

John Edward Staller
Michael Carrasco

Pre-Columbian Foodways

Interdisciplinary Approaches to
Food, Culture, and Markets in
Ancient Mesoamerica

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John E. Staller
The Field Museum
Chicago, IL
USA
jstaller@earthlink.net

Michael Carrasco
Florida State University
Tallahassee, FL
USA
mcarrasco@fsu.edu

Claude Lévi-Strauss on the mythology of food and cultivated plants...

"It is not surprising that the acquisition of honey should go back to the mythical period when there was no difference between animals and men, since honey is a wild product belonging to the category of nature... it must have become the heritage of humanity when men were still living in a 'state of nature', before any distinction was made between nature and culture... myths about the introduction of cultivated plants... refer to a time when men knew nothing of agriculture and fed on leaves, tree fungi and rotten wood before the existence of maize... maize was like a tree in appearance and grew wild in the forest... men made the mistake of felling the tree, and they then had to share out the seeds, clear the ground for cultivation and sow maize, because the dead tree was not sufficient for their needs. This gave rise, on the one hand, to the different varieties of cultivated species, and on the other hand, to the differences between peoples, languages and customs..." (Lévi-Strauss 1973, p. 73)

Lévi-Strauss, Claude 1973. *From Honey to Ashes: Introduction to a Science of Mythology*: 2. Translated by J. and D. Weightman. New York: Harper & Row Publishers, Inc.

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The Drink Mescal: Its Origin and Ritual Uses

Mari Carmen Serra and Carlos Lazcano A.

Introduction

Tezcatlipoca, also called Titlacauan, "...started by relating a tall story, he became a short, old man with very white hair, who went to *Quetzalcoatl*'s house and that old man entered where *Quetzalcoatl* was, and as he did so, the old man said: My lord and son, how are you? I have with me a medicine for you to drink. *Quetzalcoatl* replied: You are welcome, old man, I have been waiting for your arrival for many days.

... and the old man, answering to *Quetzalcoatl*, said: My lord, look at this medicine which I bring for you. It is good and healthy, and intoxicates those who drink it. If you drink it, it will intoxicate you, it will heal you, it will soothe your heart, and it will remind you of the labors and fatigues of the work and of death, or of your departure..." (Sahagún, Fray Bernardino de 1982 [1590]:196-197).¹

Some chapters later, Sahagún (1590) mentions that *Quetzalcoatl* decides to leave Tula and that he arrives at Quauhtitlan, "...where there was a big and thick tree, and *Quetzalcoatl* went near it, and asked the pages for a mirror, and it was given to him, and he saw his face in that mirror and said: I am old! ..." (*ibid.*:202).² And he continued on his way (Fig. 1).

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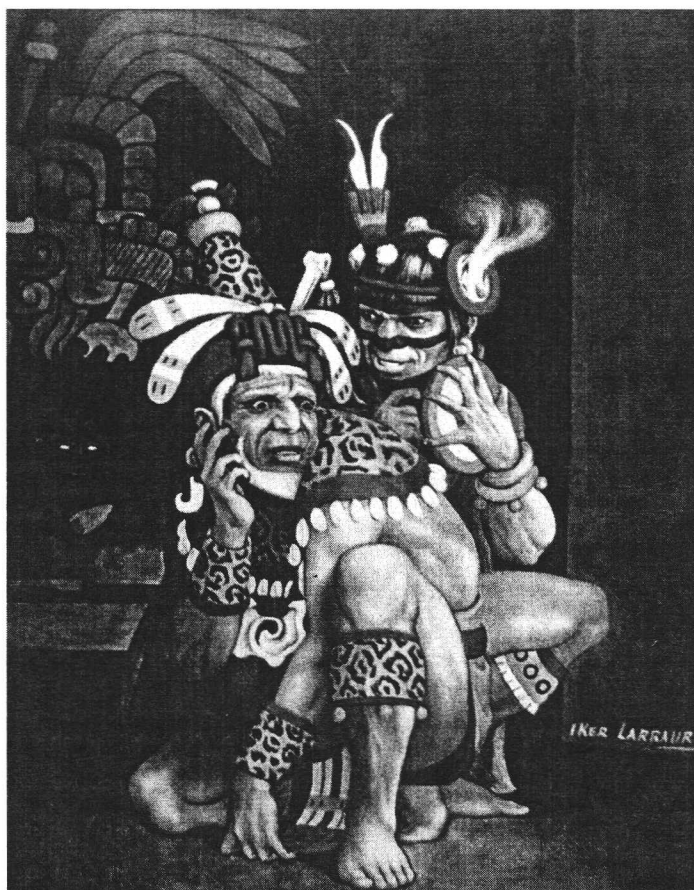


Fig. 1 Tezcatlipoca showing the mirror to Quetzalcóatl (Fragment of a mural by Iker Larrauri, MNA)

This paper presents a study on the ritual use of mescal in pre-Hispanic cultures from the Formative to Epiclassic times based on archeological evidence from settlements dependent on the site of Xochitecatl-Cacaxtla, Tlaxcala, and on ethno-archeological studies of different regions within Mesoamerica.

In the development of these societies, in particular those with complex structures, social manifestations are detected which are used to justify, maintain and prolong the predominance of one social class, which, in turn, uses them as a connection and a power strategy in their interrelations as an elite class.

Some of these manifestations are rituals, festivities, ceremonies, etc. and other kinds of specific cultural expressions, which play different roles in society, covering a wide variety of socio-cultural characteristics (Dietler 1996). One concrete class of rituals is the act of eating, which is part of the basic language of the

"politico-symbolic action," where alcohol enhances the potent effects, at the same time as sharing the properties of the food. This is a social fact loaded with symbolism, which incorporates production and exchange relationships, and which links the domestic and political economies (Cohen 1974).

Dietler (1996) shows that banquets in particular include the practice of "guest politics," the conversion of economic and symbolic capital, and the reiteration and naturalization of the role distinctions contributing to the articulation of regional exchange networks, and, when appropriate, of religious systems (Dietler *ibid.*; Hayden 1996).

The manufacture of beverages is part of the process that emerges from the elites which expands their control over the professions, at the same time as establishing symbols and creating mechanisms to manipulate surpluses.

In the same way, Arnold (2001) affirms that banquets could have been celebrated during opening ceremonies, dynastic weddings, or with the purpose of accomplishing the distribution of the bounty, which had been acquired through incursions or was the fruit of negotiations of organized expeditions.

He also shows the prominence of other types of celebrations, with deep roots in antiquity, in which alcoholic drinks were served, such as: collective banquets offered to the community or to workers as a reward for finishing collective projects or buildings; as a ritual; and, evidently, as political banquets.

Drinking is important not only for nutrition, but also as a part of rituals and the political economy of early societies. In Mesomerica, as we will discuss later, there are indicators of a similar process related to the celebration of feasts, hospitality practices, and evocation of deities.

Mescal in Sources and Chronicles

In this work, we discuss the use of alcoholic drinks which have been reported as being the most frequent among pre-Hispanic groups, namely Pulque and Mescal.

Maguey was one of the most important plants in pre-Hispanic Mexico, and one that caused the most astonishment among the chroniclers and explorers who adventured in the New World (Fig. 2). The sixteenth century (1944 [1535]) chronicler Gonzalo Fernández de Oviedo describes the plant:

"...it is a very useful herb, necessary in this place, the one which is called maguey, and it is very similar to the cassava ...it grows in a trunk in the same way as the lettuce ...This maguey sprouts in its middle a stick or a smooth and straight stem, taller than a very tall man, and at the end of this offshoot, there are some very yellow flowers; it sprouts the quantity of a hand span in the highest part, which resembles a corn cob..." (1944 [1526]:183).³

³In the original Spanish text: "...es una hierva muy útil y necesaria en estas partes, la que se llama maguey, y tiene mucha semejanza con la yuca... nace en un tronco a manera de lechuga ... Este maguey echa en la mitad una vara o tallo liso y derecho, más alto que un hombre bien alto, y en el fin de este vástago unas flores en el extremo amarillas y hecha una cantidad de un palmo en lo más alto, que aprésese una mazorca..." (Fernández de Oviedo 1944 [1535]:183).

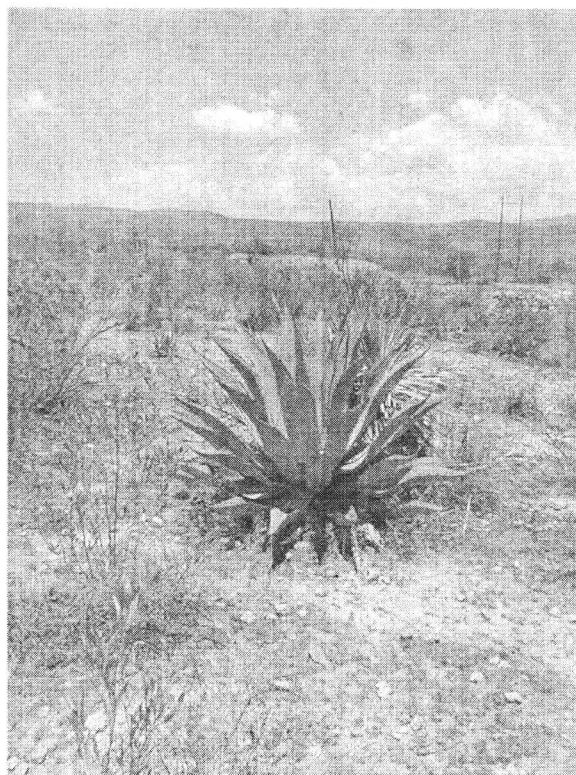


Fig. 2 Maguey (La Ruta del Mezcal Project, IIA-UNAM)

In the sixteenth century, the Franciscan Toribio de Benavente, Motolinía (1528) stated that he had heard about a liquor manufactured by cooking the heart of the maguey, which was called *mescalli*, "...which the Spaniards say is healthy and very substantial..." (1979 [1528]:197).⁴

The need to guarantee the supply of maguey meant that its control was sought through cultivation, as Fray Bernardino de Sahagún (1590) states:

"Those who sell maguey-honey have magueys, and usually sell **wine** of the earth, which they make from the maguey-honey, which they first cook or boil; to always have honey, they usually plant the shoots of the magueys..." (1975 [1590]:568).⁵

⁴In the original Spanish text: "...que los españoles dicen que es de mucha sustancia y saludable..." (Motolinía 1979 [1528]:197).

⁵In the original Spanish text: "El que vende miel tiene magueyes, y suele vender **vino** de la tierra que hace de la miel del maguey, la cual cuece primero, o la hierve, y para que nunca le falte la miel, suele plantar los hijuelos de los magueyes..." (Sahagún 1975 [1590]:568).

There are a large number of documents which talk about the products obtained from the maguey. Francisco Cervantes de Salazar (1971 [1546]) considers maguey as one of the; "...most notable, marvelous and useful of the trees which either ancient or modern people have found ...the indigenous peoples came to regard the maguey as a God ...the dry leaves or green spiky leaves (*pencas*) are used as tiles to cover houses and channels ...when dry, they make very good firewood ...When the spiky leaves are dry they swingle them in the same way as with twine, and from them they make threads to sew and knit; the spine serves as a needle, as a pin and as a nail, and ropes and very strong cords are made in the same way as fabrics ...From the maguey are made honey, sugar, vinegar, wine, honey-syrup and some other potions which it would take too long to describe." (1971 [1546]:116).⁶

Fray Toribio de Benavente, Motolinía (1528), also registers the different uses of maguey:

"...a sweet and clean **wine** is made, which is drunk by the Spaniards and which they say is good, substantial and very healthy ...This same wine was used by the indigenous peoples ...to be more cruel and brutal(?) ...from the same liquor they make honey-syrup and honey ...They also obtain from this liquor small sugar panels ...good vinegar ...From it they also obtain clothes and shoes ...the spins in which the leaves' ends are used as bradawls ... which are sometimes used as nails ...The spiky leaves (*pencas*) are also used for many purposes ...indigenous women store the maize they grind in pieces of it ...And when there is a shortage of wood, it is used to build houses ...and the spiky leaves of the green ones are used instead of tiles ...the dry spiky leaves are used to make fire ...There is another type of these thistles or trees which is similar, except that the color is whiter ...the leaves are thinner: from this, better **wine** is obtained ... *These are cooked in earth*, separating the spiky leaves and the head, and they taste as good as a candied citron which has just been marinated or which has not been cooked very well. The spiky leaves are full of threads which are impossible to swallow, but it is possible to chew and suck the juice, which is sweet (and is called *mexcalli*); if an expert cooks the heads, they have such a good appearance that many Spaniards like them as much as they like a good candied citron ...From the *metl* good paper is made: the sheets are as big as two of the ones we make, and they make a lot in Tlaxcallan." (1979 [1528]:243–246).⁷

⁶In the original Spanish text: "El que vende miel tiene magueyes, y suele vender **vino** de la tierra que hace de la miel del maguey, la cual cuece primero, o la hierve, y para que nunca le falte la miel, suele plantar los hijuelos de los magueyes..." (Sahagún 1975 [1590]:568).

⁷In the original Spanish text: "... *hácese un vino* dulcete, limpio, lo cual beben los españoles y dicen que es muy bueno y de mucha sustancia y saludable ...De este *vino* usaban los indios ...para ser más crueles y bestiales ...de este mismo licor hacen arroyo y miel ...También sacan deste licor unos paneles pequeños de azúcar ...vinagre bueno ...Sácase también de él vestido y calzado ...las púas en que se rematan las hojas sirven de punzones ...que sirven algunas veces de clavos ...Las *pencas* también por sí se aprovechan para muchas cosas ...en un pedazo ponen las indias el maíz que muelen ...Y donde hay falta de madera sirve para hacer casa ...y las *pencas* de los verdes suplen por tejas ...las *pencas* secas se aprovechan para hacer lumbre ...Hay otro género de estos cardos o árboles de la misma manera, sino que el color es algo más blanquecino ...las hojas son un poco delgadas: de este digo sale mejor **vino** ...*Este cuecen en tierra*, las *pencas* por sí y la cabeza por sí y salen de tan buen sabor como un diacitrón no bien adobado o no muy bien hecho. Lo de las *pencas* está lleno de hilos que no se sufre tragarlo, sino mascar y chupar aquel zumo, que es dulce (y así lo llaman *mexcalli*); más si las cabezas están cocidas de buen maestro, tienen tan buena tajada, que muchos españoles lo quieren tanto como buen diacitrón ...Hácese del *metl* buen papel: el pliego es tan grande como dos pliegos del nuestro, y esto se hace mucho en Tlaxcallan" (Motolinía 1979 [1528]:243–246).

Here, it is important to point out that, that which Motolinía (1528) calls *mexcalli* is nothing but the cooked maguey that was used as food; but it must also be obtained in order to elaborate the mescal beverage.

Archeological studies related to the maguey have also determined its importance. About this, Jeffrey Parsons states:

"The energetic value of cultivated maguey has not been fully appreciated in previous efforts to estimate the carrying capacity of prehispanic agricultural landscapes in the *tierra fría*. We estimate that, on the average, fields in maguey and seed crops could have at least doubled the caloric and nutritional output of the most categories of cultivated land that might have been planted with seed crops alone" (1990:363–364).

In a work entitled *Alcohol in Ancient Mexico*, Henry J. Bruman (2000) discussed historical documents and carried out ethnological studies related to alcoholic drinks prepared by different indigenous groups. His research covers the region from the Gila River in Arizona, United States, to the south of the Panama Isthmus. The author divides the production of alcoholic drinks in Mexico into six cultural areas: the mescal area is where the Tahue, Cora, Totorame, Otomi (Jalisco) and Nahuatl languages are spoken. For this author, the cultivation of maguey in the regions of Mexico and Central America was fundamental for the manufacture of mescal, which is known under different names such as "tequila" and "bacarona." He also reports the use of large ovens for cooking the *piñas* (heads) of the maguey in the states of Sonora, Chihuahua, Sinaloa, Durango, Nayarit, Zacatecas, San Luis Potosí, Jalisco, Colima, Michoacán, Hidalgo, Puebla, Mexico State, Mexico City, Guerrero, Oaxaca y Tlaxcala, and identifies the different species of agave used in the traditional production of mescal.

In his book *Mescalaria*, Ulises Torrentera (2000) compiles the history of mescal in the state of Oaxaca. Speaking about the origin of mescal, he assures that:

"...these work processes might have been known before the arrival of the Spaniards. According to Manuel Payno, before the Conquest, the indigenous peoples used to elaborate a beverage with the leaves of the maguey, which was called *maguee*, which was made by removing the bark and the nerves of the maguey, to then roast it and cook it in earth ovens, but the description actually refers to *mexcal*. This is how the different mescales, which we still know today, arose: *tequila*, *sotol*, *comiteco* from Chiapas, *bacanora* from Sonora, *raicilla* and *barranca* from Nayarit and Jalisco, *tuxca* or *quitupán* from Colima, *yahuytzingu* (in the Mixteca) fermented in the past in leather cubes in the same way as *pulque*, the substantial *mexcal*, and the *tequila*." (2000:97).⁸

⁸In the original Spanish text: "estos procesos de trabajo quizá eran conocidos antes de la llegada de los españoles. Según Manuel Payno, antes de la Conquista, los indios elaboraban una bebida con hojas de maguey, a la que llamaban *maguee*, que se elaboraba quitándole la corteza y los nervios al maguey, para luego asar y cocer en hornos hechos en la tierra", pero la descripción más bien se refiere al *mexcal*".

"Así nacieron los diferentes mescales que todavía conocemos: tequila, sotol, el comiteco de Chiapas, el bacanora de Sonora, la raicilla y barranca de Nayarit y Jalisco, la tuxca o quitupán de Colima, yahuytzingu (en la Mixteca) antiguamente fermentado en cubos de cuero como el pulque, el mexcal de sustancia, el Tequila." (Torrentera 2000:97).

The cooking is believed to have been done in ovens excavated in the soil, similar to those which have been found in archeological digs, not only in the settlements close to Xochitecatl-Cacaxtla, Tlaxcala, but also in other archeological sites such as in Paquime, Chihuahua, where remains of agave were even found in one of the ovens.

The cooking process is described by Mateo de Monjaraz, son of the *conquistador* Gregorio de Monjaraz and trustee of Miahuatlán, Oaxaca, in an account from 1580, where he explains that from the agave:

"... a kind of preserve of the center is made, by putting it into a hole, with some stones on top of it, and they throw some earth on, and light a fire underneath, with which it is cooked and it becomes as sweet as a preserve, and slices are cut which are called *mixcal*, and in the same way vinegar is made, and many other things which cannot be explained."⁹

Also Andrés Pérez de Ribas (seventeenth century), in his account of Sinaloa, mentions the process to obtain the *mexcalli*:

"... the mescal plant is also useful for them as a means of support and as a gift ...it is used to make wine, honey and vinegar ...but for these people it is especially useful as food. Because when it is ripe, they cut it all up with the trunk, and this, roasted between stones in fire and placed into a hole made with earth, they cover with tree branches and over them they put earth: with a slow heat these trunks soften together with part of their spiky leaves (*pencas*), and they are for them like sweet preserves, since cooked like this the plant is very sweet, and it is only this crop that they tend, plant, and take care of near their houses, and they do not do so with any other ..." (1944:124, 130).¹⁰

But he also adds:

"They made wine out of many plants and fruits of the earth, such as prickly pears, ... mezquite carobs, ...or from the mescal plant and its spiky leaves (*pencas*) ...and from other plants milled or ground and put in water, in two or three days they obtain the flavor which so impairs their judgment." (*ibid.*:135).¹¹

This last comment makes us suspect that what he talks about is not pulque, since he mentions mescal and its spiky leaves (*pencas*) and not the maguey honey-water.

⁹In the original Spanish text: "...se hace un género de conserva del centro del cual metiéndolo en un hoyo, encima unas piedras y echan tierra encima y fuego debajo con lo cual se cuece y quedan tan dulce como conserva y se cortan a tajadas que llaman *mixcal*, y asimismo hace vinagre y otras muchas cosas que no se pueden explicar ni dar entender." (Monjaraz).

¹⁰In the original Spanish text: "...sirveles también de sustento y regalo la planta de mescal...sirve para hacer vino de ella, miel y vinagre... pero a estas gentes principalmente de comida. Porque cuando está sazón la cortan con el tronco, y éste asado entre piedras que abrazadas por el fuego y echadas en una hoyo que hacen de tierra, las cubren con ramas de árboles y sobre ellas tierra, y a calor manso se ablandan esos troncos con parte de sus *pencas*, y son para ellos como cajetas de conserva, porque así esta planta es muy dulce, y sola esa suelen beneficiar y plantar cerca de sus casas, y no tratar de beneficio de otra alguna..." (Pérez de R., Andrés 1944:124, 130).

¹¹In the original Spanish text: "El vino lo hacían de varias plantas y frutos de la tierra, como de tunas... algarrobillas de mezquite... o de la planta del mescal y sus *pencas*... y de otras plantas molidas o quebrantadas y echadas en agua, en dos o tres días se accedan y toman el gusto que tanto les arrebató el juicio" (Pérez de R., Andrés 1944:135).

What is clear is that he is describing the second phase of production of mescal, which is fermentation.

There are many documents which mention a *wine* obtained from the *mexcalli*. For instance, Gonzalo de las Casas, in his *The war of the Chichimecas* (*La Guerra de los Chichimecas*, 1944 [1580]), explains that the Guachichiles:

"...eat the leaves and root [of the maguey] cooked in little ovens which here are called *mixcali* and it is good food and they make *wine* which they drink..."¹² (1944 [1580]).

Alcina Franch, in *Calendar and Religion among the Zapotecs* (*Calendario y religión entre los Zapotecos*), also writes about a ritual beverage called *socollule* or "cooked maguey," used in a ceremony for thanking the gods in the community of Tepitongo in the Sierra de Juarez, at the end of the sixteenth century (cf. *ibíd.* p. 79).

One of the key processes for the manufacture of mescal is distillation, which has always been considered as a technical contribution, which arrived from Europe in colonial times, but some sources leave open the possibility that this process was known to pre-Hispanic peoples. In his sixteenth century description, Gonzalo Fernández de Oviedo (1944 [1535]) describes how the maguey plant:

"...is cut from its stock, and the head or stump is cooked and made into a certain delicacy ...and juice is extracted from the leaves by sweat through fire to distill it; and those people drink that liquor, because water they never see nor have, except for that of the sea ..." (1944 [1526]:63).¹³

At the start of the seventeenth century we find precise references to the distillation of agave. In the *Descripción de la Nueva Galicia* (*Description of the New Galicia*, 1621), Domingo Lázaro de Arregui records that:

"... the mexcales are very similar to the maguey, and the roots and base of the spiky leaves are eaten roasted, and also from them, squeezing them once roasted, a must is obtained from which they get *wine* by *alquitara* (by distillation), clearer than water and stronger than liquor and of that same taste. And although many virtues are told about *mexcal*, they commonly use it to such excess, that they discredit the *wine* and even the plant." (1946 [1621]:50).¹⁴

The *alquitara* (slow distillation) is an ancient kind of alembic still in which the distillation process takes place. In this regard, Alexander von Humboldt (1973 [1811]) recounts the following:

¹²In the original Spanish text: "...comen las hojas y raíz cozidas en hornillos que aquí llaman *mixcali* y es buena comida y hacen *vino* del que beben..." (Casas, Gonzalo De las 1944 [1580]).

¹³In the original Spanish text: "...lo despencan y la cabeza o zepa la cuecen y hacen cierto manjar... y de las hojas sacan zumo por sudor de fuego a manera de destilarlo; y aquel licor beben aquellas gentes, por que agua nunca la ven ni la tienen, salvo la del mar..." (Fernández de Oviedo and Gonzalo 1944:63).

¹⁴In the original Spanish text: "...los mexcales son muy semejantes al maguey, y su raíz y asientos de las pencas se comen asados, y de ellas mismas, exprimiéndolas así asadas, sacan un mosto de que sacan *vino* por *alquitara* (por destilación), más claro que el agua y más fuerte que el aguardiente y de aquel gusto. Y aunque del *mexcal* de que se hace comunican muchas virtudes, úsalen en lo común con tanto exceso, que desacreditan el *vino* y aun la planta." (Arregui, Domingo Lázaro de 1946 [1621]:50).

"...the honey or juice of the agave has a bittersweet taste most pleasant, and ferments easily due to the sugar and mucilage it contains ...When pulque is distilled, a liquor called *mexcal* or maguey liquor is obtained, which is very intoxicating. They have assured me that the plant they grow to distill the juice is essentially different from the common maguey or from pulque ..." (1973 [1811]).¹⁵

Mescal Ethnoarchaeology

Selection of raw materials is one of the most important factors for obtaining a good mescal (Fig. 3). The agave species, its size, weight, ripeness, and many of its organoleptic characteristics determine the quality of mescal. Mescal is produced from different varieties of agave, but another type of plant is also used: the common sotol (*Dasylirion*), once considered as belonging to the Agavaceae Family. Both families represent a group of succulent plants typical of the semi-arid zones in Mexico.

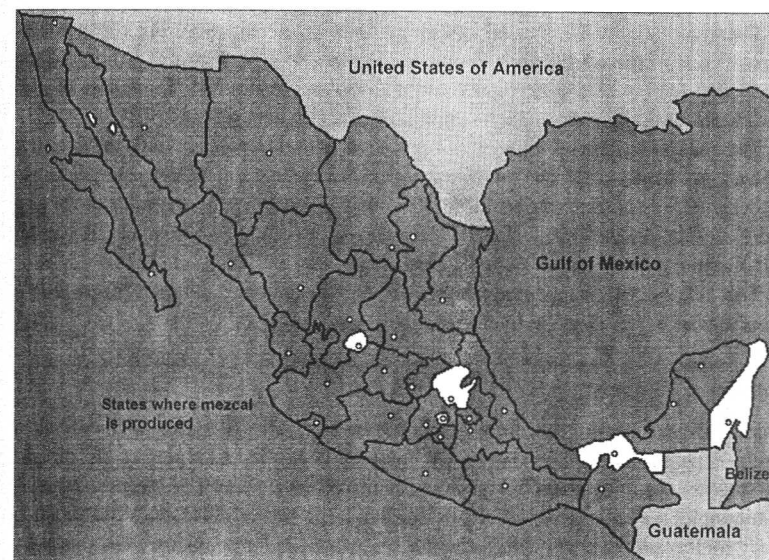


Fig. 3 Mexico map depicting the estates where mescal is produced to this day (La Ruta del Mezcal Project, IIA-UNAM)

¹⁵In the original Spanish text: "...la miel o jugo del agave tiene un sabor agridulce bastante grato y fermenta fácilmente a causa del azúcar y mucílago que contiene... Destilado el pulque se hace un aguardiente llamado *mexcal*, o aguardiente de maguey que embriaga mucho. Me han asegurado que la planta que cultivan para destilar el jugo difiere esencialmente del maguey común o de pulque..." (de Humboldt 1973 [1811]).

Only some species of agave are used for producing mescal, and some are preferred over others, taking into account the size of the *piña* (central core of the agave) and its sugar content. This is why extensive growing of some varieties has been carried out in order to obtain more plants; some examples are: blue agave (*A. tequilana*), which is used to produce tequila, or *espadín* agave (*A. americana*, var. *Oaxacensis*), in Oaxaca. It is also common practice to harvest wild maguey or *tobalá* (*A. potatorum*) in the highlands around Oaxaca.

Only the maguey plants forming an inflorescence known as *quiote* (stem or cane) are harvested to produce mescal. Young plants are never used since they are still bitter and acid. Once the ripe agave plants are selected, the scape, commonly known as *quiote*, is removed. Then, the maguey plants are cut down, and the process to cut away the spiky leaves (*pencas*) follows. One by one, the spiky leaves are cut away from the heart, starting with the outer ones and ending with those close to the head; afterwards the maguey plant is turned over or pulled up from the ground to chop away the remainder. Finally, the *piñas* or heads are cut, to be baked in earth ovens.

One of the chemical changes that take place when the maguey is baked is hydrolysis (decomposition of molecules by reaction with water) of polysaccharides present in the plant, which are transformed into sugars.

There are different types of ovens for baking the maguey, but the one most employed for this purpose is a simple earth oven. It is a pit in the ground without any lining on its walls. These earth ovens use wood as fuel. We found one of these in the archaeological excavations carried out in Tlaxcala.

The rock oven has the same shape as the aforementioned; the only difference is its rock-covered walls. The rocks are used to trap heat and accelerate the baking process. This type was one of the most common ovens, and is similar to the ones found in the archaeological sites of Paquime, Chihuahua, La Quemada, Zacatecas, and Xochitecatl-Cacaxtla, Tlaxcala (Fig. 4).

The next step is the grinding or crushing of the maguey *piñas*. The purpose of grinding the agave is the extraction of its juices, and also:

"...to tear off the tissues of the maguey and to expose it to a greater environmental action..." (Quiroz *op. cit.*:122).¹⁶

In the past, the agave grinding was done manually; now, it is done using animal or motor-driven traction. Sometimes, the maguey is washed as a part of this process: the bagasse resulting from this grinding is mixed with water and stirred constantly. The ground, cooked agave is then pitched into large vats or other kinds of containers, ready for the next step, which is fermentation. Alcoholic fermentation is the conversion of sugar into carbon dioxide gas and alcohol and this process is carried out mainly by yeast enzymes.

In this transformation we can observe some physical changes. As the temperature rises, the by-product, a gas, bubbles through the liquid and dissipates into the air. Also, the fermenting liquid will have a cloudy and brownish appearance, and

¹⁶In the original Spanish text: "...desgajar los tejidos del maguey y exponerlo a una mayor acción del ambiente..." (Quiroz *op. cit.*:122).

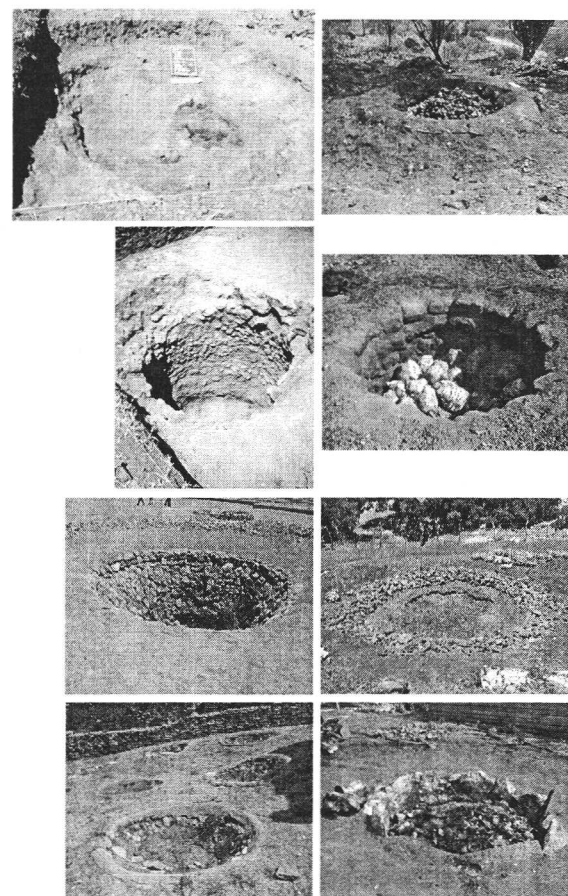


Fig. 4 Archaeological ovens (first column, from top): Nativitas, Tlaxcala (the first and second ones); Paquimé, Chihuahua; and La Quemada, Zacatecas. Present ovens (second column, from top): Durango, Chihuahua, Tamaulipas and Oaxaca (La Ruta del Mezcal Project, UNAM-IIA)

will have a lightly alcoholic flavor. Sometimes, the juice and the *bagasse* resulting from the grinding are left to ferment together; otherwise, just a bit of water is added to the fermenting juice. In some parts of the central region of Mexico, the product obtained is called *tepache*.

Other types of containers where the fermentation process takes place are: clay pots, canoes or hollow trunks, bovine livestock skins, vats or crates made of horizontally laid out wooden pieces, brick piles, or plastic containers.

Once the fermentation is over and the transformation of sugar into alcohol has taken place, alcohol will be extracted in its purest and most concentrated form.

"Two types of products are the result of fermentation: non-volatile products, including solids, fats and mineral salts, fibers, etc.; and volatile products, including alcohols, ethers, ketone, etc. The procedure for separating them, distillation, is based on these characteristics..." (Sánchez López 1989:138).¹⁷

Thus, distillation is the process to be used for partially separating these two kinds of elements.

"Distillation involves heating the musts to boiling point, and condensing the vapors released; by this means, alcohol is separated from non-volatile elements of the must." (*ibid.*).¹⁸ In the case of mescal, condensation is generated by the contact of the vapors with the walls of the coil or with another cold surface of the still.

The distillation takes place within an instrument called a still. In some cases, this container is exposed to direct heat; in others, such as vapor stills, there is an inner coil through which the vapor from the heating vessels travels.

The still with superimposed pots is composed of one pot that functions as liquid storage, and which is in direct contact with heat; and another pot which functions as a cap; there is a pot with water on top of the latter, which functions as a condenser (Fig. 5).



Fig. 5 Mescal production (La Ruta del Mezcal Project, IIA-UNAM)

¹⁷ In the original Spanish text: "Como resultado de la fermentación se dan dos clases de productos: los sólidos, grasas y sales minerales, fibras, etc., no volátiles; y los alcoholes, éteres, cetona, etc., volátiles. En estas características se basa el procedimiento para separarlos, es decir, la destilación." (Sánchez López 1989:138).

¹⁸ In the original Spanish text: "La destilación consiste en calentar los mostos hasta la ebullición y en condensar los vapores que se desprenden; por este medio se separa el alcohol de los elementos no volátiles del mosto" (*ibid.*).

The use of these handmade stills has been registered in Nahua communities of Guerrero, Zapotecs of Oaxaca, Huichol of Nayarit, and in mixed-race groups in Morelos, Puebla, Chihuahua, Sonora, and Nuevo Leon.

In other Mexican states like Coahuila, Tamaulipas, San Luis Potosi, Zacatecas, Sinaloa, Durango, and Jalisco, there are differences in production, given that modern tools are combined with wooden instruments. There are no records of this activity in Aguascalientes, Guanajuato, Queretaro, and Hidalgo, but a mescal based on henequen (*Agave fourcroydes*, Lem.) is produced in Yucatan, Campeche, and Quintana Roo. In Chiapas and Guatemala there is very little information about this beverage, the reason being that, since Colonial times, mescal was prohibited, as was also the case in the northern region of Mexico.

Rock-covered ovens used for cooking mescal were found in the Mexican states of Chihuahua, Sonora, Baja California, and Southern Baja California. The Paipai, an ethnic group from Baja California, exploit the maguay by cooking and using it as a food resource. They do not distill it, but they state that this is ancestral knowledge, which is part of their cultural identity. Due to its particular characteristics, we must mention that they are still used by the Huichol community of Ocotlan, in the state of Nayarit. Their utensils come from the same environment where mescal is produced, which is comprised of mountainous regions and semi-arid gullies of the western area of Nayarit. The still used by the Huicholes is made from a series of "rings" or circles that are manufactured with a tree bark filled with grass. Each "ring" is placed one on top of the other, reaching approximately 80 cm in height and 40 cm in diameter, and which then are covered with mud. A small wooden drainage board is placed inside, which collects the alcohols produced by the condensation of the already-fermented maguay; these alcohols are located in a container also made of "rings," or in some other type of container (a pot) underneath the still. The drainage board is linked to a reed that crosses the still's wall; this device allows the outflow of mescal already condensed, which is finally collected in a pot or gourd (Fig. 6).

Once the ferments have been distilled, the mescal alcoholic beverage is ready. However, there are many varieties of the finished product; as we already indicated, they depend on the type of agave used for making mescal, on the instruments used in each step of the process, and on the subsequent treatment.

Mescal can be classified according to its region of origin and to the species of agave used for its production, as each species provides its own characteristics to the mescal beverage. The quantity of mescal obtained depends on the volume of cooked maguay; we must point out that 30 or 40 baked *piñas* of maguay produce at least 40 or 60 L of mescal, and depending on the region, it can be sold between 20 or 30 pesos per liter.

The mescales most valued by artisans are those produced with ancient techniques, that do not involve "accelerators" in the fermentation or distillation processes, and which are made of 100% agave (basically wild agave); those which have higher alcohol levels (60° GL average); those which are made by native and mixed-race hands for local festivities; and those that do not depend on market demands nor official norms.

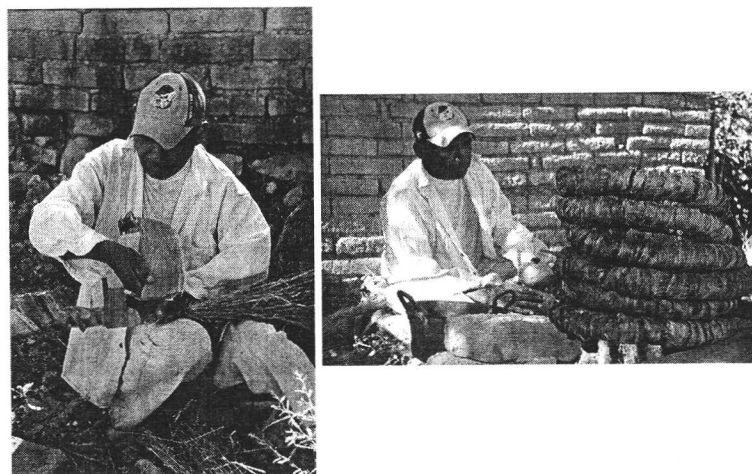


Fig. 6 A Huichol man producing mescal in a Huichol distiller (La Ruta del Mezcal Project, IIA-UNAM)

These mescal elaboration processes were archeologically identified in the excavations of settlements surrounding the archaeological site of Nativitas, Tlaxcala. There we found ovens that, we now know, were used to cook the maguey *piñas* or heads. Close by, we found several pots whose heat-exposed bodies were cut in half. The relation between ovens, settlements, and pot findings allows us to formulate the hypothesis that the production of mescal was one of the activities carried out by the inhabitants of this area; as we have said, this beverage requires at least 4 transformation phases: (a) cooking, (b) grinding, (c) fermentation, and (d) distillation.

Our excavations confirmed the presence of three ovens related to settlements and middens (troncoconical conformations). The ^{14}C results revealed that the aforementioned site was inhabited during the Preclassical or Terminal Formative Period (400 B.C. to 200 A.D.) (Serra and Lazcano 1998). The ovens are located outside the rooms belonging to the Formative Period; some of them are located near each other, and are also related to a midden. These ovens are similar to those found in the Zapotec communities of Oaxaca, Huichol of Nayarit, and in the mixed-race communities of Chihuahua and Durango.

As previously noted, we located irregularly-shaped middens next to the settlements; inside, we recovered a large quantity of bones, stone, and especially ceramic material; we also found a large quantity of fragments of ceramic pots, some broken in half, and some pot borders. These pots have similar characteristics to those used now for mescal distillation in the states of Oaxaca, Michoacan and Queretaro. The evidence shows that these cavities or middens were used as disposal sites for non-useful material in the mescal production process.

Food and Ritual Uses of Mescal

In some communities in Mexico, mescal plays a significant role. Mescal consumption is inseparable from the celebration of some ceremonies and festivities. The researcher Fausto Díaz affirms that:

"...mescal is consumed mostly by the people of Oaxaca, who regard it as the traditional drink for their celebrations, be they festive or sorrowful. Among the festivities in which large quantities of mescal is consumed are villages' titular festivities, weddings, mayordomías¹⁹ and wakes..." (1980:64–65).²⁰

We know that for the Huichol community of Nayarit, mescal is consumed as part of the rain petition ceremonies, and is given to "successful" children (meaning they have survived the toddler's phase, and are entering a new social role), which means they have already turned three.

Sahagún (1982 [1590]) is one of the most prolific chroniclers, and he describes some festivities where alcoholic beverages were consumed in pre-Hispanic Mexico. Most scholars agree that the main beverage was pulque; however, other data sources reveal that perhaps mescal was also an important ritualistic alcoholic beverage.

In the "Relación de los edificios del gran templo de México" ("Account of the buildings of the great temple of Mexico"), Sahagún (1590) mentions that:

"The fortieth and fourth building was called *Centzontotochtin iteopan*; this was a *cu* dedicated to the gods of wine; three captives were killed in honor of these gods of wine. One was called *Tepoztécatl*, other was called *Toltécatl*, and the other *Papáztac*." (Book 2, Appendix II, 1982 [1590]:161–162).²¹

And this was done every year in the feast of *Tepéilhuitl*. In the "Relación de las diferencias de ministros que servían a los dioses" ("Account of the different ministers who served the gods"), Sahagún (1590) says that:

"...*Ome tochtzin* was like a mentor for all the singers, who were in charge of singing in the *cúes*; he had to see that everyone came to do their duties in the *cúes*. They would perform certain ceremony with the wine called *teooctli*, while doing their duties; in this ceremony

¹⁹The organization of all three of the town fiestas – to celebrate patron saints – consists of a mayordomía. A mayordomía is a system where a mayordomo, or lead organizer, is either elected by the town or volunteers for the position. He then selects his mayordomía based on connections with family and friends. Everyone who agrees to be part of the mayordomía, which could be anywhere from 6 to 40 people, split the cost budgeted for the fiesta. Each person is in charge of a certain aspect of the fiesta.

²⁰In the original Spanish text: "...el mescal es consumido en su mayor parte por los habitantes del Estado de Oaxaca, quienes lo reciben como la bebida tradicional para sus celebraciones, sean éstas de carácter festivo o luctuoso. Entre las festividades en las cuales se consume mayor cantidad de mescal destacan las fiestas titulares de los pueblos, las bodas, las mayordomías y los velorios" (Díaz 1980:64–65).

²¹In the original Spanish text: "El cuadragésimo cuarto edificio se llamaba *Centzontotochtin iteopan*; éste era un *cu* dedicado a los dioses del vino; aquí mataban tres cautivos a honra de estos dioses del vino. A una llamaban *Tepoztécatl* y al otro *Toltécatl* y al otro *Papáztac*". (Book 2, Appendix II, 1982 [1590]:161–162)

the main officer was the *pachtécatl*: he had to take care of the glasses in which the singers drank, and of bringing them, giving them and of cleaning and of filling them with that wine called *teoocitli* or *macuiloctli*; and he put two hundred and three reeds, of which only one had a hole, and when they picked them, the one who guessed which that one was would drink on his own. This was done after the singing ceremony." (Book 2, Appendix IV, 1982 [1590]:169).²²

Sahagún (1590) mentions two other ministers:

"...*Ometochtli pachtécatl* was in charge of providing the wine called *macuiloctli*, o *teoocitli*, which was used in the feast of *panquetzaliztli*." (Book 2, Appendix IV, 1982:170). And "...*Ometochtli papáztac* was in charge of making the wine called *tizaocitli* ready, which was to be used in the house of the lord and in the feast of *tozotli*, where men and women, boys and girls drank wine..." (Book 2, Appendix IV, 1982 [1590]:170).

In the chapter regarding drunkards, Sahagún (1590) says that:

"...the wine was called *centzontotochtin*, which means '400 rabbits', since it has many manifestations of drunkenness." And also that, "...they made feasts for all the wine gods, who became the wine, and set up their images in their temples. There they laid gifts for them: for them they sang and danced. And before them stood a stone basin, called *ometochtecómatl* (two rabbits) full to the brim. Into the wine dipped the drinking tubes, extending from it so that those who sampled the wine stood drinking it. But only those who could drink: the old men, the old women, the intrepid men, the warriors and the bold, would drink from that stone basin, since one day they would be captives or enemies, or when being in a battle, they could be taken prisoners by the enemies. Or maybe, they would capture others and take prisoners. So by [drinking] they went about mocking death. And the wine they drank never came to an end; the [basin] never stood empty. The wine makers, the wine making officials, continued pouring it into the [basin]..." (Book 4, Chapter V, 1982 [1590]:228).²³

Sahagún (1590) mentions that:

"Those who arrived in the *tiánquez*, where there was a statue of the god *Izquitécatl* and also those who once again broke into the magueys, and made new wine, called *uiztli*, they brought the wine in jars and poured it in a stone basin, and this was not only done by the

²² In the original Spanish text: "...*Ome tochtzin* era como maestro de todos los cantores que tenían a cargo de cantar en los *cúes*; tenía cuenta que todos viniesen a hacer sus oficios a los *cúes*. Hacían cierta ceremonia con el vino que llamaban *teoocitli*, al tiempo que habían de hacer sus oficios; de esta ceremonia era el principal *pachtécatl*: éste tenía cuidado de los vasos en que bebían los cantores, de traerlos y darlos y recogerlos, y de henchirlos de aquel vino que llamaban *teoocitli* o *macuiloctli* y ponía doscientas y tres cañas, de las cuales sola una agujereada, y cuando las tomaban el que acertaba con aquella bebía él solo, y no más; esto se hacía después del oficio de haber cantado". (Book 2, Appendix IV, 1982 [1590]:170).

²³ In the original Spanish text: "...el vino se llama *centzontotochtin*, que quiere decir '400 conejos', porque tiene muchas y diversas formas de borrachería." Y también que "...hacían fiesta a todos los dioses del vino, y poníanles una estatua en el *cu* y dábanles ofrendas, y bailaban y tñanles una tinaja hecha de piedra que se llamaba *ometochtecómatl*, llena de vino, con unas cañas con que bebían el vino los que venían a la fiesta, y aquellos eran viejos y viejas, y hombres valientes y soldados y hombres de guerra, bebían vino de aquella tinaja, por razón que algún día serían cautivos de los enemigos, o ellos, estando en lugar de la pelea, tomarían cautivos de los enemigos; y así andaban holgándose, bebiendo vino, y el vino que bebían nunca se acababa, porque los taberneros cada rato echaban vino en la tinaja". (Book 4, Chapter V, 1982 [1590]:228).

wine making officials in the feasts, but every day since that was the tradition..." (Book 4, Chapter V, 1982 [1590]:228–229).²⁴

In the fifteenth movable feast, Sahagún (1590) writes that:

"The lords, leading men, nobles, and rich merchants, when a son or daughter was born to them ...when they baptized him, they banqueted the kinsmen and friends, so that they would be present at the baptism, and then they gave food and drink to all the guests, and also to the children of the whole suburb ...This [same] feast they also observed today in the baptism of their children, as to feasting, eating, and drinking..." (Book 2, Chapter XIX, 1982 [1590]:97).²⁵

The author does not specify what kind of beverage it was. Sahagún (1590) says that in the sixteenth movable feast, for a son who was to be married, his parents:

"...for this they held a great feast for him and for all the young men whom he had in his care; and for this they held conversation with him, after having given food and drink to him and to all those whom he had in his charge." And then, "began to prepare the necessary articles for the wedding – [those] to eat and to drink ..." (Book 2, Chapter XIX, 1982 [1590]:97).²⁶

"Sometimes they would give wine (*pulcre*) which they called *iztacocitli*, which means *white pulcre*. They continued serving the wine, perhaps watered, or honeyed, or cooked with the root, called *ayocitli*, which means *pulcre of water*; those which were stored and prepared for the drinking ceremony..." (Book 4, Chapter XXXVI, 1982 [1590]:251–252).²⁷

There is no doubt that alcoholic beverages produced during pre-Hispanic times had significant regularities in complex societies. Joffe (1998) points out that these regularities have an influence on the development of complex societies; production and consumption of alcoholic beverages, particularly beer and wine, in sufficient quantity to supply the social variety and for political purposes would have been one of these regularities.

²⁴ In the original Spanish text: "Los que llegaban al *tiánquez*, donde estaba la estatua del dios *Izquitécatl* y también los que nuevamente horadaban los magueyes y hacían vino nuevo, que se llamaba *uiztli*, traían vino con cántaros y echábanlo en la tinaja de piedra, y no solamente hacían esto los taberneros en la fiesta sino cada día lo hacían así, porque era tal costumbre de los taberneros". (Book 4, Chapter V, 1982 [1590]:228–229).

²⁵ In the original Spanish text: "Los señores y principales, nobles y mercaderes ricos ...Cuando le bautizaban convidaban a los parientes y amigos para que se hallasen presentes al bautismo, y entonces daban comida y bebida a todos los presentes, y también a los niños de todo el barrio ... Esta fiesta también la usan ahora en los bautismos de sus hijos, en cuanto al convidar y comer y beber". (Book 2, Chapter XIX, 1982 [1590]:97).

²⁶ In the original Spanish text: "...hacíanle un convite a él, y a todos los mancebos a su cargo; y para esto le hacían una plática, después de haberle dado de comer y beber a él y a todos los que tenía a su cargo ...". Y después, "comenzaban a aparejar las cosas necesarias para las bodas, así de comer como de beber". (Book 2, Chapter XIX, 1982 [1590]:97).

²⁷ In the original Spanish text: "A las veces daban *pulcre* que llaman *iztac oetli*, que quiere decir *pulcre* blanco, que es lo que mana de los magueyes, y otras veces daban *pulcre* hechizo de agua y miel, cocido con la raíz, al cual llaman *ayocitli*, que quiere decir *pulcre* de agua, (¿mescal?) lo cual tenía guardado y aparejado el señor del convite de algunos días antes" (Book 4, Chapter XXXVI, 1982 [1590]:251–252).

According to Joffe (1998), in spite of the great local diversity of situations involved in the institutional development processes, it has been documented and found in the archeological record that alcohol is related to power and negotiation. For this author, in political economy, alcoholic beverages play an important role in the fields of subsistence, work and beliefs, apart from their specific role in rituals and festivities.

The production of alcoholic beverages implies competition among different authorities over the control, the variety, the level of production and the degree of distribution of mescal, even at the domestic level. Before the habit of drinking mescal became popular, it was of special interest (particularly for elite groups) to spread the idea that mescal nutrients and intoxicants were precious. Thus, the existence of beverages, as indicated by the presence of their containers, leads us to infer behaviors associated with wine and liquor distillation. An increase in social value entails a gradual stratification, which ends up in the hands of elite groups as a privilege, and even with sumptuary prerogatives, which are foreign to the rest of society.

Alcoholic beverages as a ritualistic element are now, and have been throughout history, a means to capture people's will. Even nowadays, there are western societies that include in their religious services some sort of fraternization, materialized as the sharing of food and beverages. Among the most valued are beverages extracted by fermentation. Also, in other societies with different cultural systems and types of religious influences, we find production and consumption of alcoholic beverages for ritualistic purposes. In this regard, Goody (1998) affirms that just as the access of individuals to the rituals of food and drink can be a means to deny or increase social inequality as a cohesion element among the group, alcoholic beverages in ritualistic contexts serve strategies of ideological representation. Moreover, advantage is taken of this context to introduce them in individual, personal uses, as an element that will secure a person's relative position within the structure of social relationships of production, in his or her community.

There is recorded evidence of mescal production and storage in some domestic areas of ancient societies with hierarchical structures, like Xochitecatl-Cacaxtla, in the Puebla-Tlaxcala Valley. The main square of the Pyramid of Las Flores, in Xochitecatl-Cacaxtla, Tlaxcala, public places, and the patios located in the settlements where the elite groups resided are some of them. These kinds of places were used to celebrate community festivities and worship of different deities.

Mescal was used for making offerings to the gods, to give courage in war, for initiation and petition rituals and, above all, to celebrate the most common, but fundamental life events: birth and death.

Conclusions

On the basis of the information from colonial sources and chronicles as well as ethnoarchaeological evidence, we conclude that mescal is a beverage with pre-Hispanic origins, and that it was closely involved with ritual use. Distillation

appears to be the most important process for making mescal, and various sixteenth century sources show native societies performing this process. The ovens discovered in the course of our excavations clearly indicate the pre-Hispanic knowledge regarding the distillation process in the Terminal Formative Period (400 B.C. to A.D. 200). Excavations in domestic contexts at the site of Xochitecatl-Cacaxtla provide evidence of mescal production and show that such fermented intoxicants were stored. They also reveal domestic areas where ceremonies involving mescal were celebrated and involved consumption of this beverage.

Our ethnoarchaeological research indicates that actual mescal consumption is still practiced in some communities, providing independent lines of evidence that corroborate our archaeological investigations, suggesting that this tradition began to spread since pre-Hispanic times.

Research surrounding pre-Hispanic ritual beverages has for the most part focused upon the manufacture, consumption and production of pulque conveying the impression that this was the principal ritual beverage of pre-Hispanic Mesoamerica. However, the data generated in this analysis, provides confirmation that mescal is a very important pre-Hispanic beverage, that was produced to be primarily consumed by persons of elite status who organized and oversaw rituals and festivities.

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