Nahua communities of central Mexico is a continuation of the pre-Hispanic cycle, of which the Spanish chroniclers of the 16th century left us detailed accounts. Several of its pre-Hispanic elements have persisted and are part of today's agrarian cycle, which has syncretized into its current form over the course of the colonial period. The core part of the Mesoamerican worldview of which the agrarian cycle and the cult of mountains, rain, water and corn associated with it have always been a part has played a big role in this. But in addition to this, the Catholic

cult of the saints has played a similarly important role, enabling the persistence of polytheism dressed up in Catholic clothing. In addition, however, the calendar of saints' days, i.e. the Catholic liturgical calendar, not only replaced the original Aztec *xiuhpohualli*, but also became intertwined with the pre-Hispanic agrarian cycle. As a result, the festivals of particular saints, falling at key periods of the agrarian cycle, became central not only to that cycle but also to the liturgical calendar of native communities. They delimit or determine the nature of the crucial periods of the year associated with the preparation for sowing, sowing, ripening and harvesting of corn. Although there are several such saints and their associated festivals in central Mexico, four are essential – Virgin of Candelaria, Day of the Cross, Assumption of Mary and Day of the Dead. Nor is their significance the same everywhere, as I have demonstrated with the example of the feast of the Assumption of Marriage, which in the areas I have studied is not so important in the context of the agrarian cycle. On the contrary, the festival of St. Michael the Archangel, associated with the first *elote* harvest, seems to be much more important, at least in the Highlands of Morelos. However, in virtually all of central Mexico, the importance of the Day of the Cross and the Day of the Dead stands out. They are related to the beginning (Day of the Cross) and the end (Day of the Dead) of the rainy season, which makes them more significant for the agrarian cycle than the others. The first of them reflects the rituals of the Aztec festival of IV *Huey tozoztli* and, as with the Aztecs, is related to rainmaking rituals focused on petitioning for water, the beginning of the sowing season and the arrival of the rainy season, which begins about a month later (in June). The second festival closes the whole season, as it heralds the harvest, which can only begin when the rains stop (end of September). The mature corncobs need less water to ripen and dry out, which takes another month (until the end of October). Therefore, today's rainmaking rituals, reflecting the Aztec festivals of the months of XIII *Tepeilhuitl* and XIV *Quecholli*, are at this time focused on thanksgiving for a good harvest and supplications for the coming year. In addition, the dead who come to their homes to visit their relatives during the Day of the Dead are associated with the successful completion of the agrarian cycle. In this case there has been some shift, because the Aztecs commemorated the dead only in the month of XVI *Atemoztli* (December), but this shift is not significant. The Aztec festival of the dead found its counterpart in the Catholic All Saints' Day and All Souls'

Day, with which it syncretized into the form of Day of the Dead. Its place in the Catholic calendar was taken by Our Lady of Guadalupe and Christmas, whose significance in the Christmas season shifted the Day of the Dead to a different date.

Thanks to the aforementioned principle of reciprocity, which remained present in native Catholicism, offerings did not disappear from the rituals of the agrarian cycle. Sacrifices of children, understandably, could not endure, but offerings of flowers, food, drink, cigarettes, clothing, shoes, or even the sacrifice of live roosters or turkeys (Glockner 2009: 66), are ever-present in rainmaking rituals. However, a kind of reminiscence of the former sacrifices of children can still be captured today in various stories. In Santa Clara Huitziltepec in the Sierra de Tentzo area, in which there is now an acute lack of water today, the story is told that Huicanetl, the hill that rises above the village, has plenty of water, but demands two children – a boy and a girl – for it. Nobody gave them to him, of course, and so the wells are dry. When I first heard this story, I immediately remembered the information from Durán that I have quoted in this chapter. It is not important that water has gradually been lost in the village due to climate change, what seems to me to be more important is the fact that in times of water scarcity an ancient motif has resurfaced so that the locals can use it to justify today's unfavorable situation.

At the very end of this chapter I will mention one more story from the Sierra de Tentzo area, which really happened. When I again came to Santa Clara Huitziltepec in September 2014, there was a huge white reinforced concrete cross visible from a great distance on the top of Tentzo, which is personified as Tentzohuehue (the Bearded Old Man). It had never stood there before. In the village they told me that it was put there on May 3 on the Day of the Cross by people from the neighboring village of Atoyatempan. During my stay I came and went to the area repeatedly, and on one of these returns, sometimes in October or November, the cross was no longer visible. In both Santa Clara Huitziltepec and Atoyatempan, I learned that the villages on the south side of the Sierra de Tentzo were blamed by their inhabitants for the drought that year on this new cross, which was turned towards Atoyatempan, and therefore it only rained on its, that is, the north side. So one day a few

of them went up and simply torn down the cross, leaving the smaller ones, of which there are several there, untouched. ((Figure 94)) The torn down giant still lies there and, along with other smaller crosses, reminds us that although there are no more *tiemperos* in the Sierra de Tentzo area and no one to perform rainmaking rituals, the belief in the hills as a sources of water as well as the agrarian cycle continues to persist.

REFERENCES

Báez-Jorge, Felix. 2008. *Entre los naguales y los santos.* Xalapa: Universidad Veracruzana.

Battcock Clementina. 2011. "La conformación de la última "Triple Alianza" en la Cuenca de México: problemas, interrogantes y propuestas". *Dimensión antropológica* 18(52): 7-30.

de Benavente Motolinia, Toribio. 1995. *Historia de los indios de la Nueva España.* México: Editorial Porrúa.

Bonfil Batalla, Guillermo. 1968. "Los que trabajan con el tiempo. Notas etnográficas sobre los graniceros de la Sierra Nevada, México". *Anales de antropología* 5(1): 99-128.

Broda, Johanna. 2001. "Ritos mexicas en los cerros de la Cuenca: los sacrificios de niños". In *La Montaña en el paisaje ritual,* edited by Johanna Broda, Stanislaw Iwaniszewski and Arturo Montero, 295-317. México: CONACULTA, INAH.

Broda, Johanna. 2004a. „Ciclo agrícola en la cosmovisión prehispánica: el ritual mexica". In *Historia y vida ceremonial en las comunidades mesoamericanas: los ritos agrícolas,* edited by Johanna Broda and Catharine Good Eshelman, 35-60. México: CONACULTA, INAH, UNAM, IIH.

Broda, Johanna. 2004b. „¿Culto al maíz o a los santos? La ritualidad agrícola mesoamericana en la etnografía actual". In *Historia y vida ceremonial en las comunidades mesoamericanas: los ritos agrícolas,* edited by Johanna Broda and Catharine Good Eshelman, 61-81. México: CONACULTA, INAH, UNAM, IIH.

Broda, Johanna. 2009a. "Las fiestas del Posclásico a los dioses de la lluvia". *Arqueología mexicana* 16(96): 58-63.

Broda, Johanna. 2009b. "Ofrendas mesoamericanas y el estudio de de la ritualidad indígena". In *Cosmovisión mesoamericana y ritualidad agrícola: Estudios interdisciplinarios y regionales,* edited by Johanna Broda and Alejandra Gámez, 45-66. México: BUAP.

Broda, Johanna. 2013. "Ritos y deidades del ciclo agrícola". *Arqueología mexicana* 19(120): 54-61.

Broda, Johanna. 2015. "Tenochtitlan: procesiones y peregrinaciones mexicas en la Cuenca de México". *Arqueología mexicana* 22(131): 72-79.

Broda, Johanna. 2016. "El agua en la cosmovisión de Mesoamérica." In *Agua en la cosmovisión de los pueblos indígenas en México,* edited by José Luis Martnez Ruiz and Daniel Murrillo Licea, 13-27. Ciudad de México: CONAGUA.

Carrasco, Davíd. 2014. *Religions of Mesoamerica. Second Edition.* Long Grove, Il: Waveland Press.

de la Cruz Reyna, Servando. 2009. "El entorno volcánico en México". *Arqueología mexicana* 16(95): 34-39.

Chávez y Peniche, Margarita Loera. 2011. "Reminiscencias del Tlalocan mesoamericano en los rituales católicos del Virreinato. Estudio de caso del Valle de Toluca". In *Moradas de Tláloc. Arqueología, historia y etnografía sobre la montaña,* edited by Margarita Loera Chávez y Peniche and Ricardo Cabrera Aguirre, 189-208. México: INAH, ENAH, DEH, DEA.

Durán, Diego. 2006. *Historia de las Indias de Nueva España e Islas de la Tierra firme. Tomo I-II.* México: Editorial Porrúa.

Glockner, Julio. 2009. "Mitos y sueños de los volcanes". *Arqueología mexicana* 16(95): 64-69.

Graulich, Michael. 1992. "Aztec Festivals of the Rain Gods". *Indiana* 12: 21-54.

Graulich, Michel. 2008. "Ochpaniztli. La fiesta de las siembras de los antiguos mexicanos". *Arqueología mexicana* 16(91): 50-56.

Feliciano Velázquez, Primo. 1992. *Códice Chimalpopoca: Anales de Cuauhtitlan y Leyenda de los Soles.* México: UNAM, IIH.

Good Eshelman, Catharine. 2015. „Las cosmovisiones, la historia y la tradición intelectual en Mesoamérica". In *Cosmovisión mesoamericana: Reflexiones, polémicas y etnografías,* edited by Alejandra Gámez Espinosa and Alfredo López Austin, 139-160. México: FCE, Colmex, FHA, BUAP.

Hlúšek, Radoslav. 2019. „Duchovná conquista rituálnej krajiny mexických Nahuov". In *Európa a mimoeurópsky svet: kontakty, konfrontácie a konflikty,* edited by Peter Vyšný, 96-111. Trnava: Typi Universitatis Tyrnaviensis.

Hlúšek, Radoslav. 2014. *Nican Mopohua. Domorodý príbeh o zjavení Panny Márie Guadalupskej.* Bratislava: Chronos.

Hlúšek, Radoslav. 2017. „Hueyapan – Live under/with the Volcano. Ritual Landscape of a Nahua Community". *Axis Mundi* 1(12): 16-26.

Hlúšek, Radoslav. 2020. "Ritual Landscape in Past and Present Mesoamerica". *Reviews in Anthropology* 1-2(49): 39-60.

Iwaniszewski, Stanisław. 1994. "Archaeology and Archaeoastronomy of Mount Tlaloc, Mexico: A Reconsideration". *Latin American Antiquity* 5(2): 158-176.

Juárez Becerril, Alicia María. 2009. „Una esclava para el Popocatepetl: etnografía de dos rituales con motivo del cumpleaños a Don Gregorio". In *Cosmovisión mesoamericana y ritualidad agrícola: Estudios interdisciplinarios y regionales,* edited by Johanna Broda and Alejandra Gámez, 331-348. México: BUAP.

Kováč, Milan, and Radoslav Hlúšek. 2015. *Slnko zemetrasenia. Spiritualita súčasných mexických Indiánov.* Bratislava: Chronos.

Kročková, Katarína (zodpovedná redaktorka). 2011. *Sväté Písmo Starého i Nového zákona.* Trnava: Spolok svätého Vojtecha.

León-Portilla, Miguel. 1999. *Bernardino de Sahagún. Pionero de la antropología.* México: UNAM, CN.

Lockhart, James. 1992. *The Nahuas after the Conquest.* A Social and Cultural History of the Indians of Central Mexico, Sixteenth Through Eighteenth Centuries. Stanford: Stanford University Press.

López Austin, Alfredo. 2015. „Sobre el concepto de cosmovisión". In *Cosmovisión mesoamericana: Reflexiones, polémicas y etnografías,* edited by Alejandra Gámez Espinosa and Alfredo López Austin, 17-51. México: FCE, Colmex, FHA, BUAP.

López Austin, Alfredo. 2016. „La cosmovisión de la tradición mesoamericana. Primera parte". *Arqueología mexicana,* edición especial 68.

Lorente Fernández, Davíd. 2009. "Graniceros, los ritualistas del rayo en México: historia y etnografía". *Cuicuilco* 16(47): 201-223.

Merlo Juárez, Eduardo. 2009. "El culto a la lluvia en la Colonia. Los Santos lluviosos". *Arqueología mexicana* 16(96): 64-68.

de Sahagún, Bernardino. 2000. *Historia general de las cosas de Nueva España. Tomo I-III.* México: CONACULTA.

Velasco Lozano, Ana María. 2009. „El paisaje y la cosmovisión en la región de Iztapalapa". In *Cosmovisión mesoamericana y ritualidad agrícola: Estudios interdisciplinarios y regionales,* edited by Johanna Broda and Alejandra Gámez, 117-133. México: BUAP.

Villela Flores, Samuel. 2009. "El culto a las deidades de la lluvia en la Montaña de Guerrero". *Arqueología mexicana* 16(96): 69-72.

Wissler, Clark. 1923. *Man and Culture.* London: George G. Harrap & Co. Ltd.

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ISBN 978-80-89027-62-0