

# Embodied Space and Time in the Huamantla Map<sup>1</sup>

## El espacio y el tiempo corporeizados en el Mapa de Huamantla

**David Charles Wright-Carr**

University of Guanajuato, Mexico

<https://orcid.org/0000-0002-0213-8623>

[dcwright@ugto.mx](mailto:dcwright@ugto.mx)

**Abstract:** The Huamantla Map is a cartographic and historical manuscript, painted by speakers of the Otomi language in the eastern Tlaxcala province on a large rectangle of fig-bark paper during the final third of the 16<sup>th</sup> century. Originally measuring approximately 7.0 by 1.9 meters, it represents a strip of land extending from the mountains northwest of the Valley of Mexico to the southeastern slope of La Malinche volcano. Within this geographic setting, designed in the native central Mexican tradition, the collective past of the Otomi of Huamantla is depicted, superimposing a narrative structure on the landscape. The story begins with the emergence of sacred ancestors from a primordial cave in cosmological time and ends with the adaptation of the native lords of Huamantla to Spanish colonial rule. The exceptionally large format of this environmentally embedded and socially situated cognitive tool suggests certain types of bodily interaction with its surface, at the time of its execution and during public performances of the story it contains. On a smaller scale, the meaningful placement of pictorial representations of human bodies within this pictorial space provides a path to reflection on the way the Otomi perceived their relationship with the geographic, cultural, and political landscape surrounding them.

**Keywords:** cartographic manuscript; landscape; map; Otomi; Tlaxcala; Mexico; 16<sup>th</sup> century.

**Resumen:** El Mapa de Huamantla es un manuscrito cartográfico e histórico, pintado por otomíes del oriente de la provincia de Tlaxcala sobre un gran rectángulo de papel de amate durante el último tercio del siglo XVI. En su estado original, medía alrededor de 7.0 por 1.9 metros; representa una franja de tierra que se extiende desde las montañas al noroeste del valle de México hasta la falda oriental del volcán La Malinche. Dentro de este entorno geográfico, diseñado dentro de la tradición pictórica indígena del centro de México, se representa el pasado colectivo de los otomíes de Huamantla, sobreponiendo una estructura narrativa al paisaje. La historia inicia con el surgimiento de los antepasados sagrados en el tiempo cosmogónico y termina con la adaptación de los señores indios de Huamantla al dominio colonial español. El formato de esta herramienta cognitiva, socialmente situada, es excepcionalmente grande; esto sugiere ciertos tipos de interacción corporal con su superficie, tanto en el momento de su ejecución como en las actuaciones públicas de la historia que encierra. En una escala menor, la colocación significativa de las representaciones de cuerpos humanos dentro del espacio cartográfico permite la reflexión acerca de cómo los otomíes percibían su relación con el paisaje geográfico, cultural y político que les rodeaba.

**Palabras clave:** manuscrito cartográfico; paisaje; mapa; otomí; Tlaxcala; México; siglo XVI.

1 A preliminary version of this paper was presented in the International Workshop: Body and Environment, organized by scholars from Princeton University, Universidad Nacional Autónoma de México, and Universidad Panamericana, Mexico City, 27-28 January 2020.

Received: April 1, 2020; accepted: April 30, 2020



INDIANA 37.2 (2020): 275-301

ISSN 0341-8642, DOI 10.18441/ind.v37i2.275-301

© Ibero-Amerikanisches Institut, Stiftung Preußischer Kulturbesitz

## Introduction

The transdisciplinary paradigm of embodied cognition, drawing on theoretical and conceptual advances in biology, philosophy, and psychology, emerged during the last decade of the 20<sup>th</sup> century (Lakoff and Johnson 1999; Varela, Thompson and Rosch 1993) and has developed into a robust theoretical framework that has changed the way many researchers look at the nature of human experience (Chemero 2009; 2013; Shapiro 2011; 2014; Ward and Stapleton 2012). While its use in the study of visual language is at an incipient stage, preliminary work (Wright-Carr 2017; 2018; 2019a) shows this paradigm to be useful for rethinking the nature of the symbolic systems developed in diverse cultural contexts throughout time and space, transcending the limitations imposed by Eurocentric and cognitivist<sup>2</sup> perspectives.

The embodied paradigm cuts through much of the Western philosophical tradition, rooted in ancient Mediterranean and medieval European worldviews. It rejects the traditional mind/body dichotomy, preferring an integrated view of embodied minds or, to emphasize the depth of the paradigm shift, ‘mindful bodies’.<sup>3</sup> Key concepts include ‘cognition’ as the conscious and unconscious unity of perception and action, and of reason and emotion, potentiated and constrained by a body that is the result of our evolutionary heritage; ‘enaction’ as the creation of meaning through the interaction of a living agent with a physical environment, into which it is ‘embedded’, and a sociocultural context, in which it is ‘situated’; the mind is capable of ‘extending’ its scope beyond the limit of the body through material and cognitive tools, including visual signs. Thus the embodied mind is part of a complex, dynamic system of infinite, universal scope.<sup>4</sup>

This perspective is particularly appropriate for the study of the visual languages of non-Western cultures, such as Mesoamerica, in which traditional Western dichotomies like mind/body, perception/action, reason/emotion, natural/supernatural, and human/animal were essentially irrelevant. Ancient Mesoamerican worldview was naturalistic; these people saw themselves as an inseparable part of a living, sentient universe.<sup>5</sup>

Another Western dichotomy that gets in our way when we try to comprehend the meanings expressed in the visual languages of non-Western cultures is iconography/writing. In the case of Mesoamerican cultures, painted and sculpted ‘texts’ incorporate visual signs ranging seamlessly from iconic signs to more conventional and orderly

2 By the term ‘cognitivist’, I refer to the dominant paradigm in cognitive research during the second half of the 20<sup>th</sup> century, in which an essentially disembodied and decontextualized brain was seen as a device for processing internal representations of an external world (Chemero 2009, 47-66; Johnson 2007, 112-118).

3 On the notion of the ‘mindful body’, conceived of as “a body that in a substantive tactile-kinaesthetic/affective sense knows itself and its possibilities”, see Sheets-Johnstone (2018, 94).

4 For a review of the paradigm of embodied cognition, see Wright-Carr (2019a, 57-65).

5 For an insightful text contrasting early modern European and pre-Hispanic Mesoamerican worldviews, see Johansson K. (2019).

semasiograms, which express ideas without necessarily representing elements of a particular verbal language, to glottograms, which express linguistic elements such as words, morphemes, syllables, and phonemes (Sampson 2015; Wright-Carr 2011; 2017). Around the time of the Spanish conquest, central Mexican visual language was of an essentially iconographic and semasiographic nature, although this system admitted the creation of occasional glottograms through rebus writing, employing homophonic and quasi-homophonic word play, especially in toponymic and anthroponomic signs. In glottography, a competent ‘reader’ had to possess knowledge of the language in which these phonic coincidences functioned (Wright-Carr 2012a; 2019b).

The modern Western perspective tends to sublimate verbal language and thought, underestimating the importance of other equally important cognitive modalities such as kinesthetic, visual, musical, and mathematical thinking, as well as the affective and aesthetic dimensions of human experience. As we shall see, the painted manuscripts of ancient Mesoamerica were more than mere tools for recording spoken language; they were portable manifestations of a larger multimodal symbolic system that gave meaning to human existence, integrating communities into a sacred cosmos. This system ranged in scope from the universe and the earthly landscape, both pregnant with symbolic meaning, through carefully designed urban centers integrated into their astronomical and geographic contexts, with monumental sculptures and murals enhancing these relations and making them explicit, down to more intimate and portable creations that provided a fine-grained level of significance expressed through objects manipulated in daily life.

In this paper I shall make use of the paradigm of embodied cognition to attempt to make sense of an exceptional pictorial manuscript created by Otomi speakers in the late 16<sup>th</sup> century, two generations after the conquest of Tenochtitlan by Hernán Cortés: the Huamantla Map.<sup>6</sup> This cartographic and historical document, painted on bark paper, is exceptional for its large size and conservative style, preserving many pre-Hispanic traits in its materiality, design, and content. Going beyond the interpretation of the pictorial signs covering this large rectangular surface, I intend to explore its potential for bodily interaction, from its execution to its potential use in the performance of historical memory. I shall also examine the representations of bodies in the map, looking at the ways in which they interact with the painted landscape into which they have been embedded and the sociocultural context in which they are situated.

6 Huamantla Map (ca. 1567-1598a-i). In most sources this manuscript is called ‘Huamantla Codex’ or ‘Códice de Huamantla’. I call it the Huamantla Map to emphasize its large format and cartographic nature, as most manuscripts of the cartographic and cartographic-historical genres are not called ‘codices’ but ‘maps’ – or *lienzos* when painted on a woven surface – (see Glass and Robertson 1975). For a seminal study, with color reproductions of the painted areas of the manuscript rearranged in book format, see Aguilera (1984). Digital images of several fragments of the Huamantla Map are available at the World Digital Library: Codex of Huamantla (2017). See also Wright-Carr (2005, I, 433-478; 2010).

### Making the map

The process of manufacturing the paper used as the material support for the Huamantla Map began with the flaying of the body of a ficus tree. The inner bark was separated from the outer, then boiled with wood ash or lime water. The moist strips of fiber were arranged on wooden boards and pounded with flat, grooved stone tools into thin, uniform layers. The paper was dried in the sun, then removed from the boards.<sup>7</sup> Several pieces of paper were glued together to create the 7.0 by 1.9-meter rectangle on which the pictorial signs were painted (Wright-Carr 2005, I, 525-528).

In the worldview reflected in the language of the Otomi, the morpheme *xi* is used to speak of the outer coverings of living things: skin, hair, fur, feathers, bark, leaves, shells, peels, and the like (Echegoyen G. and Voigtlander M. 2007, 341-349; Galinier 2004, 194-197; Hernández Cruz, Victoria Torquemada and Sinclair Crawford 2010, 377-382). The world we inhabit is called *ximbhai*, the covering – *xi* – of the living Earth – *hai* –, including the surface we walk upon and the sky above; sometimes it is called *maka ximbhai*, the sacred world (Echegoyen G. and Voigtlander M. 2007, 344; Galinier 2004, 195, 196; Hernández Cruz, Victoria Torquemada and Sinclair Crawford 2010, 379). The bark of a tree is called *xiza*, the skin of the tree (Echegoyen G. and Voigtlander M. 2007, 349; Galinier 2004, 196). In pre-Hispanic Mesoamerica, bark paper was used not only as a support for painted manuscripts, but also as a ritual offering and to clothe and adorn sacred images, priests, and sacrificial victims (Seemann Conzatti 1990). In the 20<sup>th</sup> and 21<sup>st</sup> centuries, the Otomi of the eastern Sierra Madre have conserved the tradition of folding and cutting bark paper to create anthropo-, zoo- and phytomorphic figures endowed with a life essence called *zaki*, which they manipulate in ritual settings as a means of interacting with natural forces possessing will and agency (Christensen and Martí 1979; Dow 1982; 1986; 1990; Galinier 1987, 431-505; 2004; Gallardo Arias 2012; Sandstrom 1981). Thus the epidermis of the painter, performer, and viewer of the Huamantla Map – *xi* – was of essentially the same stuff as the support of the map – made from *xiza* –, as was the portion of the Earth represented on its surface – *ximbhai* –; all three were thought of as the skin of living, sentient beings.

Native groups of central Mexico used painted visual language as a cognitive tool to organize complex patterns of meaning on physical supports made of bark paper, deerskin, and cloth. Speakers of Nahuatl, the language of the Aztecs, used a kenning or metaphorical couplet, *in tlilli in tlapalli*, to refer to their painted language, which combined pictorial iconography with conventional signs, mostly semasiograms, but sometimes including glottograms, as noted above. On a literal level, *in tlilli in tlapalli* means ‘the black ink, the colored paint’, that is, the pigments used to paint the signs.

7 The process described here is based on observations of paper manufacture by the Otomi of San Pablito Pahuatlán, Puebla, in the 20<sup>th</sup> century (Christensen and Martí 1979, 10-20; Galinier 1987, 308-313; Von Hagen 1999, 57-59, plates 20-31). The paper of the Huamantla Map was studied by Wiedemann and Boller (1996); see also Huerta Carrillo and Berthier Villaseñor (2001).

On an intermediate level, this phrase refers synecdochally to the signs themselves. On a more profound level, it evokes the meanings expressed by the signs: the knowledge and traditions of revered ancestors. Like many aspects of indigenous central Mexican culture, the same concept was expressed in the Otomi language as a calque, *mayati nekuhu*, ‘the black ink, the colored paint’, with the same layers of meaning as the kenning in Nahuatl (Wright-Carr 2011). A passage from the *Florentine Codex*, written in Nahuatl in the mid-16<sup>th</sup> century, illustrates this concept:

The black ink, the colored paint of the ancient ones. With these words it was said: the laws of the ancient ones, that which they composed and laid out, the way of life; one just lives with them or without them; thus was it said; may the black ink and the colored paint of the ancient ones not disappear; this means the laws, or: Why do you destroy the way of life, the black ink and the colored paint of our ancestors, the ancient ones? (Sahagún 2012, II, 217v, 218r).<sup>8</sup>

The pictorial signs distributed over the 13-square-meter surface of the Huamantla Map, of which approximately 73 % survives in nine fragments, were painted with brushes directly on the surface of the light-brown bark paper (Wright-Carr 2005, I, 446-449). Each painted sign was outlined in carbon black ink, sometimes diluted to produce lighter grey lines. Colored washes with various degrees of saturation were applied over the outlines. Exceptionally, colored paint was applied independently of the black outlines. The colors were obtained from animals, plants, and minerals: a red pigment made from cochineal, an insect found on *Opuntia* cacti; a yellow pigment called *zacatlaxcalli*, literally ‘grass tortilla’, made from stems of plants of the genus *Cuscuta*, with small quantities of carbon black and a red mineral pigment, perhaps cinnabar; a blue pigment, ‘Maya blue’, made from indigo and palygorskite, with a bit of carbon black and red ochre; an orange pigment, made with diluted cochineal red and carbon black; and a green pigment, made from a turquoise blue pigment with yellow ochre.<sup>9</sup> Where white was intended, the area within the outline was left unpainted, showing the light brown surface of the paper. The association of specific colors with painted signs adds an additional layer of meaning to the visual language expressed by the outlines and contributes to the aesthetic experience provided by the work as a whole.

When the author of the Huamantla Map was ready to create his visual discourse, he stood before the large rectangle, laid out on a floor, and visualized a landscape extending from the sacred cave, from which his ancestors had emerged in cosmogonic time, to the territory controlled by Huamantla in the late 16<sup>th</sup> century, an expanse stretching approximately 210 km from northwest to southeast. This is the geographic setting required by

9 Pigments were identified by Huerta Carrillo and Berthier Villaseñor (2001, 51-54); additional information on the pigments is from Baglioni *et al.* 2011.

the historical narrative he intended to paint.<sup>10</sup> Most of the prominent sign clusters are oriented toward a viewer positioned on the northwestern edge of the map, where the narrative begins, in front of the cave. The movement of the painter around and over the map during its execution is suggested by the diverse orientations of other pictorial scenes: there are sign clusters facing viewers standing on the four sides of the map. The painter walked around the map and stepped onto its surface, entering the imaginary landscape, squatting to apply the black ink and the colored paint to the tree-skin surface, rendering the caves, mountains, lakes, rivers, flora, fauna, buildings, and human figures, narrating his people's history in their traditional visual language.

### A painted landscape

Considering the size of the Huamantla Map, roughly 7.0 by 1.9 meters, and the length of the territory it encompasses, around 210 kilometers, the scale is close to 1:30 000, although we should bear in mind that the intention of the author was not to paint a scaled representation of the surface of the Earth, but to create a cognitive tool for symbolically interacting with the sacred landscape that was the geographic setting for his people's past, present, and future, using traditional materials, techniques, and visual signs. This manuscript, when whole, was wider than a man is tall and longer than four men laid out head-to-foot in a row. A person 1.6 meters tall, a typical height for an adult Otomi man, standing next to the map extended on a floor and gazing at its surface, becomes a giant 48 kilometers tall, surveying the mountains, valleys, and rivers of central Mexico, including the valleys of Mexico and Puebla-Tlaxcala. Standing at its northwestern edge, he sees the primordial cave at his feet and looks across the Valley of Mexico to the province of Tlaxcala, at the southeastern end of which is a large, centrally placed sign cluster marking the territorial jurisdiction of the colonial Otomi town of Huamantla.<sup>11</sup>

10 This pictorial manuscript has stylistic unity, apart from a few signs devoid of colored paint within their contours which perhaps were added later. While the principal author may have worked with assistants, I shall refer here to a single painter for the sake of simplicity. I am assuming the author was a man, as was usually the case, although there is at least one mention in a 16<sup>th</sup>-century pictorial and alphabetic manuscript, the *Codex Telleriano-Remensis*, of an Aztec noblewoman who authored painted books (2012, 30r).

11 When I began research on the Huamantla Map, I realized that it would not be possible to comprehend it fully by looking at reproductions of the surviving fragments in books or on digital monitors. Neither would it be sufficient to look at the squares extracted from these fragments and arranged in book format by Aguilera (1984). The solution was to separate the leaves in a copy of Aguilera's facsimile and glue them to large sheets of bark paper, made by the Otomi of San Pablito Pahuatlán, creating a full-scale reproduction of each of the surviving fragments. I laid this facsimile on the floor, following Aguilera's hypothetical reconstruction, and was able to get a sense of the map-body relationship intended by the manuscript's author.

The location of the sacred cave, and of two additional caves, can be inferred from its placement relative to the other geographic features represented on this map: the mountains to the northwest of the Valley of Mexico. To the southeast of these caves is a large gap in the cartographic space, although an intact fragment can be confidently identified as the ancient metropolis of Teotihuacan, in ruins since the end of the 6<sup>th</sup> century CE, represented by two temple platforms, their grey color indicating a ruined state, and a sign cluster narrating the cosmogonic myth of the creation of the Fifth Sun. Additional sign clusters provide toponymic and genealogical information. Further to the southeast, the mountains separating the Valley of Mexico and the Puebla-Tlaxcala Valley are represented. At the south of this range, the volcano Popocatepetl belches forth an exhalation; to its north are the volcanoes Iztaccihuatl, Mount Tlaloc, and other elevations; to its west a curved aquatic sign representing Lake Texcoco encircles the island city of Tenochtitlan, marked by an opuntia cactus expressing the latter toponym – Tenōchtitlan means ‘place of stone prickly-pears’ – and an architectural sign expressing the idea of the transformation of the Aztec metropolis into the Spanish regional capital of Mexico City during the third decade of the 16<sup>th</sup> century. To the northeast, another cluster represents the Acolhua kingdom with its seat in Texcoco, a member city of the Aztec Triple Alliance, together with Tenochtitlan and Tlacopan.

North of the range of volcanoes is a pass through which travelers walked between the valleys of Mexico and Tlaxcala. Several toponymic signs, including stylized mountains, cultivated fields, and architectural features, provide geographic references. In the central portion of the map, depicting the province of Tlaxcala, is a long, serpentine aquatic sign representing the Zahuapan River, with patterns of lines suggesting flows and eddies, its rivulets ending in beads and shells, flowing from north to south across the width of the map.

Southeast of the river is a detailed representation of the region to the north and east of La Malinche volcano, also called by its ancient Nahuatl name, Mātlālcuēyeh, ‘she who possesses a blue-green skirt’, the name of an ancient aquatic deity (Wimmer s.d.).<sup>12</sup> A profusion of geographic and toponymic signs fills the southeastern third of the map, with rivers, mountains, human settlements, cultivated fields, plants, animals, and buildings of various sorts, including the Franciscan convent at Huamantla. At the center of this composition is a large hill sign with trees on top and plants and animals within its contour; this represents the town of Huamantla, the Nahuatl name of which was Cuauhmantlān, ‘next to the forest’.<sup>13</sup>

12 For a survey of the importance of this volcano in regional culture, see Suárez Cruz (2009).

13 The Otomi name survives in Ixtenco, an Otomi town near Huamantla: Xunuxi (Lastra 1997, 340, 430), Xinuxi, or Xinüxi (the latter words were provided by Otomi informants from Ixtenco). These words are etymologically opaque, although one informant claimed that Xinuxi means ‘at the edge of the forest’. Most toponyms in central Mexico pass from one language to another as calques (Smith-Stark 1994; Wright-Carr 2015).

To this point I have limited my description of this pictorial manuscript to the geographic elements painted on its surface. All of these signs preserve traditional pre-Hispanic central Mexican stylistic conventions, with minimal influence from the European pictorial and cartographic traditions.<sup>14</sup> This is unusual for a manuscript from the late 16<sup>th</sup> century and reveals the cultural tenacity of the Otomi from eastern Tlaxcala.

### Historical narrative in space and time

The painted bodies embedded in the Huamantla Map represent men, women, and metaphorically humanized cosmic forces (Baena Ramírez 2017; Dehouve 2015) which I shall call here ‘deities’ for the sake of simplicity. The human bodies act out cosmogonic and historical narrative, interacting with their geographic and sociocultural contexts, governing, performing acts of ritual and sacrifice, waging war, bleeding, dying, farming, and preaching.

A temporal dimension is interwoven with the native cartography of the Huamantla Map. Chronology takes second place to geography, as the fundamental organizing principal of this manuscript is cartographic space. Sign clusters that narrate important events in cosmogonic and historical time are inserted into the composition at or near the places where they occurred. This produces some anachronistic and unsettling juxtapositions, such as the Otomi warrior dragging a captive to sacrifice, passing a Franciscan friar standing outside the convent at Huamantla, or the Spanish governor standing near an Aztec deity in Mexico City/Tenochtitlan.

Paths of human footprints exit the primordial cave at the northwestern end of the map, doubling back and proceeding to the southeast, through the northern Valley of Mexico, passing through Teotihuacan, where a deity is transformed into the Fifth Sun, entering the province of Tlaxcala over a fiercely contested military frontier, crossing the Zahuapan River and arriving at Huamantla. Additional paths lead back and forth between this Otomi town and the southeastern frontier of the province, marked by intense military activity, toward the site where Hernán Cortés defeated the Otomi warriors who were charged with defending the borders of Tlaxcala from invading forces. Other movements through cartographic space are indicated by trails of blood, shed by captives of war being dragged by the hair to sacrifice. These networks of footprints or blood suggest a narrative sequence starting with the origin of ancestors in a cave, the beginning of the current cosmic era at Teotihuacan, the population of the province of Tlaxcala by Otomi immigrants from the northwest, the role of Otomi warriors in the defense of the provincial borders, their defeat at the hands of the Spaniards, and

---

14 On the confluence of native Mesoamerican cartography and the European tradition of mapmaking, see Leibsohn (1995; 2000); Mundy (1996); Russo (2005).

finally the consolidation of Huamantla as a regional capital through the founding of the convent of San Luis by Franciscan friars. Thus a temporal dimension is superimposed onto the native cartography depicting the Valley of Mexico, the province of Tlaxcala, and surrounding mountains.

Caves were an essential part of Mesoamerican cosmivision and ritual, providing access to the interior spaces of sacred, living mountains, associated with birth, death, and life-giving humidity. From these dark cavities the first ancestors had emerged. Caves were associated with the underworld, through which astral deities traveled between their apparent death on the western horizon and their rebirth in the east (Brady and Prufer 2005; Heyden 2005), and through which the spirit essences of the deceased traveled after separation from their organic bodies (López Austin 1989; McKeever Furst 1995; Wright-Carr 2016b). A document from 1582, drafted in Querétaro by a Spanish scribe who conferred with Otomi elders bearing pictorial manuscripts, mentions sacred caves in the hills northwest of the Valley of Mexico, the region of caves depicted in the Huamantla Map:

They had another two gods, greatly esteemed and revered, one in the form of a man and the other of a woman, made of the aforementioned sticks, both of which were richly attired, the man with fine pieces of cloth and the woman with skirt and *huipil*, and the *huípiles* are like the blouses worn by Moorish women and the skirts are like tight-fitting overskirts, all made of woven cotton with very fine adornments, the best that were made in all the land. They called the man Old Father, the woman Old Mother, and it was said that from them came all people born, and that they came from some caves that are in a town called Chiapa that is in the charge of the *encomendero* Antonio de la Mota, son of a conquistador, two leagues south of the town of Jilotepec (Ramos de Cárdenas 2013, 10r).<sup>15</sup>

The location of the sacred caves on the Huamantla Map, northwest of the Valley of Mexico, suggests that the painter of these signs had in mind the caves of Chapa de Mota (Figure 1). This identification is supported by an alphabetic gloss in Nahuatl written within the largest cave: “*nicah toquizyahnoztoc*” – *Nicān toquizayān ōztōc* – : “Here, in the cave, the place/time of our emergence” (Wright-Carr 2016a, 392). This cave is represented by a horseshoe-shaped arch, painted green and covered by a net pattern of rhomboids and circles, a graphic convention used in native visual language to represent the scaly, reptilian *xi*-skin of the Earth. Within the cave are four human bodies: two large figures, representing a man and a woman, and two smaller male figures. The principal

15 “*Tenían otros dos dioses de mucha reputación y reberença, el uno en forma de hombre y el otro de muger, hechos de las mesmas varas, los quales tenían vestidos ricamente, al de hombre con mantas ricas y al de muger con naguas y gueipiles, y los gueipiles son como las camisas que usan las moras y las naguas como unas basquiñas muy justas, todo hecho de algodón tejido con muy ricas labores que era lo mejor que se hazía en toda la tierra. Al hombre le llamaban el Padre Viejo, a la muger llamábanla Madre Vieja, de los quales dezían que proçedian todos los naçidos, y que éstos avian proçedido de unas cuebas que están en un pueblo que se dize Chiapa que agora tiene en encomienda Antonio de la Mota, hijo de conquistador, que está dos leguas del de Xilotepec hazia el Mediodía*”.

figures represent the primordial couple, Old Father and Old Mother; the former holds an oversize dart, an allusion to war, and a flower, emphasizing his role as a patron deity of native nobility; other attributes are a loincloth, a scarf-like neckpiece and facial paint. Old Mother wears a *huipil* with the net pattern mentioned above, here in diluted red paint, which has also been applied to her legs, emphasizing her telluric nature. She sports a feathered headdress and carries a shield. Two rectangles of red pigment on her face reinforce her feminine identity.



Figure 1. The primordial cave (drawing: María Gabriela Guevara Sánchez).<sup>16</sup>

Old Father and Old Mother were the principal deities of the Otomi of the province of Jilotepec, of which Chapa de Mota was a part. Ramos does not register their names in Otomi. Old Mother is associated with the Earth and the Moon, and with feminine activities like childbirth and weaving. She had multiple manifestations in pre-Hispanic Mesoamerica; in Nahuatl one of her many names was *Tonāntzin*, ‘Our Revered Mother’ (Brundage 1988, 154; Carrasco Pizana 1987, 136). Old Father, associated with fire and the Sun, was called in Nahuatl *Totahtzin*, ‘Our Revered Father’, among other names, including *Otontēuctli*, ‘Lord of the Otomi’. Under the latter name he reigned as patron deity of one of the 20-day ritual festivals. In spite of his name, *Otontēuctli* was not

16 The primordial couple are still revered by many Otomi. In Huixquilucan their names, recorded by Garibay Kintana (1957, 13-18), were *Makatá*, ‘Great Father God’ and *Makamé*, ‘Great Mother Goddess’. Four decades ago, my Otomi in-laws from San Nicolás, Ixmiquilpan, Hidalgo spoke of *Zidada*, ‘Revered Father’ – a name used for both the Sun and Jesus Christ – and *Zinānā*, ‘Revered Mother’ – the Moon and Saint Mary –. Both names are registered by Hernández Cruz, Victoria Torquemada, and Sinclair Crawford (2010, 401).

revered only by the Otomi, but by speakers of Nahuatl, Mazahua, and Matlatzinca in kingdoms throughout central Mexico (Carrasco Pizana 1987, 138-146). The primordial couple shone in the night sky as Iztāc Mixcōātl, ‘White Cloud Serpent’, and Ilancueitl, ‘Ancient Skirt’ (Aguilera 2001, 49-52; Brundage 1988, 130-135, 153-175), as mentioned in a myth recorded shortly after the Spanish conquest.<sup>17</sup>

Two male figures accompany Old Father and Old Mother in the sacred cave. One makes fire with a drilling stick, a ritual activity associated with temporal renovation and physical transformation (Dehouve 2018; Fash, Tokovinine, and Fash 2009; Nielsen and Helmke 2018). A gloss in Nahuatl identifies him as “*xuchiltonal*” – *Xōchitōnal* – , ‘Flower Day’.<sup>18</sup> The other has the characteristic facial paint of an Otomi warrior and holds a martial standard; a gloss labels him “*chi cuey ytzcuintli*” – *Chicūēi Itzcuintli* – , ‘8 Dog’ (Wright-Carr 2016a, 393), a name derived from the 260-day mantic calendar combining twenty named days with the numbers 1 to 13 (Wright-Carr 2009). The ancestral cave is a pervasive theme in ancient Mesoamerican cosmogony, with manifestations in architecture, sculpture, painting, and oral tradition (Carlson 2007-2008; Pohl and Urcid 2014).

The path of footprints emerging from the primordial cave passes through a sign cluster including a thatch-roofed house and a man seated on a bench holding a flower, which, as we shall see, represents a political unit identified with a lineage founder. Immediately below this cluster is a series of pictorial signs which narrate the transformation of the mythical Nanahuatzin into the Fifth Sun by throwing himself into a sacred fire at the beginning of our present cosmic era (Figure 2). Two ruined temple platforms, depicting the Pyramids of the Sun and the Moon, locate the scene in Teotihuacan. Nearby we see a rectangular fire pit with Nanahuatzin’s scorched body, his white face indicating his death, the remains of a sacrifice of quetzal feathers and bloodied perforators lying next to the pit. On the opposite side of the temple platforms is a solar disc with a central anthropomorphic head bearing a feathered headdress, a speech scroll emerging from the mouth, surrounded by solar rays and symbols of blood sacrifice. This visual narrative corresponds with oral traditions narrating Nanahuatzin’s transformation into the Sun, recorded alphabetically in the mid-16<sup>th</sup> century.<sup>19</sup> An offering including quetzal feathers and bloodied perforators are mentioned in one account, and the location of the solar

17 Motolinía (1989, 24, 27) tells us that Iztāc Mixcōātl was an old man who lived in Chicōmoztōc, ‘In the Seven Caves’, with his wife Ilancueitl, with whom he engendered the founding ancestors of the principal ethnic groups of central Mexico. With another woman, Chīmalmatl ‘Shield Arm’, he engendered Quetzalcōātl, ‘Serpent of Precious Feathers’.

18 Alternative translations are ‘flowery day’, ‘flowery summer’, ‘flowery Sun’, and ‘flowery heat of the Sun’ (Wright-Carr 2016a, 393).

19 There are three main versions of the transformation of Nanahuatzin into the Fifth Sun. The first is in the “Leyenda de los Soles”, part of the *Codex Chimalpopoca* (Bierhorst 1992, 90, 91; 1998, 147-149). The second, very brief, appears in book 3 of the *Florentine Codex* (Sahagún 2012, I, 202r-205r). The third and most extensive is found in book 7 of the latter source (II, 228v-233r). See also Boone (2000).

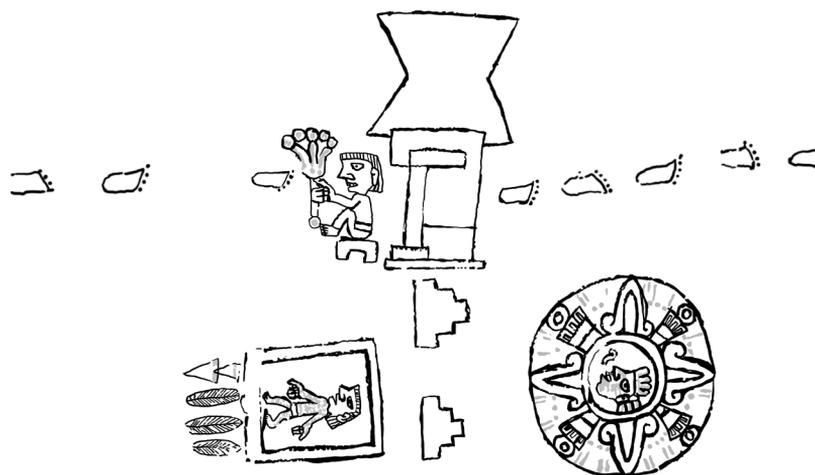


Figure 2. The transformation of Nanahuatzin into the Fifth Sun at Teotihuacan (drawing: María Gabriela Guevara Sánchez).

disc to the east of the fire pit and the temple platforms suggests the sunrise following Nanahuatzin's self-sacrifice.<sup>20</sup>

20 Bosque Cantón (2019, 33, note 22) questions my interpretation of this scene as the sacrifice by fire of an anthropomorphic figure: "En su propuesta hay elementos confusos como que el 'sacrificado' tenga el ojo abierto y no cerrado, lo que, con la ofrenda a sus pies, podría indicar que es un 'oráculo' (comunicación personal Sebastian van Doesburg, 29/05/2017)" ("In his proposal there are confusing elements such as the 'sacrificed man' having his eye open and not closed, which, with the offering at his feet, could indicate that he is an 'oracle' [Sebastian van Doesberg, personal communication, 5/29/2017]"). I should emphasize here that the offerings at the foot of this figure correspond to symbolic elements included in a 16<sup>th</sup>-century narrative of the sacrifice of Nanahuatzin in the cosmogonic bonfire at Teotihuacan. Tēucciztēcatl, who threw himself into the fire after Nanahuatzin and became the Moon, had placed an offering of quetzal feathers, golden balls, spines made of precious stones and red coral, and fine incense. Nanahuatzin had offered bundles of green reeds, balls of grass, and agave spines with his own blood (Sahagún 2012, II, 228v-233r). The idea of sacrifice is suggested graphically by the omission of the usual flesh color from the face of the anthropomorphic figure in the fire pit, while the mottled red color on the rest of his body represents the pustules that characterize Nanahuatzin, scorched flesh, or both. Omitting the flesh color from human bodies (or parts of bodies) is a convention found throughout the Huamantla Map in representations of dead warriors, captives led to sacrifice, and two sacrificed men: one by heart extraction, another tied to a wooden frame and shot with arrows. The face at the center of the solar disc contains the color that is absent from the face of the anthropomorphic figure in the fire pit; this was probably intended as a visual reference to Nanahuatzin's bodily death and astral rebirth.

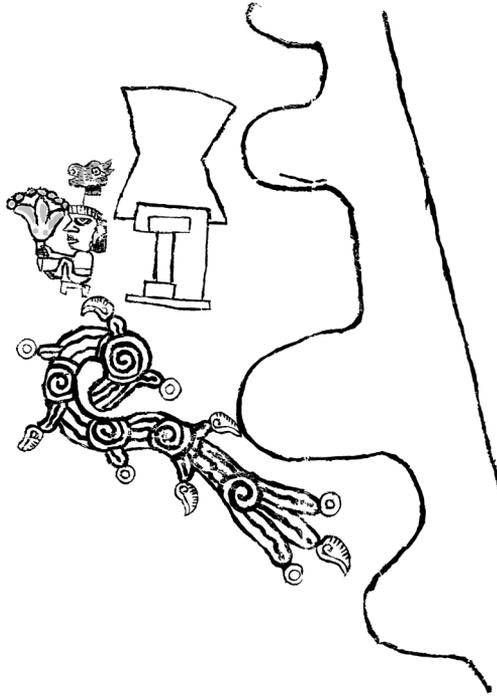


Figure 3. Lineage founder and royal palace in geographic context (drawing: María Gabriela Guevara Sánchez).

The theme of migration is prominent in the historical cartography of the Huamantla Map. Movement through geographic space is indicated by paths of footprints, suggesting a sequential narrative leading from the ancestral cave, passing through Teotihuacan, exiting the Valley of Mexico through the battlegrounds on the borderlands between the dominion of the Triple Alliance and the Tlaxcalan confederation, arriving at Huamantla in the eastern part of Tlaxcala. From Huamantla additional paths lead to and from battlegrounds on Tlaxcala's southeastern frontier. The multiple orientations of the sign clusters suggest that a 'reading' of this visual narrative would involve bodily movement around the map.

A recurring theme throughout the Huamantla Map is a house with a thatched or a flat roof and a man seated on a low bench or a reed-mat seat with backrest, clad only in a loincloth and holding a flower, several species of which are represented (Figure 3).

At first glance these sign clusters would seem to represent dwellings with their inhabitants, but three clusters have associated alphabetical glosses in Nahuatl that provide clues to their meaning. One of the glosses reads: "*Auh nicah zacateotlah yn toconcol yntocah ocnllotli*" – *Auh nicān Zacateōtlān in tocōcōl itōcā Ōcēlōtl* – : 'And here is Zacateotlan, 'Place of the Grass Deity'; the name of our ancestor is Ōcēlōtl, 'Jaguar'

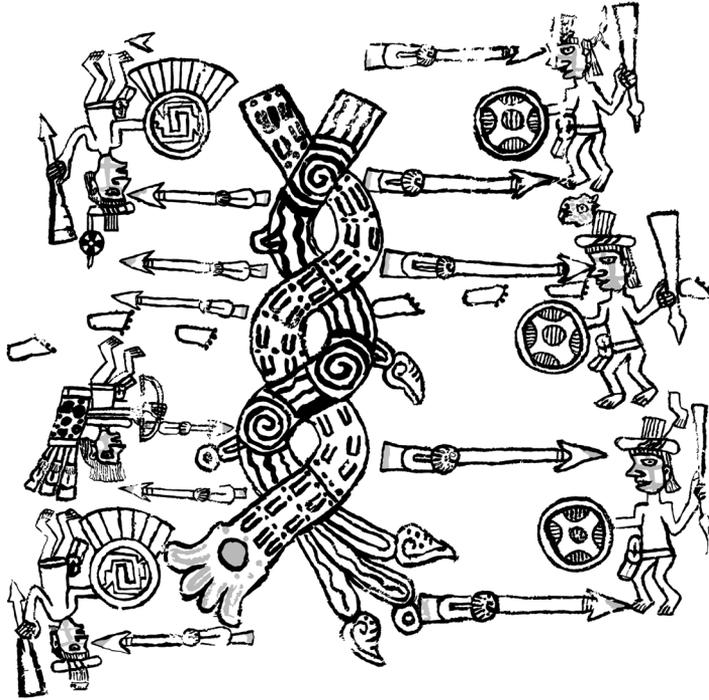


Figure 4. Martial sign cluster (drawing: María Gabriela Guevara Sánchez).



Figure 5. The victory of Hernán Cortés over the Otomi warriors of Tecoaac (drawing: María Gabriela Guevara Sánchez).

(Wright-Carr 2016a, 394). The associated pictorial signs include a mountain with a plant superimposed on it – the town of Zacateotlan –, a house – the ruler’s palace –, a seated man with a flower – a lineage founder, the seat and the flower marking his noble status –, and his name sign, a jaguar head. These sign clusters refer to specific settlements and to ancestral founding fathers, adding a political and genealogical dimension to the historical narrative situated in the central Mexican landscape.

Sign clusters representing battlefields mark the strategic frontiers of the Tlaxcalan confederation. In late pre-Hispanic times, the Otomi settlements on the periphery of this territory had the responsibility of defending these borders from invading forces (Muñoz Camargo 1984, 179). Each of these clusters features a large metaphorical sign composed of two braided bands, one representing a flow of water, the other signifying a cultivated field in flames (Figure 4). The corresponding kenning in Nahuatl is *teōātl tlahchinōlli*, ‘the divine water, the burning fields’. This is a metaphor for war and plague; similar phrases may be found in other Mesoamerican languages, including Otomi (Wright-Carr 2012b). On two sides of this compound sign native warriors face off, three on each side, some armed with wooden sticks incrustated with rows of razor-sharp obsidian blades, others with bows and arrows. The first of these signs, following the narrative sequence indicated by the paths of footprints, is at the mountain pass connecting the northeastern Valley of Mexico and northwestern Tlaxcala. Associated with these martial signs is another cluster showing a black-topped mountain – probably the Otomi kingdom of Tliluhquitepēc, ‘At Black Mountain’ (Davies 1968, 68, 73, 74, 152, map 3) –, a bow with an arrow, a shield with an obsidian-edged weapon, a coiled snake with a row of clouds on its back and a woman’s head emerging from its mouth – probably the deity Cihuācōātl, ‘Serpent Woman’ – (Aguilera 2000; Brundage 1988, 168-171), and a representation of human sacrifice in which a man is lashed to a wooden framework and shot with an arrow.

Near one edge of the Huamantla Map, representing the southeast border of the Tlaxcalan confederation, five of these martial sign clusters are lined up in a row. Trails of blood lead from the battlefields to destinations to the northwest and southeast. Each trail culminates in the depiction of a captured warrior, his body drained of blood, dragged by the hair by his captor. In some cases the captive is presented to a third party, perhaps a priest, and in one instance a sacrificial victim is shown on a pile of stones, blood gushing from a gaping wound in his torso. In pre-Hispanic central Mexico, the beating hearts of captured warriors were extracted from their living bodies and offered to the solar deity to ensure the stability of the cosmos, while the arms and legs of the victims were cut into chunks, boiled with corn and consumed as a stew (Olivier and López Luján 2010).

To this point, the cosmogonic and historical events depicted on this large manuscript have taken place in the pre-Hispanic era. There are, however, three sign clusters that acknowledge the arrival of European invaders and the military, political, and religious domination by the Spanish empire. The most prominent of these is found near the



Figure 6. Spanish governor and royal house in Tenōchtitlan (Mexico City)  
(drawing: María Gabriela Guevara Sánchez).



Figure 7. The Otomi town of Huamantla (drawing: María Gabriela Guevara Sánchez).

center of the long, northeast edge of the map (Figure 5). A mountain is depicted, with an elegantly-attired Spaniard standing on its summit, representing Hernán Cortés, future Marquis of the Valley of Oaxaca, according to a large alphabetical gloss associated with this sign cluster: “*nica hualacico marq[ue]s / yepohualxihuitli ypa omatlac / tli ypa [illegible] xihuitli*” – *Nicān huālahcico marques yēpōhualxihuitl īpan ommahltactli īpan [...] xihuitl* – : ‘The Marquis arrived here seventy and [illegible] years ago’ (Wright-Carr 2016a, 391). The illegible part must have been a number from one to nine, giving a possible range of 71 to 79 years. Added to the year of Cortés’s arrival, 1519, this indicates a date of 1590 to 1598 for the gloss, providing a *terminus ante quem* for the Huamantla Map. Two mounted Spaniards with pikes are shown decapitating native men. A total of eight dead or dying natives, blood gushing from their wounds, are depicted, one of them within the mountain’s contours. Five native men present offerings to Cortés: bales of forage for the Spaniards’ horses, plucked turkeys, jade beads, and containers with food, perhaps eggs or tortillas. Four native women bearing vessels of water surround Cortés. Thus a battle and its aftermath, with the triumph of Cortés, are condensed into one scene. The elements depicted suggest that this sign cluster represents the armed conflict between the Otomi warriors of Tecoaac, a small kingdom in eastern Tlaxcala that was eclipsed by Huamantla in the second half of the 16<sup>th</sup> century, and the Spanish army commanded by Cortés on his first march from Veracruz to Tenochtitlan. There is a close correspondence between the offerings presented to Cortés and those described in native sources (Sahagún 2012, III, 422r, 422v) and Spanish accounts of this battle (Díaz del Castillo 2001, 51r-60r).<sup>21</sup>

The second sign cluster depicting Spanish dominion was painted next to the representation of the Aztec capital of Tenochtitlan (Figure 6). A Spaniard, perhaps Cortés or one of the first viceroys, stands in front of a building and extends his hand. This is analogous to the ancestral lineage founders depicted in front of their palaces throughout the Huamantla Map, and probably signifies the establishment of colonial authority in Mexico City, built over the ruins of Tenochtitlan.

The third sign cluster showing post-conquest events fills the southeastern third of the map. The central element is a mountain sign with three trees on its summit and a deer, a snake, and two agave cacti in its interior. This is a toponymic sign representing Huamantla; as noted, the modern name is derived from the Nahuatl word *Cuauhāntlān*, ‘Next to the Forest’ (Figure 7). Surrounding it are several architectural representations with seated men bearing flowers, probably representing the barrios or political divisions of Huamantla and their associated lineage founders. There are also depictions of men cultivating fields, as well as local flora and fauna. Huamantla emerged as a regional political center in the second half of the 16<sup>th</sup> century, largely due to the founding there of a Franciscan convent. The representation of the convent of San Luis, with a cloister and the open chapel that

21 For a summary of several Spanish accounts, see Gibson (1967, 15-21).

served as a place for the celebration of mass while the church was being built, and a bare-foot friar between the two buildings, provide a *terminus post quem* for the painting of the Huamantla Map, as we know that the convent's founding was authorized in 1567 and that construction began two years later (Gibson 1967, 48; Wright-Carr 2014).

The author of the Huamantla Map deployed a complex pattern of geographic signs to provide the cartographic structure required to communicate the embeddedness of his people in the parts of the physical landscape that were most relevant to their collective memory. The processed *xi*-skin of trees was transformed into the living *xi*-surface of the Earth, generating a symbolic space into which he layered patterns of signs expressing significant events that determined the relationship of his people with the land, the cosmos, and neighboring populations. The historical narrative painted into this pictorial landscape has a broad scope, from the origins of deities and ancestors in the misty past to the transformation of Huamantla into a regional capital in colonial New Spain. This large fig-bark surface was a tool for cognitive extension, permitting the externalization of communal oral tradition and the interaction of living, mindful bodies with this tradition in ways that would have been impossible without this remarkable physical manifestation of socially situated visual cognition.

### Final considerations: performing the map

Mesoamerican manuscripts were far more than repositories for verbal discourse recorded with visual signs, or mnemonic devices to aid in the declamation of oral tradition. The paintings constituted a language in themselves, and their performance had several potential dimensions. Visual and verbal discourse were intertwined and in many cases music, dance, theater, and ritual came into play.

The lyrics of native songs performed in 16<sup>th</sup>-century central Mexico were recorded alphabetically in manuscripts. Long considered as 'poetry' by scholars, they represent the verbal dimension of multimodal performances. Written in Nahuatl, some are designated as *otoncuīcatl*, 'songs of the Otomi', revealing that both language communities participated in this performative tradition (Cantares mexicanos 1994, 2r, 3r, 4v). One such verse shows the interdependence of painting, song, and instrumental music:

I am the singer; we are the old ones. Who will still read the words of the one God, his book, his painted writing, his song, his skin-covered drum, his two-tongued drum, his rattle, his copper bell, his turtle shell, even his rattle stick? The yellow flowers open their corollas. He brings flowers for the face of the Earth. Where will you go? How far will you go? Where will you live? (Cantares Mexicanos 1994, 15r-v).<sup>22</sup>

22 "Nīcuicanītl tīhuebuetque ac yēhuatl yecopoz ylatol ycelteotl yniāmox ynitlacuilol incuīcatl huebuetl teponaztlayacachtīle tzilacatl ayotl yechicahuaztli cueponqui coçahuic xochitl cabui lia xochitl tīpc. cantonyaz cantaciz cantinēmiz". The reference to the "one God" shows the influence – or censorship – of church authorities.

In another verse, a painted book and a drum are essential elements in the creative act of composing a song:

I come, *ya*, to stand, *ya*, in the flowery patio, *ayawe*. The book is still blooming. My skin-covered drum, *wiyya*, the song, my flowery words, *aya*. I compose, *ya*, my creation. I wait for God, *ya*, here and everywhere on the face of the Earth. He is still awaited here, *owaya owaya* (Cantares Mexicanos 1994, 19v).<sup>23</sup>

Friar Diego Durán, writing in the late 16<sup>th</sup> century, tells of the performance of oral declamation, music, and dance in the kingdoms of pre-Hispanic central Mexico:

The young men highly valued knowing how to dance and sing well, and how to lead others in dance. They valued moving their feet to the music, and in coming in on time with the bodily swaying that they do, and with the voice in its time, because their dance is not only governed by the music, but also by the high and low notes of the song, singing and dancing together. There were poets among them that composed these songs, giving a different sound to each song and dance, as we do in our songs, giving rhyme to the sonnet and the octave, and different tones to the tercet for their singing, and thus to the rest (Durán 1967, I, 192).<sup>24</sup>

It was usual for them to dance in the temples, but it was on solemn occasions, and much more often in the royal and lordly houses, since they all had their singers that composed songs about the greatness of their ancestors and of themselves. Especially for Moteuczoma, the lord about whom there is more news, and for Nezahualpiltzintli of Texcoco, they had composed in their kingdoms songs about their greatness, their victories and defeats, their lineages, and their extraordinary riches. I have heard the singing of these songs many times in public dances, although this was done in commemoration of their lords, it gave me great pleasure to hear so many praises and great deeds [...]. There were other singers that composed sacred songs of the greatness and in praise of the gods, and these were in the temples; these singers, the former and the latter, had their salaries and were called *cuicapique*, which means ‘composers of songs’ (Durán 1967, I, 195).<sup>25</sup>

23 “*Niyanoquetzacoya xochi ithuallaitic ayáhue amoxtlincueponi yenobue hueuh huiya cuicatl notlatol aya xochitl in notlayocol innocoya chihua y nocoyachia nica yehua Dios aya auh no huian chialó tlc. yenican obuaya obuaya*”. I have conserved the ‘musical’ syllables, without precise semantic value, of the original song, marked here with cursives.

24 “Preciábanse mucho los mozos de saber bien bailar y cantar y de ser guías de los demás en los bailes. Preciábanse de llevar los pies a son y de acudir a su tiempo con el cuerpo a los meneos que ellos usan, y con la voz a su tiempo. Porque el baile de éstos no solamente se rige por el son, empero también por los altos y bajos, que el canto hace cantando y bailando juntamente. Para los cuales cantares había entre ellos poetas que los componían, dando a cada canto y baile diferente sonada, como nosotros lo usamos con nuestros cantos, dando al soneto y a la octava rima y al terceto sus diferentes sonadas para cantarlos, y así de los demás”.

25 “Muy ordinario era el bailar en los templos, pero era en las solemnidades, y mucho más ordinario era en las casas reales y de los señores, pues todos ellos tenían sus cantores que les componían cantares de las grandezas de sus antepasados y suyas. Especialmente a Motecuhzoma, que es el señor, de quien más noticia se tiene y de Nezahualpiltzintli de Tezcoco, les tenían compuestos en sus reinos cantares de sus grandezas y de sus victorias y vencimientos, y linajes, y de sus extrañas riquezas. Los cuales cantares he oído yo muchas veces cantar en bailes públicos, que aunque era conmemoración de sus señores, me dio mucho contento de oír tantas alabanzas y grandezas. [...] Había otros cantores que componían cantares divinos de las grandezas y alabanzas de los dioses, y éstos estaban en los templos; los cuales, así los unos como los otros, tenían sus salarios, y a los cuales llamaban *cuicapique*, que quiere decir ‘componedores de cantos’”.

With the latter quotes in mind, it is not difficult to imagine a full-bodied performance of the Huamantla Map by an expert in the oral history of the Otomi lords of Huamantla. Standing before the primordial cave at the northeast end, he begins by singing the story of the remote origin of his people at the beginning of time, his body swaying to the rhythm of the song, accompanied by drums and other musical instruments. Dancing around the long strip of bark paper, pointing with a reed cane into the cartographic space painted on its surface, he sings of the creation of the Sun in Teotihuacan and of the migration of his ancestors from the Valley of Mexico into the region east of the Malinche volcano, in the territory defended by the Tlaxcalan confederation. Battles, legitimizing territorial claims based on military victories, are remembered and celebrated. Human sacrifices are described, revealing the cultural tenacity of the Otomi, nominally Christian but publicly declaring the role of their ancestors in the maintenance of sacralized forces of nature, the ancient deities cast out of public buildings but present in the lives and minds of the people. The defeat of Otomi warriors at the hands of the Spaniards features prominently in the visual, verbal, and bodily narrative, as does the establishment of Spanish rule in Mexico City. The founding of the Franciscan convent of San Luis is a key part of the story, as its presence in Huamantla established this Otomi town as a regional capital. It is likely that such performances served to enhance the prestige of the lords of Huamantla, legitimizing their political power and ethnic identity through the preservation and reinterpretation of their history, at a time when power and identity were in a constant state of negotiation and redefinition. The Huamantla Map served as a support for and as an extension of the collective memory of the Otomi of eastern Tlaxcala, defining their place in a sacred landscape and their relations with neighboring peoples.

## References cited

- Aguilera, Carmen  
 1984 *Códice de Huamantla: manuscrito de los siglos XVI y XVII, que se conserva en la Sala de Testimonios Pictográficos de la Biblioteca Nacional de Antropología e Historia y en la Biblioteca Estatal de Berlín*, 2 vols. Tlaxcala: Instituto Tlaxcalteca de la Cultura.
- 2000 “Cihuaacóatl, diosa otomí”. *Estudios de Cultura Otopame* 2: 29-43.
- 2001 *Coyolxauhqui: The Mexica Milky Way*. Lancaster: Labyrinthos.
- Baena Ramírez, Angélica  
 2017 “Metonymic and Metaphoric series in the Codex Borgia.” *Visible Language* 51, no. 2: 62-79.
- Baglioni, Piero, Rodorico Giorgi, Marcia Carolina Arroyo, David Chelazzi, Francesca Ridi, and Diana Magaloni Kerpel  
 2011 “On the nature of the pigments of the *General history of the things of New Spain*: The Florentine Codex.” In *Colors between two worlds: The Florentine Codex of Bernardino de Sahagún*, edited by Gerhard Wolf, Joseph Connors, and Louis A. Waldman, 78-105. Firenze: Kunsthistorisches Institut in Florenz, Max-Planck-Institut/Villa I Tatti, The Harvard University Center for Italian Renaissance Studies.
- Bierhorst, John  
 1992 *Codex Chimalpopoca: The text in Nahuatl with a glossary and grammatical notes*, translated and edited by John Bierhorst. Tucson/London: The University of Arizona Press.
- 1998 *History and mythology of the Aztecs: The Codex Chimalpopoca*, 2nd printing. Tucson: The University of Arizona Press.
- Boone, Elizabeth Hill  
 2000 “Venerable place of beginnings: The Aztec understanding of Teotihuacan.” In *Mesoamerica’s classic heritage: From Teotihuacan to the Aztecs*, edited by David Carrasco, Lindsay Jones, and Scott Sessions, 371-395. Boulder: University Press of Colorado.
- Bosque Cantón, Cristina  
 2019 “Representación de Teotihuacan y su territorio en códices y mapas coloniales.” *Anales de Antropología* 53, no. 2: 29-36. <https://doi.org/10.22201/iaa.24486221e.2019.2.67135>.
- Brady, James E., and Keith M. Prufer  
 2005 “Introduction: A history of Mesoamerican cave interpretation.” In *In the maw of the Earth monster: Mesoamerican ritual cave use*, edited by James E. Brady and Keith M. Prufer, 1-17. Austin: University of Texas Press.
- Brundage, Burr Cartwright  
 1988 *The Fifth Sun: Aztec gods, Aztec world*, 2nd printing. Austin: University of Texas Press.
- Cantares Mexicanos  
 1994 *Cantares mexicanos*, facsimile ed. México, D.F.: Instituto de Investigaciones Bibliográficas, Universidad Nacional Autónoma de México (UNAM).
- Carlson, John B.  
 2007-2008 “The Margarita structure panels [at Copán] and the Maya cosmogonic couplet of ancestral emergence: Redux and reemergence.” *Archaeoastronomy* 21: 76-107. <https://www.academia.edu/6105032> (01.09.2020).

- Carrasco Pizana, Pedro  
1987 *Los otomíes: cultura e historia prehispánica de los pueblos mesoamericanos de habla otomiana*, facsimile of the 1950 ed. Toluca: Ediciones del Gobierno del Estado de México.
- Chemero, Anthony  
2009 *Radical embodied cognitive science*. Cambridge/London: The MIT Press.  
2013 “Radical embodied cognitive science.” *Review of General Psychology* 17, no 2: 145-150. <https://doi.org/10.1037/a0032923>.
- Christensen, Bodil, and Samuel Martí  
1979 *Witchcraft and pre-Columbian paper/Brujerías y papel precolombino*, 3<sup>rd</sup> ed. México, D.F.: Ediciones Euroamericanas.
- Codex of Huamantla  
2017 “Codex of Huamantla.” *World Digital Library*. <https://www.wdl.org/en/item/3244/> (28.3.2020).
- Codex Telleriano-Remensis  
2012 “Mexicain 385: Codex Telleriano-Remensis.” Bibliothèque nationale de France: Gallica. <https://gallica.bnf.fr/ark:/12148/btv1b8458267s> (01.09.2020).
- Davies, Claude Nigel Byam  
1968 *Los señoríos independientes del imperio azteca*. México, D.F.: Instituto Nacional de Antropología e Historia (INAH).
- Dehouve, Danièle  
2015 “Metáforas y metonimias conceptuales en las representaciones antropomórficas del maíz.” In *Múltiples formas de ser nahuas: miradas antropológicas hacia representaciones, conceptos y prácticas*, edited by Catharine Good Eshelman and Dominique Raby, 37-57. Zamora: El Colegio de Michoacán.  
2018 “The New Fire and corporal penance: Comparative perspectives between the Tlapanecs and the Aztecs.” In *Smoke, flames, and the human body in Mesoamerican ritual practice*, edited by Vera Tiesler and Andrew K. Scherer, 411-434. Washington, D.C.: Dumbarton Oaks Research Library and Collection.
- Díaz del Castillo, Bernal  
2001 *Historia verdadera de la conquista de la Nueva España escrita por Bernal Díaz del Castillo: código autógrafa*. Tuxtla Gutiérrez/Ciudad Real/México, D.F.: Gobierno del Estado de Chiapas/ Universidad de Castilla-La Mancha/Porrúa.
- Dow, James Winslow  
1982 “Las figuras de papel y el concepto de alma entre los otomíes de la Sierra.” *América Indígena* 42, no. 4: 629-650.  
1986 *The shaman's touch: Otomi Indian symbolic healing*. Salt Lake City: The University of Utah Press.  
1990 *Santos y supervivencias*, 1st reprint, translated by Antonieta S. M. de Hope. México, D.F.: Consejo Nacional para la Cultura y las Artes (Conaculta)/Instituto Nacional Indigenista (INI).
- Durán, Diego  
1967 *Historia de las Indias de Nueva España e islas de tierra firme*, 2 vols., editado por Ángel María Garibay Kintana. México, D.F.: Porrúa.

- Echegoyen G., Artemisa, and Katherine Voigtlander M.  
 2007 *Diccionario yuhú (otomí de la Sierra Madre Oriental): estados de Hidalgo, Puebla y Veracruz, México*, preliminary edition. México, D.F.: Instituto Lingüístico de Verano (ILV).
- Fash, William L., Alexandre Tokovinine, and Barbara W. Fash  
 2009 “The house of New Fire at Teotihuacan and its legacy in Mesoamerica.” In *The art of urbanism: How Mesoamerican cities represented themselves in architecture and imagery*, edited by William L. Fash and Leonardo López Luján, 201-229. Washington, D.C.: Dumbarton Oaks Research Library and Collection.
- Galinier, Jacques  
 1987 *Pueblos de la Sierra Madre, etnografía de la comunidad otomí*, translated by Mariano Sánchez Ventura and Philippe Chéron. México, D.F.: Instituto Nacional Indigenista (INI)/Centre d’Études Méxicaines et Centraméricaines (CEMCA).  
 2004 *The world below: Body and cosmos in Otomi Indian ritual*, translated by Phyllis Aronoff and Howard Scott. Boulder: University Press of Colorado.
- Gallardo Arias, Patricia  
 2012 *Ritual, palabra y cosmos otomí: yo soy costumbre, yo soy de antigua*. México, D.F.: Instituto de Investigaciones Históricas, Universidad Nacional Autónoma de México (UNAM).  
<http://www.historicas.unam.mx/publicaciones/publicadigital/libros/ritualpalabra/cosmos.html> (28.3.2020).
- Garibay Kintana, Ángel María  
 1957 *Supervivencias de cultura intelectual precolombina entre los otomíes de Huizquilucan*. México, D.F.: Instituto Indigenista Interamericano (III).
- Gibson, Charles  
 1967 *Tlaxcala in the sixteenth century*, reprint of the 1<sup>st</sup> ed. Stanford: Stanford University Press.
- Glass, John B., and Donald Robertson  
 1975 “A census of native Middle American pictorial manuscripts.” In *Handbook of Middle American Indians, Volume fourteen: Guide to ethnohistorical sources, Part three*, edited by Howard F. Cline, Charles Gibson, and Henry B. Nicholson, 81-252. Austin: University of Texas Press.
- Hernández Cruz, Luis, Moisés Victoria Torquemada, and Donald Sinclair Crawford  
 2010 *Diccionario del hñähñu (otomí) del Valle del Mezquital, estado de Hidalgo*, 2<sup>nd</sup> ed. (digital). México, D.F.: Instituto Lingüístico de Verano (ILV).  
[https://www.sil.org/system/files/ reapdata/92/05/99/92059927774128627662217754267521144782/ote\\_diccionario\\_ed2.pdf](https://www.sil.org/system/files/ reapdata/92/05/99/92059927774128627662217754267521144782/ote_diccionario_ed2.pdf) (28.3.2020).
- Heyden, Doris  
 2005 “Rites of passage and other ceremonies in caves.” In: *In the maw of the Earth monster: Mesoamerican ritual cave use*, edited by James E. Brady and Keith M. Prufer, 1-17. Austin: University of Texas Press.
- Huamantla Map  
 ca. 1567-1598a Fragment 1, Biblioteca Nacional de Antropología e Historia, México, D.F., Testimonios Pictográficos 35-22.  
 ca. 1567-1598b Fragment 2, Biblioteca Nacional de Antropología e Historia, México, D.F., Testimonios Pictográficos 35-40.

- ca. 1567-1598c Fragment 3, Biblioteca Nacional de Antropología e Historia, México, D.F., Testimonios Pictográficos 35-37.
- ca. 1567-1598d Fragment 4, Biblioteca Nacional de Antropología e Historia, México, D.F., Testimonios Pictográficos 35-41.
- ca. 1567-1598e Fragment 5, Biblioteca Nacional de Antropología e Historia, México, D.F., Testimonios Pictográficos 35-2.
- ca. 1567-1598f Fragment 6, Biblioteca Nacional de Antropología e Historia, México, D.F., Testimonios Pictográficos 35-55.
- ca. 1567-1598g Fragment 7 (Humboldt Fragment III), Staatsbibliothek zu Berlin – Preussischer Kulturbesitz, Manuscripta americana 1: 10.
- ca. 1567-1598h Fragment 8 (Humboldt Fragment IV), Staatsbibliothek zu Berlin – Preussischer Kulturbesitz, Manuscripta americana 1: 9.
- ca. 1567-1598i Fragment 9 (incorporated as a support in the Iztapalapa Codex), Biblioteca Nacional de Antropología e Historia, México, D.F., Testimonios Pictográficos 35-107: 1.
- Huerta Carrillo, Alejandro, and Eugenia Berthier Villaseñor  
2001 “Códice de Huamantla, investigación de materiales originales.” *Antropología: Boletín Oficial del Instituto Nacional de Antropología e Historia* 61: 40-57.
- Johansson K., Patrick  
2019 “Año 1 ácatl, ‘1 caña’ (1519): un encuentro de dos epistemes.” *Arqueología Mexicana* 27, no. 159: 13-17.
- Johnson, Mark  
2007 *The meaning of the body: Aesthetics of human understanding*. Chicago/London: The University of Chicago Press.
- Lakoff, George, and Mark Johnson  
1999 *Philosophy in the flesh: The embodied mind and its challenge to Western thought*. New York: Basic Books.
- Lastra, Yolanda  
1997 *El otomí de Ixtenco*. México, D.F.: Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México (UNAM).
- Leibsohn, Dana  
1995 “Colony and cartography: Shifting signs on indigenous maps of New Spain.” In *Reframing the Renaissance: Visual culture in Europe and Latin America, 1450-1650*, edited by Claire Farago, 264-281. New Haven/London: Yale University Press.  
2000 “Mapping after the letter: Graphology and indigenous cartography in New Spain.” In *The language encounter in the Americas, 1492-1800: A collection of essays*, edited by Edward G. Gray and Norman Fiering, 119-151. New York/Oxford: Berghahn Books.
- López Austin, Alfredo  
1989 *Cuerpo humano e ideología: las concepciones de los antiguos nahuas*, 3<sup>rd</sup> ed., 2 vols. México, D.F.: Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México (UNAM).
- McKeever Furst, Jill Leslie  
1995 *The natural history of the soul in ancient Mexico*: New Haven/London: Yale University Press.

- Motolinía (Toribio de Benavente)  
 1989 *El libro perdido: ensayo de reconstrucción de la obra histórica extraviada de fray Toribio*, coordinated by Edmundo O’Gorman. México, D.F.: Consejo Nacional para la Cultura y las Artes (Conaculta).
- Mundy, Barbara E.  
 1996 *The mapping of New Spain: Indigenous cartography and the maps of the relaciones geográficas*. Chicago/London: The University of Chicago Press.
- Muñoz Carmargo, Diego  
 1984 “Descripción de la ciudad y provincia de Tlaxcala.” In *Relaciones geográficas del siglo XVI: Tlaxcala*, vol. 1, edited by René Acuña, 23-285. México, D.F.: Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México (UNAM).
- Nielsen, Jesper, and Christophe Helmke  
 2018 “‘Where the Sun came into being’: Rites of pyrolatry, transition, and transformation in Early Classic Teotihuacan.” In *Smoke, flames, and the human body in Mesoamerican ritual practice* edited by Vera Tiesler and Andrew K. Scherer, 77-107. Washington, D.C.: Dumbarton Oaks Research Library and Collection.
- Olivier, Guilhem, and Leonardo López Luján (coords.)  
 2010 *El sacrificio humano en la tradición religiosa mesoamericana*. México, D.F.: Instituto Nacional de Antropología e Historia (INAH)/Instituto de Investigaciones Históricas, Universidad Nacional Autónoma de México (UNAM).
- Pohl, John M. D., and Javier Urcid  
 2014 “Cuevas sagradas y sagas de migración: peregrinajes, alianzas y redes de intercambio en el suroeste de Mesoamérica durante la época Postclásica.” In *Panorama arqueológico: dos Oaxacas*, edited by Marcus Winter and Gonzalo Sánchez Santiago, 111-133. Oaxaca: Centro INAH Oaxaca, Instituto Nacional de Antropología e Historia (INAH).
- Ramos de Cárdenas, Francisco  
 2013 *La relación geográfica de Querétaro de 1582*, edited by Juan Ricardo Jiménez Gómez and David Charles Wright-Carr. Querétaro: Instituto de Estudios Constitucionales, Poder Ejecutivo del Estado de Querétaro.
- Russo, Alessandra  
 2005 *El realismo circular: tierras, espacios y paisajes de la cartografía indígena novohispana, siglos XVI y XVII*. México, D.F. Instituto de Investigaciones Estéticas, Universidad Nacional Autónoma de México (UNAM).
- Sahagún, Bernardino de  
 2012 “Historia general de las cosas de Nueva España por el fray Bernardino de Sahagún: El Códice florentino.” *World Digital Library*. <https://www.wdl.org/es/item/10096/> (28.03.2020).
- Sampson, Geoffrey  
 2015 *Writing systems*, 2<sup>nd</sup> ed. Sheffield/Bristol: Equinox Publishing.
- Sandstrom, Alan R.  
 1981 *Traditional curing and crop fertility rituals among Otomi Indians of the Sierra de Puebla, Mexico: The López manuscripts*. Bloomington: Indiana University Museum.

- Seemann Conzatti, Emilia  
 1990 *Usos del papel en el calendario ritual mexicana*. México, D.F.: Instituto Nacional de Antropología e Historia (INAH).
- Shapiro, Lawrence  
 2011 *Embodied cognition*. London/New York: Routledge.  
 2014 "Introduction." In *The Routledge handbook of embodied cognition*, edited by Lawrence Shapiro, 1-6. London/New York: Routledge.
- Sheets-Johnstone, Maxine  
 2018 "If the body is part of our discourse, why not let it speak? Five critical perspectives." In *Surprise: An emotion?*, edited by Natalie Depraz and Anthony J. Steinbock, 83-95. Cham: Springer.
- Smith Stark, Thomas C.  
 1994 "Mesoamerican calques." In *Investigaciones lingüísticas en Mesoamérica*, edited by Carolyn J. MacKay and Verónica Vázquez, 15-50. México, D.F.: Instituto de Investigaciones Filológicas, Universidad Nacional Autónoma de México (UNAM).
- Suárez Cruz, Sergio  
 2009 "Matlalcueye: una montaña sagrada en el valle poblano-tlaxcalteca." In *Matlalcuéyetl: visiones plurales sobre cultura, ambiente y desarrollo*, vol. 1, coordinated by Francisco Castro Pérez and Tim M. Tucker, 335-355. Tlaxcala: El Colegio de Tlaxcala/Consejo Nacional para la Ciencia y la Tecnología (Conacyt)/Mesoamerican Research Foundation.
- Varela, Francisco J., Evan Thompson, and Eleanor Rosch  
 1993 *The embodied mind: Cognitive science and human experience*. Cambridge/London: The MIT Press.
- Von Hagen, Victor Wolfgang  
 1999 *The Aztec and Maya papermakers*, facsimile of the 1944 ed. New York: Dover.
- Ward, Dave, and Mog Stapleton  
 2012 "Es are good; cognition as enacted, embodied, embedded, affective and extended." In *Consciousness in interaction: The role of natural and social context in shaping consciousness*, edited by Fabio Paglieri, 89-104. Amsterdam/Philadelphia: John Benjamin.
- Wiedemann, Hans G., and Andreas Boller  
 1996 "Thermal analysis of Codex Huamantla and other Mexican papers." *Journal of Thermal Analysis* 46: 1033-1045.
- Wimmer, Alexis  
 s.d. "Dictionnaire de la langue Nahuatl classique." <http://sites.estvideo.net/malinal/> (28.03.2020).
- Wright-Carr, David Charles  
 2005 *Los otomíes: cultura, lengua y escritura*, 2 vols., PhD thesis. El Colegio de Michoacán, Zamora. <https://colmich.repositorioinstitucional.mx/jspui/handle/1016/418> (28.03.2020).  
 2009 "El calendario mesoamericano en las lenguas otomí y náhuatl." *Tlalocan* 16: 217-253 <https://revistas-filologicas.unam.mx/tlalocan/index.php/tl/article/view/205> (28.03.2020).  
 2010 "Historia, legitimación y relaciones interétnicas en el Mapa de Huamantla." In *Memorias del 53° ICA*. Digital edition. México, D.F. Universidad Iberoamericana/International Congress of Americanists. <https://www.researchgate.net/publication/235355768> (28.03.2020).

- 2011 “La tinta negra, la pintura de colores: los difrasismos metafóricos translingüísticos y sus implicaciones para la interpretación de los manuscritos centromexicanos de tradición indígena.” *Estudios de Cultura Náhuatl* 42: 285-298.  
<http://www.revistas.unam.mx/index.php/ecn/article/view/26563> (28.03.2020).
- 2012a “Los signos glotográficos en el Códice de Huichapan.” *Relaciones, Estudios de Historia y Sociedad* 33 (132 bis). 33-73.  
<http://www.revistarelaciones.com/index.php/relaciones/article/view/483> (28.03.2020).
- 2012b “*Téotatl tlachinolli*: una metáfora marcial del centro de México.” *Dimensión Antropológica* 19, no. 55: 11-37.  
<https://www.dimensionantropologica.inah.gob.mx/?cat=1876> (28.03.2020).
- 2014 “El convento de Huamantla en las fuentes indígenas.” In *Ilusión y conceptos, ensayos sobre arte*, digital edition, edited by Salvador Salas Zamudio, 293-319. Guanajuato: Universidad de Guanajuato.
- 2015 “One culture, two languages: What calques tell us about central Mexican society at the time of the Spanish conquest.” In *Perspectivas sobre la investigación cualitativa/Perspectives on qualitative research*, edited by M. Martha Lengeling and Irasema Mora Pablo, 457-468. Guanajuato: Departamento de Lenguas, División de Ciencias Sociales y Humanidades, Campus Guanajuato, Universidad de Guanajuato.
- 2016a *Lectura del náhuatl: versión revisada y aumentada*. México, D.F.: Instituto Nacional de Lenguas Indígenas (INALI).  
[https://site.inali.gob.mx/publicaciones/libro\\_lectura\\_nahuatl/pdf/lectura\\_del\\_nahuatl.pdf](https://site.inali.gob.mx/publicaciones/libro_lectura_nahuatl/pdf/lectura_del_nahuatl.pdf) (28.03.2020).
- 2016b “The three souls of the Otomi.” *Acta Classica Universitatis Scientiarum Debreceniensis* 53: 179-195.
- 2017 “Signs of resistance: Iconography and semasiography in Otomi architectural decoration and manuscripts of the early colonial period.” *Visible Language* 51, no. 1: 58-87.  
<http://visiblelanguagejournal.com/issue/242> (28.03.2020).
- 2018 “Sacred reptiles and native worldview: Enactive aesthetics in ancient Mesoamerica.” In *Proceedings of A Body of Knowledge – Embodied Cognition and the Arts conference, CTSA UCI 8-10 Dec 2016*. Oakland: eScholarship, California Digital Library, University of California.  
<https://escholarship.org/uc/item/7548b88w> (28.03.2020).
- 2019a “Embodied cognitive science, aesthetics, and the study of visual language.” *The Polish Journal of Aesthetics* 52: 57-71.  
<http://academic-journals.eu/pl/czasopisma/the-polish-journal-of-aesthetics/n,140> (28.3.2020).
- 2019b On the classification of graphs in Central Mexican pictorial writing. In *Indigenous graphic communication systems, a theoretical approach*, edited by Katarzyna Mikulska and Jerome A. Offner, 25-40. Louisville: University Press of Colorado.