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In This Issue:

The Templo Mayor of Tenochtitlan and the Drought of the Year 1-Rabbit

by

Leonardo López Luján

PAGES 1–10

A Previously Unpublished Description of El Tajín from 1933 by Helga Larsen (1891–1938)

by

Jesper Nielsen

PAGES 11–25

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The Templo Mayor of Tenochtitlan and the Drought of the Year 1-Rabbit

LEONARDO LÓPEZ LUJÁN

Sparse, excessive, or inopportune precipitation: these three atmospheric phenomena sum up much of the hardship endured by ancient Mexican societies that based their existence on seasonal rainfed agriculture. As one might expect, rain was only welcome when it fell in adequate amounts at the right times. If both factors did not coincide, the consequences could be devastating, leading to famine, migration, and death (Sánchez Mora 1980). This unpredictable precipitation left a distinctive mark on religion in Mesoamerica. Over the centuries, this vast cultural area was truly obsessed with controlling rainfall by appealing to supernatural forces. The Mexica, of course, were no exception: in nine of the eighteen twenty-day periods that made up their agricultural calendar, important ceremonies were held to promote rain and fertility (Broda 1971; López Luján 1997).

Nearly all of the prayers, offerings, and child sacrifices during these periods were directed at Tlaloc, the rain god and personification of the earth (Klein 1980). He was generally invoked as “The Giver,” as he provided everything necessary for plants to germinate (Sahagún 1989:1:38). He sent rain and running water from Tlalocan, a place of mist, infinite abundance, and perennial verdure (López Austin 1994:182-193). According to the sixteenth century Sahaguntine texts, Tlalocan was a hollow, water-filled mountain replicated by every elevated natural feature in the landscape (Broda 1971:252). For instance, the *Florentine Codex* (Sahagún 1979:Book 11, Chap. 12:223v, translated by Alfredo López Austin) tells us: “they said that the mountains had an occult nature; that only their surface was covered with earth and

rock; that they were like large vessels or houses full of water.”

This is why supplications for rain were commonly made at mountains, ravines, caves, springs, and whirlpools, all sacred places in the geography where communication with Tlaloc was possible (Broda 1971). For the inhabitants of the Basin of Mexico, however, the center par excellence for propitiating rain gods was the Huei Teocalli, Templo Mayor, or Great Temple of Tenochtitlan, a 45-meter-tall pyramid, at the top of which stood the shrines of Huitzilopochtli and Tlaloc, the two main protector deities of the Mexica people (López Austin and López Luján 2004:403-455, 2009).

The northern half of the structure evoked a mountain which had the aquatic world stored inside: its platform was decorated with stone sculptures depicting blue frogs and jade serpents, in addition to large braziers carved with the bust of Tlaloc; its sloping sides had bas-reliefs of greenstone beads and whirlpools, as well as protruding rocks that simulated rugged terrain; and its shrine housed the symbols and images of storm and maize deities.

An Exceptional Discovery

The archaeological contexts of Tenochtitlan’s Templo Mayor provide us with a magnificent example that records the desperate actions of the faithful facing nature’s devastating effects. An offering excavated more than four decades ago alludes to a holocaust that took place in the mid-fifteenth century to appease the fury of the rain gods. My presentation herein analyzes this offering in light of data from archaeology, physical anthropology,

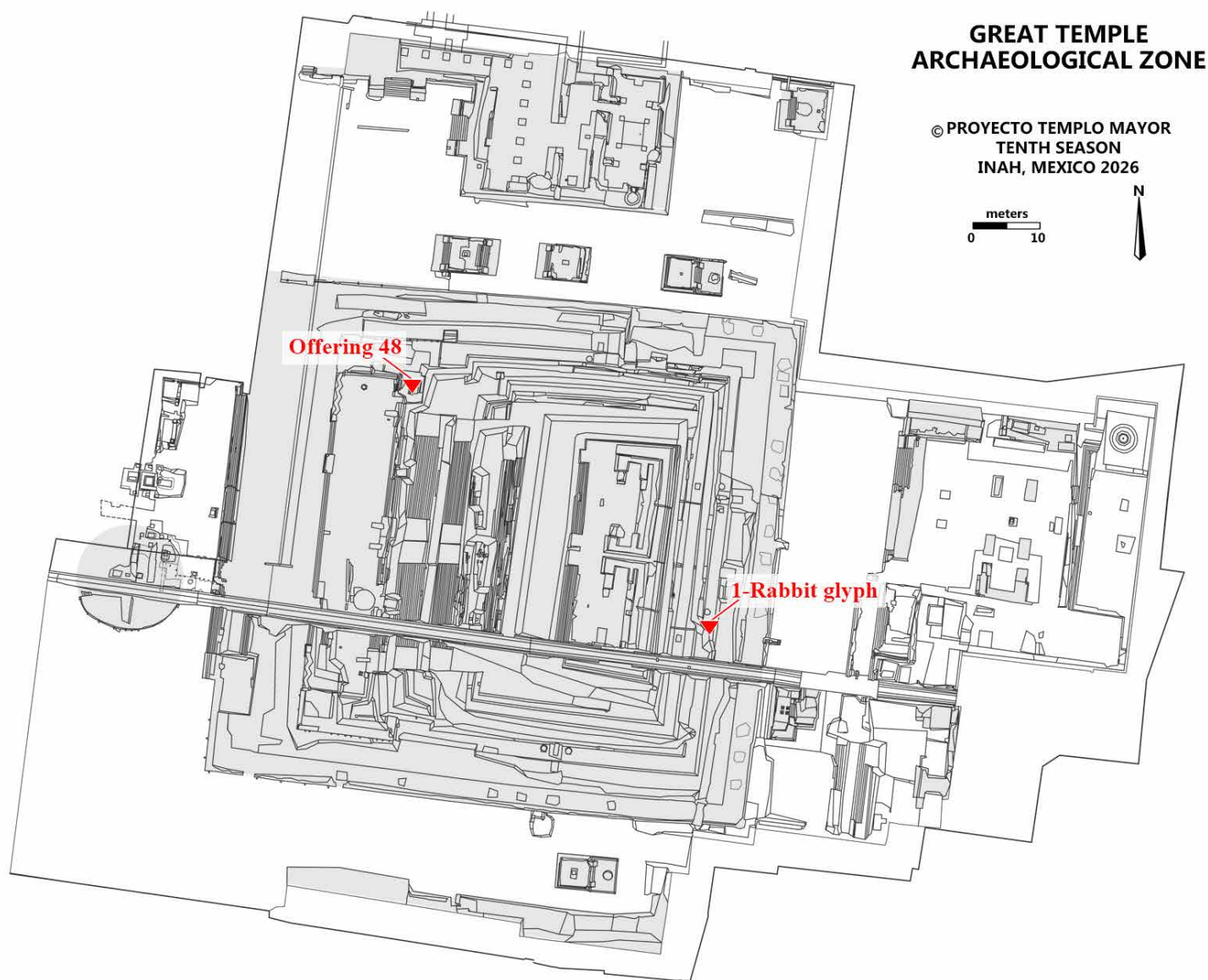


Figure 1. Templo Mayor Archaeological Zone. Michelle De Anda, Templo Mayor Project.

chemistry, history, and meteorology, which together will help elucidate in unusual detail how and why this bloody ceremony was performed.

The story I want to tell you goes back to the summer of 1980, when, just a few days after I joined the Templo Mayor Project in Mexico City, the director, Eduardo Matos Moctezuma, asked me to explore an area that shortly before had been occupied by a modern five-story building. According to my own field notes, beneath its concrete foundations, vestiges of the colonial era were beginning to emerge, including a column shaft, a saddle stirrup, a small pearl bracelet, and abundant glazed pottery. Also visible, barely a meter and a half below street level, were the battered walls of a quadrangular stone box, which was soon revealed to contain a

spectacular ritual deposit from Mexica times (Figure 1).

After confirming its presence on July 28, we christened the deposit with the rather unromantic name “Offering 48” and formed a working team with archaeologists Francisco Hinojosa and Maximiliano Acevedo, and physical anthropologist Juan Román. From that moment until January 7 of the following year when we removed the last object from the box, our activity was as intense as it was exciting.

Archaeology

Offering 48 was located in the northwest sector of the Templo Mayor, that is, within the half of the pyramid dedicated to the cult of Tlaloc (López Luján 1982:126-127,

1993:192-205, 2018, 2022). It was found in an ashlar box whose walls were erected in an improvised manner on a small altar from Phase IVa, dating back to the reign of Motecuhzoma Ilhuicamina, who governed from 1440 to 1469. The interior of the quadrangular receptacle was stuccoed and measured 5.6 feet from north to south, 3.6 feet from east to west, and at least 1.8 feet deep. Unfortunately, both the box and much of its upper contents had been severely altered by a subsequent colonial building's foundation.

Based on my notes and unpublished field reports, it is possible to reconstruct from start to finish the steps followed in the ritual that gave rise to Offering 48 in the mid-fifteenth century. In short, the officiants of the ceremony began by placing a uniform layer of dark gray sand, apparently of marine origin, at the bottom of the box.

Then they placed several children's corpses on top of the sand, most of them in a flexed supine position, that is, lying on their back with contracted limbs. They must have been richly adorned when they were buried, as some of the exhumed skeletons still wore necklaces made of tiny greenstone beads, while two others had wooden discs covered with turquoise mosaics on their chests. It is interesting to note that five of the skeletons still had a small greenstone bead in their mouth, a funerary practice recorded in documentary sources.

As part of a third layer, the officiants arranged many more child corpses, although this time sprinkled with blue pigment, and applied the same color to the northwest, southwest, and southeast corners of the box. Above these lifeless bodies, they distributed several gourds, as well as seashells, a shell carved in the shape of a flower, small birds, an obsidian blade, and copal aromatic resin.

Finally, in what appears to have been the uppermost layer of the offering, they placed at least eleven polychrome stone sculptures, imitating jars with the visage of Tlaloc. Significantly, they were deliberately laid on their sides in an east-west orientation. Intermingled with the sculptures, we recovered numerous broken human bones with no anatomical connection, pieces of stucco perhaps from the original lid of the box, and many fragments of Spanish and early colonial Mexican pottery.

Physical Anthropology

After a detailed study of the Offering 48 skeletons, Juan Román (1990) counted a total of forty-two skulls, forty right humeri, forty-one right femurs, forty-one left femurs, and forty left fibulas among thousands of other bones, indicating a minimum of forty-two individuals. He also concluded, based on long-bone length and tooth development, that one of them would have been around the age of two years at the time of death, another age

three, thirteen age four, eleven age five, eleven more age six, and five age seven. Although there is no marked sexual dimorphism in such young children, Román estimated from skull and pelvis measurements that at least twenty-two of them were male and six were female.

It is telling that this same analysis revealed that half of these children exhibited evidence of porotic hyperostosis in the anterior portions of the supraorbital plates and the pericranial surfaces of the parietal. This condition is the result of nutritional issues such as iron deficiency-related anemia, poor nutrient absorption, gastrointestinal diseases, and parasitism. Additionally, five of these individuals suffered from circular tooth decay, a cause of which is postpartum malnutrition.

A total of thirty-two individuals presented clear signs of tabular erect cranial modification achieved at a very early age using special cradles with a compression plane at the front of the forehead and another at the back of the occipital squama, giving the skulls a vertically extended appearance. However, there were no marks left by cutting that would allow us to infer ritual practices such as heart extraction, decapitation, or dismemberment. Therefore, Román suggested that these children may have died from having their throats slit.

Chemistry

Many years later, we had the opportunity to perform stable oxygen and phosphate isotope analysis on both the bone and enamel of this group of children in order to determine their geographical origins and residential patterns in the final years of life. Conducted at the University of British Columbia in Vancouver and led by Diana Moreiras, the analysis yielded atmospheric water values that supported the idea that the sacrificed children were not born in the Basin of Mexico (Moreiras Reynaga et al. 2021).

Instead, a map of Oxygen 18's isotopic landscape indicates that they originated in a yet-to-be-determined location in Oaxaca or western Mexico. The only exception was a child who possibly came from the highlands of Chiapas or Guatemala. In this regard, we know that Mexica merchants and tribute collectors were frequent visitors to both of these areas where they obtained luxury goods and perhaps slaves.

Documentary Sources and Myth

The field and laboratory data presented thus far make sense when compared to written evidence from the sixteenth century. These documents contain wonderful indigenous mythic narratives that explain the rites embodied in Offering 48. One of the most enlightening passages is found in the *Historia de los mexicanos por sus pinturas* (1965:26, author's translation) which describes



Figure 2. An attendant of the god Tlaloc making rain with a jar during the month Atemoztli. *Tovar Codex*, folio 155r.

the world of the Tlaloque and the peculiar way they made it rain:

They say that the water god has a chamber with four rooms, and in the middle of a large courtyard, there are four large water basins: one is quite good, and from this one it rains when the grains and seeds are growing and the weather is favorable. The other is unfavorable when it rains, and the water causes cobwebs to form on the grains, which then become moldy. Another is when it rains and freezes; another is when it rains and does not hail, and they dry out.

And to make it rain, this water god created many small-bodied ministers, who dwell in the rooms of the said chamber and have pitchers in which they take water from those basins and staffs in their other hand, and when the rain god commands them to go and water certain areas, they take their pitchers and staffs and dispense the water as commanded, and when it thunders, that is when they break the pitchers with their staffs, and when lightning comes, it is from what they had inside or part of the pitcher.

One can infer from this passage that the eleven Tlaloc jar sculptures recovered during our excavation were votive representations of the pitchers used by the god's diminutive servants to make it rain (Figure 2). The officiants would have intentionally placed them on their side, in a position that simulated pouring. Thus, through the mechanism of imitative magic, they attempted to induce copious rainfall.

This proposition is corroborated by other ritual deposits found in the Templo Mayor. For example, in a group of five offerings discovered on the Tlaloc side in the construction fill of Phase III, dating to around 1431 during the reign of the *tlatoani* Itzcoatl (López Luján 1993:212-220, 352-356), each deposit contained a blue pot intentionally laid on its side and a small bowl in an upright position beneath the opening. The latter contained several greenstone beads, which were the quintessential symbol for raindrops.

Globular pots were not the only vessels associated with the solemnities of the rain god (López Luján 1997:97-100, 2006:1:140-143). The inhabitants of Tenochtitlan also used ceramic or stone cups and jugs decorated with Tlaloc's face or simply painted blue. Evidently, the production of these peculiar ritual objects was not exclusive to the Mexica, but dates back to Preclassic times and is distributed throughout most of Mesoamerica.

Documentary Sources and Ritual

For obvious reasons, the writings of Franciscan friars Bernardino de Sahagún, Toribio de Benavente, Gerónimo de Mendieta, and Juan de Torquemada, the Dominican missionary Diego Durán, and even the mestizo chronicler Juan Bautista Pomar contain descriptions of the deeply rooted Mesoamerican custom of sacrificing children that usually occupy considerable space, equivalent to or less than what they devote to its condemnation (López Luján 1993:200-202). Although some report that this rite was also used to predict the outcome of a battle, restore an individual's lost freedom, or liberate one from a terrible illness (Graulich 2016:202-256; López Luján et al. 2010), they all agree that it nearly always was intended to ensure that the Tlaloque would not stop watering crops with their rain.

According to these authors, child sacrifice took place during various festivals in the solar calendar: Sahagún mentions the twenty-day periods of Atlcahualo, Tlacaxipehualiztli, Tozoztontli, and Huei Tozoztli (Sahagún 1989:1:84), but if we take Benavente (1969:36) and Durán (1984:1:292) into account, we would have to add Atemoztli and Izcalli to the list. During these twenty-day festivals, small children personified these Tlaloque, the supernatural beings who, as we have seen, were considered the rain god's "small-bodied ministers" (Broda 1971). For this reason, those chosen had to be very young, have two cowlicks in their hair, and have been born on an auspicious day. In addition, they were dressed in the image and likeness of rain deities and given the name of the place where they later would be sacrificed, for instance that of a hill. Good or bad omens depended on their behavior during the ceremony, as Sahagún's informants explained: "When the children were taken to be killed, if they cried and shed many tears, those who brought them were happy, because they took it as a sign that there would be lots of rain that year" (Sahagún 1989:1:81).

Thanks to the documentary sources, we know that both males and females from the age of three to eight were

sacrificed: According to Pomar (1964-1968:168-169), they were “slaves, given by lords and wealthy people as offerings for this purpose,” but Benavente (1969:35-36) contradicts this by stating that “they were not slaves, but children of nobles.” Whatever the case may be, the killing method par excellence was slitting the throat with a flint knife, although other procedures are also described such as heart extraction, drowning, and death by starvation inside caves whose openings had been sealed (Benavente 1969:35-36; Durán 1984:1:83-86; Mendieta 1945:111; Pomar 1964-1968:168-169). As for the number of victims, Durán (1984:1:83-86) notes that they usually killed one to four children, Benavente (1969:36) mentions a couple in one passage and four in another, Pomar (1964-1968:168-169) says between ten and fifteen, while Sahagún (1989:1:83, 104) vaguely refers to “many.”

The quintessential ritual sites in the Basin of Mexico included small islands (such as Tepetzinco and Tepepulco), mountains (such as Cuauhtepetl, Yoaltecatl, Poyauhtla, Cocotl, and Tetzacualco on Mount Tlaloc), and bodies of water (such as Lake Tetzaco itself) (Benavente 1969:35-36; Durán 1984:1:83-86, 90; Mendieta 1945:111; Pomar 1964-1968:168-169; Sahagún 1989:2:104-105). Later, the corpses would be disposed of in various ways: thrown into caves or ravines, submerged in the Pantitlan whirlpool, buried in stone boxes, or simply cooked and eaten by ritual participants (Benavente 1969:35; Durán 1984:1:86, 90; Pomar 1964-1968:168-169; Sahagún 1989:1:104-105).

Documentary Sources and History

This holocaust of at least forty-two children at the foot of the Templo Mayor does not correspond in terms of the setting or number of victims with what is recounted in the historical record concerning the festival cycle repeated every year in various parts of the Basin of Mexico and the surrounding area. Clearly, Offering 48 is the result of a mass sacrifice, carried out at an atypical location on a single occasion. Otherwise, we surely would have discovered other similar archaeological deposits during our explorations of the sacred precinct. Therefore, I believe that the reasons for this exceptional ceremony must be sought in an equally unique historical event.

In my opinion, the key lies in a basalt frieze that was embedded in the eastern façade of the Templo Mayor belonging to Phases IV and IVa, that is, in a sculptural element of the same building and time as Offering 48 (López Luján 1993:202-203). The frieze has a rectangular calendrical cartouche (indicating a year) carved with the date 1-Rabbit, which corresponds to 1454, according to Alfonso Caso’s Christian-Mexica calendrical correlation (Caso 1967:189). Indigenous annals say that this was when the most devastating drought of the Mexica era occurred (Figure 3). This climatological event was so

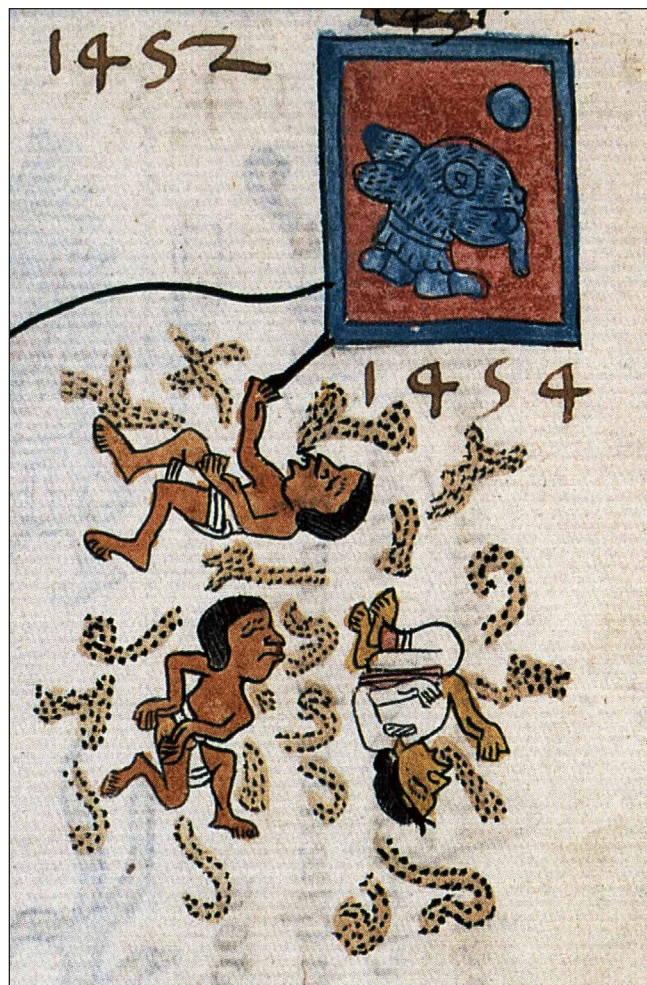


Figure 3. The 1454 plague. *Codex Telleriano-Remensis*, folio 32r.

disastrous that Benavente (1969:36) identifies it as the origin of the subsequent widespread practice of child sacrifice.

Its significance is also clear in the work of Durán (1984:2:245), who states that when Motecuhzoma Ilhuicamina had his own effigy carved into the rocky cliff at Chapultepec to commemorate his long reign, he ordered the artists to include “the year Ce Tochtli (One Rabbit), when the great famine began.”

This major disaster is also recorded in the various *xiuhamatl* or “books of the years” from the Central Highlands: the *Relaciones originales de Chalco Amaquemecan* (Chimalpahin 1965:99-100, 200-201; Chimalpahin 1997:157-161, 2003:117-121); *Anales de Cuauhtitlan* (1992:52), *Tecamachalco* (1961:167, 251), *Tlatelolco* (1948:56-57), and *Tula* (1979:35); the codices *Aubin* (1981:22, ff. 35r-35v), *en Cruz* (1981:1:17-18), *Huichapan* (1992:Pl. 37, 2001:ff. 35-38), *Mexicanus* (1952:Pl. lxvi), *Telleriano-Remensis* (1995:216-218, ff. 32r-32v), and *Vaticanus A* (1996:ff. 77r-77v), the *Historia de los mexicanos por sus pinturas* (1965:61), and the *Histoire*



Figure 4. A canine devouring a human corpse.
Códice de Huichapan, plate 37.

mexicaine (1998:88, f. 11v).

As Table 1 shows, the dates of the events—ranging from 1447 to 1457—vary from one source to another. However, by summarizing the extant textual and graphic data, the basic sequence can be reconstructed. Apparently, it all began with light frosts that intensified the following year, coinciding with the germination period of maize. At that time, “it snowed up to the knee” and the lake even froze over. This phenomenon is depicted figuratively with small dots falling on agricultural fields, plants, animals, and humans.

According to Durán (1984:2:241), the frosts were compounded by a severe drought:

The springs dried up, the streams and rivers did not flow, the earth burned like fire, and the sheer dryness caused large cracks and fissures, so that the flowers and leaves of the trees and plants whose roots were scorched by the fire that came out of the earth fell off and their branches dried up, and the maguey did not produce its usual sweet juice, nor could the prickly pear cactus bear fruit, their thick leaves and pads turning downward, wilting feebly, almost cooked by the heat. The maize, as soon as it sprouted, turned yellow and withered, and so did all the other vegetables.

To make matters worse, crops were also attacked by a plague of grasshoppers (*Histoire mexicaine* 1998:88, f. 11v), so people had to eat roots and even “things that were unhealthy” (Durán 1984:2:241).

As a result, famine and disease soon broke out. In some codices, we see depictions of emaciated people vomiting. At that moment, a tremendous death toll ensued. First, according to one source, the fish, frogs, and *axolotl* salamanders of the lake perished, and then humans. Chimalpain (1997:159) tells us: “boy and girl were dying; their bodies certainly turning old because the flesh of the young man and young woman became wrinkled, for the famine was quite severe.” Torquemada (1969:1:121), in turn, says that “there was famine, almost universal, throughout the cold land.”

People were dying everywhere, in the mountains, forests, and grasslands. Their bodies were left there without anyone to bury them, becoming easy prey for vultures, coyotes, and other wild animals, as various pictographs show (Figure 4; *Códice Aubin* 1981:f. 35r; *Códice de Huichapan* 2001:Pl. 37. See also Chimalpahin 1965:99-100, 200-201; Chimalpain 1997:157-159). According to Chimalpain (1997:161), this happened in the fateful year of 1-Rabbit, which “is said and called *necetochhuiloc*,” that is, when everyone was “one-rabbitted.”

Durán (1984:1:241-242) recounts that, faced with such misfortune, Motecuhzoma Ilhuicamina “summoned his stewards, factors, and treasurers . . . and asked them to report on the quantity of maize, beans, chili peppers, chia, and all other vegetables and seeds stored in the royal granaries” (Figure 5). From these provisions, he ordered that “every day, a certain amount of tortillas and atole” be prepared and “placed in the city in designated canoes” to be distributed immediately among “the poor and needy, because the nobles and merchants have granaries and landed estates and goods to sustain themselves.” Anyone caught taking food from these provisions without authorization was punished with death.

After a year, the granaries were empty, so the sovereign decided to gather his subjects to offer them one last banquet and break the terrible news. Durán (1984:2:243) states that, in tears, he told them the following:

My sons and brothers, we are not fighting our enemies in the field, for if we were, we would lay down our lives defending ourselves, and in dying we would fulfill our duty. But the one who wages war against us is the lord of creation, of the night, and of the day. For he wishes and wills the clouds not to rain.

Faced with such impotence, Motecuhzoma asked each of them to go and “seek their own remedy,” to which his people replied: “We accept the permission given us to go and find a solution to alleviate our misery and hunger. We will do so by selling our children to those who can feed them, so that they do not perish from starvation” (Durán 1984:2:243).

Therefore, Chimalpain (1997:161) adds that the year 1-Rabbit is also “said and called *netotonacahuiloc*,” which means “everyone was Totonac’d,” because Totonacs from the Gulf Coast came to Tenochtitlan then to take revenge on their enemies by buying them as slaves in exchange for dried maize kernels. Maidens were sold for four hundred maize ears and young men for five hundred. At that time, the Totonacs put wooden collars on the people and took them away from their cities in tears; thus, “they left tied to the stick.”

Something similar happened with the Coahuixca of Guerrero, who took advantage of the situation to enslave and bring such unfortunate people to the sacrificial

Document	7 Acatl (1447)	8 Tecpatl (1448)	9 Calli (1449)	10 Tochtli (1450)	11 Acatl (1451)	12 Tecpatl (1452)	13 Calli (1453)	1 Tochtli (1454)	2 Acatl (1455)	3 Tecpatl (1456)	4 Calli (1457)
<i>Codex en Cruz</i>							frost	famine disease	famine disease	rain	
<i>Codex de Huichapan</i>				famine	frost famine	famine	famine	frost famine loss of life carrion slavery child sacrifice	rain harvests		
<i>Código Aubin de 1576</i>							frost famine	slavery	famine loss of life carrion		rain harvests
<i>Código Telleriano-Remensis</i>	frost loss of life							famine loss of life	harvests		
<i>Código Vaticanus A</i>	frost loss of life							famine loss of life	harvests		
<i>Codex Mexicanus</i>	loss of life						loss of life	loss of life	loss of life		
<i>Historia de los mexicanos por sus pinturas</i>				frost				frost famine	death penalty of theft of corn		
<i>Anales de Tula</i>					frost			famine	famine	only amaranth famine loss of life	
<i>Anales de Cuauhtitlan</i>					frost			famine	famine	only amaranth famine loss of life carrion	
<i>Anales de Tlatelolco</i>				famine loss of life of animals	frost	frost	frost slavery	drought famine	rain harvests more tribute to Cohuixcas		
<i>Anales de Tecamachalco</i>								famine			
<i>Chimalpain, 3a relación</i>				frost famine	famine loss of life carrion	drought famine	famine	famine loss of life carrion slavery	rain harvests		
<i>Chimalpain, 7a relación</i>			slight frost	big frost famine	famine loss of life carrion	famine	famine	famine drought loss of life carrion slavery aqueduct from Chapultepec	rain harvests		
<i>Histoire mexicaine depuis 1221</i>						plague of grasshoppers famine		famine	famine	only	
<i>Durán, Historia</i>								drought	drought	drought	
<i>Torquemada, Monarquía indiana</i>					frost	frost	drought	no cultivation famine migration slavery	rain harvests		

Table 1. Historical sources mentioning the great drought.



Figure 5. Motecuhzoma Ilhuicamina opening the royal granaries. Diego Durán, *Historia*, folio 89r.

stone (*Anales de Tlatelolco* 1948:57). There are reports that some Mexica went to get maize from the Huastecs of Cuextlan, since it was raining there (Chimalpahin 1965:99-100, 200-201; Chimalpain 1997:161, 2003:121). Others traveled to Totonacapan to exchange their children for food, while still others went there of their own free will, accompanied by their entire family, “where they made their permanent home” and “remain to this day” (Durán 1984:2:243-244).

The crisis had many other consequences. The war between the Mexica and the Chalcans was suspended, while the Mazahua in Hidalgo and the Tetzcocans rose up against those of Coatlinchan (*Anales de Cuauhtitlan* 1992:52; Chimalpahin 1965:201-202; *Codex Telleriano-Remensis* 1995:216-218; *Código de Huichapan* 1992:62-63). The sources record all sorts of actions—real or fictional—to deal with the drought. The Tetzcocans, led by Nezahualcoyotl, began construction of an aqueduct that would carry fresh water from the springs of Chapultepec to the island of Tenochtitlan (Chimalpain 2003:121). The Otomí, on the other hand, “sacrificed their children, their relatives, and the crippled,” according to the *Código de Huichapan* (1992:62-63), which brings to mind the malnourished victims in Offering 48.

By 1455–56, the situation had significantly changed. Torquemada (1969:1:158-159) emphasizes that “there was abundant rainfall, and the year was so prosperous that the same lands yielded maize, amaranth, chia, and beans, and many other vegetables, with which all the people of the land were well fed and prospered.” This bonanza is reflected in pictographs depicting scenes

where drops from the sky soak Tlaloc’s shrine or cause maize, amaranth, and other vegetables to grow (*Codex en Cruz* 1981:18-19; *Codex Telleriano-Remensis* 1995:f. 32v). Once normalcy was restored, the Mexica immediately went to Totonacapan to settle their debts and rescue their enslaved relatives, while at the same time taking revenge on the Cohuixca by increasing their tribute and demanding the delivery of exorbitant amounts of greenstone beads and quetzal feathers (*Anales de Tlatelolco* 1948:57; Torquemada 1969:1:158-160).

Meteorology

In relatively recent times, a team led by dendrochronology and paleoclimatology specialists David Stahle and Matthew Therrell has documented a long history of severe droughts in Mesoamerica, by studying the rings of old-growth trees such as Douglas fir (*Pseudotsuga menziesii*) and ahuehuete or Montezuma cypress (*Taxodium mucronatum*) (Therrell et al. 2004; Stahle et al. 2016). It is well known that tree rings document years with lower soil moisture and cooler temperatures, making these plant structures valuable indirect climate indicators of aridity, diminished water levels, and scant agricultural production.

On this scientific basis, the Mexican Drought Atlas¹ was created, which describes the spatial patterns and intensity of soil moisture regimes in the northeast, northwest, southeast, and central parts of the country

¹ <http://drought.memphis.edu/MXDA/>

between 1400 and 2012. This atlas is extremely useful for analyzing climate dynamics over the centuries and corroborating whether they can be linked to historical records of famines, epidemics, migrations, wars, and other social phenomena that afflict civilizations dependent on seasonal rainfed agriculture.

In terms of the topic at hand, the Mexican Drought Atlas incontrovertibly shows that a drought of gigantic proportions took place in central Mexico from 1452 to 1454 and that, after those years of successive crises, there was a recovery around 1455–56. Everything seems to indicate that early summer droughts affected the germination, growth, and flowering of plants prior to the heat wave, while the autumn frosts attacked the maize before it had fully matured. Thus, the concurrence of both phenomena—drought and frost—would have destroyed crops and led to prolonged famine, as corroborated by sixteenth-century documentary sources.

Conclusions

The great drought of the year 1-Rabbit had a devastating impact on the lives of the inhabitants of the Basin of Mexico and its surrounding areas. Archeology, physical anthropology, chemistry, history, and meteorology all bear witness to this disaster of unusual intensity and duration, allowing us to define its main economic, social, and political consequences, namely, famine, disease, plunder, slavery, death, migration, and revolt. At first, the Mexica state exhibited great responsiveness and attempted to mitigate its effects. It opened the royal granaries to redistribute food among the most needy classes, while organizing mass sacrifices of children at the Templo Mayor to appease the wrath of the Tlaloc. For a time, it coped with the tragedy in this manner, but the excessive duration of the crisis made the state vulnerable to Totonac and Coahuilteca opportunism, forcing it to allow the mass exodus of its people.

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