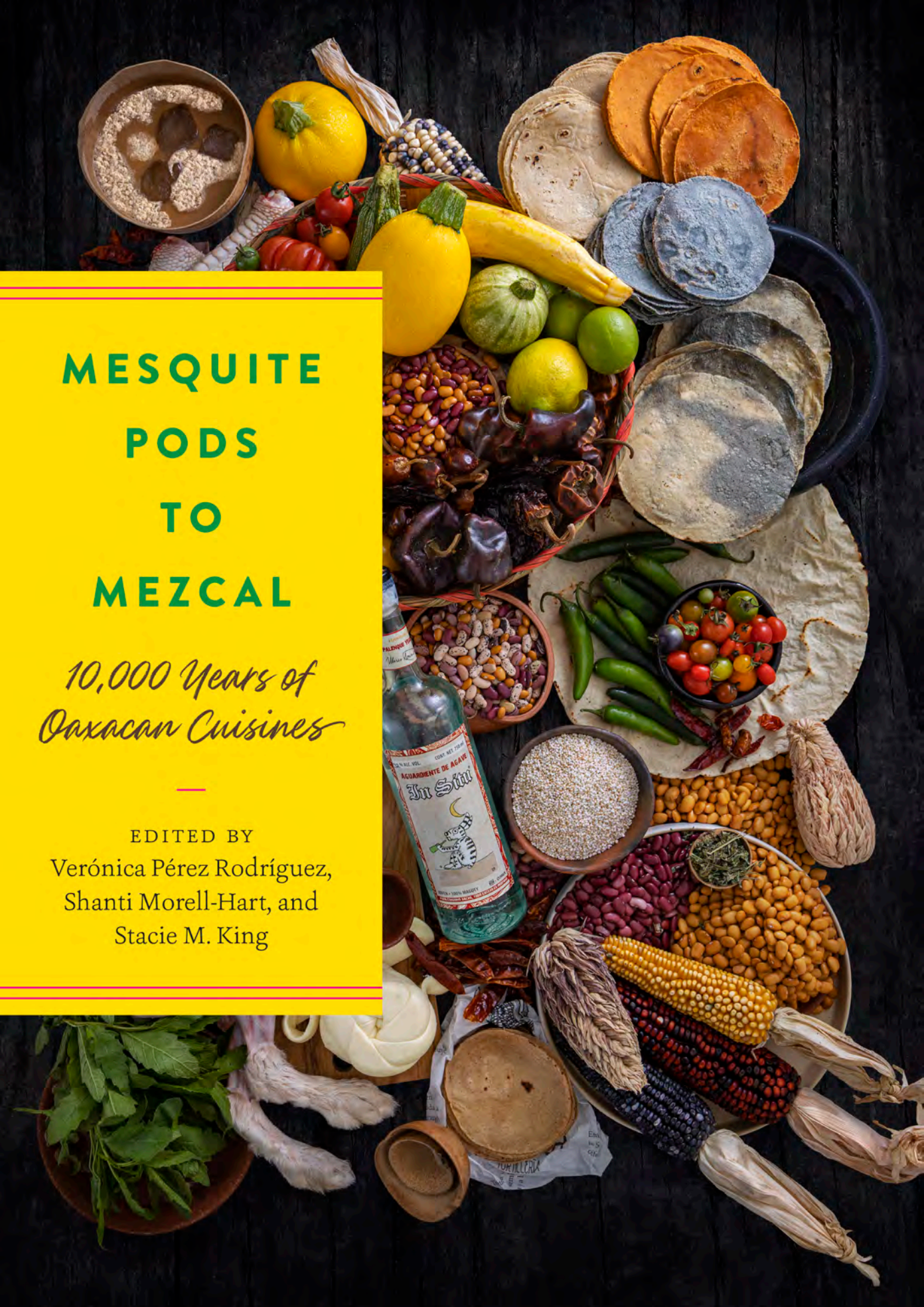
MESQUITE
PODS
TO
MEZCAL
10,000 Years of
Oaxacan Cuisines
EDITED BY
Verónica Pérez Rodríguez,
Shanti Morell-Hart, and
Stacie M. King
ACUARDIENTE DE AGAVE
In Situ

This series was made possible through the generosity of William C. Nowlin Jr. and Bettye H. Nowlin, the National Endowment for the Humanities, and various individual donors.

Printed in the United States of America
First edition, 2024

♾ The paper used in this book meets the minimum requirements of ANSI/NISO Z39.48-1992 (R1997) (Permanence of Paper).

Library of Congress Cataloging-in-Publication Data

Names: Pérez Rodríguez, Verónica, editor. | Morell-Hart, Shanti, editor. | King, Stacie M., editor.
Title: Mesquite pods to mezcal : 10,000 years of Oaxacan cuisines / edited by Verónica Pérez Rodríguez, Shanti Morell-Hart, and Stacie M. King.
Description: First edition. | Austin : University of Texas Press, 2024. | Includes bibliographical references and index.
Identifiers:
LCCN 2023014315
ISBN 978-1-4773-2796-8 (cloth)
ISBN 978-1-4773-2797-5 (PDF)
ISBN 978-1-4773-2798-2 (ePub)
Subjects: LCSH: Cooking—Mexico—Oaxaca (State)—History. | Mixtec Indians—Food—Mexico—Oaxaca (State)—History. | Zapotec Indians—Food—Mexico—Oaxaca (State)—History. | Food habits—Mexico—Oaxaca (State)—History. | Mixtec cooking—History. | Zapotec cooking—History. | Diet—Mexico—Oaxaca (State)—History. | LCGFT: Essays.
Classification: LCC TX716.M4 M469 2024 | DDC 641.5972—dc23/eng/20230417
LC record available at https://lccn.loc.gov/2023014315

doi:10.7560/327968

CHAPTER 14

MAIZE CUISINE ON THE MOVE IN THE TWENTY-FIRST CENTURY

PERSISTENCE AND MIGRATION OF *TEJATE*, A TRADITIONAL MESOAMERICAN MAIZE AND CACAO BEVERAGE

Daniela Soleri, María del Carmen Castillo Cisneros, Flavio Aragón Cuevas, and David A. Cleveland

> Cántame Tacha una rancherita
> Porque el recuerdo me va a matar
> Cántame Tacha de esas bonitas
> De esas que a un hombre lo hacen llorar
>
> (Sing to me Tacha a rancherita
> Because the memory is going to kill me
> Sing to me Tacha of these beautiful things
> Of these things that make a man cry)
>
> LILA DOWNS, "EL CORRIDO DE TACHA 'LA TEIBOLERA'" FROM LA CANTINA (2006)

In Lila Downs's song "El corrido de Tacha 'La Teibolera,'" the fourteen-year-old Tacha has escaped an unpleasant part of the culture of her home pueblo, an arranged marriage to an older man, and fled to the city. In the city, the narrator-protagonist of the song, who seems also to be an escapee from *el campo*, is moved to tears by memories of the beautiful things Tacha sings of in the *rancherita* (little country song), things he too has left behind. This song captures the core challenge for people in the process of social change: how to leave behind the bad in the search for better options but keep the good. In contrast, modernization has more often been a process of "creative

destruction" (Schumpeter 1975 [1942]) that wipes away both the good and the bad, often replacing them with options both better and worse.

In the case of agriculture, most "development" professionals see the goal of modernization as replacing traditional systems and small-scale farmers. During the birth of the Green Revolution in Mexico, the decision was made to focus on larger-scale, more industrialized agriculture rather than small-scale maize farmers (Jennings 1988). This policy has been reinforced by the Mexican government's neoliberal economic and agricultural policies since the 1980s, especially the North American Free Trade Agreement (NAFTA) (González and Macías 2017). NAFTA resulted in the loss of 4.9 million small-scale ("family") farm jobs in Mexico from 1991 to 2007, a result anticipated by NAFTA proponents, since small-scale farmers would not be able to compete with subsidized US production. Those proponents assumed that these displaced farmers would shift to modern export agriculture and industrial jobs (Nadal and Wise 2004; Weisbrot et al. 2014:14). NAFTA further integrated the Mexican food system into the global industrial food system, often with traditional, healthy foods being replaced by unhealthy, ultraprocessed foods (Clark et al. 2012). The United States–Mexico-Canada Agreement, which replaced NAFTA and went into effect on July 1, 2020, continues NAFTA's provision for tariff- and quota-free import of US maize into Mexico (Zahniser et al. 2019) and seems likely to continue NAFTA's effect on small-scale Mexican maize farmers.

In addition to these policies, increasing population density, environmental degradation, and climate change have made it more and more difficult for small-scale maize farmers to continue farming, including in Oaxaca, as they themselves have noted (Soleri et al. 2022). Yet in their search for better alternatives in Oaxaca City, elsewhere in Mexico, or in the United States, these farmers do not want to give up all that is good, including their traditional cuisines and foods.

Re-creation of traditional foods is an act of selective resistance against the expectation of modernization that cultural assimilation and the abandonment of traditions, including cuisines, is inevitable and "best." It is also resistance against the current global nutrition transition toward a diet of generic junk food (energy rich, nutrient poor), which brings with it noncommunicable diseases (NCDs) such as diabetes, heart disease, cancer, and tooth decay (Hawkes 2007). This transition often happens after individuals migrate from rural Mexico to the United States, with children more likely to adopt new, less healthy, standard US diets (Van Hook et al. 2018), which are more likely to result in NCDs compared to traditional Mexican diets (Santiago-Torres et al. 2015).

Our chapter explores the selective resistance to modernization through a focus on *tejate*. *Tejate* belongs to a family of maize and cacao beverages found across Mesoamerica that sometimes include other herbs and plant

FIGURE 14.1. Homemade *tejate* (*top*), with masas for preparing more (*bottom*). (Photograph © Daniela Soleri; used with permission.)

additives in their recipes (Henderson and Joyce 2006; Soleri and Cleveland 2007; Soleri et al. 2008). These beverages are often frothed and served with a foamy surface layer. In the Central Valleys of Oaxaca (see fig. 1.4), Zapotec communities prepare *tejate* using maize nixtamalized with ashes (*cuanextle*) and a ground mixture of individually toasted *cacao rojo* (*Theobroma cacao*), *rosita de cacao* blossoms (*Quararibea funebris*), *pixtle* (mamey seed, *Pouteria sapota*), and in some areas *cacao blanco* (*T. bicolor*), *cocoyul* (*Acrocomia aculeat*), or other more widely known additional ingredients, such as coconut, peanut, or walnut (Soleri et al. 2008). The *cuanextle* is typically ground to form a dough, *masa de cuanextle*, and separately the other toasted ingredients are ground together to form the *masa de pixtle*, after which the two masas are ground together, and then by hand the combined masa is mixed with water and frothed (see fig. 14.1).

As people from the Zapotec communities of Oaxaca's Central Valleys have migrated to other places, including the United States, *tejate* has accompanied them. In this chapter, we describe the history and cultural significance of *tejate*, document its presence in one of these Oaxacan communities, and reveal its transformation and persistence as it moves to greater Los Angeles, California. To understand this case study in its larger context, we ask the

following question: How do cuisines, foods, and the crop varieties used as ingredients in those foods change when people migrate and resist the dominant narrative of modernization by re-creating foods emblematic of their traditional cuisine in new locations?

A FRAMEWORK FOR INVESTIGATING THE MOVEMENT OF TRADITIONAL FOODS AND CROP VARIETIES

As the territories of some culturally significant traditional foods and even entire cuisines expand, a number of possible cultural and crop diversity outcomes arise. To conceptualize this process, we have suggested a framework based on changes in the relationship of a food and the crop diversity associated with it over space and time (see fig. 14.2) (Soleri et al. 2008). Environmental, cultural, agronomic, and other factors influence whether a food and its crop diversity will take one or several pathways together or separately as they move from the migrants' home communities, as we will discuss for the case of *tejate*. The framework allows comparison among foods and crops and can help identify variables important for particular outcomes of the movement of traditional foods and/or crops.

The movement and use of crop species and varieties in new locations is a global phenomenon. The so-called "Columbian exchange" (Crosby 2003) is one of the most well-known examples, but there are many others, including in the archaeological literature (see, e.g., Berman and Pearsall 2008); we give some examples relevant to *tejate* in the following discussion. The movement of crop species can occur as a food ingredient or as germplasm to be grown in the new location, and may or may not be the variety of that crop which was used in the traditional food. We use the term "cuisine" to refer to the full culinary traditions of a cultural group. Cuisines comprise foods that can vary in many ways, including in their cultural significance, dietary importance, and ingredients. We use the term "recipe" to specify particular ingredients, methods, and technologies used to prepare a food; there may be multiple and diverse recipes for a food. In what follows, we describe different possible pathways in this framework for the movement of traditional foods and associated crop diversity.

TRADITIONAL FOODS AND CROP DIVERSITY

Evidence supports the positive association among cultural, culinary, and crop diversity, both at the species and intraspecific (varietal or other) levels. For example, in Mexico, different varieties of maize with different characteristics are used for different cuisines and foods in different regions of the country (Fernández Suárez et al. 2013), and local maize varieties are valued above

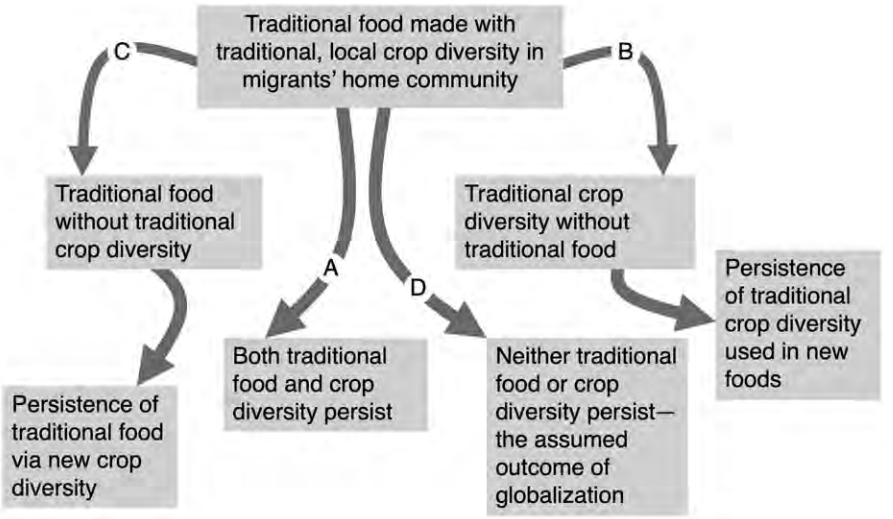

FIGURE 14.2. A conceptual framework for understanding the migration and transformation of traditional foods. Pathways A through D show the migration of traditional foods and crop diversity. (Based on Soleri et al. 2008; used with permission.)

modern industrial varieties for their culinary qualities and are economically important for small-scale traditional farmers (Boué et al. 2018).

Here, we review examples of the pathways in our framework to show how migration affects this association among cultural, culinary, and crop diversity. The examples focus on the crops comprising the main ingredients of *tejate*, with some relevant examples of other crops and foods.

Movement of Crops and Foods into a New Area

Maize and the maize cuisines of Mexico are highly valued and widely recognized (Echeverría and Arroyo 2000; UNESCO 2010), and both have been globalized, though not always simultaneously. Maize was domesticated around 7000 BCE in what is now southwestern Mexico, presumably in the Balsas River Valley (Piperno et al. 2009; Stitzer and Ross-Ibarra 2018). After domestication, maize moved outward from Mesoamerica, including to northern North America, and was selected by farmers and those environments for adaptation in these new contexts (Swarts et al. 2017). The primary processing method for the dried grain, nixtamalization (alkaline processing that creates nutritionally important improvements in amino acid and niacin availability) during cooking, accompanied maize in its northern expansion (see pathway A, fig. 14.2). An early analysis of archaeological and historical evidence of Indigenous maize processing and consumption in what is now the United States found that of 14 populations that cultivated maize, only one (Tohono O'odham) did not use a form of alkaline maize processing, purportedly because those data documented them as eating maize only as a green vegetable (Katz et al. 1974) (see pathway B, fig. 14.2).

The Amazon is the center of origin for cacao (*Theobroma cacao*) and home

to its wild relatives, which were distributed throughout the region by both human and natural processes (Thomas et al. 2012). Extensive use of cacao and possible domestication was occurring in the northwestern Amazon as early as ca. 3300 BCE (Zarrillo et al. 2018). There is also evidence of a Mesoamerican selection of the Criollo cacao group around 1600 BCE (Cornejo et al. 2018), with reduced bitterness in the bean a major criterion. *T. cacao* traveled north with human migrants from the Amazon, and the primary recipe for use of *T. cacao* in a beverage is thought to have changed after arrival in Mesoamerica. Archaeological evidence suggests that among multiple uses for the plant, a common preparation of cacao in Amazonia was fermentation of the fruit pulp to make a beverage (Zarrillo et al. 2018), for which there is also early evidence in Mesoamerica. The cacao-seed-based beverages found throughout historic and contemporary Mesoamerica may be a method of preparation extensively elaborated after introduction of the species to that region (Henderson et al. 2007), marking a shift from pathway A to pathway B (see fig. 14.2).

The "Columbian exchange" following the European invasion and looting of the "New World" brought significant movement of crops out of their centers of origin and domestication (Crosby 2003), removing them from the context of their traditional foods and accompanying processing and preparation. Sometimes these crops were then incorporated into existing cuisines, replacing previous crops. This was the case with maize, introduced to Spain at the end of the fifteenth century (Tenaillon and Charcosset 2011), replacing barley and wheat for use in porridges such as polenta (see pathway B, fig. 14.2). Because European use occurred without traditional processing by nixtamalization, it led to widespread incidence of pellagra in European populations that consumed maize as their staple (Mariani-Costantini and Mariani-Costantini 2007).

In other cases, a food central to a cuisine precedes the arrival of the crop species it is made with: for example, when migrants seek to re-create a traditional food in their new home, even when the crop central to that food is not available (see pathway C, fig. 14.2). Before the Ethiopian grain teff (*Eragrostis tef*) became available in New York City in the 1990s, Ethiopian American cooks there experimented with wheat flours, pancake mixes, baking soda, and beer to re-create *injera*, a culturally important Ethiopian bread traditionally made from fermented teff flour (Weil 2007).

Even if the crop species is available for a traditional food in a new location, frequently the varieties associated with the original use do not travel with the food. Today the most globalized food of Mexican cuisine, the soft maize tortilla, is reproduced worldwide but with a recipe that is usually altered and does not contain the traditionally used maize varieties (see pathway C, fig. 14.2). The maize tortilla found in many countries is mass-produced from the grain of industrial hybrid maize that is nixtamalized with lime and ground, dried, and reground to produce a dry maize flour. Maseca, a major

global brand of dry maize flour, is produced by the private Mexican company Gruma, with net sales of US$4.1 billion in 2019, of which 73% came from non-Mexican operations, including factories in China, Malaysia, and Russia. Finally, pathway D (see fig. 14.2) represents the dietary acculturation and resulting nutritional transition (Hawkes 2007) experienced by many migrants to industrialized countries (Satia 2010) when neither traditional foods nor crop varieties are a part of their new diets.

Crop Varietal Diversity

Crop varietal diversity can be an important source of genetic and phenotypic variation within crop species. For farming communities, varietal diversity can reduce risk: for example, when different varieties of a crop, sometimes even differentiated at the level of subpopulations of ecogeographic races, are adapted to a range of growing environments and practices, as is the case for the common bean (*Phaseolus vulgaris*) in the Sierra Juárez of Oaxaca (Worthington et al. 2012). Varietal diversity may be protected by traditional culinary preferences, even when agronomic characteristics such as yield show much less benefit. Farming communities in New Mexico rejected hybrid maize in favor of the taste and cooking qualities of their traditional maize variety, even though its yields were one-third those of the hybrid (Apodaca 1952). Varietal diversity may also respond to the technologies used, and it may change as those technologies change. For example, Hopi Indigenous maize farmers reported having several different blue maize varieties, including a soft-grained gray-blue variety, appreciated for the ease of shelling and grinding (Soleri and Cleveland 1993). As mechanical shelling and grinding became available, however, the varietal diversity of some farmers' blue maize crops was reduced when they decided not to maintain the gray variety. Other factors contributing to the loss of the gray variety were that it did not impart the desired blue color to foods and was not as drought resistant as other blue varieties.

The movement of a traditional food may include movement of a specific crop variety as well. After the Spanish invasion of what is now Mexico, plants of the domesticated Criollo cacao group were taken by the Spanish from Mexico to their colony in current-day Philippines (Bartley 2005:260). A variation of a Mesoamerican chocolate beverage was made for the upper classes in that colony using the Criollo cacao crop and Mesoamerican tools, including the *mano*, *metate*, and *molinillo*, as well as Mesoamerican preparation methods (Young 1994), following pathway A (see fig. 14.2).

Migrants often transport propagules of particular crops and varieties to their new locations to provide their favored foods and flavors. For example, in Southern California, community gardeners originally from Mexico have brought and maintained diverse varieties of the culinary herb *papaloquelite* (*Porophyllum ruderale*) (Soleri et al. 2019:271). Also in Southern California, community and household gardeners are growing maize varieties from

seeds they have carried from home communities in Mexico (Heraty and Ellstrand 2016).

Varietal diversity may be linked to the movement of foods, but not always, and not always immediately. For example, in the United States, late twentieth-century elite gastronomy movements propelled demand for the varieties of maize thought to be appropriate for "traditional" Italian polenta (Rubel 2010).

THE DIVERSITY AND CULTURAL SIGNIFICANCE OF MAIZE IN OAXACA

The significance of maize encompasses the agricultural, gastronomic, therapeutic, economic, political, religious, and symbolic aspects of the daily lives of the peoples of Mexico (Esteva and Marielle 2003). As noted, maize was domesticated in southern Mexico, which is also a part of the Mesoamerican center of diversity for that crop. Oaxaca is home to 35 of the 59 maize races native to Mexico, and their distribution is related to the biophysical and sociocultural diversity of maize growing environments (Aragón Cuevas et al. 2006), including cuisines. Examples of the use of maize races for specific foods by different ethnic groups in Oaxaca include the following: the Mixtec use Cónico, Mixteco, and Chalqueño for *tetelas*; the Central Valleys Zapotec use Bolita for *tlayudas*; and the Isthmus of Tehuantepec Zapotec use Zapalote Chico for *totopos* (Flavio Aragón Cuevas, field notes).

Indigenous groups in Mexico have long recognized the varietal diversity associated with particular kernel types and colors and their agroecological significance and use for specific foods (Hernández Xolocotzi 1985:423–425). The combination of cultural, agroecological, and culinary value continues to influence farmer preferences for maize colors and varieties (Tuxill et al. 2010). Maize varieties with established culinary uses can have higher niche market value for the farming households that sell them than more common varieties (Appendini and Quijada 2016:452; Keleman et al. 2013), a proposed incentive for varietal conservation among smaller-scale farmers.

There are also special foods prepared with unique varieties of maize. For example, a Bolita variety, *maíz criollo de hoja morada*, has white kernels, but the plant can be purple because of the presence of anthocyanins. In the Central Valleys Zapotec community of Teotitlán del Valle, tamales called *guet bass* are prepared with this maize by wrapping the white masa in the purple husk (*totomoxtle*), resulting in the tamale being "painted" purple (Daniela Soleri and María del Carmen Castillo Cisneros, manuscript in preparation).

The Sierra Mixe community of Santa María Tlahuitoltepec provides an example of the cultural significance of maize in Oaxaca. There, the term *mojkjää'y*, in the variant of Mixe currently spoken, is a combination of *moojk* (maize) and *jää'y* (people), a name with which some inhabitants there still

identify (Castillo Cisneros 2014). The first tamale that a newborn eats is prepared within the child's first ritual 20 days, or Ee'px xëëw, and upon eating it, the newborn becomes a person (Castillo Cisneros 2014). The tamale for Ee'px xëëw is known as *tsujxk moojk mi'iky* (green maize tamale) because the ground maize is raw (non-nixtamalized) in order to maintain its living character. It is wrapped in a leaf of *hoja santa* (*Piper auritum*) and has a dry, fluffy texture.

TEJATE IN MESOAMERICA AND OAXACA

The maize and cacao beverage *tejate* is considered emblematic of Central Valleys Zapotec culture (González Esperón 2006). Documenting ancient maize and cacao preparations such as *tejate* in Mesoamerica requires evidence for the presence of both ingredients. The presence of maize in the archaeological record is ascertained using cross-body (leaf) or rondel (cob) phytoliths (Piperno et al. 2009) or starch grains diagnostic of the plant (Pearsall 2015). These indicators are found in the region beginning nearly as early as 7000 BCE. Methylxanthines (markers for *Theobroma* spp.) in residues from vessels of different forms across time periods have been used as an indication of cacao in Mesoamerican food and beverages (Hurst 2006). Methylxanthines were used to detect cacao in vessel residues in the northwestern Amazon (Zarrillo et al. 2018). The addition of ancient DNA and especially starch grains diagnostic of cacao seeds in that study starts to provide a more thorough understanding of the history of cacao consumption and preparation, including evidence of cacao seeds in residues from vessels there dating to ca. 3300 BCE (Zarrillo et al. 2018). Thus an alcoholic beverage made from fermented cacao pulp can no longer be hypothesized as the only form of cacao consumption in the Amazon region (Henderson et al. 2007). Whether the frothed, foam-topped maize- and cacao-seed beverages were a Mesoamerican innovation remains to be determined.

Identifying the presence of a particular foamed beverage recipe is challenging and has rarely been investigated. Tests of residues from the interiors of eight vessels of the Postclassic period in the Central Valleys of Oaxaca found both maize phytoliths and methylxanthines characteristic of *T. cacao* in two of those vessels (Soleri et al. 2013). This is a necessary first step but is insufficient to confirm the preparation of *tejate* specifically, because thus far diagnostic phytoliths or other markers for *rosita de cacao* and *pixtle* have not been identified.

Foam-topped cacao beverages have long been culturally and socially significant in Mesoamerica, as indicated, for example, by archaeological and historical evidence of their association with ceremonies marking major life transitions (Henderson and Joyce 2006). Some archaeologists speculate that the performative aspect of preparing these beverages—that is, pouring one

liquid into another from a height to produce foam—would have made them especially valuable for display rituals incurring social debt (Henderson and Joyce 2006). Today, residents of the Central Valleys use *tejate* for cultural, healing, and celebratory purposes (González Esperón 2006), similar to the use of other drinks based on maize elsewhere, such as the sacred red *tepache* containing maize, cacao, and achiote (*Bixa orellana*) that forms part of current ritual ceremonies among the Mixes (Castillo Cisneros 2014).

Beverages similar to *tejate* are also appreciated for their cultural significance and for providing satiety as well as hydration, even among youths who value the modernity implied by drinking sodas. This was found among school children in Chiapas (Jenatton and Morales 2019) in reference to *pozol*, made from fermented, lime-nixtamalized maize masa and sometimes including cacao (Wacher et al. 2000).

TEJATE IN SAN BARTOLOMÉ QUIALANA

In 2007, two of us, Daniela Soleri and María del Carmen Castillo Cisneros, interviewed a random sample of 25 households about *tejate* in the Central Valleys community of San Bartolomé Quialana. In the Central Valleys, *tejate* is associated with work in the maize fields, especially the strenuous physical labor of field preparation and harvest (Soleri et al. 2008). The beverage is also considered an important part of some celebrations and Christian festivities, including quinceañeras, baptisms, and Easter events (González Esperón 2006). While *tejate* is used for both work and celebration in San Bartolomé Quialana, over 95% of the households we interviewed chose to describe the beverage as a regular part of their normal diet and not primarily associated with fieldwork or festivities. For many households, *tejate* is a significant form of maize consumption (see table 14.1), with a mean of 1.4 kg of maize used two or more times a week to prepare *tejate* for household consumption. In addition to cash, *tejate* is also an expected part of the payments made to day laborers (*mozos*) hired for fieldwork. *Tejate* preparation for *mozos* had a mean annual occurrence of nearly seven times per household, using 4.5 kg of maize each time.

Diets in San Bartolomé Quialana are highly reliant on maize, with a mean annual consumption of 213 kg per person, or 109% of the estimated statewide mean of 196 kg per person (Flavio Aragón Cuevas, field notes, 2020). *Tejate* preparation for family consumption in San Bartolomé Quialana comprises approximately 17% of a household's total direct home maize consumption, not including maize used to make *tejate* for *mozos*, maize fed to household animals, or maize consumed in purchased tortillas. This rises to 19% when including maize used by the household to prepare *tejate* for *mozos*.

Interviewees in San Bartolomé Quialana report a household mean

TABLE 14.1. Maize and *tejate* consumption per household (*n* = 25) in San Bartolomé Quialana, based on 2007 interview responses

Household maize and *tejate* consumption[a]	Mean	Standard deviation	Minimum	Maximum
Number of maize varieties grown, per household[b]	1.4	0.6	0	3
Annual direct human maize consumption (kg), per person[b,c]	213.4	129.3	0	487
Annual direct human maize consumption (kg), per household[b]	1102.3	512.1	0	2190
Annual maize use (kg) for *tejate* for household members, per person	28.9	21.0	0.9	104
Annual maize use (kg) for *tejate* for household members, per household	148.0	88.1	6.5	365
Annual maize use (kg) for *tejate* for *mozos*, per household	18.6	8.9	4.0	36
Total annual household maize use (kg) for *tejate* (household members and *mozos*)	181.1	102.5	22.5	381
Percent of annual direct human maize consumption used for *tejate*, per household	17.4%	14.3%	0.4%	57.0%
Annual frequency of consumption of *tejate* made at home, per household[d]	124.1	96.0	0	365
Annual frequency of consumption of *tejate* made outside the home, per household[d]	82.4	37.4	6.5	104
Estimate of annual frequency with which parents consumed *tejate*[e]	166.4	31.8	104.0	182

[a] Maize consumption does not include maize used for feeding animals or for supplying *mozos*, unless otherwise indicated. Maize consumption also does not include purchased maize tortillas.
[b] One household grows no maize, instead purchasing grain locally; a different small, professional (a teacher, a driver) household reported zero direct maize consumption; instead they plant maize, sell it at harvest, and purchase tortillas.
[c] Per-person consumption calculated with children (15 years old or younger) as 73% adult male equivalency, after Coates et al. 2017.
[d] Question asked in frequency categories using the following responses: >1×/week = 1, <1×/week and >1×/month = 2, <1×/month and >1×/year = 3, ~1×/year = 4, never = 5. These were then conservatively approximated as the following number of times annually: 1 = 104, 2 = 24, 3 = 6.5, 4 = 1, 5 = 0.
[e] We assume that this was home-prepared, since organized commercial *tejate* sales only started in 2010 in San Bartolomé Quialana.

FIGURE 14.3. Lucilia Martínez prepares individual servings of *tejate* by pouring water from a height to mix with the masa and create a surface foam. (Photograph © Daniela Soleri; used with permission of subject and photographer.)

tejate consumption frequency of nearly 212 times annually, including both home-prepared (see figs. 14.3 and 14.4) and purchased *tejate*. The beverage is usually purchased at local markets or on the street, in either San Bartolomé Quialana or the adjacent town of Tlacolula de Matamoros, from *tejateras*, women who prepare *tejate* at home for commercial sale. Formal sales of *tejate* in San Bartolomé Quialana started in 2010, with some women occasionally and then weekly making and selling *tejate* to raise money for the town's Catholic church (Lucilia Martínez, local farmer and *tejate* maker, personal communication, September 2020). More recently, and unassociated with the church, the town's *tejateras* are selling *tejate* in the community nearly daily. Many households interviewed stated that their parents had consumed *tejate* prepared at home more frequently than they do today, and today's higher mean consumption frequency appears to be the result of commercially available *tejate*, although this varies between households.

Most maize varieties grown in San Bartolomé Quialana belong to the Bolita race (see fig. 14.5) (Aragón Cuevas et al. 2006:135–136) and are distinguished primarily by color. Sixteen households said they make *tejate* only with local white maize (*blanco criollo*), while nine households said they used local yellow (*amarillo criollo*) as well as local white. No one in the town reported using black (*negrito criollo*) or *belatove*, a small-cobbed maize named

FIGURE 14.4. Teresita Sánchez Hernández serving *tejate* in San Bartolomé Quialana, Oaxaca. (Photograph © Daniela Soleri; used with permission of subject and photographer.)

FIGURE 14.5. Lucilia Martínez sorts her harvest of the Bolita race of *maíz criollo*. The white and yellow varieties of Bolita are used for *tejate*, among other foods. (Photograph © Daniela Soleri; used with permission of subject and photographer.)

TABLE 14.2. Household (n = 25) *tejate* preparation and migration characteristics in San Bartolomé Quialana, based on 2007 interview responses

Household characteristic	Percent of households	Number of households
Never make *tejate*	4%	1
Make *tejate* two or more times per week	88%	22
Do not grow any maize	4%	1
Use CONASUPO (non-*criollo*) maize for *tejate*	4%	1
State that *tejate* can be made with CONASUPO maize	20%	5
Have migrants living and working elsewhere	88%	22

Note: The same household that did not grow any maize also used CONASUPO maize to make *tejate*.

for the agave red worm (*Comadia redtenbacheri*), which has a color similar to that of *belatove* kernels.

Industrial white hybrid maize is the type commonly available from the government distributor, which until 1999 was CONASUPO (Compañía Nacional de Subsistencias Populares); SEGALMEX (Seguridad Alimentaria Mexicana) currently serves that function. Still, in some rural communities, including San Bartolomé Quialana, the industrial white maize available through CONASUPO's successors continues to be referred to as CONASUPO maize (Daniela Soleri, field notes, 2007). Only one household in our sample reported making *tejate* and tortillas with CONASUPO maize; that household was not currently growing maize, although they had grown *blanco criollo* in the past (see table 14.2). When we asked other households in the town if *tejate* can be made with CONASUPO maize, 20% said it was possible. However, all commented that compared to using *criollo* maize, with CONASUPO maize the flavor or quality of the beverage would not be as good, and some indicated that the amount of *tejate* produced for the same volume of maize would not be as large.

One respondent noted that CONASUPO maize contains many broken grains, affecting the flavor of *tejate*, probably because grain damage can encourage fungi that produce mycotoxins or can lead to rancidity when oils in the germ are exposed to oxygen. Six households (24% of the sample) said CONASUPO maize could be used for tortillas but not for *tejate*. As one respondent stated, "We use the CONASUPO maize for tortillas, and save the *criollo* for *tejate*." These responses support our previous finding that as part of traditional Zapotec cuisine in the Central Valleys, *tejate* may be more important for maintaining local maize varieties than maize-based staples such as tortillas or *tlayudas*, for which people are sometimes willing to use industrial maize if necessary (Soleri et al. 2008).

Despite regular *tejate* consumption and the beverage's cultural and social importance, however, all households noted that today they are also substituting other beverages for *tejate* in day-to-day use, with sugar-sweetened soda being the most frequently reported substitute (72% of households). Samples of *tejate* from San Bartolomé Quialana provide 18% of daily protein and 5% of daily fat requirements based on the US Dietary Reference Intakes (IOM 2006:1344), as well as some mineral nutrients, in a standard serving size (355 g) (based on Sotelo et al. 2012), compared with Mexican Coca-Cola, which has no protein or fat and no minerals aside from sodium (see Soleri et al. 2023). Therefore replacing *tejate* with soda is part of an unhealthy dietary transition to more high-energy, low-nutrient foods.

In many ways *tejate* is clearly a meaningful part of local cuisine in the community of San Bartolomé Quialana. But the geographic extent of that community, and many others in Oaxaca, has expanded through labor migration. All but three of the households we interviewed had migrants living and working in the United States (see table 14.2), with a mean of 1.82 migrants per household among those with migrants. For the majority of the households sending labor migrants (20 out of 22 households), the destination of those migrants was the greater Los Angeles metropolitan area of Southern California, part of the larger region and transborder processes (Stephen 2007) that Zapotecs and other Indigenous Oaxacans inhabit, sometimes referred to as Oaxacalifornia (Kearney 1995). In the following section, we examine the presence of *tejate* in the extended Central Valleys community in the greater Los Angeles region of Oaxacalifornia.

TEJATE IN OAXACALIFORNIA

Tejate owes its origin to human migration and trade that brought together, in the Central Valleys of Oaxaca, cacao from the Amazon region, maize from the Balsas River Valley (Piperno, et al. 2009), and *pixtle* (Martínez-Castillo et al. 2019) and *rosita de cacao* (Cervantes Servin 1999) from what is now southern Mexico. Given its cultural significance and presence in the life of Central Valleys Zapotec communities such as San Bartolomé Quialana, it is not surprising that *tejate* would eventually be found in their diasporic communities in California.

Although there are few data, there is general agreement that the Zapotec population of the greater Los Angeles region is substantial and has been growing, especially since the 1980s. One estimate suggests that in the early 2000s, the Zapotec population there was approximately 200,000 (Takash et al. 2005). Evidence of the Oaxacan presence in Los Angeles includes organizing by Mixtec, Zapotec, and other Oaxacan workers to form the Binational Front of Indigenous Organizations in 1991 to support those communities and protect their human rights (Rivera-Salgado 2015); the establishment of

transnational newspapers, including *El Oaxaqueño* (1999–2010) and *Impulso* (2004–present) (Rivera-Salgado 2015); a rapidly growing number of Central Valleys Zapotec Oaxacan restaurants; annual celebrations of the traditional Oaxacan Guelaguetza festival; a Oaxacan heritage month, including events such as an Indigenous literature conference; and, since 2008, an annual Feria del Tejate in West Los Angeles organized by Grupo Folklórico Guish-Bac, including a *tejate* competition.

In 2007, two of us, Daniela Soleri and David A. Cleveland, visited a *tejatera* from San Bartolomé Quialana in Southern California, who was preparing *tejate* masa weekly and selling it from her home to members of the Oaxacan Central Valleys community (Soleri et al. 2008). The ingredients for the *masa de pixtle* were sent by her family via courier service from Oaxaca. She purchased the white maize from the local feedstore, where it was packaged and sold as bird seed, and she nixtamalized it using wood ashes from a nearby roasted chicken fast-food restaurant. Despite the value placed on local maize varieties for *tejate* among those we interviewed in San Bartolomé Quialana, the impracticality of importing Oaxacan maize led the *tejatera* to improvise, using an affordable, locally available alternative (see pathway C, fig. 14.2) to re-create *tejate*, adhering to the traditional recipe from her home community.

The substitution of industrial maize for Oaxacan *criollo* maize varieties when preparing *tejate* mirrors similar processes documented elsewhere that arise from pressures of time and money. For example, in the state of Michoacán, small-scale urban tortilla makers valued for their artisanal products reported using industrialized maize flour (Maseca), and even some small *tortillerias* in rural areas use up to 50% Maseca in their masa (Arnés and Astier 2019).

Today, *tejate* and its ingredients are becoming increasingly visible outside of the Central Valleys of Oaxaca. At least three brands of powdered, instant *tejate* mix made in Oaxaca are available in both Mexico and the United States, including "diabetic" versions without sugar (Mercado Libre 2023). In 2008, we were told by the first manufacturer of an instant *tejate* mix that they used *criollo blanco* maize from Oaxaca, but we have not been able to confirm what maize is used in 2023. Freshly made *tejate* is now available in Mexico City, and dried *rosita de cacao* flowers have entered "modern Mexican gastronomy," including being used "in mixed drinks or desserts, as a homage that haute cuisine restaurants pay to the Ancestors" (Mulík and Ozuna 2020).

The visibility of *tejate* is also increasing in the greater Los Angeles area, as members of the Central Valleys diaspora focus on serving their community in Southern California. In 2020, despite the cancellation of the Feria del Tejate because of the COVID-19 pandemic (see fig. 14.6), at least 10 *tejateras* announced the availability of their *tejate* for direct sale from their homes or other locations, and most of these producers also advertise via dedicated Facebook pages. In addition to direct sales from *tejateras*, *tejate* is currently

FIGURE 14.6. Representatives of the Grupo Folklórico Guish-Bac announce the cancellation of the annual Feria del Tejate in September 2020 due to the COVID-19 pandemic and thank past participants. (Grupo Folklórico Guish-Bac Facebook page; used with permission.)

available most days from at least one Oaxacan grocer in Los Angeles, El Corredor Oaxaqueño Market. In contrast to assumptions about modernization and characteristics of the nutrition transition documented in Mexican populations in California, there is now anecdotal evidence that young adults of Oaxacan heritage in Los Angeles are showing interest in *tejate* and its cultural significance (Rivera 2019), as are Los Angeles residents of different cultures.

The popularity of Oaxacan cuisine has spread well beyond the diasporic community. In Southern California, Oaxacan cuisine is dominated by Central Valleys Zapotec foods, including *tlayudas* (Bill Esparza, personal communication, July 2020). In 2015, Guelaguetza, a Central Valleys Zapotec restaurant founded in Los Angeles in 1994, won a prestigious Classics Award from the James Beard Foundation (JBF 2015), and Bill Esparza (2017, 2018) has written two brief articles about *tejate* for the popular online food publication *Eater Los Angeles*.

Like the people of the Central Valleys of Oaxaca and their *tejate*, the local maize varieties typically used for making *tejate* are now also moving north to the United States and beyond, along established and new routes to California and elsewhere. As previously described, gardeners have created informal pathways, carrying seeds of favored crop varieties, including Mexican maize, to California for cultivation and home use, mostly at the garden scale. El Corredor Oaxaqueño sells supplies for making *masa de pixtle* as well as maize purchased from a Mexican dry-goods stand in downtown Los Angeles that purports to sell "Mexican maize," something neither we nor the

store could confirm; however, Flavio Aragón Cuevas ascertained that it is not Bolita maize. El Corredor Oaxaqueño has experimented with importing small amounts of *criollo* maize from Oaxaca but found it challenging because of pest problems and costs. To date we have found no other evidence of Bolita or any other maize from the Central Valleys of Oaxaca being brought to California specifically for use by the diasporic Zapotec community for *tejate* or other traditional foods.

Recently, small-scale importers seeking to develop responsible commerce models have started working directly with Mexican small-scale farmers to sell "heirloom" maize to restauranteurs, *tortillerias*, and some retail buyers in the United States, Canada, and Europe. Masienda, started in 2014 and based in both the United States and Mexico, has exported varying amounts of maize annually from Mexico; for example, 133 t from December 2018 to March 2019, and 631 t from December 2019 to March 2020 (Masienda 2020). Tamoa, formally started in 2017 and based in Mexico City, also purchases directly from small farmers in Oaxaca and elsewhere in Mexico and sells about 100 t annually to commercial customers in Mexico, the United States, and Europe (Francisco Musi, cofounder of Tamoa, personal communication, 29 July 2020). Both Masienda and Tamoa export Bolita maize varieties from Oaxaca to California and elsewhere, and together their maize exports have been used for a great diversity of foods, both traditional Mexican and others; however, we have not found evidence of the use of this maize for *tejate* in California or elsewhere.

CONCLUSION

The demand for quality and novelty among middle- and upper-class urban populations has led to the production of some traditional foods for their consumption, made with traditional ingredients. Simultaneously, the people who have stewarded these traditional foods and ingredients, including specific recipes and the crop varieties created by their ancestors, are increasingly pressured to turn to lower-quality, industrial alternatives for reasons of time, availability, and cost. The interest of materially better-off consumers in eating local and traditional foods that are being obliterated by modernization from the diets of less well-off individuals has been labeled "food gentrification" (Kendall 2014). Food gentrification is occurring in Mexico, as noted by the historian Jeffrey Pilcher, who wrote that "as ordinary Mexicans came to depend on commodity maize for their daily meals, the elite claimed social distinction by consuming handmade tortillas, after having spurned the indigenous grain for hundreds of years" (2016:9).

While the global food market is increasingly oriented toward elite demands for quality, Mexican government policy has encouraged the large-scale production of industrial maize varieties and cash payment programs

targeted at small-scale farmers, which encourage consumption of purchased, industrial maize, even though these farmers value the quality of tortillas made from traditional varieties (Appendini and Quijada 2016:451). Farmers may value their traditional varieties so much that they maintain them even as they reduce the total area they plant in maize because of deteriorating growing conditions (Orozco-Ramírez and Astier 2017). Yet, in some locations, purchased tortillas may be more costly, despite being lower quality, than ones made by households from their homegrown maize (Appendini and Quijada 2016:451). Thus, farm households navigate the demands of both food security and food quality based on their local circumstances.

Outside of Mexico, tortillas and other Mexican foods are widely consumed, but for the most part the foods have not been accompanied by their associated crop varieties (see pathway C, fig. 14.2). As Oaxacan cuisine is gentrified, however, specific foods with their associated crop diversity and recipes are moving into new locations, as the relatively wealthy consumers in the United States begin to explore and demand them. Many of these foods were originally introduced by immigrant workers from Mexico who longed for the foods and flavors of their homes. *Tejate*, a member of a family of ancient Mesoamerican maize and cacao beverages, is a recent example, brought to the United States by Zapotec migrants from the Central Valleys of Oaxaca. In greater Los Angeles, *tejate* is increasingly available, with multiple *tejateras* advertising to their community, the annual Feria del Tejate, and both *tejate* and *masa de pixtle* ingredients sold by El Corredor Oaxaqueño Market. This growing presence, created by and for the Central Valleys diaspora community, is a form of selective resistance to the assumptions of modernization. Using the example of the annual Guelaguetza celebration, Luis Escala Rabadán and Gaspar Rivera-Salgado (2018) describe how the recreation of Central Valleys foods, festivals, and other practices by migrants living in Los Angeles also serves to build social capital that supports success in their new home.

As we have described, households in San Bartolomé Quialana are discerning about the maize used for their *tejate*, even more so than for the staple tortillas and *tlayudas*. In Los Angeles, members of the Central Valleys community prepare, sell, and consume *tejate* made with locally available maize. Some of these individuals comment that the *tejate* is not as good as the beverage made with *criollo* maize in their communities in Oaxaca but add that it is "better than nothing!"

In the process of movement to the United States, the association between *tejate*, its cultural significance, and local maize was initially broken, but slowly the people, the *tejate*, and maybe even the maize originally used in its preparation are becoming established in this new location, and they may perhaps reunite, and so extend that association in both space and time in their new home (see pathway A, fig. 14.2). Whether this resistance to the expectations of conventional modernization can overcome the socioeconomic forces

arrayed against them in this new place remains to be seen. Ultimately, if *tejate*, and the maize traditionally associated with it, survives, it will not be because of food gentrification but rather because of the dedication and love of the farmers, the *tejateras*, and their communities. They have stewarded that beverage and maize for generations and are carrying them into new locations, and into the future, as they seek to remember some of the "beautiful things" from the countryside they left behind, as did Tacha and the man she moved to tears with her *rancherita*.

REFERENCES

Apodaca, Anacleto
1952 Corn and Custom: The Introduction of Hybrid Corn to Spanish American Farmers in New Mexico. In *Human Problems in Technological Change: A Casebook*, edited by E. H. Spicer, pp. 35–39. John Wiley and Sons, New York.

Appendini, Kirsten, and Ma Guadalupe Quijada
2016 Consumption Strategies in Mexican Rural Households: Pursuing Food Security with Quality. *Agriculture and Human Values* 33(2):439–454.

Aragón Cuevas, Flavio, Suketoshi Taba, Juan Manuel Hernández-Casillas, Juan de Dios Figueroa Cárdenas, Victor Serrano Altamirano, and Fulgencio Humberto Castro García
2006 *Catálogo de maíces criollos de Oaxaca*. Libro Técnico No. 6. INIFAP-SAGARPA, Oaxaca City, Mexico.

Arnés, Esperanza, and Marta Astier
2019 Handmade Comal Tortillas in Michoacán: Traditional Practices along the Rural Urban Gradient. *International Journal of Environmental Research and Public Health* 16(17):3211.

Bartley, Basil G. D.
2005 *The Genetic Diversity of Cacao and Its Utilization*. CABI, Wallingford, United Kingdom.

Berman, Mary Jane, and Deborah M. Pearsall
2008 At the Crossroads: Starch Grain and Phytolith Analyses in Lucayan Prehistory. *Latin American Antiquity* 19(2):181–203.

Boué, Céline, Santiago López Ridaura, Luis M. Rodríguez Sánchez, Jon Hellin, and Mariela Fuentes Ponce
2018 Local Dynamics of Native Maize Value Chains in a Peri-urban Zone in Mexico: The Case of San Juan Atzacualoya in the State of Mexico. *Journal of Rural Studies* 64:28–38.

Castillo Cisneros, María del Carmen
2014 Kojpk Pääjtïn: El encuentro con la raíz; Una etnografía ayuujk. PhD dissertation, Department of Social Anthropology, Universitat de Barcelona.

Cervantes Servin, Luis Manuel
1999 Estudio etnobotánico, histórico, de manejo y explotación de "rosita de cacao" *Quararibea funebris* (La Llave) Vischer, Bombacaceae, en los valles centrales de Oaxaca. Master's thesis, UNAM, Mexico City.

Clark, Sarah E., Corinna Hawkes, Sophia M. E. Murphy, Karen A. Hansen-Kuhn, and David Wallinga
2012 Exporting Obesity: US Farm and Trade Policy and the Transformation of the Mexican Consumer Food Environment. *International Journal of Occupational and Environmental Health* 18(1):53–64.

Coates, Jennifer, Beatrice Lorge Rogers, Alexander Blau, Jacqueline Lauer, and Alemzewed Roba
2017 Filling a Dietary Data Gap? Validation of the Adult Male Equivalent Method of Estimating Individual Nutrient Intakes from Household-Level Data in Ethiopia and Bangladesh. *Food Policy* 72:27–42.

Cornejo, Omar E., Muh-Ching Yee, Victor Dominguez, Mary Andrews, Alexandra Sockell, Erika Strandberg, Donald Livingstone, Conrad Stack, Alberto Romero, and Pathmanathan Umaharan
2018 Population Genomic Analyses of the Chocolate Tree, *Theobroma cacao* L., Provide Insights into Its Domestication Process. *Communications Biology* 1(1):1–12.

Crosby, Alfred W.
2003 *The Columbian Exchange: Biological and Cultural Consequences of 1492*. Praeger, Westport, Connecticut.

Echeverría, María Esther, and Luz Elena Arroyo
2000 *Recetario del maíz*. Cocina Indígena y Popular No. 10. CONACULTA, Mexico City.

Escala Rabadán, Luis, and Gaspar Rivera-Salgado
2018 Festivals, Oaxacan Immigrant Communities and Cultural Spaces between Mexico and the United States: The Guelaguetzas in California. *Migraciones Internacionales* 9(3):37–65.

Esparza, Bill
2017 Taste History with Tejate, an Ancient, Pre-Hispanic Street Drink. *Eater Los Angeles*, May 3. https://la.eater.com/2017/5/3/15353854/taste-history-with-tejate-an-ancient-pre-hispanic-street-drink.
2018 Tejate: The Most Magical Drink in Oaxaca. *Eater Los Angeles*, February 15. https://la.eater.com/2018/2/15/16997654/tejate-oaxacan-beverage-los-angeles.

Esteva, Gustavo, and Catherine Marielle (editors)
2003 *Sin maíz no hay país*. CONACULTA, Dirección General de Culturas Populares e Indígenas, Mexico City.

Fernández Suárez, Rocío, Luis A. Morales Chávez, and Amanda Gálvez Mariscal
2013 Importancia de los maíces nativos de México en la dieta nacional: Una revisión indispensable. *Revista Fitotecnia Mexicana* 36:275–283.

González, Humberto, and Alejandro Macías
2017 Agrifood Vulnerability and Neoliberal Economic Policies in Mexico. *Review of Agrarian Studies* 7(1). http://ras.org.in/c69a5f552271d0c346a3c5e154ea5ae4.

González Esperón, Luz María
2006 *El tejate: Una bebida prehispánica*. Secretaría de Cultura del Estado de Oaxaca, Oaxaca City, Mexico.

Hawkes, Corinna (editor)
2007 Globalization, Food and Nutrition Transitions. WHO Commission on Social Determinants of Health, Globalization and Health Knowledge Network, Institute of Population Health, University of Ottawa, Ottawa, Ontario. https://qmplus.qmul.ac.uk/pluginfile.php/153824/mod_book/chapter/3026/CSDH_Hawkes.pdf.

Henderson, John S., and Rosemary A. Joyce
2006 Brewing Distinction: The Development of Cacao Beverages in Formative Mesoamerica. In *Chocolate in Mesoamerica: A Cultural History of Cacao*, edited by Cameron L. McNeil, pp. 140–153. University Press of Florida, Gainesville.

Henderson, John S., Rosemary A. Joyce, Gretchen R. Hall, W. Jeffrey Hurst, and Patrick E. McGovern
2007 Chemical and Archaeological Evidence for the Earliest Cacao Beverages. *Proceedings of the National Academy of Sciences* 104(48):18937–18940.

Heraty, Joanne M., and Norman C. Ellstrand
2016 Maize Germplasm Conservation in Southern California's Urban Gardens: Introduced Diversity beyond Ex Situ and In Situ Management. *Economic Botany* 70(1):37–48.

Hernández Xolocotzi, Efraím
1985 Maize and Man in the Greater Southwest. *Economic Botany* 39:416–430.

Hurst, W. Jeffrey
2006 The Determination of Cacao in Samples of Archeological Interest. In *Chocolate in Mesoamerica: A Cultural History of Cacao*, edited by Cameron L. McNeil, pp. 105–113. University Press of Florida, Gainesville.

IOM (Institute of Medicine)
2006 *Dietary Reference Intakes: The Essential Guide to Nutrient Requirements*. National Academies Press, Washington, DC. DOI:10.17226/11537.

JBF (James Beard Foundation)
2015 Classics: Guelaguetza. https://www.jamesbeard.org/blog/2015-americas-classics-guelaguetza.

Jenatton, Morgan, and Helda Morales
2019 Civilized Cola and Peasant Pozol: Young People's Social Representations of a Traditional Maize Beverage and Soft Drinks within Food Systems of Chiapas, Mexico. *Agroecology and Sustainable Food Systems* 44(8):1052–1088. DOI:10.1080/21683565.2019.1631935.

Jennings, Bruce H.
1988 *Foundations of International Agricultural Research*. Westview Press, Boulder, Colorado.

Katz, S. H., M. L. Hediger, and L. A. Valleroy
1974 Traditional Maize Processing Techniques in the New World. *Science* 184(4138):765–773.

Kearney, M.
1995 The Local and the Global: The Anthropology of Globalization and Transnationalism. *Annual Review of Anthropology* 24:547–565.

Keleman, Alder, Jon Hellin, and Dagoberto Flores
2013 Diverse Varieties and Diverse Markets: Scale-Related Maize "Profitability Crossover" in the Central Mexican Highlands. *Human Ecology* 41(10):683–705. DOI:10.1007/s10745-013-9566-z.

Kendall, Mikki
2014 #Breaking Black: 1 in 5 Children Face Food Insecurity. *The Grio*, January 24. https://thegrio.com/2014/01/20/breaking-black-1-in-5-children-face-food-insecurity/.

Mariani-Costantini, Renato, and Aldo Mariani-Costantini
2007 An Outline of the History of Pellagra in Italy. Journal of *Anthropological Sciences* 85:163–171.

Martínez-Castillo, Jaime, Nassib H. Blancarte-Jasso, Gabriel Chepe-Cruz, Noemí G. Nah-Chan, Matilde M. Ortiz-García, and Renee S. Arias
2019 Structure and Genetic Diversity in Wild and Cultivated Populations of Zapote Mamey (*Pouteria sapota*, Sapotaceae) from Southeastern Mexico: Its Putative Domestication Center. *Tree Genetics and Genomes* 15(4):61.

Masienda
2020 Masienda Sourcing Report 2019. https://masienda.com/wp-content/uploads/2020/01/sourcing-report_08_english.pdf.

Mercado Libre
2023 Tejate. https://listado.mercadolibre.com.mx/tejate.

Mulík, Stanislav, and César Ozuna
2020 Mexican Edible Flowers: Cultural Background, Traditional Culinary Uses, and

Potential Health Benefits. *International Journal of Gastronomy and Food Science* 21:100235.

Nadal, Alejandro, and Timothy A. Wise
2004 The Environmental Costs of Agricultural Trade Liberalization: Mexico-U.S. Maize Trade under NAFTA. Discussion Paper No. 4. Working Group on Development and Environment in the Americas, Tufts University, Medford, Massachusetts.

Orozco-Ramírez, Quetzalcóatl, and Marta Astier
2017 Socio-economic and Environmental Changes Related to Maize Richness in Mexico's Central Highlands. *Agriculture and Human Values* 34(2):377–391.

Pearsall, Deborah M.
2015 *Paleoethnobotany: A Handbook of Procedures*. Left Coast Press, Walnut Creek, California.

Pilcher, Jeffrey M.
2016 Taste, Smell, and Flavor in Mexico. In *Oxford Research Encyclopedia of Latin American History*. DOI:10.1093/acrefore/9780199366439.013.260.

Piperno, Dolores R., Anthony J. Ranere, Irene Holst, Jose Iriarte, and Ruth Dickau
2009 Starch Grain and Phytolith Evidence for Early Ninth Millennium B.P. Maize from the Central Balsas River Valley, Mexico. *Proceedings of the National Academy of Sciences* 106(13):5019–5024.

Rivera, Selene.
2019 El téjate, una bebida oaxaqueña que le apuesta no solo a "milenios" sino también a los anglosajones. *Los Angeles Times en Español*, August 29.

Rivera-Salgado, Gaspar
2015 From Hometown Clubs to Transnational Social Movement: The Evolution of Oaxacan Migrant Associations in California. *Social Justice* 42(3/4[142]):118–136.

Rubel, William
2010 Floriani Red Flint Corn: The Perfect Staple Crop. *Mother Earth News*, October 28. https://www.motherearthnews.com/real-food/floriani-red-flint-corn-staple-crop-zmaz10djzraw/

Santiago-Torres, Margarita, Mario Kratz, Johanna W. Lampe, Jean De Dieu Tapsoba, Kara L. Breymeyer, Lisa Levy, Adriana Villaseñor, Ching-Yun Wang, Xiaoling Song, and Marian L. Neuhouser
2015 Metabolic Responses to a Traditional Mexican Diet Compared with a Commonly Consumed US Diet in Women of Mexican Descent: A Randomized Crossover Feeding Trial. *American Journal of Clinical Nutrition* 103(2):366–374.

Satia, Jessie A.
2010 Dietary Acculturation and the Nutrition Transition: An Overview. *Applied Physiology, Nutrition, and Metabolism* 35(2)219–223. DOI:10.1139/H10-007.

Schumpeter, Joseph A.
1975 [1942] *Capitalism, Socialism and Democracy*. Harper Colophon Books, New York.

Soleri, Daniela, Flavio Aragón Cuevas, Humberto Castro García, David A. Cleveland, and Steven E. Smith
2022 The Household Context of In Situ Conservation in a Center of Crop Diversity: Self-Reported Practices and Perceptions of Maize and *Phaseolus* Bean Farmers in Oaxaca, Mexico. *Sustainability* 14(2):7148. DOI:10.3390/su14127148.

Soleri, Daniela, and David A. Cleveland
1993 Hopi Crop Diversity and Change. *Journal of Ethnobiology* 13:203–231.
2007 *Tejate*: *Theobroma cacao* and *T. bicolor* in a Traditional Beverage from Oaxaca, Mexico. *Food and Foodways* 15(1–2):107–118.

Soleri, Daniela, David A. Cleveland, and Flavio Aragón Cuevas
2008 Food Globalization and Local Diversity: The Case of *Tejate*, a Traditional Maize and Cacao Beverage from Oaxaca, Mexico. *Current Anthropology* 49(2):281–290.

Soleri, Daniela, David A. Cleveland, and Steven E. Smith
2019 *Food Gardens for a Changing World: A Resource for Growing Food for Healthy People, Communities, and Ecosystems*. CABI, Wallingford, United Kingdom.

Soleri, Daniela, David A. Cleveland, Flavio Aragón Cuevas, Violeta Jimenez, and May C. Wang
2023 Traditional Foods, Globalization, Migration, and Public and Planetary Health: The Case of Tejate, a Maize and Cacao Beverage in Oaxacalifornia. *Challenges* 14(9). DOI:10.3390/challe14010009.

Soleri, Daniela, Marcus Winter, Steven R. Bozarth, and W. Jeffrey Hurst
2013 Archaeological Residues and Recipes: Exploratory Testing for Evidence of Maize and Cacao Beverages in Postclassic Vessels from the Valley of Oaxaca, Mexico. *Latin American Antiquity* 24(3):345–362.

Sotelo, Angela, Daniela Soleri, Carmen Wacher, Argelia Sánchez-Chinchillas, and Rosa María Argote
2012 Chemical and Nutritional Composition of Tejate, a Traditional Maize and Cacao Beverage from the Central Valleys of Oaxaca, Mexico. *Plant Foods for Human Nutrition* 67(2):148–155.

Stephen, Lynn
2007 *Transborder Lives: Indigenous Oaxacans in Mexico, California and Oregon*. Duke University Press, Durham, North Carolina.

Stitzer, Michelle C., and Jeffrey Ross-Ibarra
2018 Maize Domestication and Gene Interaction. *New Phytologist* 220(2):395–408.

Swarts, K., R. M. Gutaker, B. Benz, M. Blake, R. Bukowski, J. Holland, M. Kruse-Peeples, et al.
2017 Genomic Estimation of Complex Traits Reveals Ancient Maize Adaptation to Temperate North America. *Science* 357(6350):512–515.

Takash, Paule Cruz, Raul Hinojosa-Ojeda, and David Runsten
2005 Investment of Remittances for Development in a Migratory Economy. UCLA North American Integration and Development Center, Los Angeles, California. https://raulhinojosa.files.wordpress.com/2010/03/c3_2005.pdf.

Tenaillon, Maud Irène, and Alain Charcosset
2011 A European Perspective on Maize History. *Comptes Rendus Biologies* 334(3):221–228.

Thomas, Evert, Maarten van Zonneveld, Judy Loo, Toby Hodgkin, Gea Galluzzi, and Jacob van Etten
2012 Present Spatial Diversity Patterns of *Theobroma cacao* L. in the Neotropics Reflect Genetic Differentiation in Pleistocene Refugia Followed by Human-Influenced Dispersal. *PLOS One* 7(10):e47676.

Tuxill, John, Luis Arias Reyes, Luis Latournerie Moreno, Vidal Cob Uicab, and Devra I. Jarvis
2010 All Maize Is Not Equal: Maize Variety Choices and Mayan Foodways in Rural Yucatan, Mexico. In *Pre-Columbian Foodways: Interdisciplinary Approaches to Food, Culture, and Markets in Ancient Mesoamerica*, edited by John Edward Staller and Michael Carrasco, pp. 467–486. Springer, New York.

UNESCO
2010 Traditional Mexican Cuisine—Ancestral, Ongoing Community Culture, the Michoacán Paradigm. UNESCO Intangible Heritage Nomination No. 00400. https://ich.unesco.org/en/RL/traditional-mexican-cuisine-ancestral-ongoing-community-culture-the-michoacn-paradigm-00400.

Van Hook, Jennifer, Susana Quirós, Molly Dondero, and Claire E. Altman
2018 Healthy Eating among Mexican Immigrants: Migration in Childhood and Time in the United States. *Journal of Health and Social Behavior* 59(3):391–410.

Wacher, Carmen, Ana Cañas, Eduardo Bárzana, Patricia Lappe, Miguel Ulloa, and J. David Owens
2000 Microbiology of Indian and Mestizo Pozol Fermentations. *Food Microbiology* 17:251–256.

Weil, Josh
2007 To Ethiopians in America, Bread Is a Taste of Home. *New York Times*, August 1.

Weisbrot, Mark, Stephan Lefebvre, and Joseph Sammut
2014 Did NAFTA Help Mexico? An Assessment after 20 Years. Center for Economic and Policy Research, Washington, DC.

Worthington, Margaret, Daniela Soleri, Flavio Aragón Cuevas, and Paul Gepts
2012 Genetic Composition and Spatial Distribution of Farmer-Managed *Phaseolus* Bean Plantings: An Example from a Village in Oaxaca, Mexico. *Crop Science* 52:1721–1735.

Young, Allen M.
1994 *The Chocolate Tree: A Natural History of Cacao*. Smithsonian Institution Press, Washington, DC.

Zahniser, Steven, Nicolás Fernando López López, Mesbah Motamed, Zully Y. Silva Vargas, and Thomas Capehart
2019 The Growing Corn Economies of Mexico and the United States. Feed Outlook No. FDS-19F-01. Economic Research Service, US Department of Agriculture, Washington, DC.

Zarrillo, Sonia, Nilesh Gaikwad, Claire Lanaud, Terry Powis, Christopher Viot, Isabelle Lesur, Olivier Fouet, et al.
2018 The Use and Domestication of *Theobroma cacao* during the Mid-Holocene in the Upper Amazon. *Nature Ecology and Evolution* 2(12):1879–1888.